Pontifícia Universidade Católica
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Understanding Accounting Discretion: The New Cross-Country Configuration Post-IFRS

Doctoral Dissertation

Thesis submitted to the Graduate Program in Business Management of the Department of Business and Management, PUC-Rio as partial fulfillment of the requirements for the degree of Doutor em Administração de Empresas.

Advisor: Prof. Marcelo Cabús Klötzle

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Abstract

Pimenta, Márcio Marvila; Klötzle, Marcelo Cabús (Advisor). **Understanding Accounting Discretion: The New Cross-Country Configuration Post-IFRS**. Rio de Janeiro, 2022. 158p. Ph.D. Dissertation – Departamento de Administração – Pontifícia Universidade Católica do Rio de Janeiro.

This dissertation consists of three independent articles, a unified introduction, a theoretical framework (in the same chapter of the first article), and a general discussion. In the first article, we review the growing literature on accounting discretion. Drawing from previous literature, we define accounting discretion as *the latitude allowed by accounting rules for accountants to exercise their judgments through a set of choices and accounting estimates, which directly influence a company's profits and losses*. First, applying a methodology of systematic mapping on the extant literature, we found evidence of four main streams of literature: 1) managerial discretion, 2) accounting choice, 3) earnings management, and 4) goodwill impairment. Each of these streams indicates possible opportunities for managers to exert discretion over accounting practices, shaping the quality of accounting reporting and, ultimately, shaping how financial markets react to accounting information. Drawing from an initial sample of more than 1,000 documents, we analyze and discuss in detail 69 articles, from which we identified factors related to accounting rules that potentially provide or restrict managerial opportunism, the economic incentives for firms to use accounting discretion, and mechanisms that potentially limit the misuse of discretion. The findings are relevant for practitioners, regulators, academic researchers, and corporate managers as they help understand the extant literature on the topic and potentially improve accounting practices. Finally, we suggest exciting avenues for future research. The second article extends this literature by constructing an index of accounting discretion (IAD) for listed firms and exploring, using a differences-in-differences and paired-samples model, how changes in the provision of accounting discretion affected earnings management in 43 countries during 2003-2007, when several countries adopted IFRS. The empirical results show that IAD variations are positively associated with accruals-based earnings management and negatively

related to real earnings management strategies. The third article aims to build a contemporary country-level accounting discretion index (ADI) that measures the level of accounting discretion that accounting rules allow for private companies in 35 countries. Although accounting regulations and rules provide an essential factor in managerial behavior in preparing financial reports, regulatory literature on accounting reports largely neglected the analysis of accounting discretion at the regulatory level (GAAP level). So, the contribution to the accounting literature was to build the ADI to investigate systematic differences in accounting discretion across countries. We validate the index internally (i.e., using Cronbach's alpha, Guttman's Lambda 4, and factor analysis) and externally (with country and company-level analyses) and demonstrate that it has significant cross-country variability. We contribute to the literature by providing an objective measure of accounting discretion across different countries. We argue that understanding country-level variability in accounting discretion is crucial to understanding overall managerial discretion at the firm level.

Keywords

Accounting Discretion; Managerial Discretion; Accounting Choice; Earnings Management; Accounting Rules.

Resumo

Pimenta, Márcio Marvila; Klötzle, Marcelo Cabús. **Compreendendo a Discrição Contábil: A Nova Configuração entre Países Pós-IFRS.** Rio de Janeiro, 2022. 158p. Tese de Doutorado – Departamento de Administração – Pontifícia Universidade Católica do Rio de Janeiro.

A dissertação é composta por três artigos independentes, uma introdução unificada, um referencial teórico (junto com nossa revisão sistemática) e uma discussão geral. No primeiro artigo, revisamos a crescente literatura sobre discricionariedade contábil. Com base na literatura anterior, definimos a discricionariedade contábil como *a latitude permitida pelas regras contábeis para que os contadores exerçam seus julgamentos por meio de um conjunto de escolhas e estimativas contábeis, que influenciam diretamente o resultado contábil de uma empresa*. Aplicando uma metodologia de mapeamento sistemático na literatura existente, encontramos evidências de quatro correntes principais de literatura: 1) discricionariedade gerencial, 2) escolha contábil, 3) gerenciamento de resultados e 4) impairment de goodwill. Cada um desses fluxos indica possíveis oportunidades para os gerentes exercerem poder discricionário sobre as práticas contábeis, moldando a qualidade dos relatórios contábeis e, em última análise, moldando como os mercados financeiros reagem às informações contábeis. A partir de uma amostra inicial de mais de 1.000 documentos, analisamos e discutimos detalhadamente 69 artigos, dos quais identificamos fatores relacionados às regras contábeis que potencialmente fornecem ou restringem o oportunismo gerencial, os incentivos econômicos para que as empresas usem a discrição contábil e os mecanismos que potencialmente limitam o uso indevido do poder discricionário. As descobertas são relevantes para profissionais, reguladores, pesquisadores acadêmicos e gerentes corporativos, pois ajudam a entender a literatura existente sobre o tema e potencialmente melhorar as práticas contábeis. Por fim, sugiro caminhos interessantes para pesquisas futuras. O segundo artigo estende essa literatura construindo um índice de discricionariedade contábil (IAD) para empresas listadas e explorando, usando um modelo de diferenças em diferenças e amostras pareadas, como mudanças no fornecimento de discricionariedade contábil afetaram o gerenciamento de resultados em 43 países durante 2003-2007, quando vários países

adotaram as IFRS. Os resultados empíricos mostram que as variações do IAD estão positivamente associadas ao gerenciamento de resultados por accruals e negativamente relacionadas às estratégias de gerenciamento de resultados reais. O terceiro artigo teve como objetivo construir um índice de discrição contábil em nível de país (ADI) contemporâneo que mede o nível de discricionariedade contábil que as regras contábeis permitem para empresas privadas em 35 países. Embora os regulamentos e regras contábeis forneçam um fator essencial no comportamento gerencial na preparação de relatórios financeiros, a literatura regulatória sobre relatórios contábeis negligenciou amplamente a análise da discricionariedade contábil no nível da regra (nível GAAP). Assim, a contribuição para a literatura contábil foi construir a ADI para investigar diferenças sistemáticas na discricionariedade contábil entre os países. Validamos o índice internamente (ou seja, usando alfa de Cronbach, Lambda 4 de Guttman e análise fatorial) e externamente (com análises em nível de país e empresa) e demonstramos que ele tem variabilidade significativa entre países. Por fim, contribuímos para a literatura fornecendo uma medida objetiva de discricionariedade contábil em diferentes países. Argumentamos que entender a variabilidade no nível de país na discricionariedade contábil é crucial para entender a discricionariedade gerencial geral no nível da empresa.

Palavras-chave

Discricionariedade Contábil; Discricionariedade Gerencial; Escolha Contábil; Gerenciamento de Resultados; Padrões Contábeis.

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1
Dissertation Introduction

Financial scandals like Lehman Brothers in 2008 and Toshiba in 2015 take us back to the debate about how much discretion managers should have, including over financial reporting. In general, regulatory agencies, for example, the Security Exchange Commission - SEC, respond to these scandals by restricting discretion associated with earnings management and possible fraud (Brown, 2015; Dechow & Skinner, 2000; Keune, Keune, & Quick, 2017; Leuz & Wysocki, 2016). However, the academic debate shows more tolerance for accounting discretion because the accounting rules allow managers to transmit their private information through financial reports (Dechow & Skinner, 2000; Leuz & Wysocki, 2016; Roychowdhury, Shroff, & Verdi, 2019).

For a better understanding of this theme, following Bowen, Rajgopal, and Venkatachalam (2008), in this dissertation, the definition of accounting discretion is *"the latitude allowed by accounting rules for managers to exercise their judgments through a set of choices and accounting estimates, which directly influence a company's profits and losses."* Given this definition, the evidence in the literature is mixed: while Christie & Zimmerman (1994), Subramanyam (1996), Bowen et al. (2008), and Tsalavoutas, Tsoligkas, and Evans (2020) argue that accounting discretion is used efficiently, which consequently increases company's value. In turn, Burgstahler and Chuk (2017); Frankel, Johnson, and Nelson (2002); Jeanjean and Stolowy (2008); and Menon and Williams (2004) argue that managers use accounting discretion opportunistically, reducing a company's value.

This debate has many antecedents going back at least to seminal works on Information Content of Earnings, such as Beaver (1968) and Ball and Brown (1968). These authors strove to provide evidence that accounting numbers affected the value of shares and, as a result, the company's value. Subsequently, the effort focused on how managers use financial reporting to affect companies' value through

informational asymmetry and better drafting efficient contract. (Bowen et al., 2008; Christie & Zimmerman, 1994; Holthausen, 1990; Watts & Zimmerman, 1990).

Also, an important part of the literature has focused on reporting incentives, which although accounting rules provide accounting discretion to companies (or managers), in practice, these rules cannot anticipate all future contingencies (Christensen, Nikolaev, & Wittenberg-Moerman, 2016; Christensen, Lee, & Walker, 2015; Leuz & Wysocki, 2016). Several complex and unprecedented contingencies can occur, in which case, a finite set of accounting standards needs to be interpreted.

So potentially, various determinants such as leverage, size, and CEO compensation plans (Watts & Zimmerman, 1986) provide incentives that shape how managers use the discretion allowed within the rules, and consequently the results of the reports (e.g., the earnings properties) (Burgstahler, Hail, & Leuz, 2006; Leuz, 2010a; Leuz & Wysocki, 2016; Watts & Zimmerman, 1990). Further, several studies have tested whether the quality of accounting information could affect the cost of capital (Beyer, Cohen, Lys, & Walther, 2010; Healy & Palepu, 2001), contracting efficiency (Armstrong, Guay, & Weber, 2010; Lambert, 2001), and the investment decision making (Dichev, Graham, Harvey, & Rajgopal, 2013; Roychowdhury et al., 2019).

However, although accounting regulations and rules provide an essential factor in managerial behavior in preparing financial reports, regulatory literature on accounting reports largely neglected the analysis of accounting discretion at the regulatory level (GAAP[1] level) – apart from a very simple accounting system or examining specific financial accounts in the financial statements (Cecchini, Jackson, & Liu, 2012; Leuz & Wysocki, 2016; Watts & Zimmerman, 1990). At best, the literature has analyzed the differences between local GAAPs and IFRS[2] about specific policy choices and disclosure policies (Bae, Hongping Tan, & Welker, 2008; Daske, Hail, Leuz, & Verdi, 2008; Tan, Wang, & Welker, 2011) or

[1] Generally Accepted Accounting Principles (GAAP) refer to all local accounting standards collectively. For all countries, GAAP is comprised of established concepts, objectives, standards, and conventions that have evolved over time to guide how financial statements are prepared and presented.

[2] International Financial Reporting Standards (IFRS) refers to a globally-accepted set of accounting and financial reporting guidelines for the financial statements of public or private companies that are intended to make them consistent, transparent, and easily comparable around the world. The IFRS are issued by the International Accounting Standards Board (IASB).

uses general accounting indexes that do not directly focus on accounting discretion (Basu, Hwang, & Jan, 1998; Hung, 2001).

Another critical issue in the accounting literature is the use of several ex-post variables as proxies for accounting discretion that reflects the earnings properties, such as persistence, (discretionary) accruals[3] magnitude, smoothness, timeliness, loss avoidance, among others, to characterize opportunistic or efficient behavior in the use of its accounting discretion (Bowen et al., 2008; W. Chen, Hribar, & Melessa, 2018; Dechow, Ge, & Schrand, 2010; Hribar, Mergenthaler, Roeschley, Young, & Zhao, 2021). However, the accounting discretion corresponds to an ex-ante limit on managerial discretion. So, the critical point in the accounting discretion literature is that empirical proxies are not strictly associated with accounting discretion (i.e., antecedents) but are related to the potential consequences of this discretion (i.e., outcomes).

Furthermore, the global shift to mandatory IFRS reporting, possibly the largest in accounting history, represents a profound shift in reporting regulation's "rules component" (Leuz & Wysocki, 2016). So, exploring transversal differences in the country standards is a challenging task that makes it almost impossible to analyze how specific properties of a unique set of accounting methods, e.g., IFRS, affect the observed results. One way to explore accounting discretion is to analyze countries where previous local GAAPs were more distant from IFRS and check the effects of adopting the new standards (Byard, Li, & Yu, 2011; Tan et al., 2011). Therefore, it is necessary to accurately understand the discretionary level of IFRS and the previous level of local rules to analyze the effect of accounting discretion on firms.

Furthermore, it is not clear how the IFRS standards are superior to other previous local standards (Leuz & Wysocki, 2016). Regulatory agencies likely constructed the local rules, providing an adjusted level of accounting discretion, to facilitate idiosyncratic business transactions that commonly arise in a country. In this way, pre-existing factors, which led previous accounting rules to be different

[3] Accruals are revenues earned or expenses incurred that impact a company's net income, although cash has not yet exchanged hands. It is an essential element of the theoretical basis of accounting. This mechanism allows a business to record expenses and revenues for which it expects to expend cash or receive cash, respectively, from diferent periods. The simplest way to calculate de total amount of accruals is by subtracting net income by operation cash flow, both reported on financial reports (Dechow & Dichev, 2002).

from IFRS, potentially directed managers to previous accounting practices, even under a new accounting regimen (Hail, Leuz, & Wysocki, 2010; Leuz, 2010; Leuz & Wysocki, 2016; Nobes, 2013; Watts & Zimmerman, 1986).

Therefore, exploring local rules can provide insights into the effects of a set of accounting rules, given the accounting discretion on financial reports. Thus, in addition to the classic capital market approach to financial reporting, it is necessary to consider other companies that are generally not required to adopt IFRS, such as private companies. Thus, an exciting way of research is to explore the cross-sectional differences between the local rules of different countries to understand the effect of standards, combined with the set of economic incentives and monitoring mechanisms faced by companies and managers on the wide variation in accounting practices (Hail et al., 2010; Leuz, 2010; Leuz & Wysocki, 2016; Nobes, 2013; Watts & Zimmerman, 1990).

In this dissertation, we used three strategies to analyze the effects of accounting discretion. First, we provide a unified framework by performing a systematic review to organize the empirical understanding of the effects of accounting discretion on accounting results (e.g., earnings properties). Second, we created the Index of Discretion Accounting (IAD), based on GAAP 2001: A Survey of National Accounting Standards Compared to International Accounting Standards (Nobes, 2001). Therefore, we analyzed the effects of variation in accounting discretion resulting from IFRS adoption on earnings quality to listed firms in a sample of 43 countries. Third, we developed an index that measures a country-level accounting discretion index (ADI), the contemporary level of managerial discretion allowed by accounting rules. The index comprises 14 elements that are aggregated into an overall measure. The proposed index is illustrated by applying it to private companies in a sample of 35 countries. Thus, this study can be seen as a methodological survey – offering a new methodology.

Given the above explanations, we have articulated this doctoral dissertation to answer the following research questions:

- How to synthesize research on the impact of accounting discretion on accounting outcomes?

- How do variations in accounting discretion affect earnings management strategies (i.e., AEM[4] and REM[5])?
- How to develop an objective measure of accounting discretion across different countries, which is a solid and reliable measure for private companies?

1.1. Objective

This doctoral dissertation aims to discuss and analyze the effects of accounting discretion on accounting outcomes (e.g., earnings management). It deals with the impact of accounting discretion considering various economic incentives companies and managers face. The effects of these incentives are restricted or amplified by determinants such as a country's legal institutions, the strength of the enforcement regime, capital market forces, a company's governance structure, among others. Also, we bring another perspective about accounting discretion through an integration of traditional economic and accounting perspectives (agency theory, managerial discretion, accounting discretion, accounting choice, and earnings management)

For this, the cornerstone of the scientific investigation used in this study is the discussion and creation of 2 indices on accounting discretion: the Index of Accounting Discretion (IAD) for listed firms (prior IFRS adoption) and the Accounting Discretion Index (ADI) for private firms (currently in force), which we measure as an ex-ante limit on managerial discretion allowed by accounting rules.

1.1.2. Specific Objectives

- List and analyze with an integrative perspective about the existing literature on accounting discretion through a systematic review.

[4] Accrual-based earnings management (AEM) activities aims to obscure true economic performance in the financial reports by changing accounting methods or estimates within the generally accepted accounting principles.

[5] Real earnings management (REM) activities alters the execution of real business transactions (i.e. employ real activities manipulation) to alter the reported accounting performance.

- Identify proxies in the accounting and financial reporting regulatory literature that can inform the current understanding of managers' behavior in the use of accounting discretion.
- Measure and provide the index of accounting discretion (IAD) and the Accounting Discretion Index (ADI).
- Examine whether the IAD and ADI can help explain the effects of accounting discretion on earnings quality.

1.2. Justification and Relevance

Prior literature evidence that there is no index of accounting discretion at a country level, measured as an ex-ante limit on managerial discretion. The primary motivation of this dissertation is to propose a sound and reliable measure of accounting discretion didn't focus on the accounting outcome but deal with the accounting rules as an ex-ante limit for listed and private firms.

Although the rules and regulations provide an essential factor for the accounting behavior of the preparers, empirical accounting research has largely neglected the regulation level (the GAAP system). Furthermore, the effects of providing or restricting accounting discretion to companies remain an unanswered question. Although there is extensive literature on the impact of managerial behavior, opportunistic or efficient, on the quality of accounting information, in general, the results are inconclusive (Bowen et al., 2008).

These studies claim that the properties of local norms are likely to be highly correlated with other institutional characteristics of the respective country (Leuz & Wysocki, 2016). However, the adoption of IFRS by more than 120 countries has brought a new global accounting configuration (IFRS, 2020). In this way, changes or issuance of standards resulting from the effort of international accounting harmonization brought advances in accounting, such as the use of fair value (e.g., market value) in accounting reports. So, the new accounting rules issued can potentially determine factors in accounting reports' properties (or quality). This characteristic stems from the fact that accounting regulators deliberately provide accounting discretion so that managers can transmit their private information but must disclose in footnotes the rationale for their accounting decisions.

In addition, judgments in preparing financial reports are likely to be motivated by opportunism, informational or efficiency behavior. In this case, it is necessary to analyze in the accounting literature how internal and external monitoring mechanisms interact or complement each other to shape economic incentives in the use of a given range of discretion (Bowen et al., 2008; Chen, Wang, & Zhao, 2009; Filip, Lobo, & Paugam, 2021; Hribar, Mergenthaler, Roeschley, Young, & Zhao, 2021; Leuz & Wysocki, 2016).

However, given the adoption of IFRS, some companies were exempted from the obligation to adopt international standards, leaving them to choose whether maintain local rules adoption. However, this fact led to different types of companies with varying regulations in adopting IFRS countries. This national heterogeneity of accounting discretion among listed and unlisted companies in terms of accounting rules can help us explore this variation's effect on reporting practices. While listing status (listed or unlisted) can have different reporting incentive effects, we explore different companies at two other times, analyzing the impact of IFRS adoption in 2005 for listed companies and using the year 2018 (the year of collection of the ADI) for private companies.

Also, we emphasize that private firms within the European Union[6] are obligated to prepare, submit and make public the financial statements if meeting a set of eligibility conditions. Other non-EU countries, such as Australia[7], New Zealand[8], and Switzerland[9], also require applying the accounting and financial reporting regulations to all companies regardless of their legal form for entities that meet specific criteria. In the case of the United States[10], while private companies are not required to disclose their financial information, they must provide quarterly tax estimates and an annual tax return to the Internal Revenue Service (IRS) that contains all financial information. Once the US firms disclose their financial

[6] https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/ financial-reporting. Accessed Jan. 16, 2022

[7] https://www.irs.gov/government-entities/federal-state-local-governments/disclosure-laws. Accessed Jan. 16, 2022.

[8] https://asic.gov.au/regulatory-resources/financial-reporting-and-audit/preparers-of-financial-reports/lodgement-of-financial-reports. Accessed Jan. 16, 2022

[9] https://companies-register.companiesoffice.govt.nz/help-centre/financial-reporting/who-needs-to-submit-financial -statements/ Accessed Jan. 16, 2022

[10] https://home.kpmg/ch/en/home/services/audit/accounting-rules-as-per-the-code-of-obligations. html. Accessed Jan. 16, 2022

information to the public, the regulatory agencies can monitor these financial reports if they are misleading.

In addition, Nobes (2006, 2013) identified that some countries that adopted IFRS persist with accounting practices of local rules. However, listed companies from countries that prior GAAP was more distant from IFRS are converging to IFRS accounting practices. In addition, there has been the same converging movement in updating local rules currently in force to some firms (e.g., private firms) in the last decade. Therefore, local standards may better reflect the changes in accounting practices than IFRS and could explain the accounting choices of listed and unlisted companies. So, we provide two indexes of accounting discretion that we hope will be useful in understanding the consequences of accounting discretion around the world for future research.

1.3. Organization of the Dissertation

To achieve the objectives, we divided them into three independent articles, a unified introduction, a theoretical framework (in the same chapter of the first article), and a general discussion into three chapters. The first article is a systematic review of accounting discretion literature. The second is an analysis of the effects of accounting discretion on the earnings quality and the trade-off effect on real and accrual management strategies in listed companies. In the third, we built the accounting discretion index for private companies and analyzed the impact on the earnings quality. Therefore, the following is a more detailed description of the content of each article.

The second chapter is divided into two subsections. First, we present the theoretical framework, and the second subsection contains the systematic review "What do we know about accounting discretion? A systematic review". So, this subsection provides an integrative perspective among four main themes surrounding the accounting discretion literature: managerial discretion, accounting choices, earnings management, and goodwill impairment. So, we provide evidence and discussion from 69 articles identified and classified into these four groups. Each of these streams indicates possible opportunities for managers to exert discretion

over accounting practices, shaping the quality of accounting reporting and, ultimately, shaping how financial markets react to accounting information.

The third chapter contains the empirical article " Do increases in accounting discretion affect earnings management? International evidence". This chapter investigates the following hypotheses:

- H1: There is a positive effect of the provision for accounting discretion on earnings management by accrual in countries that have adopted IFRS.
- H2: There is a trade-off between accrual-based and real earnings management strategies.

To assess the effects of accounting discretion, we created the index of accounting discretion (IAD). According to Bae et al. (2008), we relied on GAAP 2001: A Survey of National Accounting Standards Compared to International Accounting Standards (Nobes, 2001) to compose de IAD.

Thus, we scored each discretionary item, represented by overt and covert options, and calculated the country's level of the IAD before and after IFRS adoption. Consequently, the accounting discretion variation is zero for those countries that have not adopted IFRS.

At this stage, we look for the effects of the magnitude of accounting discretion variation in earnings management strategies. we analyzed whether, initially, the provision of accounting discretion affected the quality of accounting information and whether this affected short-sighted operational and investment decisions identified by real earnings management activities. The literature points to the trade-off between earnings management strategies, so we analyzed whether the variation in accounting discretion (dis)encourages myopic reporting activities, such as cuts in operating, marketing, and investment expenses such as capital expenditures (CAPEX) and Research and Development (R&D) as a form of substitution for other strategies less onerous, i.e., via accounting decisions (e.g. via accruals), to achieve their reporting objectives.

The fourth chapter is the following empirical and methodological article, "Understanding accounting discretion: A multi-country analysis and index." It investigates the following hypotheses:

- H1: Accounting discretion positively influences the quality of accounting information in private firms.

In this chapter, we explore an environment where agency friction between shareholders and managers is almost non-existent and no market pressures, which is the case for private (unlisted) companies. Generally, these companies are characterized by a concentrated ownership structure.

However, these companies continue to rely on external financing, and banks are the primary source of external funds. Also, we point to tax avoidance incentives that could drive the private firms accounting decisions. In addition, management bonuses can be based on earnings in private companies. So, factors predicted by the opportunistic approach of the Positive Accounting Theory (Watts & Zimmerman, 1986) can be applied to unlisted firms too, which gives incentives to managers to pursue their reporting objectives.

Thus, we built the accounting discretion index (ADI) based on local rules in effect from 35 countries that are made available for private companies. The initial sample comprises the 37 targeted countries from Leuz, Nanda, and Wysocki (2003). In this way, we explore the impact on the quality of accounting information arising from accounting discretion made available to a segment that does not have the same market incentives for transparency as listed companies (Burgstahler et al., 2006).

Finally, in the fifth chapter, we analyze and concatenate into a general discussion of the findings of the previous three chapters and visualize the theoretical and practical implications for regulators, practitioners, and academics. Later, we provide an essential avenue for future studies.

2
What do We Know about Accounting Discretion?

2.1.
Prior Accounting Discretion Literature

2.1.1.
Theories of Economic Consequence on Accounting Choices

The economic consequences on the accounting choices debate have many antecedents going back to seminally works on the information content of earnings, such as Beaver (1968) and Ball and Brown (1968). The authors strove to provide evidence that accounting numbers affect the value of shares and, consequently, the value of companies.

Subsequently, the literature focused on whether and how voluntary and mandatory choices of accounting techniques and standards affect the company's value (Holthausen & Leftwich, 1983). So, prior works on accounting literature focus on the theories of economic consequence and the no-effects theory of accounting choice. The first theory states that voluntary or mandatory accounting choices alter the company's parties' wealth or the distribution of firms' cash flows. In contrast, the no-effects theory of the accounting choice approach advocates the opposite (Holthausen & Letwich, 1983).

The no-effects theory of the accounting choice approach has its robustness supported by Modigliani and Miller (1958). In Modigliani and Miller's world, where there are no monitoring and contracting costs, and with the efficient market premise, the accounting choices would not affect the company's value. In other words, for any attempt at expropriating activity in accounting decisions, accounting users could unveil this maneuver without cost and compose their accounting-based valuation that best suits their interests (Holthausen & Letwich, 1983).

No-effects theories allow associations between accounting choice and financial or non-financial variables. Also, this view does not assume that accounting decisions are random. Some accounting choices may come from accounting traditions or even from mimetic, normative, and coercive origins. In this way, even opportunistic attempts by the manager to construct accounting numbers will not

affect the firms' wealth. According to Miller (1977), these activities correspond to neutral mutations.

On the other hand, theories of economic consequences are more attractive to accounting researchers and other interested parties since it provides economic relevance to accounting decisions and the disclosure effects (see Verecchia, 2001, and Dye, 2001). Furthermore, this view is richer when predicting associations between firm/country-specific factors and accounting choices. When considering monitoring and contracting costs, the premises are closer to the real world and more applicable to investment decisions. Therefore, in the economic environment brought by Jensen and Mecking (1976), managers would take advantage of their position as an insider, under the agency conflicts configuration, to elaborate misleading financial reports to expropriate wealth from other economic parties (Holthausen and Letwich, 1983; Holthausen, 1990; Christie & Zimmerman, 1994; Bowen et al., 2008; Ball, 2013).

So, Holthausen (1990) points out three approaches for accounting choices: opportunistic behavior, efficient contracting, and information perspectives. The theories of economic consequences encompass the first two approaches, and the third follows the information theory of accounting choices suggested by Holthausen and Letwich (1983). Thus, the literature consolidated the premise that accounting choices influence future cash flows, in line with opportunistic behavior and efficient contracting. In turn, the informative perspectives point out that the expected cash flows affect the manager's accounting choices to reflect the company's information, taking a more technical and neutral aspect (Holthausen, 1990; Christie & Zimmerman, 1994, Bowen et al., 2008).

On the opportunistic behavior approach, we consider the agent a maximizer of its utility, so managers can use the accounting choices that virtually improve the firm's performance and, consequently, the managers' remuneration. Specifically, this research stream focused on testing the Positive Accounting Theory (PAT) proposed by Watts and Zimmerman (1986). Supported by agency theory (Jensen & Meckling, 1976), Watts and Zimmerman (1986) include the cost of contracting and monitoring in the discussion, stating that these characteristics can influence opportunistic behavior in accounting decisions (Holthausen, 1990).

The efficient contracting approach sought the incentives in the accounting choice provided by contracts that used accounting numbers as a basis. Thus, considering these contracts implicit or explicit implies accounting numbers' configuration to minimize agency costs. In this approach, accounting numbers are configured to maximize the aggregated company's value when dealing with conflicts of interest between shareholders versus debtholders versus managers, company versus government, etc. (Bowen et al., 2008).

In turn, the informational perspective is the view that presents the most significant neutrality in predicting accounting choices. As evidenced by Holthausen and Letwich (1983), managers are remunerated according to their advantageous position in providing information about the firm's cash flows. So, managers choose the accounting choices that best represent future cash flows, providing better quality subsidies for investor evaluation.

Also, Christie and Zimmerman (1994) point out that determining whether managers make accounting choices to maximize firm value is hard to verify. Considering that all interested parties have a rational self-interest, the contract is sealed limited by the optimal configuration of wealth transfer between the contracting parties. Thus, with the company's stakeholders' consent, the manager has the accepted set of accounting rules associated with other decision-making areas, which influences the company's reported result and produces variation in cash flows to the contract counterparties (Christie & Zimmerman, 1994; Holthausen, 1990).

Therefore, some expected opportunism is efficient since some freedom is advisable to the manager transmit their private information. The contracting parties adjusted the amounts if other counterparties already expected some expropriating accounting method (Christie & Zimmerman, 1994; Dechow, 1994; Dechow & Skinner, 2000; Kothari, 2019; Roychowdhury, Shroff, & Verdi, 2019).

It is observable that tax issues affect the efficient approach through the accounting choices. It may be possible to decrease the reported profit used as a basis for tax calculations, or even increase it when the objective is to take advantage of the benefits of compensating for expirable losses, resulting in a real gain for the company (Christie & Zimmerman, 1994; Kovermann & Velte, 2019; Szczesny & Valentincic, 2013; Watts & Zimmerman, 1990).

Also, but not exhausting the evidence of an efficient approach, companies may experience momentary shocks, reduce their productive capacity by market forces, violate clauses in loan agreements or other resources, and incur losses in renegotiation or even return of resources. To safeguard these companies' health, managers can use accounting methods to fulfill the contract and avoid these losses (Bowen, Rajgopal, & Venkatachalam, 2008; Christie & Zimmerman, 1994; Lin, 2006; Watts & Zimmerman, 1990).

Finally, Christie and Zimmerman (1994, p.539) claim that " The relative amounts of efficiency and opportunism depend on controls on managers' accounting discretion." This concept is close to Hambrick and Finkelstein (1987) related to the managerial discretion literature, including accounting among several decision-making aspects under its scope.

2.1.2.
Understanding Accounting Discretion

Hambrick and Finkelstein (1987) conceptualize managerial discretion as to the latitude of a decision maker's actions. These authors identified three primary sources of discretion: environmental (factors external to the company, usually at the industry level that define how the company relates to its environment), organizational (factors internal to the company, such as structures, rules, technology, etc. define the internal functioning of the company) and individual (factors associated with the characteristics of the management team, for example, motivation, negotiation capacity, tolerance to ambiguity, locus of control, etc.). Based on this seminal definition, some authors began to investigate the association between managerial discretion with governance structures, with the performance of the company's results (Stulz, 1990; Hambrick & Abrahamson, 1995; Finkelstein & Peteraf, 2007; Popadak, 2013; Wangrow, Schepker & Barker, 2015) and extended to accounting decisions (Ge, Matsumoto & Zhang, 2011; Hribar, Mergenthaler, Roeschley, Young, & Zhao, 2021).

Although the term "accounting discretion" was previously used in the literature (Ballantine & Hills, 1935), it was promoted after the study by DeAngelo (1987), in which the author shows that managers use accounting rules to reflect a better image of the company to maintain their management positions. Also, like

DeAngelo (1987), the subsequent literature used the term "accounting discretion" as a synonym for the manager's opportunistic behavior in accounting choices (Guidry, Leone & Rock, 1999; Watts & Zimmerman, 1990). After the Enron and WorldCom scandals, the understanding of the opportunism aspect of accounting discretion was spurred when managers used accounting decisions and fraud mechanisms to mislead companies' performance information (Chung; Firth & Kim, 2002).

After the 2000s, the concept of accounting discretion took shape, is defined as, according to Bowen et al. (2008, p.351): "The latitude allowed by generally accepted accounting principles (GAAP) enables managers to exercise judgment in preparing financial statements." However, although the rules and regulations provide an essential factor for the accounting behavior of the preparers, empirical accounting research has largely neglected the regulation level (the GAAP system) – apart from a very simple system or test for specific accounts. So, evaluating accounting discretion at the regulation level and comparing different sets of accounting rules to evidence the effect of this variation would be a valuable resource for researchers (Watts & Zimmerman, 1990).

Therefore, the literature shows a conflicting finding, as it analyzes proxies that are not associated with discretionary determinants (i.e., accounting rules) but with their accounting results (e.g., earnings properties). Most accounting choice studies attempt to explain a single accounting method (e.g., the choice of depreciation) instead of the choice of combinations of accounting methods. According to Watts and Zimmerman (1990, p.138): “Focusing on a single accounting method reduces the power of the tests since managers are concerned with how the combination of methods affects earnings instead of the effect on just one particular accounting method.”

Specifically, current studies attempt to explain a single example of goodwill, stock option, and pension fund impairment accounting rather than a comprehensive set of discriminatory accounting rules. Thus, there is a gap in the literature to identify the inherent aspects as a set of rules that may produce better accounting information. By focusing on specific projects, it reduces the power of testing as the manager considers the full range of accounting discretion to achieve their reporting objectives, not just one discretionary source (Chan, Lin, & Strong, 2011; Christie

& Zimmerman, 1994; Filip, Lobo, & Paugam, 2021; Glaum, Keller, & Street, 2017; Naughton, Petacchi, & Weber, 2015; Tunyi, Ehalaiye, Gyapong, & Ntim, 2020).

However, taken together, the studies of specific rules provide some interesting evidence as to how internal and external monitoring mechanisms ensure that accounting rules will be used for the benefit of one or several stakeholders. In addition, there is evidence inherent in the very construction of accounting rules, for example, about characteristics that make monitoring activities difficult, as well as attributes of the rule that, per se, promotes high-quality financial statements (Bens & Johnston, 2009; Chan et al., 2011; Filip et al., 2021; Glaum et al., 2017; Tunyi et al., 2020).

Moreover, when it is possible to prepare and implement an ideal clearing contract with an incentive policy based on accounting, there would be a scenario in which managers could signal their intentions through accounting choices. By adopting conservative accounting, managers decrease the current profits, decreasing their bonus, in favor to signal their vision of long-term profitability. In this way, providing some accounting discretion can help the manager signal to the investors. Thus, the information generated through accounting discretion adds greater credibility in elaborating incentives using accounting in place of more complex compensation schemes (Lin, 2006).

Furthermore, much of the literature found divergent results and interpretations. One part interprets the association between accounting discretion and weak governance structures as evidence of agency conflicts (Leuz, Nanda, & Wysocki, 2003; García-Meca & Sánchez-Ballesta, 2009). On the other hand, when there is a positive association between accounting discretion and governance quality, it is suggested that the manager is acting in a manner aligned with the interests of shareholders, using accounting options that represent the future performance (Becker et al., 1998; Dechow & Skinner, 2000).

Therefore, regulators' concern with earnings management, which, within the alternative concept of accounting choices, and as understood by Healy and Wahlen (1999), could be explained by opportunistic and efficient accounting approaches. In this way, informational accounting choices could also be encouraged, as they are neutral and reliable, depending on the accounting discretion provided to reflect fundamental performance.

2.2.
Paper 1: What do We Know about Accounting Discretion? A Systematic Review

Abstract

In this study, we review the growing literature on accounting discretion. Drawing from previous literature, we define accounting discretion as *the latitude allowed by accounting rules for accountants to exercise their judgments through a set of choices and accounting estimates, which directly influence a company's profits and losses*. Applying a methodology of systematic mapping on the extant literature, we found evidence of four main streams of literature: 1) managerial discretion, 2) accounting choice, 3) earnings management, and 4) goodwill impairment. Each of these streams indicates possible opportunities for managers to exert discretion over accounting practices, shaping the quality of accounting reporting and, ultimately, shaping how financial markets react to accounting information. Drawing from an initial sample of more than 1,000 documents, we analyze and discuss in detail 69 articles, from which we identified factors related to accounting rules that potentially provide or restrict managerial opportunism, the economic incentives for firms to use accounting discretion, and mechanisms that potentially limit the misuse of discretion. The findings are relevant for practitioners, regulators, academic researchers, and corporate managers as they help understand the extant literature on the topic and potentially improve accounting practices. Finally, we suggest exciting avenues for future research.

Keywords: Accounting discretion; managerial discretion; accounting choice; earnings management; goodwill impairment.

2.2.1.
Introduction

In 2015, an article in The New York Times announced the resignation of Toshiba's Chief Executive Officer (CEO), Hisao Tanaka (Soble, 2015). The company conducted investigations between 2008 and 2015 and concluded that top executives used accounting tricks to keep management staff compensation at the same levels as before the 2008 subprime crisis. These tricks led to an inflation in operating profit of about $1.2 billion (nearly 30 percent of the total pre-tax profit). This event is a relatively recent and well-known example of executives expanding their discretion and crossing ethical boundaries in applying accounting rules to benefit at the expense of shareholders (and despite Toshiba's good governance). Adding to Enron and WorldCom events, this fact reinforces the view that accounting discretion is potentially linked to fraud and can potentially destroy shareholder value (Chung, Firth, & Kim, 2002)

In the absence of agency problems, previous research has found that financial reports affect firm value by reducing information asymmetry. Therefore, accounting regulators deliberately provide accounting discretion to managers to transmit their private information to the market. Also, in an environment with greater transparency, accounting discretion would reduce the cost of capital (Beyer, Cohen, Lys, & Walther, 2010; Healy & Palepu, 2001; Verrecchia, 2001), improve the contracting efficiency (Armstrong, Guay, & Weber, 2010; Richard A.Lambert, 2001) and improve investment efficiency (Roychowdhury, Shroff, & Verdi, 2019; Stein, 2003).

Nevertheless, when agency problems exist, managers can derive utility from actions not aligned with the interests of shareholders (Jensen & Meckling, 1976). Therefore, managers can exploit their discretion to produce poor-quality reports. Also, managers could use substitute or mutually reinforcing strategies to achieve their private interests. For example, managers could make operational decisions (e.g., cash flow, production costs, and discretionary expenses) to justify their opportunistic accounting choices (Roychowdhury et al., 2019).

On top of that, there is a lack of homogeneity over how to measure accounting discretion (Hribar, Mergenthaler, Roeschley, Young, & Zhao, 2021) that usually leads to noisy estimates (Jackson, 2018) and seems to contribute to the

inconclusive or even conflicting findings in the literature. These inconclusive findings reinforce that accounting discretion is often seen as a double-edged sword (Bushman & Williams, 2012; Dechow & Skinner, 2000). Consequently, existing approaches and concepts about accounting discretion do not converge to resolve the debate on how much discretion accounting standards owe managers.

There are at least three critical issues in the related accounting discretion literature. First, there is a multitude of ex-post measures (i.e., discretionary accruals, earnings smoothing, among other measures of earnings properties) used as proxies of accounting discretion, and it is sometimes difficult to conceptualize what accounting discretion means (Abughazaleh, Al-Hares, & Roberts, 2011; DeAngelo, 1987; Dechow, Ge, & Schrand, 2010; Huizinga & Laeven, 2012; Kalyta, 2009). Thus, the extant literature does not converge to use proxies associated with the antecedents but proxies related to the potential consequences of accounting discretion (i.e., outcomes). Second, there is no convergence in the previous literature on whether accounting discretion increases or decreases firm value (Ball, 2013; Bowen, Rajgopal, & Venkatachalam, 2008; Beaver, 2015; Leuz & Wysocki, 2016). Thus, from the regulator's point of view, it is difficult to anticipate the results of rules that allow more (or less) discretion to managers (Bowen et al., 2008; Dechow & Skinner, 2000; Leuz & Wysocki, 2016). Moreover, empirical evidence supports not only opportunistic but also efficient and technical reasons for using accounting discretion (Guay, Samuels, & Taylor, 2016; Holthausen, 1990). Third, according to prior literature, no previous study provides a comprehensive, in-depth review of accounting discretion, addressing its economic antecedents and consequences.

Therefore, this systematic review aims to contribute to the accounting discretion literature by discussing the previous evidence on these issues and synthesizing previous research on the effects of accounting discretion on managerial behavior. The interest is to identify sources of discretion to underscore and understand the consequences of the latitude allowed by accounting rules. In addition, we discuss the determinants, constraints, and opportunities for the use of discretion.

For this systematic review, following (Bowen et al., 2008), we define accounting discretion as *the latitude allowed by accounting rules for accountants*

to exercise their judgments through a set of choices and accounting estimates, which directly influence a company's profits and losses. More specifically, this review analyzes articles focusing either on regulations or accounting rules that create discretion to managers. This definition does not include studies that only examine potential consequences (or outcomes) of regulation-level accounting discretion, for instance, accruals estimates. Thus, we move away from the literature analyzing evidence from various ex-post measures of accounting discretion (Bens & Johnston, 2009; Hribar et al., 2021; Leuz & Wysocki, 2016) and move closer to studies of discretion in accounting rules (Filip, Lobo, & Paugam, 2021; Hribar et al., 2021).

Using a well-designed research protocol, we apply a systematic mapping to search for high-impact publications in scientific databases directly aligned with the research goal (Petersen, Vakkalanka, & Kuzniarz, 2015; Yli-Huumo, Ko, Choi, Park, & Smolander, 2016). The final sample of analyzed articles comprises 69 empirical articles from 1991 to 2021. The analysis of these articles indicates that accounting discretion is driven to a large extent by four research streams of accounting aspects: managerial discretion, accounting choice, earnings management, and goodwill impairment.

The results are relevant to practitioners, regulators, and academic researchers. For practitioners, we show how corporate governance mechanisms, such as alignment of incentives between management and shareholders, board independence, and high-quality audits, have the potential to induce managers to prepare better quality financial statements. For regulators, we show that accounting oversight, alongside adequate regulatory rules, is necessary to prevent earnings management. However, external monitoring by regulatory authorities needs to be complemented by internal monitoring, such as through more independent and accounting-specialized boards. Moreover, when rules are ambiguous or give greater subjectivity to accounting choices, the effectiveness of monitoring mechanisms is significantly diminished. For academic researchers, we identify several exciting topics for future research.

The remaining of this systematic review proceeds as follows. Section 2 discusses the main concurrent streams that motivate managers to use the discretion provided by accounting rules. Section 3 describes the systematic mapping

methodology used and the sample of selected articles. In Section 4, we present the results of this study, discuss the limitations of previous research, and provide recommendations for future research. Section 5 summarizes the findings, discusses current research limitations, and contains the concluding remarks.

2.2.2.
Accounting Discretion

The economic consequences of accounting choices have long been a concern for academics, regulators, and investors. According to Bowen et al. (2008), the positive accounting theory (PAT) (Watts & Zimmerman, 1986) fostered research about accounting choices, leading to questions such as the following: do managers use their discretion for opportunistic or value-maximizing purposes? Could opportunistic managers use accounting discretion to modify a company's accounting information in ways that benefit them while stakeholders and shareholders bear the cost? Or do managers use their accounting discretion to maximize a company's long-term value in line with the interests of stakeholders and shareholders? Therefore, the extant literature about accounting choices has three main concurrent streams of accounting discretion: 1) the opportunistic hypothesis and 2) the efficient contracting hypothesis, and 3) the financial reporting informativeness hypothesis.

Under the opportunistic hypothesis, Watts and Zimmerman (1986) proposed the PAT in line with the Agency Theory (Jensen & Meckling, 1976). Based on a) the bonus plan hypothesis (e.g., choices that maximize the manager's bonus), b) the political costs hypothesis (e.g., choices that reduce profit to avoid government interference), and c) the debt/equity hypothesis (e.g., choices that avoid breaching debt), Watts and Zimmerman (1986) concluded that economic incentives shape accounting choices. Therefore, managers would use discretion to exploit the rules and keep private managerial benefits of control. Nevertheless, under the efficient contracting hypothesis, there would be no significant opportunities for using accounting discretion opportunistically, and any "abnormal" variations on reported earnings could be positively associated with the effort of managers to provide better information about the company's value, for instance, by sending a signal (Bowen et al., 2008; Christie & Zimmerman, 1994; Lin, 2006). Thus, accounting discretion

potentially allows the transmission of relevant and reliable information about a company's financial performance to all contracting players (Christie & Zimmerman, 1994; Holthausen, 1990; Holthausen & Leftwich, 1983). Finally, the financial reporting informativeness hypothesis suggests the most significant neutrality in predicting accounting choices. For instance, Holthausen and Leftwich (1983) discuss that managers are remunerated according to their advantageous position in providing information about the firm's future cash flows. So, managers choose the accounting choices that best represent future cash flows, providing better information about the firm's performance to investors.

In addition, an essential part of the accounting literature focuses on the role of a country's legal institutions, strength of the supervisory regime, capital market forces, product market competition, and a company's governance structure in corporate accounting decisions (Christensen, Hail, & Leuz, 2013; Daske, Hail, Leuz, & Verdi, 2008; Leuz & Wysocki, 2016). These factors potentially restrict managerial freedom and prevent opportunistic behavior. Thus, the literature determines that they are critical determinants of disclosure and financial reporting practices (Kvaal & Nobes, 2010; Lourenço, Sarquis, Branco, & Pais, 2015; Nobes, 2013; Nobes & Stadler, 2018).

However, the global shift to mandatory IFRS reporting, possibly the most significant event in recent accounting history, represents a profound shift in reporting regulations and rules (Leuz & Wysocki, 2016). The adoption of IFRS generally allows more room for exercise discretion in accounting decisions than local accounting rules used to allow. As a result, IFRS created new challenges for national institutions that constrain or shape managerial discretion in many countries (Daske et al., 2008; Nobes, 2013).

2.2.3.
Research Framework

The first step of this systematic review is to create a reproducible process of selecting articles exploring accounting discretion. we adapt the method of Petersen, Vakkalanka, and Kuzniarz (2015). First, we define research questions that help create a systematic review protocol. Second, we search for articles based on the research questions and the protocol created in the first step. Third, we screen the

articles' abstracts to find those relevant to this review (in this step, we keep those articles the authors could not agree on whether they should be excluded). Fourth, we screened the articles based on the main text and excluded those not investigating accounting discretion. In addition, based on the keywords and abstract, we cluster the articles into four main themes: 1) managerial discretion, 2) accounting choice, 3) earnings management, and 4) goodwill impairment. This clusterization helps to consolidate the findings of all articles. Then, we analyze the main findings and conclusions of each article. Finally, we read the main text of all selected articles to provide an in-depth review of their main findings.

These steps lead to a final sample of 69 selected articles. Table 1 contains the outcome and filtering process of each step. Appendix 1 contains the full list of selected articles.

Table 1
The systematic mapping process and filtering by stage

Step	Process	Phase	Filtering process & outcomes
#1	**Definition of research questions**	Definition of review scope	Identification of possible relevant studies
#2	**Searching articles**	Analysis of all Papers	Search databases* and conference proceedings (n = 1,161)
			Exclusion of duplicates articles (*n* = 772)
			Exclusion of articles based on *Academic Journal Guide 2021*** (*n* = 380)
#3	**Screening articles**	Analysis of relevant Papers	Exclusion of articles that are non-empirical and those analyzing financial firms (*n* = 281)
			Exclusion of articles that are not relevant to this systematic review based on abstracts (*n* = 117)
#4	**Keywording using relevant articles**	Classification strategy	Exclusion of articles based on the main text (*n* = 69)
#5	**Data extraction and mapping process**	Systematic mapping	Analysis an in-depth review of the selected articles

* Databases are <www.webofscience.com> and <www.scopus.com>. ** < www.charteredabs.org>

Before we explore each of these steps further, we elucidate the main statistics of the final sample of selected articles. Table 2 provides an overview, showing the number of articles by nationality of authors, by journals, and by year of publication. Panel A shows that, although there is a predominance of authors based in the United States, several articles have multi-country authors. Additionally, Panel B shows the relative diversity of publishing journals, totaling 17 different journals. Finally, Panel C shows an abnormal number of articles published in 2011, possibly due to several accounting standards issued in previous years (e.g., SFAS 142, IAS 38, IFRS 3, SFAS 159, and SFAS 123R).

Table 2
Studies included by country and journal

Panel A: by country	
Australia	3
Canada	1
China	1
Denmark	1
France	2
Germany	2
Taiwan	1
United Kingdom	3
United States	29
Multiple Countries	26
Total	**69**

Panel B: by journal	
Abacus-A Journal of Accounting Finance and Business Studies	2
Accounting and Business Research	3
Accounting Horizons	6
Accounting Review	2
Auditing-A Journal of Practice and Theory	1
Contemporary Accounting Research	6
European Accounting Review	5
International Journal of Accounting	3
Journal of Accounting and Economics	4
Journal of Accounting and Public Policy	10
Journal of Accounting Research	3
Journal of Accounting, Auditing and Finance	3
Journal of Business Finance and Accounting	7
Journal of International Accounting Auditing and Taxation	2
Journal of The American Taxation Association	1
Review of Accounting Studies	8
Review of Quantitative Finance and Accounting	3
Total	**69**

Panel C: by year	
Total 1990´s	**6**
2002	1
2003	2
2004	1
2005	1

2006	4
2007	1
2008	1
2009	4
2010	4
Total 2000´s	**19**
2011	9
2012	3
2013	3
2014	1
2015	3
2016	3
2017	5
2018	4
2019	3
2020	5
Total 2010´s	**39**
2021	5
Total	**69**

Next, we will discuss each step in more detail.

Step #1: Definition of research questions

Initially, we execute a preliminary analysis using a selected list of articles to find the most cited and critical issues in the accounting discretion literature. After conducting this initial analysis, we find several alternative definitions and empirical proxies for accounting discretion (some of which only refer to potential consequences of accounting discretion; thus, these articles are excluded).

For instance, DeAngelo (1987) uses total accrual (the difference between net income and operating cash flows), while Kalyta (2009) uses discretionary accruals, and Tan and Jamal (2006) use the percentage of operating earnings that can be adjusted using accounting provisions. Also, a research trend examines the use of specific sources of discretion as a mechanism to manage earnings like in reported stock option values (Kuo, Wang, & Yu, 2015), pension accounting (Naughton, Petacchi, & Weber, 2015), and bank loan loss provisions (Huizinga & Laeven, 2012). Finally, Bowen et al. (2008) combine variables such as 1) discretionary accruals (i.e., the modified Jones model from Dechow, Sloan, & Sweeney (1995), 2) earnings smoothing (i.e., the standard deviation of operating cash flows divided by the standard deviation of revenues), and 3) the incidence of small positive earnings surprises.

After carefully examining this small number of selected studies and focusing on this definition of accounting discretion based on regulations, we define

four main research questions: 1) what is the current state of the accounting discretion literature? 2) what are the antecedents and consequences of regulation-level accounting discretion? 3) what are the gaps in the current accounting discretion literature? 4) what are the future research avenues for the accounting discretion literature? Additionally, based on these selected articles, we determine a list of combined terms that are often related to this definition of accounting discretion: 1) "accounting" and "discretion", 2) "earnings management" and "discretion", 3) "accrual* " and "discretion", 4) "fair value" and "discretion", 5) "financial report*" and "discretion", 6) "earnings quality" and "discretion", 7) "accounting choice" and "discretion", and 8) "international difference*" and "accounting".

Step #2: Searching articles

In step #2, we use the combination of words selected in step #1 to search independently for articles using the Web of Science database (i.e., the field "topics") and in the Scopus database (i.e., the fields "article title, abstract, and keywords")[11]. Searching the eight combinations of terms defined in step #1, we identify 1.161 documents (articles). Then, we deleted duplicated documents, leading to 772 different documents. Finally, we keep only articles published in high-quality and peer-reviewed journals (i.e., articles ranked either ABS3, ABS4, or ABS4* on the *Academic Journal Guide 2021*[12]). The total number of articles after executing these exclusions is 380.

Step #3: Screening of articles

After excluding articles based on the *Academic Journal Guide 2021*, all authors read the abstract to screen the content of each article. After discussing conflicting interpretations, we exclude articles 1) non-empirical, 2) studying financial companies, and 3) not relevant to the definition of accounting discretion. we chose to exclude articles from firms in the financial sector because they are regulated with unique reporting requirements. In addition, this literature is already well documented and has interesting studies that discuss aspects of accounting

[11] Links for the databases are: <www.webofscience.com> and <www.scopus.com>.
[12] < www.charteredabs.org>

discretion associated with the financial sector, such as Beatty and Liao (2014), Bushman (2014), and Gaver and Paterson (2004). In some cases, it was difficult to determine the article's adherence to the review's scope reading only the abstract, so we took a conservative approach and decided to carry these articles into the next step.

For greater robustness, after reading the abstracts as discussed, we create a dummy variable separating the selected from the excluded articles, i.e., a dummy that equals 1 to selected articles (as of step #3) and 0 to excluded articles. Then, following Williams and Williams (2014), we create a dictionary of all terms used in the abstract of all articles to assess which words are most often associated with the dummy. Table 3 contains the ten words that show the highest absolute correlations coefficients. we can see in Panel A of Table 3 that the term "accruals" is negatively correlated with the dummy, corroborating my intent to exclude articles measuring accounting discretion as an ex-post event, which is the case of "accruals" or other earning properties proxies. Alternatively, the dummy has a positive correlation with common terms used in the accounting literature as a source of discretion via accounting rules, such as "expense," and "standards." Also, the analysis shows a positive association of the dummy with more contemporary terms such as "fair," "value," and "impairment," which are generally associated with "option," "assets" and "goodwill" (i.e., essential sources of accounting discretion).

Table 3
Correlations analysis with the dummy for selection

Panel A: Correlation analysis

Terms	Correlation with the dummy marking the articles selected in Step 3# (1 for 117 selected articles, 0 for 164 excluded articles)
Goodwill	0.264
Option	0.237
Fair	0.231
Value	0.215
Standards	0.201
Impairment	0.195
Assets	0.177
Expense	0.167
Discretion	0.166
Accruals	-0.248

Panel B: Discriminant analysis (n = 281)

Articles	Predicted classification	My classification	Overlap
# of articles excluded	191	164	143
# of articles included	90	117	69
Total	281	281	212/281 = 75% overlap

Additionally, following Williams and Williams (2014), we use simple linear discriminant analysis to investigate how well the terms "expenses," "option," "fair," "value," "standards," "impairment," "assets," "expense," "discretion" and "accruals" identify the same selected articles[13]. Panel B of Table 3 shows that the ten terms differentiate well the articles corroborating the classification scheme. It suggests the exclusion of 191 articles (out of the 164 excluded) and suggests the inclusion of 90 articles (out of the 117 included). These figures highlight my conservative approach of excluding articles.

Step #4: Keywords of selected articles

In Step 3#, we exclude articles based on the abstracts, leading to 117 selected articles. In this step, we read the main text of all articles. After a careful examination by all authors, we excluded 48 articles either because they do not analyze accounting discretion at the regulation level, are not empirical, or because they analyze financial companies. The final sample includes the remaining 69 articles.

Based on the keywords of the selected 69 articles, we create a network visualization to group articles with more occurrences of similar words[14]. Figure 1 contains the clusters and illustrates the structure of the literature. In Figure 1, the diameter of the circles represents the frequency of the keywords. In contrast, the thickness of the line connecting a pair of keywords represents the strength of the link (i.e., keywords that co-occur or occur together). Additionally, each color represents a thematic cluster.

[13] Discriminant analysis is a multivariate statistical technique used to discriminate and classify objects into previously defined groups (Khattree & Naik, 2012).

[14] I use the software VOSviewer <https://www.vosviewer.com> to create Figure 2.

Figure 1

Keyword co-occurrence network visualization

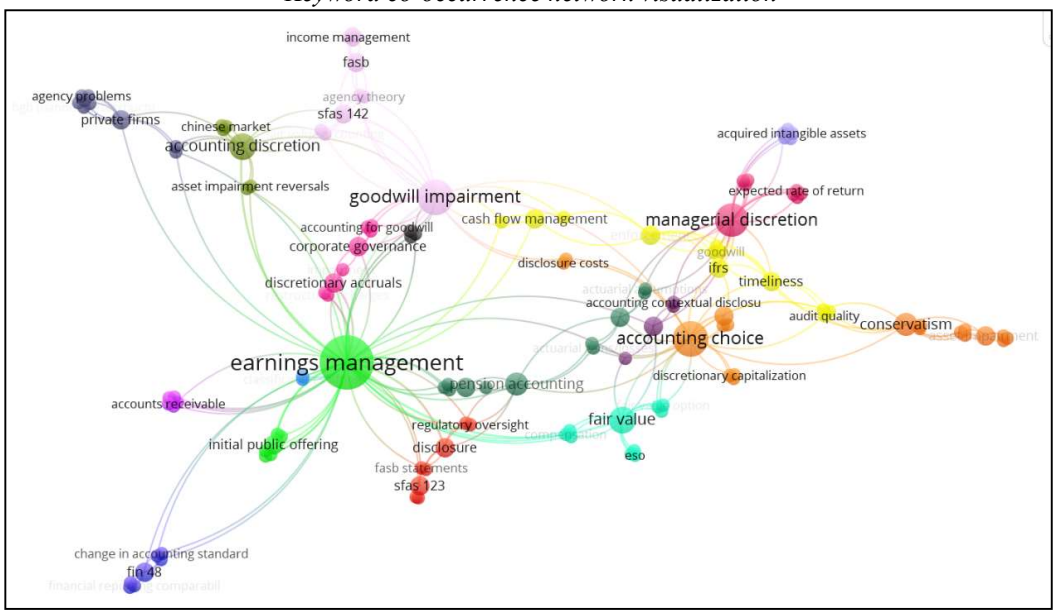


Figure 1 suggests the existence of 18 different colors indicating the same number of different clusters. However, some of these clusters are intertwined while others group a small number of articles. The most significant four clusters are: accounting choice, earnings management, managerial discretion, and goodwill impairment.

Step #5 Data extraction and mapping process

In this step, we read the selected articles' main text to provide an in-depth review of their findings. In the next section, we discuss these articles in more detail. More importantly, we offer an organized and structured view by reviewing this literature using the four main clusters created in step #4.

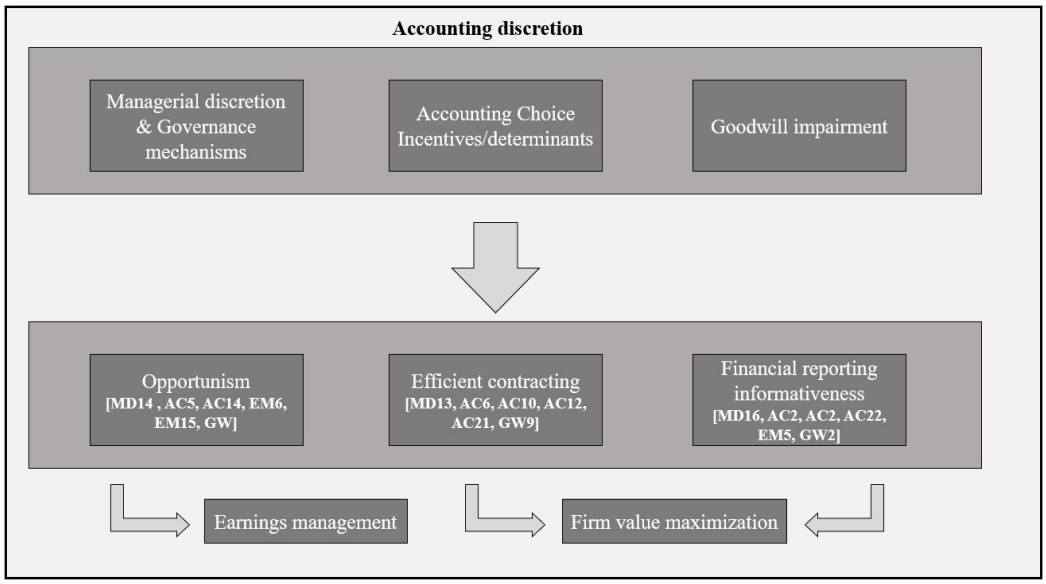
2.2.4.
Review of the Literature

2.2.4.1.
Summary

Before we discuss the articles selected in more detail, we synthesize this literature into a logical flow. Figure 2 provides an interesting way to summarize and organize the different streams of the literature analyzed in this review. First, the

related literature discusses the economic incentives managers have to explore the discretion allowed in accounting rules (Bowen, Davis, & Rajgopal, 2002; Cahan, 1993; Cecchini, Jackson, & Liu, 2012; Nathan & Dunne, 1991; Szczesny & Valentincic, 2013). The literature suggests that managers can use discretion within the boundaries of what is legal (Abernathy, Beyer, Gross, & Rapley, 2017; da Costa, Liu, Rosa, & Tiras, 2020; Dunne, 1990) or crossing these boundaries and, thus, creating misleading statements (Chao & Horng, 2013; Filip, Jeanjean, & Paugam, 2015; Filip, Lobo, & Paugam, 2021). When managers act within the boundaries, the literature suggests they have several alternative accounting choices to make, through reporting for investment property (Chen, Lo, Tsang, & Zhang, 2020), for instance, goodwill impairment (Ayres, Campbell, Chyz, & Shipman, 2019) and pension accounting (Billings, O'Brien, Woods, & Vencappa, 2016). Finally, the literature points to three main factors that drive such choices: the informative hypothesis (Wyatt, 2005), efficient contracting hypothesis (da Costa et al., 2020), and the opportunism hypothesis (Filip et al., 2021). Therefore, Figure 2 illustrates the different facets of extant accounting discretion literature and how the previous studies are intertwined and complementary.

Figure 2
Integrative approach of accounting rules



Obs. Examples of articles that support either the opportunistic, efficient contracting, or financial reporting informativeness hypotheses are presented in brackets. Appendix 1 contains the full list of articles and their codes.

2.2.4.2.
Managerial Discretion

In the accounting literature, the idea of managerial discretion usually refers to the freedom that managers have to prepare financial statements (Hribar et al., 2021; Kuo et al., 2015). However, part of this freedom is not provided by accounting standards and therefore refers to freedom beyond the definition of accounting discretion. Therefore, managerial discretion over financial reporting may be greater than the discretion allowed by accounting rules (i.e., accounting discretion) because managers still can endeavor in misleading reporting, corrupt strategies, and self-serving behavior. Building on the definition of managerial discretion of Hambrick and Finkelstein (1987) and Wangrow, Schepker, and Barker (2015) as *the latitude of action available to managers* and on the corporate governance literature (Aguilera, Desender, Bednar, & Lee, 2015; Aguilera, Desender, & Lamy, 2021), in this section, we analyze the factors that can provide opportunities that allow or mechanisms that create restrictions to self-serving managerial behavior.

Next, we discuss the 16 selected articles that, in Figure 2, are clustered in the managerial discretion group. These articles identify which factors determine the opportunistic behavior on the preparation of financial statements either via monitoring mechanisms or alignment incentives.

We start with the board structure, which is d to guide and monitor managers to act on behalf of shareholders. However, the related literature has conflicting findings that the board of directors affects managerial discretion over accounting practices. For instance, Bechmann and Hjortshøj (2009) found a positive association between a two-tier board system and earnings quality. However, Dechow, Myers, & Shakespeare (2010) present evidence that companies with a higher proportion of independent and informed directors do not reduce earnings management and CEO pay sensitivity. Moreover, Bechmann and Hjortshøj (2009) show that some companies fail to provide the required information on costs of option-based compensation (OBC), but this results from firms not paying enough attention to the recognition and disclosure requirements instead be a deliberate attempt to hide information. On top of that, Ge, Matsumoto, and Zhang (2011) show that the characteristics of the CFO have a more significant effect on

accounting practices when the environment is highly complex, suggesting that a board configuration specialized in accounting practices is necessary to prevent misbehavior in such environments. Together, these articles fail to find compelling evidence that strong and independent boards affect the quality of accounting information.

Nevertheless, the board of directors can contribute to a better informational environment associated with audit elements (Ge, Matsumoto, and Zhang, 2011). For instance, Chao and Horng (2013) show that companies with more independent directors, combined with an audit committee, restrict opportunistic reporting activities. Stein (2019) and Fornaro and Huang (2012) find evidence that compliance with accounting rules is more pronounced when the firm is monitored by a more specialized audit committee and audited by Big4 firms. However, Fornaro and Huang (2012) comment that the efficiency of monitoring can be affected if accounting rules are ambiguous and subjective, highlighting the importance of the role of accounting regulators in the issuance of accounting rules.

Additionally, the extant literature suggests that a combination of internal and external monitoring mechanisms is more effective in preventing opportunistic behavior. For instance, Chen, Wang, and Zhao (2009) find that favorable internal (i.e., a board with independent directors and the presence of specialized committees) and external (i.e., cross-listing, the quality of auditor, and the presence of institutional investors) mechanisms limit opportunistic reversals of asset impairment in Chinese firms. Furthermore, Gunn, Khurana, & Stein (2018) show that firms with strong corporate governance (i.e., high board effectiveness, the proportion of insiders on the board, CEO duality, and takeover protection), specialized auditors in the sector, and high leverage recognize impairments losses more timely in the context of the financial crisis of 2008.

Finally, some studies examine the effect of the firms' corporate governance on accounting discretion by including a corporate governance index from Gompers, Ishii, and Metrick (2003) that measures the quality of a firms' governance. For instance, Aboody, Barth, and Kasznik (2006) show that firms with weaker corporate governance assume significantly lower values to stock-based compensation expense, thus decreasing the market's perception about CEO compensation. Similarly, Hodder et al. (2006) show that corporate governance

quality is positively related to the accuracy of reported ESO fair values, which reduces excess compensation and earnings management. In addition, Kuo et al. (2015) show that weaker corporate governance firms underestimate option values more often.

Analysts' reports and forecasts are an alternative source of monitoring and pressure on managers. For instance, Hribar et al. (2021) show that when new accounting regulations decrease the accounting discretion in the U.S., managers seek alternative forms of communication with the capital markets, such as the report of earnings using non-GAAP rules. They show that greater analysts' following and higher institutional ownership make this phenomenon more pronounced. They conclude that analysts' following and institutional ownership are substitute monitoring forces to internal corporate governance mechanisms.

Another source of external monitoring is the scrutiny by regulatory agencies. For instance, when the Securities and Exchange Commission (SEC) reviews firms' 10-K filings, conducts audits, issues letters of comment, or requires additional clarification, there is a clear external pressure to improve the quality of accounting information. To test this idea, Bens and Johnston (2009) compare the levels of restructuring charges after the issuance of EITF No. 94-3 in 1994, since it often involves dismissing employees and removing product lines and assets. During the subsequent years (1995-1996), SEC increased the scrutiny over restructured expenses, decreasing after that. Contrary to the expectations, they find no differences in the restructure expenses between high and low scrutiny periods. This event highlights that accounting 'rules' configuration is essential for reducing opportunistic reports.

Similarly, Naughton (2019) predicts that regulatory scrutiny could mitigate firms' earnings management. However, when analyzing the financial reporting of defined benefit pension obligations, Naughton (2019) finds that firms reduced manipulation in response to regulatory scrutiny only in the items targeted by the regulator, while all remaining related items are not affected. This suggests the existence of a substitution effect, indicating that regulators need to be careful when writing new accounting regulations and establishing regulatory monitoring. Nevertheless, Naughton's (2019) findings contrast with Cazier, Rego, Tian, & Wilson (2014). Analyzing the period after Sarbanes-Oxley and the enactment of

FIN 48 (i.e., the standard for unrecognized tax benefits - UTB), Cazier et al. (2014) find that they could not reduce earnings management through the reserve for income taxes. Their findings indicate that firms continue to engage in earnings management to beat the consensus of analysts' forecast.

Finally, Tunyi et al. (2020) explore the amendment of IFRS 3 in 2008 to examine the effect of managerial discretion on financial reporting quality. Because IFRS 3 gave managers the discretion to recognize previously unrecognized intangibles in the target firm around business combinations, managers gained a new set of optional provisions to affect financial reporting quality. Tunyi et al. (2020) find that the value relevance of business combinations increased after IFRS 3, suggesting that managers' use of extra discretion, e.g., to recognize intangible assets, improves financial reporting quality. They also find that the quality of local institutions shapes this effect.

Synthesis and areas for future research

The articles discussed in this section identify internal and external mechanisms restricting the opportunistic use of accounting discretion, including internal corporate governance configurations and external monitoring agents, such as analysts and regulatory agencies. These players are essential to ensure that managers provide quality information reporting to the market.

Based on these articles, we conjecture two avenues exist for future research. First, the extant literature has neglected the personal-level dimensions of corporate governance and the CEO’s personal preferences. For instance, future research could explore more deeply the underlying factors that might drive a manager’s philosophy or style, such as social networks and cultural factors, when examining the discretion allowed by the accounting rules. Similarly, future research could investigate how additional corporate governance mechanisms, such as the concentration of ownership structure and the separation of control and voting rights, drive the use of accounting discretion. Second, most articles analyze the U.S., Canada, Japan, and European countries. Thus, future research could explore how managers in developing countries (known to have lower-quality institutions and worse corporate governance mechanisms) use accounting discretion.

2.2.4.3.
Accounting Choice

In the early 2000s, Fields et al. (2001, p. 256), based on the primary accounting choices literature of the 1990s, conceptualized the term "accounting choice" as:

> An accounting choice is any decision whose primary purpose is to influence (either in form or substance) the output of the accounting system in a particular way, including not only financial statements published in accordance with GAAP, but also tax returns and regulatory filings

The idea of accounting choice is not new and has its roots in the efficient contracting theory (Holthausen & Leftwich, 1983), which suggests that numerous complex and unprecedented contingencies can occur and thus accounting standards need to be interpreted, leading managers to make what Field et al. (2001) call "accounting choices". Fields et al. (2001) emphasize that firms can make accounting choices not only for opportunistic reasons but also to transmit private information to external agents. On top of that, managerial economic incentives shape how they use the discretion allowed within the rules (Burgstahler, Hail, & Leuz, 2006; Leuz, 2010; Leuz & Wysocki, 2016; Watts & Zimmerman, 1990), which influence the reported earnings properties (Burgstahler et al., 2006; Christensen et al., 2013; Daske, Hail, Leuz, & Verdi, 2013; Leuz & Wysocki, 2016).

Next, we discuss the 22 selected articles that, in Figure 2, are clustered in the accounting choice group. These articles discuss the incentives (e.g., opportunistic, efficiency, or informativeness incentives) firms have when making accounting choices.

We start reporting the findings of articles focusing on the incentives discussed in the positive accounting theory (PAT): the bonus plan hypothesis (e.g., CEO compensation), the debt covenant hypothesis (e.g., leverage), and the political costs hypothesis (e.g., size). For instance, Balsam, Mozes, and Newman (2003) report that the enactment of SFAS 123 in 1996 required additional explanations of pro forma stock option expenses to be disclosed in footnotes as if the fair-value method is used. Investigating how managers of U.S. firms respond to this new rule, their findings suggest that when CEO's stock option compensation is high, firms underestimate pro forma stock option expenses in order to reduce external criticism

of their compensation plans. Cahan (1993) analyzes the effects on accounting decisions resulting from the Three Mile Island nuclear power plant accident[15] in the U.S. State of Pennsylvania, which resulted in radioactivity leakage into the atmosphere. Cahan's (1993) findings suggest that high-leverage firms used existing regulations in the electric sector[16] to increase reported income. Also, Dunne (1990) analyzes accounting choices around businesses combinations and finds that high-leverage firms are motivated to increase their asset bases using the purchase accounting (e.g., a method that requires that all assets and liabilities of the acquired firm be measured at fair market value before the combination with the acquiring firms' balance sheets). Moreover, Dunne (1990) finds that larger, politically sensitive firms are more likely to use an accounting choice that reduces or does not increase their revenue to reduce political cost, while controlled firms prefer income-decreasing accounting techniques to decrease tax. Similarly, Nathan and Dunne, (1991) show that high-leverage firms also prefer the purchase accounting method.

Some articles discuss other economic incentives around accounting choices. For instance, Szczesny and Valentincic (2013), studying German SMEs' write-off accounting policies, find that the decision to write-off assets is positively associated with profitability, leverage, and dividends yields. The write-off decisions are motivated by the economic incentives of creating hidden cash reserves and decreasing the present value' decrease of tax obligations. In turn, Restrepo and Taillard (2021) point out that Colombian private companies' firms that issue more bank debt use inflation adjustment accounting rules to achieve their reporting objectives through earnings management. Bowen, Davis, and Rajgopal (2002) analyze internet-based firms that have the opportunity to make aggressive revenue recognition using grossed-up or advertising barter revenue. They find that financial constraints, the volume of acquisitions, the presence of active investors, and the use of employee stock options increase the likelihood that the manager will increase the reporting of advertising barter revenue and grossed-up sales. Finally, Billings et al. (2016) analyze actuarial assumptions used to evaluate the liabilities of pension plans under IAS 19, such as discount rate, price inflation, salary inflation. They find

[15] More information in <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html>

[16] More specifically, firms used the *Allowance for funds used during construction* (AFDUC) law.

that the funding position of a company's DBP plans and the plan size relative to its market capitalization affect the opportunistic use of the assumptions that managers make.

The extant literature also suggests that firms avoid tax to increase profitability. For instance, Abernathy et al. (2017) find that low levels of effective tax rates (ETR) and involvement in tax disputes are crucial drivers for managing more unrecognized tax benefits interest accounts and tax expense penalties. Although firms can avoid more tax, these accounting choices lead to more opaque accounting information and less accurate analyst forecasts. Additionally, Balsam, Haw, and Lilien (1995) show that U.S. firms presenting low return on assets (ROA) take advantage of new FASB standards and accelerate the implementation of new accounting standards when it increases reported income. These findings are consistent with the manager's opportunistic behavior.

Similarly, Balsam, Reitenga, and Yin (2008) show that companies accelerate the exercise of employee stock options to increase savings by an average of US$ 11.3 million after the enactment of SFAS 123 (R) (Stock Option Rules), suggesting managers use discretion to avoid expenses related to employees compensation plans. Also, the decision to accelerate is negatively associated with the expense that would have to be recognized, firm profitability, and firm size (i.e., political visibility). They also find a positive abnormal return associated with the announcement of the acceleration plan.

A similar pressure for short-term performance occurs when firms are preparing an initial public offering (IPO) (Alhadab & Clacher, 2018). For instance, Fedyk, Singer, and Soliman (2017) show that, around the time of an IPO, STEM firms (e.g., science, technology, engineering, and math) manage more often R&D expenses and sales growth than bottom-line earnings. They also find that investors do not seem to anticipate this opportunistic behavior. On the flip side, Cecchini et al. (2012) fail to find evidence that IPO firms are more likely to make income-increasing decisions than matched non-IPO firms. In general, they find that IPO firms use more conservative accounting than other companies in the years adjacent to the IPO.

Previous literature also argues that a critical determinant of accounting choices is the incentives for signaling (Wyatt, 2005). More specifically, managers

can use conditional conservative accounting to signal a commitment to not explore opportunistically on unverifiable accounting estimates (Basu, 1997; Black, Chen, & Cussatt, 2018; Holthausen & Watts, 2001). With the decrease in his current remuneration due to the reduction of current earnings, the manager bets on their future remuneration, reinforcing the signal that future earnings' expectation is valid (Zaher, Mohamed, & Basuony, 2020; Basu, 1997; Lin, 2006; Shroff, Venkataraman, & Zhang, 2013). To test this logic, da Costa et al. (2020) investigate whether the choice of upward accounting revaluations of assets is a reliable and efficient communication mechanism. After FRS15 and IAS 16, they find that U.K. firms that commit with more frequent upward asset revaluations show lower analysts' forecast dispersion, lower return volatility, and a lower cost of capital.

An essential tool for non-onerous private information disclosures is provided by FRS 3. Athanasakou, Strong, and Walker (2007, 2010) and Chan, Lin, and Strong (2011) show that the FRS 3 is an adequate standard for restricting income smoothing through accruals by providing greater discretion in classifying exceptional items. In addition, FRS 3 has increased the degree of earnings conservatism by providing management with more cost-effective means of transmitting information, which has improved the financial reporting environment in the U.K.

However, there are occasions when signaling is incomplete. For example, studying Japanese firms, Goto and Yanase's (2016) findings indicate that low disclosure quality, high effective tax rates, business uncertainty, and risk of bankruptcy are determinants in transferring private information through the firm's pension funding ratio (pension assets/ projected benefit obligations). The key point is that managers can use high-level pension funds to signal their commitments not to divert the firm's liquid assets. However, the market does not fully perceive the information, and it might provide “wrong” incentives to managers, which might lead to a sub-optimal pension resource allocation strategy. Additionally, Glaum, Keller, and Street (2017) argue that the issuance of IAS 19 (e.g., rules of pension accounting) encouraged firms to use more "aggressive" pension assumptions, using accounting methods that keep the expense off the income statement, for instance, the equity method. Although it does not cause undesired volatility in earnings, this accounting choice may underestimate the value of reported net pension assets,

decreasing the firm's signal value. Finally, Wyatt (2005) investigates whether managers use the capitalization of intangible assets as a signal of good performance but finds that such accounting choice is motivated by more technical elements, such as length of the technology cycle time, the strength of the firm's technology, and property-rights-related factors that affect the firm's ability to appropriate investment benefits.

Synthesis and areas for future research

The results of the articles discussed in this section often suggest that managers use discretion opportunistically and that the diffusion of accounting rules based on the fair value model opens space for opportunistic financial reporting activities. However, requirements about footnotes disclosure may restrict these unwanted activities. Furthermore, the results are consistent with the hypothesis that financial reporting is used not only to report the firms' performance but also to send signals to investors. On top of that, it seems that the underlying economic incentives are the key factor to understanding the accounting choices managers make. Therefore, we believe future research could better understand how the nexus of economic incentives shapes accounting choices. Future research could also explore the consequences of accounting choices on stock prices and how they affect a firm's financial policies (e.g., investment and capital structure decisions). Finally, Stadler and Nobes (2014, 2018) point out that accounting choices are driven by mimetic isomorphism. When managers need to deal with multiple accounting decisions, they follow their industry or country. Therefore, it would be interesting to understand how economic incentives affect firms' accounting choices in different countries and industries.

2.2.4.4. Earnings Management

Previous literature on earnings management suggests that, when earnings are expected to be below (above) an important benchmark, managers alter earnings by making accounting choices that increase (decrease) income (Abarbanell & Lehavy, 2003; Burgstahler & Chuk, 2017; Healy, 1985). Also, previous literature suggests there is a wide range of decisions that can be used to manage earnings

(Burgstahler & Chuk, 2017; Dechow, Ge, et al., 2010; McVay, 2006; Roychowdhury, 2006) either via accruals (such as accounting decisions that create hidden reserves or transfer past or future income to the present) or via operational, financing, and investment strategies (such as decisions to defer operating expenses, discounts for customers to accelerate purchases, and cuts in R&D). Overall, this literature takes a negative view of earnings management often suggesting that managers wish to mislead investors. As described by Healy and Wahlen (1999), earnings management:

> … occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999, p.368).

The selected articles in this cluster show that managers have a high level of discretion and earnings management incentives. For instance, studying the disclosure rules adopted by SEC before the 1993 proxy disclosure rules amendment, Murphy (1996) finds that managers had discretion in several of the underlying assumptions needed to value stock options using the Black-Scholes model, including the choice of the risk-free interest rate, forecasted volatility, and dividend yield. Consequently, Murphy (1996) suggests that managers could define values such that they reduce the perceived compensation of the CEO and increase the earnings reported. Similarly, Belze, Larmande, and Schneider (2019) argue that the Black-Scholes model assumes zero transaction costs, thus requiring managers to define the value of this parameter. Studying firms listed on the French stock exchange, they find that discretion over this factor may affect as much as 50% of the assumed fair value of the stock option value.

Robinson and Burton (2004) investigate the market reaction to the enactment of the SFAS 123, which created provisions to estimate the fair value of employee stock options and find a significant positive abnormal return. Choudhary (2011) investigate the differences in reliability between the recognition (i.e., profit and loss) and the disclosure (i.e., footnotes) regimes of employee stock option fair value and found that managers have a more opportunistic behavior in the recognition than in the values in the disclosure of footnotes. Finally, Bratten,

Jennings, and Schwab (2015) find several non-intentional errors in the employee stock options fair value disclosed on footnotes, indicating that they might be unreliable for analysts and users of financial statements, leading to less accurate and more dispersed forecasts.

The accounting rules of pension benefits also provide discretion to managers define financial (e.g., the expected return, the discount rate, and the compensation rate) and demographic parameters (e.g., mortality rate, employee turnover, invalidity), which are the input of the pension obligations models. Adams, Frank, and Perry (2011) argue that one of the most controversial parameters that managers can determine is the expected rate of return (ERR) because it can provoke considerable inflation in earnings. However, their findings indicate that firms do not overstate ERR relatively to other benchmarks. Previous literature also suggests that managers have discretion over actuarial gains and losses. For instance, Jiang (2011) shows three possibilities for classifying the value of actuarial gains or losses: recognition in full to profit and loss, recognition through the OCI (shareholders' equity), or deferring the actuarial gains or losses over periods using the corridor method. The findings suggest that the corridor method induces significant biases in recognized actuarial gains or losses, providing conditions for exaggerating corporate sponsors' estimated returns in the long term.

Petrovits (2006) finds that firms manage earnings using the accounting reserves of contributions to charitable causes to achieve reporting goals. Similarly, Caylor (2010) finds that firms accelerate revenue recognition through gross accounts receivable and deferred revenue to achieve a specific benchmark. However, this strategy increases tax costs because it increases the recognition of revenue, which imposes costs to shareholders and decreases firm value. Zalata and Roberts (2017) find that IFRS adoption in the U.K. decreased discretion over non-recurring items disclosure and increased the likelihood of misclassifying recurring items. Furthermore, even with the enactment of SFAS 159, which granted the accounting option to choose individual financial assets and liabilities for fair value measurement, Guthrie, Irving, and Sokolowsky (2011) show that earnings management using this channel is insignificant.

On the flip side, Chambers, Jennings, and Thompson (2003) find that investors react positively when firms can capitalize R&D expenses, possibly

because the capitalization of R&D transfers managers' private information to investors. Additionally, Herbohn, Tutticci, and Khor (2010) find that managers of Australian firms strategically use unrecognized deferred tax accruals from carry-forward losses to increase after-tax profit when the forecast of pre-tax earnings is below the median analyst's estimation.

A critical income-increasing incentive is the danger of being delisted from stock exchanges, as it can be a driving force for earnings management. For instance, Chen et al. (2020), studying the enactment of IAS 40 (ASBE 3 - Investment Property) in the Chinese market, found that it increased the regulatory pressure for performance, compelling firms to choose fair accounting option value for investment properties and increase earnings management. Chen et al. (2020) find that firms respond to this extra pressure for performance, realizing gains than losses more often to achieve or exceed the required earnings benchmark. Other performance-related incentives that drive earnings management activities encompass the firm's solvency status. Similarly, after AASB 138, Jones (2011) finds that the solvency status determines aggressive behavior in capitalizing intangibles in Australia. The findings show that the insolvent firms, which later went bankrupt, were more capitalization intensive than the non-bankrupt pairs.

Synthesis and areas for future research

In general, the articles included in this cluster investigate whether, ceteris paribus, managers use discretion for opportunistic reasons or improve financial reporting. We find mixed evidence suggesting that firms consistently manage earnings to achieve specific benchmarks (Burgstahler & Chuk, 2017).

The extant literature shows several channels to manage earnings, encompassing different factors. For example, the ESO accounting is subject to the 'parameter risk,' which is the risk that a model may be incorrect. Also, the data that drives it (e.g., rates, volatilities, correlations, spreads, and so on) may be poorly estimated. Given the flexibility provided in accounting stock options, previous literature shows it is an important channel of discretion for managers (Belze et al., 2019; Derman, 1996). Also, the accounting rules of pension benefits allows managers great discretion over parameters and recognition methods (Jiang, 2011)

Although the articles we investigate suggest managers can negatively affect firm value, they also indicate that accounting discretion over different rules can encourage the preparation of high-quality reports improving the value relevance of the financial statements. With increased transparency, moral hazard is mitigated, as it will enable shareholders to support managerial decisions and encourage managers to undertake new investment projects (Roychowdhury et al., 2019).

Therefore, future research could look more deeply at the country-level factors shaping managers' decisions and accounting discretion outcomes. Furthermore, more theoretical work seems to be necessary to find more accurate, less subjective estimation techniques for fair value problems. Finally, it is essential to understand how investors perceive this widespread manipulation evidenced in the literature to beat or surpass earnings forecast and whether governance mechanisms play a role in preventing this opportunistic behavior. However, it is beneficial for certain companies to hit earnings benchmarks, such as growth stocks.

2.2.4.5.
Goodwill Impairment

In the early 2000s, a growing trend in the accounting literature has tried to understand the determinants and consequences of goodwill impairment (GI). Previous studies claim that GI is a particular case of fair value accounting (e.g., Ramanna & Watts, 2012). Consequently, since 2002, goodwill has been tested for impairment under US GAAP (FASB, 2001). Since 2005, under IFRS, goodwill is no longer amortized; instead, it is tested for impairment, at least annually (IASB, 2004). These changes provided room for significant discretion and fostered a flow of studies analyzing GI decisions.

Goodwill is an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized (IASB, 2004). Specifically, goodwill is a residual value that allocates the expectations of future synergies that might occur in a business combination. This estimate is assigned to one or several cash-generating units (CGUs), of which the recoverable amount depends on subjective discounted cash flow estimates (Ayers, Ramalingegowda, & Yeung, 2011). Next, we discuss the 16 selected articles that, in Figure 2, are clustered in the GI group. These articles

discuss why firms have to impair goodwill and how it creates discretion for managers.

Filip et al. (2021) argue that, if used neutrally, GI decisions allow management to transmit private information and thus make financial statements more informative. Nevertheless, the amount allocated to goodwill can be influenced by managerial self-interest. For instance, Shalev, Zhang, and Zhang (2013) suggest that when CEO compensation is tied to earnings-based bonuses, the likelihood of a higher premium allocated to goodwill increases.

Filip et al. (2021) argue that managers can explore at least two strategies to delay or avoid goodwill impairment loss (GIL). First, they can make overly optimistic valuation assumptions of recoverable goodwill value. Second, they can inflate current cash flows to increase forecasts of future cash flows and, consequently, the goodwill' present value. On the other hand, managers can accelerate GIL because impairment tests ensure that assets are not carried at more than their economic value. Thus, managers have a valuable tool for producing conservative financial reports (Beatty & Weber, 2006; Filip et al., 2015; Li & Sloan, 2017).

Ayres et al. (2019) show that managers have substantial discretion and subjectivity when defining estimates for GIL, which makes goodwill challenging to audit. Also, Albersmann and Quick (2020) argue that, although it is challenging for audit firms to constrain opportunism in GI, they find that auditor's characteristics, such as size (i.e., Big 4), industry leadership, (non)audit fees, auditor tenure, and an audit committee's existence, improve monitoring over GI decisions, restricting managerial opportunism. More specifically, Albersmann and Quick's (2020) findings suggest that higher audit fees and the presence of Big Four auditors make firms report GIL more timely. In addition, losses' timeliness decreases with a longer auditor term and a higher non-audit fee rate.

Lapointe-Antunes et al. (2009), investigating Section 3062 of the Canadian version of SFAS 142, show that investors immediately incorporate GI into stock prices. In addition, they show that investors place a higher valuation weight on losses reported by firms that are expected to record GIL, i.e., when the market value is less than book value. Lapointe-Antunes et al. (2009) find that this behavior is

supported by a more effective audit committee, which brings reliability to the preparation of accounting reports.

Ayres et al. (2019) suggest that financial analysts serve as a substitute for the scrutiny of legal and economic institutions and make GIL forecast more accurate. However, studying a sample of Chinese firms, Han, Tang, and Tang (2020) find that analysts' pressure for optimistic forecasts is likely to encourage loss manipulation, as analyst coverage is negatively associated with GIL. Han, Tang, and Tang (2020) also find that this negative effect is weakened by the firm's size, disclosure ratings, and auditor quality.

Also, many internal factors can determine if firms will avoid reporting a GIL. For instance, Hamberg, Paananen, and Novak (2011), studying a sample of Swedish firms, show that the degree of slack in the debt agreement, concerns about the stock market performance, executive compensation plans, and management tenure affect the choices of GI. They show that, although these determinants have prominent associations with the GI decision, only management tenure is significant to delay or avoid GIL. Similarly, Beatty and Weber (2006) show that debt covenants, delisting requirements, and executive compensation plans also affect the decision of GI and make managers delay or avoid GIL to achieve their reporting goals.

Finally, Ramanna and Watts (2012) state that managers could transmit private information on future cash flows to determine GIL but do not find support to this hypothesis. However, they find support for the opportunistic view, showing an association between non-GIL decisions with CEO compensation, CEO reputation, and debt-covenant violation concerns. Also, the results of Li and Sloan (2017) suggest that managers delay GIL intentionally to inflate earnings and stock prices. Additionally, Filip et al.'s (2015) findings indicate that U.S. firms are likely to manage cash flows upwards to justify the decision of not recognizing an impairment loss. Interestingly, Lee (2011) shows that the discretion over future cash flows forecast has improved by the SFAS 142 amendment in 2001, leading firms to exploit the increased discretion to inflate goodwill and consequently the value of earnings and share price.

In an M&A transaction, non-amortization of goodwill can encourage bidder firms to acquire targets with a high level of goodwill (Cheng, Dunne, & Nathan,

1997). Thus, firms from countries that must amortize goodwill will be at a disadvantage compared to firms in countries that do not require amortization. The latter could offer a higher premium without worrying about future amortization (Cheng et al., 1997).

However, Glaum, Landsman, and Wyrwa (2018) indicate that better country-level enforcement is associated with a more timely recognition of GIL. Although Filip et al. (2021) agree that enforcement forces restrict the use of more optimistic valuation assumptions, the authors indicate that this factor encourages inflated current cash flows through the management of production resources, research and development (R&D) expenses, advertising, selling, general and administrative (SG&A) expenses, sales terms, and capital expenditures to avoid to recognize GIL more timely. However, firms from high enforcement countries are more likely to impair goodwill. But, cash flow management can be too onerous because it affects future performance by cutting operations and investment expenses. Consequently, Filip et al. (2021) argue that it is unclear whether having low enforcement and, consequently, management of optimistic valuation assumptions is preferable to having high enforcement and dangerous cash flow management supporting impairment tests decisions.

Along similar lines, Alshehabi, Georgiou, and Ala (2021) and Knauer and Wöhrmann (2016) suggest that the quality of the institutional environment (e.g., the level of investor protection, financial market development, and enforcement) positively affect the relevance of the GIL value. Additionally, Filip et al. (2021) and Knauer and Wöhrmann (2016) find a more negative market reaction to the announcement of unexpected GIL when a country's level of legal protection is low. Knauer and Wöhrmann's (2015) findings also indicate that investors react more negatively to GIL when a country's legal protection level is low and provides more managerial discretion. On the other hand, disclosing the explanation for GIL at footnotes seems to moderate adverse reactions to GIL announcements. Thus, the market reaction is less pronounced when justifications are based on verifiable evidence (Knauer & Wöhrmann, 2015).

Synthesis and areas for future research

The articles in this section suggest that managers often have opportunistic incentives to exploit the discretion inherent in GI decisions. Additionally, the extant literature suggests that the enforcement level within the country plays a significant role in GI decisions. Future research could examine how business combinations affect the market reaction when firms use different assumptions to GI values. Furthermore, it is essential to analyze whether the research results on GIL that point to an opportunistic approach are sustained over time or are a temporary concern. Finally, future research could explore the CGU losses not directly associated with the value of goodwill. Managers could transfer losses of associated CGU to unassociated ones to avoid or delay the GIL.

2.2.5. Concluding Remarks

Recent years have seen several important events to the accounting literature and, more specifically, the accounting discretion literature. Events like the IFRS adoption by almost 120 countries since 2005, corporate scandals (Hail, Tahoun, & Wang, 2018), and managerial abuse (Huang, Nekrasov, & Teoh, 2018) boosted a stream of academic research trying to understand the effects of providing managers with discretion in the use of accounting rules. This literature review shows that accounting rules are a crucial factor in expanding the level of discretion managers have, which translates into several potential accounting choices that may affect the informativeness of financial reports, the efficiency of accounting contracts, and the opportunism of managers.

We used a systematic mapping scheme to find articles that analyzed accounting discretion. We started with more than 1,000 documents. After excluding non-empirical and theoretical articles and keeping only those published in high-quality peer-reviewed journals, the final sample contains 69 articles, which were carefully examined to evaluate their findings. These articles are clustered and discussed through four main topics: managerial discretion, accounting choice, earnings management, and goodwill impairment.

The articles we analyze show that managers have several accounting choices that can affect the reported profit and loss. For instance, managers can define the

parameters of employee stock options value, the timing of tax recognition, the level of R&D capitalization, and the impairment of goodwill. Together, these decisions provide the means to the opportunistic use of accounting rules, affecting financial reporting and, ultimately, firm value. Nevertheless, the literature also shows that internal (i.e., the presence of a specialized board of directors combined with the presence of audit committees) and external monitoring mechanisms (i.e., the scrutiny by regulatory agencies) act together to promote good accounting practices and play an essential role in reducing managerial opportunism and information asymmetry. Furthermore, we find evidence that the characteristics of auditors significantly influence managerial behavior when making accounting choices. Additionally, financial analysts and institutional owners act as substitute monitoring mechanisms, but they are a double-edged sword. While they exert significant pressure on the transparency of financial reports, they also increase the pressure for short-term performance. Consequently, managers may engage in more earnings management practices (Han et al., 2020).

The results of the 69 articles are important to practitioners, regulators, and academic researchers. To practitioners, such as investors and board members, the literature shows the accounting choices that entail managerial discretion and potential opportunism, but it also shows the mechanisms by which managerial opportunism can be prevented. The findings of this literature also help regulators improve the quality of accounting rules. This review suggests that regulators can deliberately provide accounting discretion as long as they consider the quality of the monitoring structures, the economic incentives, and the opportunities created by the rule itself. It reinforces that a crucial element of allowing accounting discretion is how effective the monitoring forces prevent opportunism. Finally, throughout this review, we provide suggestions for future academic research. For instance, future research could explore the differences between countries to understand how the quality of institutions and governance shape managerial accounting decisions. On top of that, the study of unlisted firms offers a promising area to understand accounting discretion, as they, generally, are not obliged to follow IFRS, the accounting rules they are subject to still have cross-country heterogeneity. Although unlisted firms face lower reporting pressures than listed companies, future research can explore scenarios where stock market monitoring is

absent to understand managers' incentives to use discretion. Finally, future studies could combine more than one source of discretion to understand how managers respond to alternative incentives and look to the long-term consequences of increased accounting discretion.

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3

Paper 2: Do increases in accounting discretion affect earnings management? International evidence

Abstract

This study analyzes how variation in accounting discretion due to International Financial Reporting Standards adoption affects the relation between accrual-based earnings management (AEM) and real earnings management (REM). Most of the literature documents a trade-off between these practices. This study extends this literature by building an index of accounting discretion (IAD) and exploring, using a difference-in-differences model and paired samples, how changes in the provision of accounting discretion affect earnings management in 43 countries during the period 2003–2007, when several countries adopted IFRS. The empirical results show that variations in the IAD are positively associated with AEM and negatively associated with REM. The results indicate that, when the level of accounting discretion increases, managers adjust both AEM and REM, but in a substitutive manner. More specifically, accounting discretion encourages managers to exploit discretion over accruals and discourages to make changes in real decisions, such as research and development expenses, investments in inventory, and general expenses.

Keywords: Accounting discretion; accrual-based earnings management; real earnings management; IFRS adoption

3.1.
Introduction

Previous literature suggests that earnings management is common among listed firms (Burgstahler & Chuk, 2017) and that the external environment in which firms operate creates incentives to provide better (or worse) accounting information to outsiders. In addition, accounting rules—more specifically the level of accounting discretion—complement these incentives and play an essential role in reducing information asymmetry (Kothari, 2019).

The rationale behind this evidence is that accounting rules give managers discretion to provide information to the market. Thus, the more freedom the manager has in accounting rules, the more accurately the manager will represent the firm's performance, which is not observable. On the other hand, managers can use their discretion over accounting rules—via accrual-based earnings management (AEM)—to hide poor economic performance, prevent contract dissolutions, and even hide good results to avoid external intervention (Watts & Zimmerman, 1986).

In addition to applying AEM, managers can have incentives to adopt real earnings management (REM) via modifications in research and development (R&D), inventory or selling, general, and administrative expense (SG&A) to alter their companies' performance outcomes (Roychowdhury, Shroff, & Verdi, 2019). Although recent studies indicate that AEM and REM are substitutes and managers trade off these strategies due to their costs, there are configurations in which these strategies can be complementary, for example, when the firm stablishes higher levels of compensation to the CEO (Li, 2019). Therefore, discussing the factors that could drive this substitutive (or complementary) relation between AEM and REM is an interesting topic in this literature.

Although there is a range of studies on earnings management (Barth, Landsman, & Lang, 2008; Callao & Jarne, 2010; Healy & Wahlen, 1999; Kothari, Mizik, & Roychowdhury, 2016), some authors, such as Ball (2013), are reticent about the evidence they provide. Ball (2013) argues that the previous literature does not capture cases in which managers could manipulate financial statements. A large part of the variation in accruals comes from manager's natural judgment about when to disclose accounting information, making it more difficult to capture their degree of freedom or the level of discretion they have.

Given this debate, the adoption of International Financial Reporting Standards (IFRS) is an interesting event for analyzing the relation between accounting discretion and AEM and REM. The mandatory global adoption of IFRS is a rare opportunity to capture changes in reporting regulation rules (Ipino & Parbonetti, 2017; Leuz & Wysocki, 2016). Based on this literature, the most accepted hypothesis is that IFRS adoption would affect both AEM and REM because managerial discretion would increase. Nevertheless, this literature fails to account for the different levels of discretion that each country provides even after IFRS adoption. More specifically, when countries adopt IFRS, the level of accounting discretion that managers have can change, which is not considered in previous studies.

More importantly, these changes are different in each country, because the levels of discretion prior to IFRS adoption are different (Bae, Hongping Tan, & Welker, 2008). This observation leads to potentially different predictions about the effect of IFRS adoption on AEM and REM. On the one hand, if IFRS adoption increases the level of accounting discretion (compared to before IFRS adoption), managers can increase AEM, due to greater flexibility in accounting rules, and cease REM, which is harmful to corporate value in the long run (Ipino & Parbonetti, 2017). However, if IFRS adoption restricts discretion, managers can decrease AEM, due to lower accounting flexibility, and increase REM to pursue private goals (Abughazaleh, Al-Hares, & Roberts, 2011; Mittendorf, 2006).

Considering the above, we ask the following research question: how do variations in accounting discretion affect earnings management strategies (i.e., AEM and REM)? To answer this question, we execute three empirical tests. First, we build an index of accounting discretion (IAD) for 43 countries in 2005, the year when several countries adopted IFRS. Second, we estimate ordinary least squares (OLS) models to analyze the association between the IAD and both AEM and REM. Along similar lines, we estimate a first difference model to exclude potential firm-level time-invariant effects and to control for IAD increases due to IFRS. Finally, we estimate difference-in-differences models with paired samples to control for potential differences in firm-level observable characteristics between countries that adopted IFRS in 2005 (i.e., the treatment group) and those that did not (i.e., the control group).

This study contributes to the literature in three ways. First, contribute to the IFRS literature by providing evidence of how IFRS adoption affects the quality of accounting information over the years after the adoption. Second, building an index (i.e., the IAD) that focuses on the level of accounting discretion managers have between the years prior to IFRS adoption and after. Finally, estimating different models, including a difference-in-differences model that provides evidence about how accounting discretion affects earnings management practices and whether there are differences in the levels of earnings management between countries that adopted IFRS in 2005 and those that did not.

3.2.
Related Literature

3.2.1.
Accounting discretion

The economic consequences of accounting choices have been a concern of academics, regulators, and investors for a long time (Holthausen & Leftwich, 1983). According to Bowen et al. (2008), the Positive Accounting Theory (Watts & Zimmerman, 1986) fostered research on accounting choices investigating the following questions: do managers use their discretion opportunistically, or do they use it to reduce information asymmetry? Could opportunistic managers use accounting discretion to modify company-relevant information in a way that benefits them at the cost of stakeholders and shareholders?

Watts and Zimmerman (1986) propose three main hypotheses: a) the bonus plan hypothesis (states that managers try to maximize bonuses), b) the political cost hypothesis (states that managers use discretion to decrease government interference), and c) the debt/equity hypothesis (states that managers use accounting to prevent violations of debt covenants). Thus, Watts and Zimmerman's (1986) hypothesis supports the opportunistic approach of accounting choice. Along the same lines, DeAngelo (1987) argues that when managers feel threatened by shareholders, they use accounting discretion to show a better, more positive company image to outsiders and external shareholders. Also, the Enron and

WorldCom scandals provide empirical evidence of the cons of accounting discretion to shareholders (Bowen et al., 2008; Chung, Firth, & Kim, 2002).

On the flip side, when managers have accounting discretion, they can prepare and implement an appropriate compensation contract with value-enhancing incentives to signal good behavior through accounting choices (Basu, 1997; Becker, Defond, Jiambalvo, & Subramanyam, 1998; Lin, 2006; Subramanyam, 1996). For example, managers can adopt conservative accounting, which reduces current profits and decreases managerial compensation in the short term, and signals the expectation of long-term profitability to external investors. Thus, allowing some degree of accounting discretion might help managers to provide more reliable and value-maximizing results. Consequently, this line of reasoning suggests that accounting discretion can improve long-term performance and benefit investors (Barth et al., 2008; Bartov, Givoly, & Hayn, 2002; Basu, 1997; Becker et al., 1998; Dechow & Skinner, 2000; Lin, 2006).

3.2.2.
IFRS adoption and accounting practices

Since the late 1990s, studies have sought to classify national accounting systems (Basu et al. 1998; Doupnik & Salter, 1993; Leuz, 2010; Leuz et al., 2003). Nobes (2006) is the first to systematically classify countries based on their accounting practices post-IFRS. This author analyses accounting practices in seven countries in the European Union plus Australia and concludes that, even after several years of debate about practice convergence, two distinct groups persist: 1) the Anglo-Saxons and 2) Continental Europe. Nobes (2011, p. 281) argues that "if the European Union (EU) 's harmonization efforts had succeeded, one would not expect to see the UK still classified with Australia rather than with the other EU countries." Overall, Nobes argues that accounting standards are generally resistant to harmonization. This result is aligned with the study of Watts and Zimmerman (1990), which suggests that accounting practices tend to be very stable.

Another issue discussed in this literature is that many countries have adopted local versions of IFRS practices, keeping some accounting practices from the pre-IFRS period widely accepted by local players (Ball, 2006; Nobes, 2006). These local practices arise from pressure from regulatory agents and tax systems or local

stakeholders' demands for more information. Additionally, because most countries have adopted mandatory IFRS for consolidated accounting statements only, managers can navigate through various options in non-consolidated statements to meet local requirements (Nobes, 2013). Thus, even though one observes similarities among countries post-IFRS, Nobes (2013) argues that it is still possible to separate countries into subgroups according to their accounting practices from the pre-IFRS period. The same type of argument is presented by Nobes and Stadler (2013) and Lourenço, Sarquis, Branco, and Pais (2015).

3.2.3.
AEM and REM in IFRS adoption

Although international accounting literature considers the adoption of IFRS associated with an environment with better quality accounting reports, part of this same literature considers that IFRS offer a significant room for accounting discretion for managers, which can offer opportunities to manage the results (Al-Amri, Al Shidi, Al Busaidi, & Akguc, 2017; Capkun, Collins, & Jeanjean, 2016; Nobes, 2013). However, the results of research on whether there is a higher incidence of earnings management and which type is more prevalent, AEM or REM, are not yet convergent. (Ipino & Parbonetti, 2017; Li, 2019).

The recent literature on REM predicts a trade-off relationship with the types of earnings management, AEM and REM. Therefore, with a more significant accounting discretion due to IFRS adoption, managers can replace the REM with a higher cost because of its operational decisions with AEM (Ipino & Parbonetti, 2017). On the other hand, with the greater disclosure demanded by IFRS, both AEM and REM can be suppressed (Sellami & Fakhfakh, 2013). However, recent studies indicate a complementarity between activities to maximize the achievement of a given reporting objective (Li, 2019; Matsuura, 2008).

However, when the REM literature considers IFRS adoption, research generally does not objectively measure the level of accounting discretion (Ipino & Parbonetti, 2017; Li, 2019; Sellami & Fakhfakh, 2013). Thus, accounting research uses a dichotomous IFRS variable to relate the AEM and REM proxies, which may not lead to more accurate results (Hans B. Christensen et al., 2013; Gray, Kang, Lin, & Tang, 2015; Ipino & Parbonetti, 2017; Judge, Li, & Pinsker, 2010; Leuz &

Wysocki, 2016). As evidenced by Bae et al. (2008), countries had different levels of IFRS convergence, which can lead to varying levels of accounting discretion and, therefore, different effects for each country at the time of IFRS adoption. In this way, our contribution to the accounting literature is to provide an accounting discretion index to better assess the effects of IFRS on financial reporting in adopting countries.

This section has three takeaways. First, previous literature (i.e., Bae et al., 2008) shows that countries had different levels of convergence to IFRS before adoption, leading to the different impacts among these countries after mandatory IFRS adoption. Second, the index relies on Nobes (2001), which directly affects listed firms. Third, all cited studies focus on developed countries; thus, there is a lack of debate about emerging markets converging to developed countries' rules (i.e., IFRS adoption). Therefore, a more comprehensive and global analysis is helpful in this debate to understand how different countries address the discretion provided by accounting rules.

3.3. Variable Measurement

3.3.1. AEM

To calculate AEM, we use the model of Jones (1991) because it aggregates the net effect of all accounting choices into a single proxy (Watts & Zimmerman, 1990; Dechow, Ge, & Schrand, 2010). So, we use two versions of this model: the modified Jones model of Dechow, Sloan, and Sweeney (1995), which we call AEM1, and the one adapted by Kothari, Leone, and Wasley (2005), which we call AEM2. The following equations, respectively, represent these models:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1,t}\frac{1}{A_{i,t-1}} + \beta_{2,t}\frac{\Delta SALE_{i,t} - \Delta RE_{i,t}}{A_{i,t-1}} + \beta_{3,t}\frac{PPE_{i,t}}{A_{i,t-1}} + \mu_{i,t} \quad (1)$$

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1,t}\frac{1}{A_{i,t-1}} + \beta_{2,t}\frac{\Delta SALE_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} + \beta_{3,t}\frac{PPE_{i,t}}{A_{i,t-1}} + \beta_{4,t}ROA_{i,t-1} + \mu_{i,t} \quad (2)$$

where *TA* is total accruals; Δ*SALE* is the change in total revenue; Δ*REC* is the change in net receivables; *PPE* is plant, property, and equipment; and *ROA* is the return on assets.

The rationale is that the independent variables of Equations (1) and (2) explain normal levels of accruals, and any unexplained variation (i.e., earnings management via accruals) is left to the residuals. Therefore, we obtain AEM through the residuals of Equations (1) and (2). we estimate Equations (1) and (2) by country, industry, and year, and we require at least 10 observations for each two-digit NAICS code industry (for more details, see Dechow et al., 2010; Ipino & Parbonetti, 2017; Leuz, Nanda, & Wysocki, 2003; McNichols, 2002).

3.3.2. REM

To calculate REM, we follow Cohen, Dey, and Lys (2008), Cohen and Levinthal (1990), Cohen and Zarowin (2010), Roychowdhury (2006), and Zang (2012) and calculate three alternative proxies. These alternative proxies are represented by the following equations, estimating, respectively, accruals over R&D, production costs, and SG&A:

$$\frac{OCF_{i,t}}{A_{i,t-1}} = \beta_{1,t}\frac{1}{A_{i,t-1}} + \beta_{2,t}\frac{SALE_{i,t}}{A_{i,t-1}} + \beta_{3,t}\frac{\Delta SALE_{i,t}}{A_{i,t-1}} + \mu_{i,t} \quad (3)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_{1,t}\frac{1}{A_{i,t-1}} + \beta_{2,t}\frac{SALE_{i,t}}{A_{i,t-1}} + \beta_{3,t}\frac{\Delta SALE_{i,t}}{A_{i,t-1}} + \beta_{4,t}\frac{\Delta SALE_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \quad (4)$$

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_{1,t}\frac{1}{A_{i,t-1}} + \beta_{2,t}\frac{SALE_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \quad (5)$$

where *OCF* is operating cash flow, *PROD* is production costs, *DISEXP* is discretionary expenses, *SALE* is total net income, and *TA* is total assets. The variable *PROD* is the sum of the costs of goods sold (*COGS*) and inventory variation, and *DISEXP* is the sum of R&D expenses, advertising, and SG&A. As in the AEM models, the residuals of Equations (3) to (5) represent abnormal levels of discretionary cash flow, production, and expenses, respectively. Following Chi, Lisic, and Pevzner (2011) and Cohen et al. (2008), we combine the three proxies

for REM to compute a single variable, thus mitigating concerns about measurement errors. More specifically, we calculate the sum of the residuals from Equations (3) to (5).

3.3.3.
Index of Accounting Discretion - IAD

In this section, we explain how to create the IAD. So, we explain how to build it and then validate it using several methods.

In the first step, we follow Bae et al. (2008) and rely on Nobes (2001) to identify the items in accounting rules that could provide discretion to managers. More specifically, we adapt the protocol of Bae et al. (2008) to find those items that meet the following three criteria: 1) the item is identified as providing discretion according to previous literature (Basu, Hwang, & Jan 1998; Bae et al., 2008; Hung, 2001; Stadler & Nobes, 2014), 2) the item is identified as a key accounting item according to previous literature (Basu, Hwang, & Jan 1998; Bae et al., 2008; Hung, 2001; Stadler & Nobes, 2014), and 3) the item leads to variation in at least three countries. we then calculate the IAD by summing all the 16 items for every country in the sample (see Table 1). After IFRS adoption, the IAD score becomes 13.5 for adopting countries.

Table 1
IAD

Panel A: The 16 discretionary items included in the IAD

Discretionary item	Source of discretion
1) SIC 11. 3/4/6	Can foreign exchange losses resulting from severe currency devaluations be capitalized?
2) IAS No. 36	Are there rules calling for impairment testing for long-term assets, or are impairments only recorded when deemed permanent?
3) 17 IAS No. 38.42	Is the capitalization of R&D costs permitted?
4) IAS 22.40	Is goodwill calculated by reference to fair value rather than to net book values?
5) IAS 16.29	If tangible fixed assets are revalued, must the valuations be kept up-to-date?
6) IAS No. 17	Is the capitalization of leases required or permitted?
7) IAS 37.45	Are there rules calling for the discounting of provisions?
8) IAS No. 19	Are there rules accounting for employee benefit obligations (other than defined contribution plans in some cases)?
9) IAS No. 32.18/.23	Are companies required to account for their financial instruments, based on substance over form?
10) IAS 39.69	Are financial assets measured at fair value?
11) IAS 39.93	Are trading and derivative liabilities required to be measured at fair value?
12) IAS No. 35	Are there rules outlining the treatment of discontinued operations?
13) IAS 39.142	Is hedge accounting allowed?
14) IAS 40.28	Are revaluation gains and losses on investment properties allowed or are they required to be reported in the income statement?
15) IAS No. 8.6	Is a broader definition of extraordinary items permitted?
16) IAS 38.56	Is pre-operation capitalization allowed?

Panel B: Score of 16 discretionary items by country - Before IFRS adoption

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*IAD 2004*	*IAD 2005*
Argentina	0	0	1	0	1	0	0	1	1	1	0	0	0	0	1	0	5	5
Australia	1	1	1	1	0,5	1	1	1	1	0	0	1	1	0	0	0	11	13.5
Austria	0	0	1	1	0,5	0,5	0	0	1	0	0	0	0	0	1	1	6,5	13.5
Belgium	1	1	1	0	1	0,5	0	1	0	0	0	1	0	0	1	1	8,5	13.5
Brazil	0	0	0,5	0	1	0	0	1	0	0	0	0	0	0	0	1	3,5	3,5
Bulgaria	1	0	0	1	0	0	0	1	1	0	1	0,5	0	1	1	0	8,5	8,5
Canada	0	1	1	1	0,5	1	0	1	1	1	1	0,5	0	1	0	0,5	11	11
Chile	1	0	1	0	1	1	0	0	0	0	0	0	1	0	1	0	6	6
China	0	1	1	0	0,5	0,5	0	1	0	0,5	0	0	0	0	1	0	6	6
Cyprus	1	1	1	1	0,5	1	1	1	1	1	1	0,5	1	1	0	0	13,5	13,5
Czech Republic	0,5	0	1	0	0,5	0	0	1	0	0	0	0,5	1	0	1	1	6,5	13.5
Denmark	1	0	1	0	0,5	0	1	1	0	0	0	1	0	0	1	0	7	13.5
Egypt	1	1	1	1	0,5	0	1	0	0	0	0	1	0	1	0	0,5	8,5	8,5
Estonia	1	0	1	0	0,5	1	1	1	0	0,5	0	0	0	0	0	0	6,5	6,5
Finland	1	0	1	0	0,5	1	0	1	0	0	0	0	0	0	1	0	6	13.5
France	1	0	1	1	1	1	0	1	0	1	1	1	0	0	1	0	10	13.5
Germany	0,5	1	1	1	0,5	0	0	0	0	0	0	1	0	0	1	0	6	13.5
Greece	0	1	1	1	0	0	0	1	0	0	0	0	0,5	0	1	1	7	13.5
Hong Kong	1	1	1	1	0,5	0	1	1	0	0	1	0	0	1	0	0	9	13.5
Hungary	1	0	1	1	0,5	0,5	0	1	0	0	0	0,5	0	0	1	0	6	13.5
Iceland	1	0	1	1	0	0	0	1	1	0	0	1	0	0	0	1	8	13.5
India	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	5	5
Indonesia	1	1	1	1	0,5	1	1	0	1	0	0	0,5	1	1	0	0	10,5	10,5
Iran	1	0	1	1	0,5	1	0	1	0	0	0	0	0	1	0	0	7	7
Ireland	1	1	1	1	0,5	1	1	1	0	0	0	1	0	1	0	0	10	13.5
Israel	1	1	1	1	0,5	0	0	1	1	1	1	0	0	0	0	0	9	9
Italy	1	0	1	1	0,5	0	0	1	0	0	0	0	0	0	1	0	6	13.5
Japan	1	0	1	1	0,5	1	0	0	1	1	0	0,5	0	0	1	1	9,5	9,5
Kenya	1	1	1	1	0,5	1	1	1	1	1	1	0,5	1	1	0	0	13,5	13,5

S. Korea	1	1	1	1	0,5	1	0	1	0	0	0	0,5	0	1	0	0	8,5	8,5
Latvia	0	0	1	1	0,5	0	0	1	1	0	0	0	0	0	0	0	4	13.5
Lithuania	1	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	7	13.5
Luxembourg	0	0	1	1	0,5	0	0	1	0	0	0	0	0	0	1	1	6	13.5
Malaysia	1	0	1	1	0,5	1	1	1	0	0	0	1	0	0	0	0	8	8
Mexico	0	1	1	1	0,5	1	1	0	1	1	1	1	1	1	0	1	13	13
Morocco	1	1	1	1	1	0	0	1	0	0	1	0,5	0	0	0	1	7,5	7,5
Netherlands	1	1	1	1	1	1	0	0	1	1	1	0	0	1	1	0	11	13.5
New Zealand	1	0	1	1	0,5	1	1	1	1	1	0	1	1	1	0	0	12	12
Norway	1	0	1	1	0,5	1	1	1	0	0	0	1	0	1	0	0	9	13.5
Pakistan	1	0	1	1	0,5	1	1	1	0	0	0	1	0	0	0	0,5	8,5	8,5
Peru	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	11	11
Philippines	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	5	5
Poland	0	0	1	0	0,5	0,5	0	1	0	0	0	1	0	1	1	0	5,5	13.5
Portugal	0,5	0	1	1	0,5	1	1	1	0	0	1	1	0	0	1	0	9	13.5
Romania	1	1	1	1	0,5	1	1	1	1	1	1	0,5	1	1	0	0	13,5	13.5
Russia	1	0	1	0	1	0,5	0	1	0	1	0	0	1	0	1	0	7,5	7,5
Saudi Arabia	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	4	4
Singapore	1	1	1	1	0,5	1	1	1	1	0	0	0	1	1	0	0	11	11
Slovakia	0	0	1	0	0,5	0	0	1	0	0	0	0	0	0	0	0	3	13.5
Slovenia	1	1	1	1	0,5	1	1	1	1	0	0	0	1	0	1	0	10	13.5
South Africa	1	1	1	1	0,5	1	1	1	1	1	1	0	1	1	0	0	13	13.5
Spain	0,5	0	1	0	0,5	0	0	1	0	0	0	1	0	0	1	0	5	13.5
Sweden	1	0	1	1	1	1	0	1	0	0	0	1	0	0	0	0	7	13.5
Switzerland	1	0	1	1	0,5	0	0	0	0	0	0	0	1	0	1	1	7	13.5
Taiwan	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	4	4
Thailand	1	1	0	1	0,5	1	1	1	1	1	0	0	0	0	0	0	9	9
Tunisia	1	1	1	1	0,5	1	1	1	0	0	0	0	0	0	0	0	8	8
Turkey	1	0	1	1	0,5	0	0	1	0	0,5	0	0	0	0	1	1	6,5	13.5
Ukraine	1	1	1	1	0,5	1	1	1	0	0	0	0	0	0	0	0	7	7
United Kingdom	1	1	1	1	0,5	1	1	1	0	0	0	1	0	1	0	0	10	13.5

United States	1	1	1	1	0,5	1	0	0	0	1	1	0,5	0	1	0	0	9,5	9,5
Venezuela	1	1	1	1	0	1	0	1	0	1	1	0	0	0	0	0	9	13.5

Obs.: The Standard Interpretations Committee (SIC) and International Accounting Standards (IAS) used for reference are those with accounting instructions or criteria used by the 2001 Generally Accepted Accounting Principles survey of Nobes (2001). In each item, we use the description defined by Nobes (2001) to identify accounting discretion present in the SIC, IAS, and/or local rules. We code this measure as zero when there is no discretion, as 0.5 for some discretion, or one when there is full or significant discretion.

To validate the IAD, we calculate Cronbach's alpha, which is a measure of the correlation between elements of a multipartite measure and ranges from zero to one (Black, de Carvalho, Khanna, Kim, & Yurtoglu, 2017). The calculated alpha is around 0.75, which suggests that the 16 items are complementary to each other and combine different dimensions of accounting discretion. We also conduct a factorial analysis to understand whether the 16 items are convergent or measure different aspects of discretion. Because the 16 items are complementary, we would expect more than one factor with an eigenvalue higher than one, but not too many factors. This analysis leads to two factors with eigenvalues greater than one and a Kaiser–Meyer–Olkin (KMO) statistic around 0.64, which is acceptable according to Hutcheson and Sofroniou (1999). Overall, these validation steps suggest that the internal validity of the IAD is high and that it is a good proxy for accounting discretion. These estimates are presented in Table 2.

Table 2

Cronbach's alpha and factor analysis for IAD

Item	Alpha	Average Inter-item Correlation	KMO	Uniqueness
Item 1	0.7385	0.1584	0.7263	0.8202
Item 2	0.7197	0.1461	0.8389	0.6525
Item 3	0.7641	0.1776	0.2567	0.9992
Item 4	0.7328	0.1546	0.5819	0.7677
Item 5	0.7166	0.1442	0.7603	0.6093
Item 6	0.7476	0.1649	0.5672	0.9507
Item 7	0.7249	0.1494	0.7121	0.6430
Item 8	0.7670	0.1799	0.5159	0.9999
Item 9	0.7340	0.1554	0.5969	0.7355
Item 10	0.7340	0.1554	0.5610	0.7723
Item 11	0.7305	0.1530	0.6210	0.7363
Item 12	0.7518	0.1680	0.4092	0.9613
Item 13	0.7355	0.1564	0.5290	0.8302
Item 14	0.7150	0.1433	0.7731	0.6021
Item 15	0.7320	0.1540	0.6930	0.7482
Item 16	0.7482	0.1654	0.6094	0.8729
Overall	**0.7500**	**0.1579**	**0.6378**	

Obs.: For more details about the 16 items, consult Panel A of Table 1.

3.4. Empirical Design

The empirical design consists of analyzes about the effects of the IAD on both AEM and REM. We start with an OLS model represented by the following Equation:

$$AEM_{i,t} \text{ or } REM_{i,t} = \alpha_i + \beta_1 IAD_t + \beta_2 X_{it} + \varepsilon_{i,t} \quad (6)$$

where *AEM* is either AEM1 or AEM2 (i.e., one of the two modified Jones models), *REM* represents the combination of the three REM estimates, and X_{it} is a vector of control variables, based on previous literature (Berger, Saunders, Scalise, & Udell, 1998; Cheng & Warfield, 2005; Gow, Larcker, & Reiss, 2016; Larcker, Richardson, & Írem Tuna, 2007; Watts & Zimmerman, 1986). To mitigate concerns about omitted variable bias due to firm-level time-invariant effects, we also estimate a first difference version of Equation (6).

Finally, we perform a difference-in-differences analysis represented by the following Equation 7.

$$AEM_{i,t} \text{ or } REM_{i,t} = \alpha_1 + \beta_1 dIFRS + \beta_2 d2005 + \beta_3 dIFRS \times d2005 + \beta_4 X + \varepsilon_{it} \quad (7)$$

where the right-hand side includes year, industry, and country fixed effects; *dIFRS* is a dummy variable that equals one if the country adopted IFRS in 2005; *d2005*, is a dummy variable that equals one for observations after 2005; and *X* is a vector of control variables. In other words, the main assumption behind Equation Eq. (7) is that an exogenous shock on discretion occurred in 2005 in those countries that adopted IFRS (i.e., the treatment group), but not in the other countries (i.e., the control group).

The initial sample consists of all countries to calculate the IAD. After excluding missing data at the firm level, the sample is reduced to 73,554 firm–year observations from 43 countries. The sample comprises nonfinancial firms whose required data for 2003 to 2007 are available from Refinitiv Eikon. Panel A of Table 3 presents the descriptive statistics of all the empirical variables used throughout the study. The last two columns of Panel A suggest that all empirical variables differ

between the treatment and control groups (i.e., the *t*-statistics of the mean difference test are significant).

Table 3
Descriptive statistics

	Countries that adopted IFRS in 2005			Countries that did not adopt IFRS in 2005			Mean difference test	
Variables	**Obs.**	**Mean**	**S.d.**	**Obs.**	**Mean**	**S.d.**	**Diff**	**T-Test**
Panel A – Without Matching Statistics								
AEM 1	9,353	0.1131	0.2214	39,694	0.0795	0.1226	-0.0336	-19.9344
AEM 2	9,353	0.4474	2.8830	39,694	0.2906	0.3575	-0.1568	-10.5004
REM	9,353	-0.0142	0.1500	39,694	-0.0346	0.3880	-0.0204	-5.0082
LEV	9,353	0.6094	0.3185	39,694	0.5739	0.2800	-0.0355	-10.7399
CASH	9,353	0.0810	0.1570	39,694	0.0828	0.1472	0.0017	1.0312
ROA	9,353	0.0242	0.1427	39,694	0.0325	0.0965	0.0082	6.7517
TANG	9,353	0.3051	0.2566	39,694	0.3634	0.2394	0.0582	20.8884
SIZE	9,353	19.1385	1.9984	39,694	19.1181	1.5989	-0.0204	-1.0592
Z	9,353	1.3879	1.7892	39,694	1.4159	1.6399	0.0280	1.4598
BTM	9,353	0.9286	0.9880	39,694	0.9835	1.3937	0.0548	3.6019
Panel B – Entropy Matching Statistics (covariates)								
LEV	9,353	0.6094	0.3185	39,694	0.6094	0.3185	0.00	0.00
CASH	9,353	0.0810	0.1570	39,694	0.0810	0.1570	0.00	0.00
ROA	9,353	0.0242	0.1427	39,694	0.0242	0.1427	-0.00	0.00
TANG	9,353	0.3051	0.2566	39,694	0.3051	0.2566	-0.00	0.00
SIZE	9,353	19.1385	1.9984	39,694	19.1385	1.9984	0.00	0.00
Z	9,353	1.3879	1.7892	39,694	1.3879	1.7892	-0.00	0.00
BTM	9,353	0.9286	0.9880	39,694	0.9286	0.9887	-0.00	0.99
Panel C –Propensity Score Matching (covariates - year 2004)								
LEV	1,655	0.5987	0.2894	1,655	0.6144	0.3056	0.0156	1.5135
CASH	1,655	0.0853	0.1691	1,655	0.0806	0.1432	-0.0046	-0.8486
ROA	1,655	0.0235	0.1343	1,655	0.0216	0.1247	-0.0018	-0.4145
TANG	1,655	0.3170	0.2511	1,655	0.3164	0.2336	-0.0005	-0.0672
SIZE	1,655	19.1002	2.0129	1,655	19.0884	1.6672	-0.0117	-0.1829
Z	1,655	1.4036	1.7172	1,655	1.3867	1.7866	-0.0169	-0.2780
BTM	1,655	0.99172	1.1253	1,655	1.0478	1.2153	0.0561	1.3792

Obs.: The term *AEM1* represents the absolute value of the residuals from Equation (1), *AEM2* the absolute value of residuals from Equation (2), *REM* represents the residuals from Equation (3) plus the residuals from Equation (4) minus the residuals from Equation (5). The covariates are *SIZE*, which equals the natural logarithm of the book value of total assets; *LEV* is total liabilities divided by lagged total assets; *CASH* is cash and equivalents divided by total assets minus cash and equivalents; *ROA* is net income divided by total assets; *TANG* is property, plant, and equipment divided by lagged total assets; Z is equal to (3.3 × net income before extraordinary items + sales + 1.4 × retained earnings + 1.2(total current assets – total current liabilities), all divided by total assets;

and *BTM* is the book value of common equity divided by the market value of equity. ***, **, *, and + denote significance at the 0%, 1%, 5%, and 10% levels, respectively.

Panels B and C of Table 3 present the statistics and mean difference test results after paired samples. Panel B shows the statistics of entropy balancing (Hainmueller, 2012; Hainmueller & Xu, 2013). Entropy balancing reweights the control group sample of observations so that they have the same moments as the treatment group sample. Panel B of Table 4 shows that the mean differences between the treatment and control groups are not significant after we match the first and second moments. Additionally, we match observations using propensity score matching (PSM). Thus, for each observation in the treated group, we find the most similar observation in the control group. we match observations in the year before IFRS adoption (i.e., 2004) and keep the pairs in the main analysis. Panel C presents the descriptive statistics and the *t*-test results for the mean differences after PSM.

3.5. Results

Table 4 presents the estimated coefficients for the OLS (Panel A) and first difference models (Panel B) using the sample of countries that adopted IFRS in 2005. In Panel A, the IAD is significant in the three columns (the *t*-statistics range from -3.16 to 5.40). While the IAD has a positive association with both AEM1 and AEM2, it has a negative association with REM. In Panel B, the signs of the coefficients are the same, but the IAD shows no significant association with REM.

Table 4
IAD and EM in countries that adopted IFRS in 2005

	Panel A - OLS			*Panel B – First difference*		
	AEM1	**AEM2**	**REM**	**AEM1**	**AEM2**	**REM**
IAD	0.01*	0.09**	-0.01**	0.01***	0.04***	-0.00
	[2.39]	[2.82]	[-3.16]	[5.40]	[3.47]	[-1.15]
LEV	0.08***	0.44*	0.00	0.08***	0.36+	0.03*
	[6.80]	[2.22]	[0.56]	[4.47]	[1.71]	[2.10]
CASH	0.03+	0.17	0.02	0.06	-0.51	0.08**
	[1.81]	[0.63]	[1.29]	[1.31]	[-1.38]	[2.84]
ROA	-0.07*	0.15	-0.14***	-0.11**	-0.34+	-0.04
	[-2.32]	[0.64]	[-4.30]	[-2.63]	[-1.90]	[-0.99]
TANG	-0.05***	-0.33*	-0.01	-0.06*	-0.41	-0.02
	[-3.44]	[-2.18]	[-1.51]	[-2.13]	[-1.51]	[-0.75]
SIZE	-0.01***	-0.01	0.00**	0.04*	0.39+	-0.01

	[-9.09]	[-1.03]	[2.67]	[2.17]	[1.85]	[-1.49]
Z	-0.00+	-0.02	0.00	0.00	-0.01	-0.02**
	[-1.93]	[-1.39]	[0.45]	[0.15]	[-0.33]	[-3.25]
BTM	-0.00	0.02	-0.00	-0.00	0.09+	0.00
	[-1.64]	[0.86]	[-0.41]	[-0.43]	[1.81]	[0.13]
Constant	0.22***	-0.69+	-0.09	-0.00	-0.04	-0.01*
	[5.03]	[-1.73]	[-1.28]	[-0.35]	[-1.28]	[-2.38]
F-stat	27.072	18.924	4.826	14.962	7.987	6.542
R-squared	0.137	0.045	0.041	0.031	0.008	0.024
Observations	9,353	9,353	9,353	7,956	7,956	7,956

Obs.: The term *AEM1* represents the absolute value of the residuals from Equation (1), *AEM2* the absolute value of residuals from Equation (2), *REM* represents the residuals from *Equation* (3) plus the residuals from Equation (4) minus the residuals from Equation (5). The covariates are *SIZE*, which equals the natural logarithm of the book value of total assets; *LEV* is total liabilities divided by lagged total assets; *CASH* is cash and equivalents divided by total assets minus cash and equivalents; *ROA* is net income divided by total assets; *TANG* is property, plant, and equipment divided by lagged total assets; *Z* is equal to (3.3 × net income before extraordinary items + sales + 1.4 × retained earnings + 1.2(total current assets – total current liabilities), all divided by total assets; and *BTM* is the book value of common equity divided by the market value of equity. ***, **, *, and + denote significance at the 0%, 1%, 5%, and 10% levels, respectively.

Finally, Table 5 contains the difference-in-differences estimations. It presents the results of three estimations for the three proxies of earnings management: 1) without any type of matching, 2) with entropy balancing, and 3) with PSM. All specifications include control variables. The bottom rows of Table 5 show the main difference-in-differences coefficients and the *t*-statistics. These coefficients corroborate the previous specification in Table 4, that is, managers positively adjust AEM practices after the shock in discretion in 2005, but negatively adjust REM practices. All the difference-in-differences coefficients are significant at the 1% level. Importantly, the type of matching does not influence the results

Table 5

Diff-in-Diff on earnings managements after IFRS adoption

	AEM1			AEM2			REM		
	Without	**Entropy**	**PSM**	**Without**	**Entropy**	**PSM**	**Without**	**Entropy**	**PSM**
Before 2005									
Control [C]	0.280	0.327	0.319	0.308	0.116	0.252	-0.001	-0.083	-0.053
Treated [T]	0.302	0.338	0.339	0.321	0.127	0.253	0.039	-0.021	-0.013
Diff [T-C]	0.022 ***	0.011 ***	0.020 ***	0.012	0.011	0.001	0.040 ***	0.062 ***	0.040 ***
T-Stats	7.90	3.12	4.92	0.48	1.35	0.03	5.66	6.63	5.23
After 2005									
Control [C]	0.284	0.328	0.321	0.294	0.109	0.211	0.044	-0.018	-0.017
Treated [T]	0.319	0.355	0.349	0.506	0.311	0.352	0.053	-0.005	0.003
Diff [T-C]	0.035 ***	0.027 ***	0.029 ***	0.212 ***	0.203 ***	0.140 ***	0.010 *	0.013 ***	0.020 ***
T-Stats	17.32	7.65	8.76	11.52	4.67	5.05	1.90	5.70	3.28
Diff-in-Diff	0.013 ***	0.015 ***	0.009 *	0.199 ***	0.192 ***	0.139 ***	-0.030 ***	-0.049 ***	-0.020 **
T-Stats	3.62	3.13	1.69	6.30	4.58	3.16	-3.52	-5.09	-2.00
Obs. (*Control)*	9,353	9,353	7,845	9,353	9,353	7,845	9,353	9,353	7,845
Obs. (*Treated)*	39,694	39,694	7,688	39,694	39,694	7,688	39,694	39,694	7,688
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Obs.: The column denoted *Without* presents the results without matching and includes the full sample, *Entropy* means data with entropy matching and includes the full sample weighted, and *PSM* contains the results with the matched sample by PSM and includes all observations of the paired firms in the year of 2004. The term *AEM1* represents the absolute value of the residuals from Equation (1), *AEM2* the absolute value of residuals from Equation (2), *REM* represents the residuals from Equation (3) plus the residuals from Equation (4) minus the residuals from Equation (5). The covariates are *SIZE*, which equals the natural logarithm of the book value of total assets; *LEV* is total liabilities divided by lagged total assets; *CASH* is cash and equivalents divided by total assets minus cash and equivalents; *ROA* is net income divided by total assets; *TANG* is property, plant, and equipment divided by lagged total assets; *Z* is equal to (3.3 × net income before extraordinary items + sales + 1.4 × retained earnings + 1.2(total current assets – total current liabilities), all divided by total assets; and *BTM* is the book value of common equity divided by the market value of equity. The treated sample consists of firms from countries that did apply IFRS after 2005. ***, **, *, and + denote significance at the 0%, 1%, 5%, and 10% levels, respectively.

3.6.
Concluding Remarks

In this study, we contribute to the accounting discretion literature by providing evidence that, when accounting discretion increases, managers increase AEM but decrease REM. The results suggest that larger increases in accounting discretion affect AEM metrics positively, which corroborates the findings of Ahmed, Neel, and Wang (2013) and Christensen, Lee, and Walker (2015).

Furthermore, this study contributes to the literature by measuring and providing the index of accounting discretion (IAD). The index is based on accounting rules. Consequently, the IAD does not suffer from the criticism of measuring discretion as an ex-post limit, e.g., using earnings management proxies (Alissa, Bonsall, & Penn, 2013; Bens & Johnstion, 2009; Bowen, Rajgopal, & Venkatachalam, 2008; Kalyta, 2009). Building the IAD provides a promising way to understand how IFRS changes discretion, how discretion varies across countries, and how managers make earnings management decisions in different countries.

Overall, the results indicate that the level of discretion provided in accounting rules affects managerial decisions over earnings reporting. The results suggest that managers who enjoy greater discretion pursue their reporting objectives or self-interests via accruals. This fact corroborates that using accruals (i.e., AEM) has less costly consequences than decisions such as cutting costs or cutting R&D (i.e., REM). The REM strategy is more likely to affect long-term valuation, so managers prefer AEM over REM to avoid depreciating firm value. Thus, the results corroborate the studies of Callao and Jarne (2010), Cohen et al. (2008), and Zang (2012), which find that firms trade off AEM against REM.

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4
Paper 3: Understanding Accounting Discretion in Private Firms: A Multi-Country Analysis and Index

Abstract

This study aims to build a country-level *accounting discretion index* (ADI) that measures the level of managerial discretion that accounting rules allow to private firms of 35 countries. The concept of accounting discretion is not new, and previous literature suggests that investors and regulators fear opportunism arising from managerial discretion over financial reports. Nevertheless, this literature usually defines discretion broadly as the latitude of action allowed to managers and uses firm-level configurations as proxies, such as (low) levels of leverage, (high) managerial ownership, or (high) discretionary accruals. Therefore, in order to investigate systematic differences in all countries' accounting discretion, we build the ADI. We validate the index internally (i.e., using Cronbach's alpha, Guttman's Lambda 4, and Factor analysis) and externally (with both country- and firm-level analyses) and demonstrate that it has significant cross-country variability. Understanding country-level variability in accounting discretion is crucial to understanding overall managerial discretion at the country and firm levels. So, we contribute to the literature by providing an objective measure of accounting discretion across different countries.

Keywords: Managerial discretion; accounting discretion; earnings management; multi-country analysis; international accounting.

4.1.
Introduction

In 2015, an article in *The New York* Times (Soble, 2015) announced the resignation of Toshiba's chief executive officer, Hisao Tanaka. After internal investigations between 2008 and 2015, the company had concluded that top executives used accounting tricks to maintain the managerial team's compensation at the same levels as before the subprime crisis of 2008. Under US GAAP (The United States Generally Accepted Accounting Principles), these tricks led to an inflation in operating profit of about $1.2 billion (nearly 30 percent of the total pre-tax profit). This is a fairly recent, well-known example of executives of a listed company expanding their discretion and crossing ethical limits in applying accounting rules to benefit themselves at the expense of shareholders (and despite Toshiba's good governance). This episode raises a fundamental question: how much accounting discretion managers have?

To help answer this question, in this study, we delve deep into the accounting discretion literature and the international accounting literature to propose an *accounting discretion index* (ADI) that measures the country-level discretion that managers of private firms have when they make accounting decisions. We focus on private firms for three reasons. First, the global adoption of IFRS made it more challenging to differentiate the accounting discretion of listed firms across countries (Carneiro, Rodrigues, & Craig, 2017; Christensen, Hail, & Leuz, 2013; Leuz & Wysocki, 2016; Nobes, 2013). Second, previous literature suggests that the effects of accounting discretion are greater in private firms due to excessive external regulations faced by listed firms (Burgstahler, Hail, & Leuz, 2006; Cameran, Campa, & Pettinicchio, 2014; Dechow, Ge, & Schrand, 2010). Finally, the accounting decisions of private firms are a topic understudied in recent literature (Coppens & Peek, 2005; Lisowsky & Minnis, 2020; Mafrolla & D'Amico, 2017; Zisis & Sorros, 2015).

The literature on accounting discretion in private firms is scarce (Bar-Yosef, D'Augusta, & Prencipe, 2019). A critical characteristic of this literature concerns the empirical proxy used to measure accounting discretion. For instance, Burgstahler, Hail, & Leuz (2006) and Coppens & Peek (2005) use both loss avoidance and earnings decrease avoidance, while Cameran, Campa, & Pettinicchio (2014), Mafrolla & D'Amico (2017), and Zisis & Sorros (2015) use discretionary

accruals, and Ball & Shivakumar (2005) uses loss recognition timeliness. The literature investigating listed firms also does not converge to a single proxy. For instance, DeAngelo (1987) uses total accrual (the difference between net income and operating cash flows). Bowen et al. (2008) combine variables such as 1) discretionary accruals (i.e., the modified Jones model from Dechow, Sloan, & Sweeney, 1995), 2) earnings smoothing (i.e., the standard deviation of operating cash flows divided by the standard deviation of revenues), and 3) the incidence of small positive earnings surprises. At best, the literature has analyzed the differences about singles and specific policy choices and disclosure policies, like Huizinga and Laeven (2012) use mortgage-backed securities classification (amortized cost or fair value), while Bushman and Williams (2012) use loan provisioning practices. Thus, this literature does not use comprehensive robust proxies strictly associated with accounting discretion (i.e., antecedent) but proxies related to the potential consequences of discretion (i.e., outcomes). In other words, these studies potentially do not separate the implications of accounting discretion from their cause.

Additionally, this literature has conflicting results, showing that accounting discretion either benefits or harms firm valuation. Some studies suggest that it benefits firm valuation because managers can exert their best judgment about timing, pricing, revenues, deferred expenses, and cost recognition, leading to better accounting information and pricing in both private firms (Coppens & Peek, 2005; Francis, Huang, Rajgopal, & Zang, 2008; Hope, Thomas, & Vyas, 2017; Hope & Vyas, 2017) and listed firms (Bowen et al., 2008; DeAngelo, 1987; Dechow & Skinner, 2000; Lin, 2006; Subramanyam, 1996; Watts & Zimmerman, 1990). However, another set of studies suggests that managers can use accounting discretion for asset's omission, profit smoothing, and, in the extreme, corruption practices in both private firms (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Christie & Zimmerman, 1994; Gopalan, 2012; Mafrolla & D'Amico, 2017) and listed firms (Christie & Zimmerman, 1994; Dechow, Sloan, & Sweeney, 1996; Fields, Lys, & Vincent, 2001; Holthausen, 1990; Smith, Kestel, & Robinson, 2001; Watts & Zimmerman, 1978). All these decisions affect the quality of financial statements, cost of capital, and firm valuation (Barth et al., 2008; Bowen et al., 2008; Florou & Pope, 2012; Gaio & Raposo, 2011; Jiang, 2020). Therefore, the debate about whether accounting discretion benefits or harms firm valuation is still open.

Following previous literature, we conceptualize accounting discretion as *the latitude allowed by accounting rules for managers to exercise their judgments through a set of accounting choices and estimates, which directly influence a company's earnings, the book value of debt, and return on assets* (Bowen et al., 2008; DeAngelo, 1987). In other words, the index intends to capture the discretion managers have to exercise judgment over accounting decisions. To create the ADI, we hand-collected the local rules available to unlisted large-sized entity, that managers must follow to understand how these rules differ over the 35 countries in the sample. Specifically, we search for all countries' relevant jurisdictional authorities on the International Financial Reporting Standards (IFRS) website to find the original documents stating the accounting rules to private firms. Then, we carefully analyze and score the items that create discretion to managers. Later, we validate the index internally (i.e., using Cronbach's alpha, Guttman's Lambda 4, and Factor analysis) and externally (with both country- and firm-level analyses) and demonstrate that it has significant cross-country variability.

The main contribution of this research is to build the ADI using the accounting rules of each country in the sample. Specifically, we seek to understand the differences in accounting discretion between countries and analyze the possible consequences of adopting greater or lesser accounting discretion. The index builds upon previous international accounting literature that creates indexes about accounting differences at the country-level, including Bae, Tan, and Welker (2008), Basu, Hwang, and Jan (1998), Hung (2001), and Kvaal and Nobes (2010). However, opposing to us, they did not measure managerial nor accounting discretion.

On top of providing the ADI scores (see Panel B of Table 1), this work has the following contributions to this literature. First, we conceptually and empirically separate the discretion originated in accounting regulations from the one captured by earnings management-related proxies (Bowen et al., 2008; Burgstahler et al., 2006; Dechow et al., 2010). Because the origin (i.e., ex-ante) and consequences (i.e., ex-post) of accounting discretion are different constructs by nature, we may help fill the gap about the conflicting results in the related literature.

Second, by listing the rules providing the most significant latitude of action to managers of private firms in each country, we offer relevant information to investors about potential opportunistic behavior resulting from applying accounting

standards. More specifically, we clarify which accounting items provide more discretion to managers so that external stakeholders and analysts can focus on such items when evaluating a firm or analyzing financial statements. Finally, we provide regulators with information to assess the desired and undesired consequences of a potential global harmonization of accounting rules that regulate private firms (Bar-Yosef et al., 2019; United Nations, 2019).

The remaining of this article consists of the following sections. Section 2 contains the literature related to accounting discretion and discusses the empirical findings. Section 3 contains the methodology for the construction of the ADI, as well as its validation. Section 4 discusses the empirical findings. Section 5 contains the discussion of some special cases of the index. Finally, Section 6 contains the concluding remarks.

4.2. Accounting Discretion To Listed And Private Firms

The economic consequences of accounting discretion have been a concern of academics, regulators, and investors for a long time. According to Bowen et al. (2008), the Positive Accounting Theory (Watts & Zimmerman, 1986) fostered research on accounting choices investigating the following questions: do managers use their discretion opportunistically, or do they use it to reduce information asymmetry? Could opportunistic managers use accounting discretion to modify company-relevant information in a way that benefits them at the cost of stakeholders?

To answer these questions, Watts and Zimmerman (1986) propose three main hypotheses: a) the bonus plan hypothesis (states that managers try to maximize bonuses), b) the political cost hypothesis (states that managers use discretion to decrease government interference), and c) the debt/equity hypothesis (states that managers use accounting to prevent debt covenants violations). Watts and Zimmerman (1986) point to opportunistic using accounting discretion, hurting shareholders' wealth. So, reporting incentives to guide managers in determining earnings informativeness, which affects private and listed firms (Burgstahler et al., 2006; Leuz & Wysocki, 2016). Similarly, DeAngelo (1987) argues that when managers feel threatened by shareholders, they use accounting discretion to show a better company's image to outsiders and external shareholders. Supporting this

literature, the Enron and WorldCom scandals provide empirical evidence of the cons of accounting discretion (Bowen et al., 2008; Chung, Firth, & Kim, 2002).

On the other flip side, when managers have more discretion, they can, for example, prepare and implement compensation contracts with value-enhancing incentives to signal good behavior through accounting choices (Basu, 1997; Becker, Defond, Jiambalvo, & Subramanyam, 1998; Lin, 2006; Subramanyam, 1996). Moreover, managers can adopt conservative accounting, which reduces current profits and decreases managerial compensation in the short term while signaling the expectation of long-term profitability to external investors. Consequently, allowing some degree of discretion might help managers provide more reliable, sustainable, and value-maximizing results (Givoly, Hayn, & Katz, 2010).

This literature often suggests that listed and private firms respond to different incentives when accounting discretion is present (Bar-Yosef et al., 2019). First, listed firms operate in environments where capital market participants demand better, higher-quality financial reports than private firms (Burgstahler et al., 2006; Hope & Vyas, 2017). This is often called the financial report's "demand hypothesis". Second, listed firms receive more pressure from outsiders to perform, which creates incentives to manage earnings and use discretion to present more positive financial statements to stakeholders (Givoly et al., 2010; Hope, Thomas, & Vyas, 2013). This is often called the "opportunistic hypothesis."

On the flip side, private companies do not face such market pressures. However, they are more susceptible to other forces, such as debt capital providers' pressure and tax avoidance incentives. For instance, private firms are more likely to be dependent on external capital, thus receiving pressure to demonstrate good financial health to reduce borrowing costs and increase access to debt financing (André & Kalogirou, 2020; Hope & Vyas, 2017; Kausar, Shroff, & White, 2016; Shuto & Iwasaki, 2015). The empirical results of Hope and Vyas (2017) and Katz (2009) suggest that the presence of equity investors and creditors pressure managers for better accounting information, in line with the "demand hypothesis". However, when these external investors do not play a significant role in the firm's capital structure, managers abuse their discretion to report an economic situation different from the fundamental performance, in line with the "opportunistic hypothesis" (Haw, Lee, & Lee, 2014; Peek, Cuijpers, & Buijink, 2010). Additionally, because creditors are often the only type of capital provider to private firms, they usually

require more conservative accounting as a sign of prudence in accounting decisions (Hope et al., 2017; Hope & Vyas, 2017; Katz, 2009).

Managers of private firms also respond to tax-related incentives when using accounting discretion. For instance, previous literature suggests that private firms use accounting discretion to reduce reported profits and, consequently, tax expenses (Burgstahler et al., 2006; Garrod, Kosi, & Valentincic, 2008; Shuto & Iwasaki, 2015). When private firms are less dependent on external sources of capital, financial reporting is tax-oriented. This phenomenon is more robust when financial and tax reports are the same. Therefore, when the benefits created by tax savings are great enough, managers of private firms are more willing to use accounting discretion to reduce profits and thus increase tax savings (Bar-Yosef et al., 2019; Penno & Simon, 1986). Consequently, managers are more likely to make accounting choices such as using LIFO to inventories valuation and increasing fixed assets depreciation expenses, among other accounting choices that reduce reported earnings.

In sum, what are the consequences of accounting discretion is still an open question for private firms. While reporting incentives play an important role in explaining how managers use their discretion, the results are still not uniform. With the international harmonization due to the IFRS adoption by listed firms, private firms provide an alternative to assess the different levels of accounting discretion still present in local accounting rules. Thus, studies investigating private firms offer a unique environment to understand the consequences of accounting discretion (Bar-Yosef et al., 2019).

4.3
Accounting Discretion Index

To create the ADI, the first step is to define the sample of countries. The initial sample comprises the 37 targeted countries from Leuz, Nanda, and Wysocki (2003). Due to either lack or opacity of accounting rules, we exclude Indonesia, Thailand, and Taiwan. Then, due to the importance to the global economy, we include China. The final sample comprises 35 countries. we use the official IFRS website (ifrs.org) to find the websites where local accounting standards are

available[17]. Then, we manually collect the original accounting regulations valid for private firms. We translate into English those regulations available in different idioms.

After finding the original accounting rules for each country, we create a list of 14 items that create managerial discretion over the company's earnings, book value of debt, and return on assets, according to the related literature. We use the works of Basu et al. (1998), Huizinga and Laeven (2012), Hung (2001), and Nobes (2006, 2013) to identify the accounting practices that allow greater discretion. The manual collection of documents of accounting rules finished in December of 2018.

Table 1 describes each item and the criteria for scoring the level of discretion. In some cases, we use public documents published by auditing companies (i.e., Big 4) to confirm or reassess the study's interpretations.

Table 1

Description of discretionary items included in ADI

Item	Description	Criteria	Effect
1) Discretion over financial liabilities	We analyze the discretion over methods of accounting financial liabilities.	Defined as 0 when managers can use either the fair value or the amortized cost method. Defined as 1 when managers can use both.	The fair value method affects earnings. The amortized cost method involves less discretion.
2) Discretion over inventory valuation	We analyze whether managers can use the LIFO inventory valuation methods.	Defined as 0 when managers cannot use LIFO. Defined as 1 when managers can use LIFO.	If firms' costs are increasing over time, the use of LIFO decreases earnings in the current period, while increasing them in the next. If costs are decreasing over time, the opposite occurs.
3) Research and Development (R&D) Costs	We analyze whether managers can capitalize R&D as internally intangible asset.	Defined as 0 when managers cannot capitalize R&D. Defined as 1 when managers can capitalize R&D in certain or comprehensive circumstances.	If firms' costs increase over time, the use of R&D capitalization increases earnings in the current period.
4) Discretion over borrowing costs	We analyze the discretion in the methods of accounting for borrowing costs.	Defined as 0 when there is no discretion. Defined as 1 when managers have the discretion to use as either expenses or asset	In some countries' accounting, the borrowing costs can be considered either expenses (earnings decrease) or asset formation (no effect on earnings).

[17] Since 1973, Australia, Canada, France, Germany, Japan, Mexico, Netherlands, United Kingdom/Ireland, the United States of America, and other countries have been working towards the convergence of accounting standards issued by IASB, including regulations valid for private firms. Therefore, IFRS is a good starting point for identifying discretionary items. I also investigate items discussed in local GAAPs that are not discussed in IFRS rules but may generate accounting discretion to private firms.

		formation, without restrictions.	
5) Discretion over investments in associated companies	We analyze how managers can account for variations in the value of associated companies. The amortized cost, fair value, and equity methods are possible.	Defined as 0 when managers cannot use an accounting method other than the equity method. Defined as 1 when managers can.	In some countries, firms can recognize increases in the value of associated companies as financial income in certain or comprehensive circumstances, thus increasing earnings.
6) Discretion over employee retirement plans	We analyze how managers can account for actuarial gains and losses in employee retirement plans.	Defined as 0 when managers have only one method to account for actuarial gains and losses. Defined as 1 when managers have more than one method to account for actuarial gains and losses.	Some countries' managerns can recognize actuarial gains and losses as either revenues/expenses (earnings increase/decrease) and/or as changes in the OCI (no effect on earnings) and/or by differentiating these gains and losses over time (corridor method).
7) Discretion over the lease of fixed intangible assets	There are two types of leases: operating and financial. We analyze whether managers can use either or both.	Defined as 0 when managers can use only one type of lease. Defined as1 when they can use both.	In some countries, managers may use discretion to identify if the lease substantially transfers all of the risks and rewards of ownership to the lessee. Operating leases increase operating costs (thus affecting earnings directly), while financial leases increase total assets and amortization costs (affecting earnings only indirectly).
8) Discretion over investment property	We analyze whether managers can account for investment property, either at cost value or at fair value.	Defined as 0 when managers can use only amortized cost. Defined as 1 when managers are required or allowed to use fair value.	In some countries, investment property accounting can be done at cost value (less effect on earnings) and/or at fair value (greater impact on earnings decrease/increase).
9) Discretion over the amortization of fixed intangible assets	We analyze whether managers have discretion to amortized or not fixed intangible assets.	Defined as 0 when managers do not have the discretion to classify an intangible asset as not amortized. Defined as 1 when managers have such discretion.	In some countries, managers may classify intangible assets as having an indefinite useful life and thus do not need to be amortized (increase/decrease in profit).
10) Discretion over goodwill	We analyze whether managers have discretion over goodwill accounting.	Defined as 0 when the amortization of goodwill is required. Defined as 1 when it is not.	Amortization is considered an expense in the income statement. Some countries allow for the amortization of goodwill, while others do not, keep only the impairment tests. When amortization is required, manager have less discretion over earnings.
11) Discretion over	We analyze whether countries	Defined as 0 when the reversal of impairment	In some countries, firms can revert the impairment losses

impairment reversal of asset value	allow for the reversal of impairment losses.	is not allowed. Defined as 1 when it is.	(changing earnings), whereas others cannot (no effect on earnings).
12) Discretion over the impairment of fixed assets	We analyze whether managers can conduct impairment tests of fixed assets.	Defined as 0 when the manager is not allowed judgment in the identification of the moment to carry out impairment tests. Defined as 1 when judgment is allowed.	In some countries, managers have the discretion to identify evidence that an asset may be impaired and apply impairment tests on the value of fixed assets (affecting earnings).
13) Held for sale	We analyze the degree of discretion over assets held for sale.	Defined as 0 when managers can only apply amortized cost. Set to 1 when managers need to use a specific accounting measure that deviates from the amortized cost basis.	In some countries, the measurament of assets held for sale ceases depreciation (increasing earnings) and/or they must down-value it under various circumstances (decreasing earning).
14) Revaluation of Fixed Assets	We analyze the degree of discretion over the revaluation of fixed tangible assets.	Defined as 0 when managers can only apply amortized cost. Defined as 1 when managers can apply fair value to fixed assets.	In some countries, revaluations at fair value of fixed assets are allowed.

Observations: the content of this table is based on the following articles: Bae et al. (2008), Basu et al. (1998), Huizinga and Laeven (2012), Hung (2001), Kvaal and Nobes (2006, 2010), Nobes (2006), and Nobes and Stadler (2015).

In Table 2, we provide the index of each country and the source of the audit companies' reports used to validate the differences between countries' local GAAPs. We provide Appendix 2 and 3 with the exact references to each country's relevant laws and standards.

Table 2
ADI scores by country

Country	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**ADI**	**Cluster**	**Report used to validate**
Argentina	0	0	1	1	0	0	1	0	1	0	1	0	1	1	**7**	**2**	(KPMG, 2015)
Australia	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	(PWC, 2011)
Austria	0	1	1	0	0	0	1	0	1	0	1	0	0	0	**5**	**4**	(PWC, 2018)
Belgium	0	1	1	1	0	0	0	0	0	0	1	1	0	1	**6**	**4**	(PWC, 2016)
Brazil	1	0	1	1	0	0	1	1	1	1	1	0	1	0	**9**	**2**	N/A
Canada	1	0	1	1	1	1	1	0	1	1	0	0	1	0	**9**	**3**	(BDO, 2018)
Chile	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	N/A
China	1	0	1	1	0	0	1	1	1	1	0	0	1	0	**8**	**3**	(KPMG, 2014)

Denmark	1	0	1	1	0	0	1	1	0	0	1	1	0	1	**8**	**1**	(KPMG, 2016)
Finland	0	1	0	1	0	0	1	1	0	0	0	1	0	1	**6**	**4**	N/A
France	0	0	1	1	0	1	1	0	1	1	1	0	0	1	**8**	**2**	(KPMG, 2019)
Germany	0	1	1	1	0	0	0	0	1	0	1	0	0	0	**5**	**4**	(PWC, 2018b)
Greece	1	0	1	1	0	1	0	1	0	0	1	1	0	1	**8**	**1**	N/A
Hong Kong	1	0	0	0	1	1	1	1	0	0	1	1	0	1	**8**	**1**	(PWC, 2011)
India	1	0	1	1	0	0	1	0	1	1	1	0	1	1	**9**	**2**	(PWC, 2017)
Ireland	1	0	1	1	1	0	1	1	0	0	1	1	0	1	**9**	**1**	(PWC, 2016)
Italy	0	1	1	1	1	0	1	0	0	0	1	1	1	0	**8**	**4**	(PWC, 2017b)
Japan	0	1	1	0	0	1	0	0	0	0	0	0	0	0	**3**	**4**	(EY, 2016)
Malaysia	1	0	0	1	1	1	1	1	0	0	1	1	0	1	**9**	**1**	(KPMG, 2011)
Mexico	1	0	1	1	0	1	1	0	1	1	1	0	1	0	**9**	**3**	(PWC 2009)
Netherlands	1	1	1	1	1	0	1	1	0	0	1	1	0	1	**10**	**1**	(PWC, 2018c)
New Zealand	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	(Deloitte, 2005)
Norway	0	0	1	1	1	1	1	0	0	0	1	1	0	0	**7**	**4**	N/A
Pakistan	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	N/A
Philippines	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	N/A
Portugal	1	0	1	1	1	0	1	1	1	1	1	0	1	1	**11**	**2**	(Deloitte, 2009)
Singapore	1	0	1	1	0	0	1	1	1	1	1	0	1	1	**10**	**2**	(PWC, 2011)
South Africa	1	0	1	1	0	0	1	1	1	1	1	0	0	1	**9**	**2**	(Deloitte, 2012)
South Korea	1	1	1	1	0	0	1	0	0	0	1	1	1	1	**9**	**4**	N/A
Spain	1	0	1	1	1	0	1	0	1	1	1	0	1	0	**9**	**3**	(Deloitte, 2011)
Sweden	1	0	1	1	0	1	1	1	0	0	1	1	0	1	**9**	**1**	(KPMG, 2005)
Switzerland	0	1	1	1	0	0	1	1	0	0	1	1	0	0	**7**	**4**	(PWC, 2009)
Turkey	1	0	1	1	0	0	1	1	0	1	1	1	1	1	**10**	**2**	N/A
United Kingdom	1	0	1	1	1	0	1	1	0	0	1	1	0	1	**9**	**1**	(PWC, 2016)
United States	1	1	1	0	1	1	0	0	1	1	0	0	1	0	**8**	**3**	(PWC, 2017)

Obs: We code 0 when there is no discretion or 1 when there is full or significant discretion. See the description of discretionary items in table 1.

4.4.
ADI Validation

4.4.1.
Internal Validity

One crucial goal of this manuscript is to verify whether the index is measuring the latent construct of accounting discretion at the country level. Thus, in this section, we report validation tests. First, we present the pairwise correlations between the 14 items in Table 3.

Table 3

Correlation between items

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Item 1	1													
Item 2	-0.58***	1.00												
Item 3	0.03	-0.03	1.00											
Item 4	0.17	-0.37*	0.21	1.00										
Item 5	0.16	-0.02	-0.23	-0.14	1.00									
Item 6	-0.02	-0.12	-0.26	-0.37*	0.25	1.00								
Item 7	0.28	-0.46**	-0.13	0.37*	0.10	-0.28	1.00							
Item 8	0.52**	-0.39*	-0.25	0.26	-0.08	-0.26	0.33	1.00						
Item 9	0.18	-0.31	0.33	0.03	-0.24	-0.18	0.12	-0.16	1.00					
Item 10	0.49**	-0.49**	0.30	0.17	-0.17	-0.11	0.23	0.09	0.78***	1.00				
Item 11	0.10	-0.28	0.17	0.37*	-0.08	-0.28	0.30	0.17	-0.05	0.09	1.00			
Item 12	-0.09	0.22	-0.35*	0.13	0.28	0.09	0.02	0.24	-0.94***	-0.73***	0.19	1.00		
Item 13	0.40*	-0.27	0.32	0.13	-0.08	-0.27	0.26	-0.09	0.60***	0.72***	-0.07	-0.54***	1.00	
Item 14	0.34*	-0.34*	-0.22	0.31	-0.16	-0.21	0.22	0.52**	-0.18	-0.02	0.39*	0.26	-0.10	1.00

Notes See description of discretionary items in table 1.

The correlations are mostly low, and only a small portion of the coefficients are significant. We interpret this result as evidence that each item represents a different discretion source, lending support to the index's strength.

4.4.1.1.

Cronbach's alpha

To demonstrate the validity of the ADI, we calculate Cronbach's alpha, a measure of the correlation between the elements of a multipartite, ranging from zero to one (Black, de Carvalho, Khanna, Kim, & Yurtoglu, 2017). Higher Cronbach's alpha values indicate that the components are very similar, whereas lower values indicate they are more distinct.

Black et al. (2017) argue that one limitation of Cronbach's alpha is that it may not capture whether the elements are extracting the desired underlying construct. They emphasize that it is essential to select items that are not very similar (i.e., avoiding inter-item correlation too close to one). Still, they must have inter-item correlations that are at least above 0.6 (Kline, 2000). Therefore, following Black et al. (2017), We should expect a relatively high correlation between the 14 items in the ADI, but not too close to one.

Table 4

Cronbach's alpha and Guttman's lambda 4

Item	Average Inter-item Correlation	Alpha
Item 1	0.1930	0.7567
Item 2	0.1859	0.7480
Item 3	0.2112	0.7768
Item 4	0.1960	0.7601
Item 5	0.2137	0.7794
Item 6	0.2005	0.7653
Item 7	0.1987	0.7632
Item 8	0.2083	0.7738
Item 9	0.1895	0.7525
Item 10	0.1790	0.7392
Item 11	0.2098	0.7754
Item 12	0.2012	0.7660
Item 13	0.1888	0.7516
Item 14	0.2102	0.7758
Alpha	**0.1990**	**0.7767**
Guttman	**N/A**	**0.9342**

Notes: See description of discretionary items in table 1.

In Table 4, Cronbach's alpha reaches a value of 0.77, with inter-specific correlations from 0.74 to 0.78. These levels of correlations suggest that the 14 items are complementary to each other and can lead to a reliable α. Following Black et al.

(2017) and Landis and Koch (1977), the alpha of 0.78 suggests that the ADI combines different dimensions of accounting discretion.

4.4.1.2.

Guttman's lambda 4

To further verify the ADI's reliability, we use Guttman's (1945) lambda 4 as an alternative measure of validation (Reyes, Miranda, & Vera-Martinez, 2019). The purpose of Guttman's lambda 4 is to split all items into two halves such that the covariance between the scores of these halves is as high as possible (Benton, 2015). In this context, the idea of this method is to assess whether each country's ADI score would change had We used a different group of items. If the change is minimal, then the items used are reliable. As Benton (2015) argues, in some instances, Guttman's lambda 4 is more adequate than Cronbach's alpha to measure the reliability of items because it is less likely to underestimate the true reliability. Thus, we conclude that Guttman's lambda 4 is a suitable alternative to assess the reliability of ADI.

The goal of using Guttman's lambda 4 is to calculate the likely correlation between an unobservable theoretical discretion index and the empirical ADI score for each country we observe. Then, we measure the covariance between the two groups. The higher the covariance between the groups, the more reliable the index. Specifically, following Benton (2015), the formula for calculating the coefficient is:

$$Reliability\ Coefficient = \frac{4Covariance\ (Half\ 1\ scores, Half\ 2\ scores)}{Variance\ (Total\ score\ on\ test)}$$

This formula can be applied to any same-size split of the sample. However, the practice is to use the split that maximizes this value. The Guttman lambda 4 calculated for the sample reaches 0.93. Though a high number, Benton (2015) emphasizes that, for small sample sizes, the coefficient can overestimate reliability. In this case, we have only 35 countries (thus 35 observations), which is a small sample. Though Benton does not propose a particular acceptable threshold for sample size, we determine that 0.93 is high enough to validate the index without concerns of overestimation.

4.4.1.3.

Factor analysis

Building on previous literature, we proceed to a factor analysis to investigate whether the 14 items converge to factors and, if so, to how many. We present in Table 5 the results of the factor analysis. We use a promax rotation to allow the factors to be oblique, leading to higher levels of explained variance. Table 4 also shows the loading score and the Kaiser–Meyer–Olkin (KMO) measure of all the items in each factor.

Table 5
Factor analysis

Item	Factor 1	Factor 2	Factor 3	Uniqueness	KMO
Item 1	0.4969	0.4595	-0.4100	0.3739	0.6327
Item 2	-0.5639	-0.4784	-0.3242	0.3480	0.6345
Item 3	0.3723	-0.2404	-0.4025	0.6416	0.5115
Item 4	0.2954	0.4810	-0.3572	0.5539	0.5807
Item 5	-0.2203	0.0609	0.3930	0.7933	0.5193
Item 6	-0.2905	-0.2330	0.6385	0.4536	0.3900
Item 7	0.3369	0.4827	0.0051	0.6535	0.6891
Item 8	0.1327	0.7147	0.1222	0.4567	0.5458
Item 9	0.8514	-0.3948	-0.0242	0.1187	0.6631
Item 10	-0.8870	0.1052	0.1831	0.1686	0.8444
Item 11	0.0958	0.4746	-0.3587	0.6369	0.5426
Item 12	-0.7677	0.5505	-0.0230	0.1070	0.6259
Item 13	0.7383	-0.1330	0.0023	0.4373	0.7264
Item 14	0.0636	0.6675	-0.0607	0.5466	0.6984
Eigenvalue	**3.7140**	**2.6894**	**1.3069**	**Overall**	**0.6332**

Notes: See description of discretionary items in table 1.

We evidence that three factors have eigenvalues greater than one. Factor 1 explains 42% of the overall variance, while factors 2 and 3 explain 30% and 14%, respectively. The overall KMO measure is about 0.63, indicating the adequacy of the analysis.

Observe that the loadings of all items are relatively well distributed among the three factors. However, the higher loadings of each factor are the following: a) Factor 1 contains the discretion over financial liabilities, inventories valuation, amortization of fixed intangible assets, goodwill, impairment of fixed assets, and assets held for sale; b) Factor 2 contains the discretion over borrowing costs, leases, investment property, the reversal of impairments and the revaluation of fixed assets, and c) Factor 3 contains the discretion over the research and development capitalization, the accounting of associates and employee benefits.

4.4.2.
External validity

4.4.2.1.
Country-level analysis

In this section, we test the external validity of the index using country-level variables. The main purpose is to assess how the index is associated with other known indexes that measure topics with some convergence with accounting discretion. The first test investigates whether the ADI is correlated with selected country-level indexes and is presented in Table 6. We select from the literature indexes that measure the quality of regulatory systems and calculate the correlations coefficients with the ADI. At the bottom of Table 6, we present the description of all the indexes

Table 6
Correlation with related country-level indexes

Index	ADI	N	Literature
Regulatory quality (2010-2018 average)	-0.1784	35	Kaufmann, Kraay, & Mastruzzi (2011)
Rule of Law (2010-2018 average)	-0.2673	35	Kaufmann, Kraay, & Mastruzzi (2011)
Control Corruption (2010-2018 average)	-0.2644	35	Kaufmann, Kraay, & Mastruzzi (2011)
Domestic credit to private sector	-0.1443	32	World Bank (2017)
Profit tax	0.0548	35	World Bank (2017)
Creditors' rights	-0.1660	23	Martins, Schiehll, & Terra (2020)
Societal Trust	-0.2975	32	Kanagaretnam et al. (2019)
Enforcement accounting	0.1383	28	Brown, Prieato, and Tarca (2014)

Notes: **Regulatory quality** represents the quality of the development and implementation of policies that promote the country's development, **Rule of law** represents trust and compliance with the law, and **Control of Corruption** measures an extent that public power is used for private gain, regardless of the magnitude of the acts performed. **Domestic credit to private sector** refers to financial resources provided to the private sector by financial corporations through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. **Profit tax** is the data covering taxes payable by businesses, measure all taxes and contributions that are government mandated (at any level - federal, state, or local), apply to standardized businesses, and have an impact in their income statements. **Creditors' rights** measure the creditors' ability to monitor and enforce financial contracts. **Societal Trust** measures the trust that an agent has that another agent will perform a particular action. **Enforcement of accounting standards** is a score of the quality of enforcement in accounting and market contracts (average 2002, 2005, 2008).

In all cases, the correlations range from -0.29 to 0.13. Thus, the correlations are not too high, suggesting that ADI captures a distinct construct and does not share a strong commonality with these indexes. More importantly, Table 6 indicates that ADI positively correlates with *Enforcement accounting* (Brown, Preiato, & Tarca, 2014) (correlation is +0.13), suggesting that the index is positively correlated

with proxies that improve financial reporting quality. This is the first evidence that accounting discretion favors financial analysts.

4.4.2.2.

Firm-level analysis

In this section, we present an external validation test using firm-level data. Specifically, by estimating a cross-sectional regression, we investigate the association the ADI and the two more frequent proxies used in the earnings management literature (Dechow et al., 2010): a) Jones (1991) and b) Jones Modified by Dechow et al. (1995).

$$EM_i = \alpha_i + \beta_1 ADI_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

where *EM* is either Jones or Modified Jones (i.e., one of the two Jones models) and X_i is a vector of control variables, based on previous literature (Almeida & Campello, 2007; Dechow, Ge, & Schrand, 2010).

This analysis is aligned with the literature of earnings management in private firms (Ball & Shivakumar, 2005; Burgstahler, Hail, & Leuz, 2006), which recognizes that although the demands for accounting information and the incentives of private firms are not the same as those of listed, the quality of accounting information is still an important driver of a large private company's performance since it affects the access to bank loans and debt (Bauwhede & Willekens, 2004). More specifically, this literature recognizes that banks are usually the main supplier of capital to private firms; therefore, these firms also have incentives to manage earnings to avoid breaking loan clauses or covenants and to avoid any additional obligation that comes with renegotiations of contracts. Moreover, private firms also define managerial compensation based on performance (Indjejikian & Matějka, 2009), so managers have incentives for earnings management. Finally, private firms also may have incentives to earnings management to save in taxes (Ball & Shivakumar, 2005).

Based on Bowen et al. (2008), Chung et al. (2002), DeAngelo (1987), and Watts and Zimmerman (1986), the association between the ADI and earnings management should be positive, suggesting that managers use accounting discretion opportunistically. On the flip side, based on Ball and Shivakumar (2005),

Barth et al. (2008), Bartov et al. (2002), Becker et al. (1998), Dechow and Skinner (2000), Lin (2006), and Basu (1997), we should expect this association to be negative, suggesting that managers use discretion to improve earnings quality. Nevertheless, consistent with the literature on accounting quality (Arnedo, Lizarraga, & Sánchez, 2007; Ball & Shivakumar, 2005; Givoly et al., 2010), we expect this association to be negative for private firms because they do not suffer the periodic monitoring of analysts that come from the quarterly earnings release as listed firms do. Thus, we expect that managers of private firms use accounting rules efficiently and that discretion leads to better earnings quality.

We present in Table 7 the results of eight ordinary least squares (OLS) regressions. To make the sub-sample of firms across countries comparable, we use only the largest firms in each country. Selecting large firms is crucial to analyze only the firms with greater incentives and more likely to manage earnings. For robustness, we select four groups of firms: the 50, 100, 250, and 500 largest in each country.

Table 7

Regression EM versus ADI

	50 largest private firms		**100 largest private firms**		**250 largest private firms**		**500 largest private firms**	
	Jones	***Jones Modified***	***Jones***	***Jones Modified***	***Jones***	***Jones Modified***	***Jones***	***Jones Modified***
ADI	-0.02*	-0.02*	-0.01+	-0.01+	-0.02***	-0.02***	-0.01***	-0.02***
	[-2.48]	[-2.43]	[-1.89]	[-1.87]	[-5.21]	[-5.42]	[-5.35]	[-6.08]
Leverage	-0.06	-0.03	-0.01	-0.03	0.05+	0.03	0.05**	0.02
	[-0.66]	[-0.33]	[-0.10]	[-0.54]	[1.73]	[1.35]	[2.81]	[1.44]
Size	-0.04*	-0.04*	-0.00	-0.01	-0.03**	-0.03**	-0.00	-0.00
	[-2.08]	[-2.10]	[-0.35]	[-0.84]	[-2.92]	[-2.80]	[-0.68]	[-1.50]
Cash	-0.00+	-0.00	-0.00**	-0.00**	-0.00**	-0.00***	-0.00***	-0.00***
	[-1.71]	[-0.93]	[-3.25]	[-3.15]	[-3.99]	[-3.93]	[-4.66]	[-4.55]
ROA	0.02	0.02	0.01	0.01	0.02**	0.02**	0.01**	0.01*
	[1.42]	[1.15]	[0.72]	[0.55]	[2.80]	[2.60]	[2.69]	[2.26]
Tang	-0.06*	-0.07*	-0.06**	-0.06**	-0.07***	-0.08***	-0.07***	-0.09***
	[-2.11]	[-2.50]	[-2.63]	[-3.12]	[-5.31]	[-5.97]	[-7.30]	[-10.20]
Altman Z	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00
	[0.45]	[0.56]	[0.50]	[0.65]	[-0.09]	[0.23]	[0.36]	[1.17]
Constant	0.99**	0.98**	0.31+	0.38*	0.68***	0.67***	0.19***	0.24***
	[2.94]	[2.91]	[1.71]	[2.12]	[3.89]	[3.85]	[3.86]	[5.40]
R2	0.159	0.160	0.087	0.098	0.068	0.072	0.052	0.064
R2-adj	0.112	0.114	0.061	0.072	0.056	0.060	0.046	0.058
N	800	800	1500	1500	3000	3000	6000	6000
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Obs: The ADI factor is measured using the first factor of factorial analysis of the 14 discretionary items. Leverage is measured using the sum of debt in current liabilities and long-term debt scaled by total assets. Total Assets is measured by natural logarithm of total asset. Cash is measured by cash scaled by difference total asset and cash. Ebit is measured by EBIT scaled by total assets. Tangibility is properties, plant, and equipment scaled by total asset. Altman Z-score is calculated as: (3.3 return on asset + total revenue + 1.4 retained earnings + 1.2 (current assets - current liabilities))/

total asset. Fixed Effects: Industry (NAICS 2-digits) and Country. *Em1* is defined as the firm-level absolute value of the residual from $Acc_t = \alpha + \beta_1 \Delta Rev_t + \beta_2 PPE_t + \varepsilon_t$, and Em2 is defined as the firm-level absolute value of the residual from $Acc_t = \alpha + \beta_1(\Delta Rev_t - \Delta Rec_t) + \beta_2 PPE_t + \varepsilon_t$, where accruals are calculated as: (Δtotal current assets – Δcash) – (Δtotal current liabilities – Δshort-term debt – Δtaxes payable) – depreciation expense. Rev is total revenue, Rec is total receivables and PPE is plant, property, and equipment. All variables were calculated using data from private companies. +, *, **, *** Significant at the 10 percent, 5 percent, 1 percent, and 0.1 percent levels, respectively.

In the Table 7 only negative coefficients across estimations, and all coefficients are significant at least at 10%. These negative coefficients suggest that private firms have better earnings quality when they have more accounting discretion. Moreover, it corroborates Table 6 since the ADI is positively correlated with *Enforcement accounting* (Brown et al., 2014).

4.5.
Discussion of ADI Special Cases

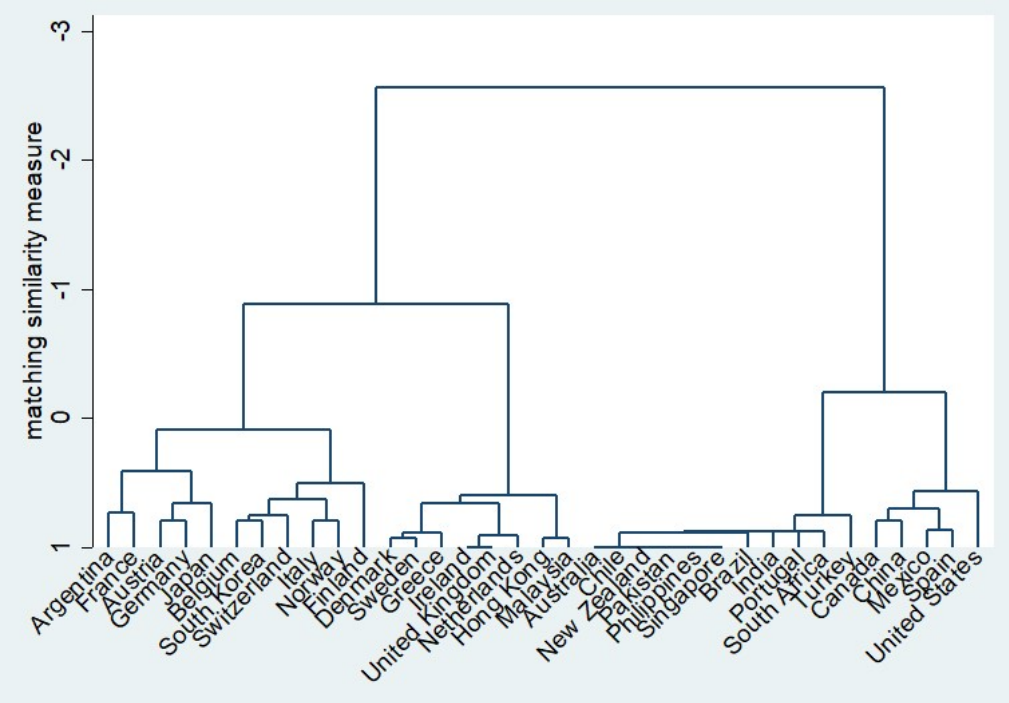
In this section, we discuss stylized facts from the ADI scores. We start by discussing the promulgation of EU/1606/2002—the Regulation on applying International Accounting Standards—which is a significant milestone for international accounting. This Regulation mandates that all European Union (EU) members use a European version of the IFRS Standards after 2005 for consolidated statements of listed and extends the option to private firms. From 2005 until 2012, other countries, such as Australia, New Zealand, South Africa, Argentina, Brazil, Mexico, Canada, Chile, South Korea, Italy, and Russia, adopted the IFRS for listed firms (IFRS, 2019). Despite this international convergence towards IFRS rules over recent years, local GAAPs are still in play and, in most cases, are mandatory for private firms (see Table 1).

4.5.1.
Cluster analysis

To further explore the main results of Table 1, we conduct a cluster analysis in this section. Following Witt et al. (2018), we execute a hierarchical cluster analysis to explore the variation between the items included in the ADI and identify potential similarities and dissimilarities in the countries' accounting discretion. Moreover, we discuss how private firms' accounting rules converge to IFRS. We use Ward's linkage, which combines those objects whose clustering increases the cluster's overall variance (i.e., the homogeneity of the groups) (Mooi, Sarstedt, &

Mooi-Reci, 2018). This analysis allows us to identify four clusters, as shown in Figure 1.

Figure 1
Dendrogram of clusters of the 35 sample countries



Low discretion and low convergence to IFRS

The first cluster contains Argentina, France, Austria, Germany, Japan, Belgium, South Korea, Switzerland, Italy, Norway, and Finland. These countries have ADI's lowest levels in the sample and show the lowest convergence to IFRS. We observe that the main component in this cluster is the use of historical cost. Also, none of these countries allow or require fair value for investment property. The average ADI in this cluster is 6.45.

In Germany, the German Commercial Code *(Handelsgesetzbuch,* or HGB) describes that no revaluation to fair value is allowed. Austria's Generally Accepted Accounting Principles (GAAP), or *Unternehmensgesetzbuch,* are similar to the HGB, except that it allows lease asset capitalizations. In Austria, managers can capitalize leased assets using only their best judgment about the risks of transferring the asset to the lessee. Thus, Austria provides greater accounting discretion in this regard. Norway is the only country that prohibits the last-in, first-out (LIFO) inventory valuation method. In Belgium (i.e., Belgian GAAP) and Finland (i.e., Finnish National Standards), the local rules are heavily based on amortized costs,

thus providing less discretion. In Switzerland (i.e., Swiss Accounting and Reporting Recommendations), local rules follow the *true and fair view* principle and, therefore, are aligned with IFRS.

Japan is the only country in the cluster that does not allow for the cessation of amortization for intangible assets that have an indefinite useful life. Along with other repressed accounting policies, Japan has more restrictive accounting discretion than other countries. In South Korea, unlisted firms can but usually do not follow IFRS. South Korean private firms typically follow the rules provided by the Korean Accounting Standards Board, which are based on IFRS but with modifications, such as the prohibition of the cessation of the amortization of intangible assets with an indefinite useful life. Nevertheless, South Korea is the only country in the cluster that allows the fair value measurement of financial liabilities.

Intermediate discretion and high convergence to IFRS

The second cluster contains Denmark, Sweden, Greece, Ireland, the United Kingdom, the Netherlands, Hong Kong, and Malaysia. The average ADI is 8.75. These eight countries adopt IFRS but mix the original IFRS rules with existing local regulations. For instance, Hong Kong and Malaysia don't allow capitalizing borrowing costs on qualifying assets. Denmark and Greece don't allow measuring the fair value for investments in associates. Along similar lines, the Netherlands, Ireland, and the United Kingdom prohibited the policy choice for actuarial gains and losses. Finally, Sweden does not have rules to account for non-current assets held for sale[18].

Intermediate discretion and partial convergence to IFRS

Composed by Canada, China, Mexico, Spain, and the United States, the third and final cluster's accounting rules are also partially convergent to IFRS but with intermediate levels of discretion. The average ADI is 8.60. All countries permit fair value measurement to financial liabilities and, except for the United States, provide discretion for accounting for leased asset capitalization. However, only

[18] Sweden has three levels of accounting standards for private firms, each containing different levels of modifications to IFRS: K3 for large companies, K2 for medium companies, and K1 for small and micro companies.

Mexico and Spain allow for the reversal of impairments, and only China has a specific accounting policy for investment property. Also, the United States is the only country in this cluster that allows the LIFO inventory valuation method. All these modifications contribute to the cluster's partial accounting discretion score.

High discretion and high convergence to IFRS

The fourth cluster contains local GAAPs with the highest convergence to IFRS rules: Australia, Chile, New Zealand, Pakistan, Philippines, Singapore, Brazil, India, Portugal, South Africa, and Turkey. The average ADI is 9.82. In general, these countries have widely converged to IFRS and thus use a fair value accounting orientation. For example, Chile fully adopts IFRS. Similarly, the Philippines and Singapore created their versions of IFRS heavily based on the original rules (the Philippine Financial Reporting Standards - PFRSs and the Singapore Financial Reporting Standards - SFRS, respectively). Pakistan adopts all IFRS standards for non-financial companies, except IFRS 1 and IFRS 14. Australia adopts IFRS standards via AASB - Tier 1 (i.e., the Australian Accounting Standards) for all "reporting entities," listed or private. In turn, New Zealand adopts IFRS through New Zealand equivalents (i.e., NZ IFRS). Both countries follow IFRS closely.

Nonetheless, we observe some occasional changes in this cluster. For example, Brazil prohibits the fixed assets revaluation model, while the IFRS allows it. France and Argentina don't permit fair value measurement to financial liabilities, unlike the IFRS. India has converged its local rules by issuing Indian Accounting Standards. However, unlike IFRS, India does not allow the fair value model for investment property. Finally, Turkey prohibits the non-amortization of intangible assets with an indefinite useful life.

4.6. Conclusions

This study investigates the differences in managerial discretion across 35 countries allowed to managers of private firms and builds the *accounting discretion index* (ADI). Based on the literature that investigates accounting discretion (e.g., Bowen et al., 2008; Bushman & Williams, 2012; Huizinga & Laeven, 2012; Hung, 2001; Leuz & Wysocki, 2016; Nobes, 2006, 2011, 2013), the study's main

contribution is to provide an empirical measurement of country-level accounting discretion that is built at the level of the law and is not based on firm-level expected results of discretion, such as variables related to governance or accounting decisions. The index exhibits considerable variation between the 14 items and, thus, between countries.

According to the prior literature, the ADI is the first accounting index that measures discretion at the regulation level, and that has been put through a series of internal and external validity tests (at both the country- and firm-level). We also shed new light on the debate about the association between discretion and earnings management, showing that the ADI is positively correlated with financial reporting quality and that private firms have better earnings quality when accounting discretion is higher.

We also use hierarchical cluster analysis to explore the main results further. We find four clusters and discuss each one's main characteristics. The analysis suggests that each country has a strategy to achieve a particular level of accounting discretion, using either IFRS entirely or a hybrid model of IFRS and local rules. Therefore, this study helps identify groups of countries by level of discretion, whether low, intermediate, or high.

We hope that the index helps in the debate proposed in the accounting literature, highlighted by Bowen et al. (2008, p. 351), that is, "do managers use their agency for opportunistic purposes or efficiently?" A natural path for exploring this question is to investigate whether accounting discretion explains decisions such as those involved in financial policies (for instance, leverage and cash holdings) and specific accounting decisions (for instance, the capitalization of R&D and the measurement of fixed assets impairment charges).

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5
General Discussion and Conclusions

In this dissertation, we prepared three articles to highlight different aspects of the opportunities and consequences of accounting discretion. Taken together, they provide optics beyond what is significantly overlooked by literature, the accounting discretion measurement by the regulatory level (GAAP) – or only using very simple system variables.

Below we discuss how each of the three articles in this dissertation contributed to the accounting literature. After that, we concluded the dissertation with suggestions for future research.

5.1.
The Effects of Accounting Discretion on the Quality of Accounting Information

In the first empirical paper, we reviewed the growing literature on the impact of mid-level discretionary sources on the behavior of companies in preparing financial statements. we applied a systematic mapping methodology of the accounting discretion literature and evidenced four main lines of mapping that delineate the theme: Earnings Management, Accounting Choice, Managerial Discretion, and Goodwill Impairment. We indicated, following the accounting rules, opportunities available to reference managers in the accounting literature related to the subjectivity of accounting rules (Bowen et al., 2008; Dechow, Ge, & Schrand, 2010).

We identified the incentives developed along the lines of Accounting Choice that potentially shape companies' accounting practices to achieve reporting objectives, efficient, opportunistic, or informative (neutral). The monitoring mechanisms, introduced by the Managerial Guidelines line, play a fundamental role in restricting opportunity activities through accounting rules in financial reports. However, regulatory scrutiny may encourage managers to replace accounting estimates with a value-decreasing strategy, such as cash flow management, to support their reporting decisions. In addition, ambiguous rules or greater subjectivity can significantly decrease the effectiveness of gatekeepers. Thus, this dissertation has presented relevant regulatory findings for practitioners, researchers,

and review managers to identify how to pursue existing incentives and opportunities (Fornaro & Huang, 2012; Leuz & Wysocki, 2016).

In the second paper, we analyzed the effects of the variation in accounting discretion resulting from adopting IFRS on the quality of accounting information. Although the accounting regulator provides accounting discretion for the transmission of private information, the manager can use this freedom to promote low-quality reports to achieve his private goals. Furthermore, from the point of view of regulatory scrutiny, the accounting literature points to the movement of a trade-off between real earnings management activities and via accruals. Thus, when increased surveillance and restriction on accounting decisions, managers rely on operational decisions, such as cash flow management, R&D, and other discretionary expenses, to achieve their reporting objectives. On the other hand, the offer of accounting discretion, resulting from the adoption of IFRS, was hypothesized to be positively related to AEM and negatively related to REM. Presumably, managers will tend to abandon costly strategies and seek alternatives that are less harmful to the company to pursue their self-interest activities (Bae el al, 2008; Li, 2019)

The findings of this research are in line with the literature on the quality of accounting information by pointing out the opportunistic behavior of managers in the face of opportunities generated by accounting rules. Dechow et al. (2010) highlights two streams of research on earnings quality strategies, one on their determinants and the other on the economic consequences. Thus, through the creation of the IAD, we documented that the positive variation of the accounting discretion (determinants) affects the two earnings management strategies (consequence), causing a trade-off relationship between AEM and REM. Therefore, gatekeepers have good reason to increase scrutiny of financial statements and pay attention to accounting and operational tools in the distortion of accounting information (Fornaro & Huang, 2012).

The third article provides the accounting discretion index, the ADI, based on 14 indicators that we constructed using the accounting rules of 35 countries and was hypothesized to be positively related to the AEM of private companies. The reasoning is that without the market pressures for profitability faced by listed companies, private companies would be less involved in earnings management activities. The option for private companies because the mandate to report under

IFRS generally applies to almost all listed companies in the economy. On the other hand, unlisted companies are often exempt from the mandatory adoption of IFRS (Leuz & Wysocki, 2016).

Although opportunistic incentives in financial statements may be different from those of public companies, they may still be present. Privately held companies are characterized by more concentrated ownership. As banks are generally the primary source of external funding in privately held companies, managers have incentives not to be as informative, resulting in agency conflicts between bankers and owners/ administrators (Bauwhede & Willekens, 2004). Furthermore, management bonuses may be earnings-based, so managers may also have incentives to manipulate earnings and expropriate shareholder wealth. On the other hand, managers do not suffer from market pressure for profitability, such as, for example, meeting or exceeding financial analysts' forecasts.

Furthermore, no index measures the overall national latitude of accounting discretion in the prior accounting literature. At best, some studies used previous differences between local GAAP and IFRS (e.g., Bae et al, 2008; Daske et al., 2008; Tan, Wang, & Welker, 2011; Isidro et al., 2018). Therefore, the primary motivation of the article is to propose a solid and reliable measure of contemporary accounting discretion for private companies.

Therefore, the article can also be seen as a methodological article proposing a new index methodology. Also, we validate the index internally and externally and demonstrate that it has significant cross-country variability. Furthermore, the applicability to accounting literature lies in the possibility of analyzing whether the findings of empirical research (e.g., earnings quality literature) are robust to the inclusion of control for the declared accounting rules of the countries, as well as considering the ADI in the discussions about the heterogeneity found in accounting practices across countries.

Furthermore, as IFRS is a single set of accounting rules for worldwide adoption, necessarily, the IASB could not anticipate all the distinctive characteristics of all adopting countries, which could lead IFRS to provide room for opportunistic discretion. On the other hand, the local rules available to private companies and for separate demonstrations are likely to be the ones that best represent the needs of the reality of the local environment.

Therefore, the accounting discretion provided by local regulations may be more effective in transmitting private information. In addition, another practical application of the ADI is to analyze the accounting practices of listed companies in IFRS adopting countries. According to Nobes (2013), the practices of local rules persist, leading to the belief that the national factors that led countries to have different standards before IFRS adoption continue.

From these articles, it was shown that the indexes for both listed companies and private companies help to explain the behavior of companies in the face of accounting discretion. The IAD showed that the effects of the variation in accounting discretion, with the adoption of IFRS, by listed companies were remarkably significant and robust among the types of earnings management.

However, the ADI effects for private companies were less pronounced and less robust but still significant in some models. Taken together, these results should lend justified interest to these indices in future studies. Future research may help to clarify and unravel the types of managerial behavior that may underlie accounting choices. For example, in Chapter 2, we explore that both the "opportunistic approach" and the "efficient or informational approach" may underlie the assumption of accounting choices.

Furthermore, reporting incentives play a crucial role in this behavior, being weighed by factors such as a country's legal institutions, the strength of the enforcement regime, capital market forces, product market competition, the governance structure of a company, and its operational characteristics (Leuz & Wysocki, 2016). Examining the effects of each type of managerial behavior on accounting decisions can shed new light on the consequences of accounting discretion. In addition, the ADI needs to be further examined with other samples of companies and expanded to different periods. Other elements that can accompany the IAD and ADI should be used to compose alternative ex-ante accounting discretion proxies. Likewise, accounting discretion can be expanded to address individual manager characteristics.

5.2.
A More Integrative Approach to Accounting Discretion

Supported by agency theory (Jensen & Meckling, 1976), it was assumed that gatekeepers could actively control managerial behavior with broad general and

sector-specific knowledge. However, given the growing volatility, uncertainty, complexity, and ambiguity of the business environment, managers are increasingly expected to assume an "entrepreneurial" stance and convey their decisions to shareholders adequately.

This work, then, problematizes how accounting discretion mitigates informational asymmetry. The fact is that the response of accounting regulators to opportunistic reporting objectives is to restrict accounting discretion. However, an open discussion among regulators, practitioners, and academics is how much accounting discretion the manager should have. For example, the accounting constraint also restricts the range of economic information managers can transmit, thus increasing uncertainty in the financial reporting environment.

Also, a critical factor associated with the accounting discretion literature is using a significant variety of ex-post proxies (i.e., earnings properties) to measure accounting discretion, which is an ex-ante configuration. At the same time, the literature ignores the comprehensive analysis of rules and regulations that is a well-known essential factor in the accounting behavior of preparers.

Furthermore, some of the literature focuses on the role of reporting incentives, rather than reporting standards (or established rules), as a critical determinant of observed disclosure and reporting practices in companies and countries (e.g., Ball, Robin, & Wu, 2003; Leuz, Nanda & Wysocki, 2003; Ball & Shivakumar, 2005; Burgstahler, Hail & Leuz, 2006; Leuz & Wysocki, 2016).

The incentive's view starts with the notion that reporting standards provide companies (or managers) with substantial reporting discretion because applying the standards involves considerable judgment. Therefore, incentives potentially shape how managers use permitted discretion but are weighted by factors such as a country's legal institutions, the strength of the enforcement regime, capital market forces, and others. Thus, managerial opportunities can be generated by the accounting rules themselves or the corporate governance configuration. When monitoring mechanisms are not efficient, they create opportunities for managers to use accounting to mislead some stakeholders (Leuz & Wysocki, 2016).

Aware of this difficulty, this work brings theories from alternative, but not conflicting, literary traditions to obtain a broader perspective on the behavior of companies in financial statements. We focused on bringing together three different strands of the literature: managerial discretion, accounting choice, and earnings

management culminating in the development of the accounting discretion construct and the advancement of a new perspective on accounting practices.

5.3.
From Moral Hazard to Risk of Opacity and the Impasse of Accounting Relevance

In this dissertation, we highlight the informational damage that can be created when important channels of transmission of private information are obstructed by factors such as accounting and market regulators, legal institutions of a country, the strength of the application regime, the forces of the capital market to the corporate governance structure.

Whether moral hazard in the accounting context refers to a manager's misbehavior when using his accounting discretion; the lack of information resulting from the accounting discretion restriction is also an undesirable situation – this time by gatekeepers – when using their power to interfere in the manager's accounting decisions. Despite their favorable position regarding internal knowledge and information about the company's range of perspectives, managers can be obstructed from transmitting accounting information "for the benefit of shareholders." As with moral hazard, the risk of the opacity of accounting information also subtracts value from the company by fostering an environment with greater uncertainty, thus not allowing an adequate assessment of the net present value of investment opportunities, especially when they are more complex (potentially more profitable) and/or require external funding.

In the systematic review, we demonstrate that the problem of accounting information opacity is closely linked to the subjective nature of estimates and parameters. This subjectivity can provide discretion beyond what is foreseen by the regulator, causing unintended consequences. So, it could generate the opportunity for the manager to prepare low-quality financial reports. Given the agency perspective, the restriction of accounting discretion became a natural consequence arising from the agency conflicts and justified as natural asymmetry of information. However, we emphasize that the function of accounting is to provide helpful information in making economic and business decisions, and to meet the requirement of utility for the users of financial reports, the information must have the following characteristics (Holthausen & Watts, 2001):

(i) Relevance, the information should influence the valuations of the companies' values

(ii) Reliability, the information must be verifiable

Although the definition of quality of accounting information widely disseminated by Dechow et al. (2010) is probably independent of Holthausen and Watts' (2001), the similar idea of relevance is remarkable. The fact that 'quality' is contingent on the decision context points to different aspects of relevance that accounting numbers can present. Therefore, it points to the need for a greater range of accounting discretion to meet multiple decision-making contexts

Therefore, the most relevant information affects the company's value, but it is also highly timely and verifiable. Consequently, the most relevant private information transmission process may be challenging to meet the verifiability requirement. Finally, if the manager cannot transmit relevant information, the communication problem will increase the level of operational uncertainty and its risk in the eyes of the market. Therefore, financing providers will demand a higher premium to invest in these companies, thus not allowing the optimal allocation of resources in the market.

The critical issue for the occurrence of conflicting findings is that a manager who seeks mechanisms for the transmission (or concealment) of private information, even with greater regulatory scrutiny or greater regulatory monitoring, uses a variety of means to achieve their goals. Managers rely on operational decisions, such as cash flow management, to support reporting objectives, whether opportunistic, efficient, or technical (neutral). Furthermore, as strategic actors, they may be unmotivated to focus on their core managerial activities or investment opportunities to worry about how to convince gatekeepers of their reporting decisions. Therefore, efforts must be focused on reducing systemic uncertainty, providing the means to provide relevant and verifiable information for managers efficiently. In addition, as the company's main source of information, managers should be encouraged to communicate their perceptions and impressions about performance prospects and investment opportunities.

5.4.
Topics For Future Research

Below, we list some topics that may inform the problems explored in this dissertation, but given the limitations of size and scope, they were not fully examined in the three articles.

Given the provision or restrictions of managerial discretion on accounting rules, the idiosyncratic factor related to the manager's individual may not be anticipated by internal and external monitoring, creating opportunities for the opportunistic use, or not, of accounting discretion. Management decisions can be motivated by extremely optimistic perceptions about prospects that lead to the dissemination of erroneous information. Furthermore, depending on their characteristics, these managers may have the ability to convince different gatekeepers to agree with opportunistic accounting decisions.

In the face of economic uncertainty, both managers and shareholders place bets to achieve value maximization, and accounting information is an essential source for their expectations. Given the information asymmetry, it is expected that these actors do not foresee all the consequences and the ideal level of accounting discretion. On the part of the regulator, there is always the risk of unintended consequences, on the part of the shareholders, the risk of expropriation of their wealth, and the role of the manager, their dismissal, and their career reputation.

Market regulatory decisions on deliberations of accounting rules can lead to an accumulation of inefficient rules, as they should not reach the optimal point of accounting discretion. Furthermore, an example explored by Leuz and Wysocki (2016) that refers to the adoption of IFRS, that under the same set of standards, adopting countries face their idiosyncratic needs, as well as those of the sectors and in the firm level. To anticipate these needs, IFRS provides a room of discretion to encompass various national accounting practices under the same set of rules. However, faced with other choices that were not previously provided by local rules, managers may pursue their reporting objectives to the detriment of shareholders' interests. On the other hand, gatekeepers may increase scrutiny of accounting practices different from what they are used to, even if such practice is value increasing.

In this scenario, it is believed that local rules provide the best picture of optimal accounting discretion for the country. With the shock of international

pressure and later the adoption of IFRS, these factors guided countries to adopt IFRS as a form of commitment to promoting an environment of greater transparency and comparability in the face of the globalized economy. However, part of the countries that adopted IFRS still maintained local rules as an alternative to IFRS for listed companies, as is the case of Switzerland and Japan, and some require or allow the application of local rules for separate statements and companies private companies, as is the case in Germany and Austria. Furthermore, countries are gradually incorporating the accounting discretion provided by IFRS into local standards, which may represent more adequate and accurate adjustments of accounting discretion to the national financial reporting environment. Therefore, even for local rules that are not available to listed companies, they may represent the accounting cultural characteristics of those countries, thus helping to explain the non-achievement of accounting comparability desired by the global market. Therefore, the index can help in this promising line of research.

5.5. Concluding Remarks

Businesses play a crucial role in modern society, promoting economic activities and developing technologies responsible for most contemporary living standards. However, with the increase in the complexity of activities and the size of companies, new forms of organization were required. Owners needed to share this operational risk with other parties, stepping back from running the business and giving way to professional managers. In this configuration, as outlined by Jensen and Mecking (1976), agency conflicts emerge because of the divergence in the usefulness of managers (agents) and shareholders (principals), as well as the information asymmetry resulting from this process.

According to Watts and Zimmerman (1986), accounting acts as a moderating factor for these conflicts, as well as acting as a promoter of innovative activities, as shareholders would be aware of the company's situation, and thus would allow them to encourage managers to take greater risks in search of new investment opportunities. On the other hand, accounting can provide tools that allow managers to deceive shareholders and thus pursue their private goals.

Based on this configuration, this dissertation sought to understand how the freedom provided by accounting rules, that is, accounting discretion can affect the

reliability of financial statements. First, we used a systematic review to highlight and structure the determinants, opportunities, and consequences arising from accounting discretion. In this way, we achieved the first objective by highlighting a more integrative line that incorporates relevant themes from the accounting literature, such as accounting choice and earnings management associated with managerial discretion literature, to provide a better approach to the topic.

A critical issue in the accounting discretion literature is the variety of proxies used to measure this accounting construct. However, the nature of accounting discretion provided to companies is notably an ex-ante configuration, while the proxies usually used are ex-post. Therefore, the two empirical articles were dedicated to constructing a country-level index that aggregated all the accounting discretion provided by various accounting rules. We performed internal and external validation tests for both indices, and for that, each discretionary source identified in the literature should also present significant heterogeneity between the analyzed countries.

In the first empirical article, we took advantage of what can be called the biggest change in the rule component of the reporting regulation, which was the global adoption of IFRS. In this way, we used the survey promoted by Nobes (2001) to measure the accounting discretion provided by the countries analyzed before and after adopting IFRS. The intuition is the greater the variation in accounting discretion considering the pre-adoption level, the greater the opportunities for earnings management. The results corroborate the hypothesis and evidence a trade-off relationship between earnings management activities via accruals (accounting decisions) and real (operational decisions). Since actual earnings management activities are detrimental to companies, managers would try to use less costly tools to achieve their reporting objectives when accounting discretion becomes more widely available.

In the third article, we achieved the study's objective by developing an index that measures the national level of accounting discretion (ADI). The index is composed of 14 elements that are aggregated into a global measure. The proposed index is illustrated by application to a sample of 35 countries. Therefore, the primary motivation of the article is to propose a solid and reliable measure of accounting discretion for private companies. Thus, the paper can also be seen as a methodological paper – offering a new index methodology. We validate the index

internally (i.e., using Cronbach's alpha, Guttman's Lambda 4, and Factor analysis) and externally (with both country- and firm-level analyses) and demonstrate that it has significant cross-country variability. This dissertation, then, contributes to the literature by providing the ADI that can help the understanding of important factors inherent to the incentives and opportunities that managers find in preparing financial statements. Furthermore, this dissertation provides an accounting approach that has been little explored in mainstream reporting regulation research, which will be helpful to regulators, gatekeepers, investors, and managers.

In summary, we demonstrate that the accounting discretion constructs derive from the interaction of the literature on managerial discretion, accounting choice, and earnings management and beyond other traditional variables. In addition, it addresses many calls in the economics, finance, and management research literature for greater integration between the different strands. Finally, it opens new avenues of research that may result from greater applicability of the accounting discretion index and concepts advanced in this dissertation. A natural path is to investigate whether accounting discretion explains decisions such as those involved in financial policies (for instance, leverage and cash holdings) and specific accounting decisions (for instance, the capitalization of R&D and the measurement of fixed assets impairment charges).

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Appendix 1

Empirical articles on accounting discretion (N = 69 articles)

ıde	Article	Journal	Scope	Underlying source of discretion	Dependent variable(s)	Main Independent variable(s)	Results
				Panel A – Managerial discretion (N = 16 articles)			
)1	Aboody, Barth, and Kasznik (2006)	Review of Accounting Studies	U.S. 3,368 firm-years obs. 1996-2001	SFAS 123	Estimated value of each option granted by the firm, as disclosed under SFAS 123	Stock option-based compensation, IRRC governance score	Firms with weaker governance underprice stock option expenses and increase executive overcompensation.
)2	Bechmann and Hjortshoj (2009)	European Accounting Review	Denmark 92 firms 2002-2005	RV 20, SFAS 123R, and IFRS 2	Disclose sufficient information defined as 1 (0) if the firm (does not)	Options granted, Options board	Many firms do not provide the information required in the OBC. However, the reason seems to be that they do not pay enough attention to information requirements.
)3	Bens and Johnston (2009)	Contemporary Accounting Research	U.S. 1989-1992/ 1995-1996/ 2001	EITF 94-3	Restructuring charges	Economic fundamentals, Earnings management proxies	Before EITF No. 94-3, a significant portion of typical restructuring expense was excessive. After that, the reduction in restructuring expenses exists in both periods of heightened SEC scrutiny of these rates (1995-96) and periods of lesser SEC scrutiny (2001).
MD4	Cazier et al. (2014)	Review of Accounting Studies	U.S.21,221 firm-year obs. 1997-2011	FIN 48	A propensity for beating the consensus forecast	Estimated change in tax reserve, Estimated change in tax reserve from the third to the fourth fiscal quarter, Total tax reserves, and Discretionary change in total tax reserves	The findings suggest that neither SOX nor FIN 48 reduced earnings management through the reserve for income taxes.
MD5	Chao and Horng (2013)	Review oF Quantitative Finance and Accounting	Taiwan 1,113 firms 2005-2007	SFAS 35	The discretionary portion of asset write-offs, Discretionary Current Accruals	The discretionary portion of asset write-offs, Discretionary current accruals, Average of the eight standardized governance variables, Big bath, Change in CEO, Historical asset impairment losses, Income smoothing	The observed association between low discretionary and abnormal accruals is more pronounced in weakly governed firms, suggesting that a strong governance environment is likely to constrain discretionary management behavior.
MD6	Chen, Wang and Zhao (2009)	Journal of Accounting,	China 4,373 firm-	CAS 8/IAS 36	Impairment reversals	Reporting losses for two consecutive years, first-time loss last year, remains profitable	Chinese listed firms are motivated by regulatory incentives to reverse asset shortfalls to reduce or avoid the possibility of suspension or cancellation of trading,

		Auditing and Finance	years obs. 2003-2006			only after reversals, new board chairman, Significant asset impairments, loss before reversals, earnings decline before reversals, and Forecast earning	but favorable internal and external monitoring mechanisms play a role in limiting this activity.
)7	Dechow, Myers and Shakespeare (2010)	Journal of Accounting and Economics	U.S. 305 firm-year obs. 2000-2005	SFAS 140	Securitization Gain	Pre-securitization earnings and Corporate governance variable	Better "monitoring" does not reduce earnings management or the CEO's pay sensitivity to reported securitization earnings. The results suggest that CEOs are rewarded for the earnings they report, and boards do not intervene.
)8	Fornaro and Huang (2012)	Journal of Accounting and Public Policy	U.S. 312 firms 2005	FIN 47 and SFAS 143	FIN 47	Audit committee, Member of the Big 4, Blockholders, Voting shares owned by management, CFO is also a CPA, Loss from continuing operations, CEO salary, Debt to stockholders, Recognized asset retirement liabilities (AROs) under SFAS 143	The findings suggest that effective monitoring is essential to promote adherence to principles-based standards and that monitoring may not be effective when standards are ambiguous.
MD9	Ge, Matsumoto and Zhang (2011)	Contemporary Accounting Research	U.S. 2,565 firm-year obs. 1993-2006	SFAS 13	Financial reporting variable	CFO indicator variables, Firm indicator variables,	Across a wide range of accounting choices, the style of the individual CFO explains a statistically significant part of the heterogeneity in accounting practices.
MD10	Gunn, Khurana and Stein (2018)	Journal of Business Finance and Accounting	U.S. 2,045 firms 2007-2010	IAS 36	The speed with which firms recorded asset impairment losses	Timely loss recognition, Average non-operating accruals, Difference between the skewness of operating cash flows and net income	Firms recorded more timely asset losses during the financial crisis and reported more conservatively in the five years before the crisis. This relation is more significant for firms with strong corporate governance, industry-specialist auditors, and high leverage.
MD11	Hodder et al. (2006)	Contemporary Accounting Research	U.S. 1,748 firm-year obs. 1995-1998	SFAS 123	Discretionary ESO fair values	Accuracy, Earnings-management, Compensation-disguise, and Informational incentives variables	On average, firms that underestimate ESO's fair values have incentives to manage earnings and disguise the size and value of compensation packages. In contrast, firms that overestimate ESO's fair values appear to convey information about future operational risks. Also, corporate governance reduces excess compensation and earnings management.
MD12	Hribar et al. (2021)	Journal of Accounting Research	U.S. 59,549 firm-year	FAS 123R, FAS 142, FAS 146	Voluntary disclosure variables	External monitoring, Liquidity, and Performance variables	The results suggest that managers are more likely to report non-GAAP earnings, issue more managerial forecasts, and provide more extended, more readable

			obs. 1993-2016	and FAS 141			discussions and analysis (MD&A) when GAAP limits their discretion.
)13	Kuo, Wang and Yu (2015)	Review of Quantitative Finance and Accounting	U.S. 1,029 firm-year obs. 1996-2001	SFAS 123	Discretionary ESO value, share price variables	firm's operating risk, ESO value variables	Changes in firms' future operational risk lead to an understatement of ESO values, and that understatement of ESO value is significantly negatively associated with the stock price, suggesting that the market incorporates the information underlying this component in its valuation assessment.
)14	Naughton (2019)	Review of Accounting Studies	U.S. 624 firm-year obs. 2001-2005	SFAS132R	Duration, Discretion in pension assumption variables	F132R adoption, SOX warning, Overall pension liability attributable to distinct types of plan participants, normal cost, expected disbursements.	Regulatory scrutiny can mitigate earnings management. However, evidence of a substitution effect in pension assumptions indicates that regulators need to be careful how new disclosure regulations are drafted or SEC notices are made.
)15	Stein (2019)	Auditing-A Journal of Practice and Theory	U.S. 2,817 firm-year obs. 2003-2010	ASC 350, 360, and 320	Impairment recording	Firm's characteristics variables associated with the magnitude of impairment, Big bath and smoothing variables, Client firm size; and auditor, management, and audit committee characteristics variables	Firms that engage in industry specialist auditors exhibit a greater propensity to record and record larger impairments relative to client firms engaging auditors with less specialization.
MD16	Tunyi et al. (2020)	International Journal of Accounting	Seven African countries 603 mergers 2004-2016	IFRS 3	Value relevant variable	Acquired intangible, acquired goodwill, institutional quality variables	The relevance of the AIA value, predominantly acquired goodwill, increased after the change, suggesting that managerial discretion improves the quality of financial information.
Panel B - Accounting Choice (N = 22 articles)							
AC1	Abernathy et al. (2017)	Journal of the American Taxation Association	U.S. 963 firm–year obs. 2007-2011	FIN 48	UTB interest and Penalty expense classification	Tax avoidance	Firms with low effective tax rates (ETR) and firms involved in tax disputes are more likely to include interest and UTB penalties as components of tax expenditures and associated with less accurate forecasts by analysts.
AC2	Athanasakou, Strong and Walker (2007)	Journal of Accounting and Public Policy	U.K. 9.222 firm-year obs. 1986-1998	FRS3	Classificatory smoothing index (CSI) Earnings before classification items (EARNbCIs)	Abnormal earnings (divergence), Adjusted earnings, Risk, Leverage, Size, Profitability index, Level impact of classification items, Working capital accruals, Long-term	FRS3 increased the more transparent and less costly practice of income smoothing.

						accruals, Controls for the magnitude of extraordinary and exceptional items.	
	3	Athanasakou, Strong and Walker (2010)	International Journal of Accounting	U.K. 11,162 firm–year obs. 1987-2002	FRS 3 and FRS 10	Classificatory smoothing index (CSI), Abnormal working capital accruals (AWCA)	Earnings variations, Smoothing object, Abnormal earnings (divergence), Adjusted earnings, Risk, Leverage, Size, Profitability index, Long-term accruals, Controls for the magnitude of extraordinary and exceptional items.	U.K. firms smooth revenue smoothing less using abnormal accruals after FRS 3 given the greater flexibility in ranking choices to smooth pre-exceptional earnings.
	4	Balsam, Haw and Lilien (1995)	Journal of Accounting and Economics	U.S.923 firms obs. 1973-1989	11 standards issued by the FASB	11 standards issued by the FASB	Effects in income, Effects in equity	Firms that experience lower changes in return on assets (ROA) before adopting new accounting standards and that expect higher revenue effects from adoption accelerate implementation.
	5	Balsam, Mozes and Newman (2003)	Accounting Horizons	U.S.250 firms 1997	SFAS 123	The disclosed value of the 1996 stock option grant and Unexpected timing	Unexpected CEO compensation and Unexpected value of stock option grants	Firms that provide high levels of either CEO compensation or stock option compensation relative to performance allocate a smaller proportion of the options' value to the 1996 pro forma expense.
AC6		Balsam, Reitenga and Yin (2008)	Accounting Horizons	U.S.1103/490 firms 2004-2006	SFAS(R) 123	Accelerator indicator	Grant date Black-Scholes value of all unvested options, Intrinsic value of in-the-money unvested options, three ownership variables, M/B, Loss indicator, Debt-to-equity-ratio, Assets, Industry control	The findings show that although the investment accelerated the benefits being motivated by age, it seems to be beneficial for equity investors.
AC7		Billings et al. (2016)	Accounting and Business Research	U.K. FTSE 350 firms reporting 2005-2009	IAS 19	Discount rate, price inflation, and salary inflation	Standardized funding ratio, Reported funding ratio, Standardized solvency ratio, Liabilities/payments, Pension income effect, Contribution ratio	Assumptions about financial and demographic variables possibly used to reduce pension liabilities are influenced by the funding position of a firm's DBP plans and the size of the plan relative to the firm's market capitalization.
AC8		Bowen, Davis and Rajgopal (2002)	Contemporary Accounting Research	U.S. 112 vs. 47 obs. 1999	ASC 606	Reporting barter and Grossed-up revenue	cash from operations plus cash from investing activities, Messages posted, Number of marketing, Content, and Distribution alliances	Firms that report barter revenue are more likely to enter into marketing and content alliances.

AC9	Cahan (1993)	Journal of Accounting and Public Policy	U.S. 45 Class A or B electric utilities. 1974-1982	Federal Power Commission 1973	Capitalization allowance for other funds.	Operating nuclear power plant and Regulatory climate	After the Three Mile Island (TMI) collapse, utilities that had nuclear plants in operation or under construction at the time of the accident were no more likely to reduce revenue after TM1 than other utilities.
AC10	Cecchini, Jackson and Liu (2012)	Review of Accounting Studies	U.S. 444 IPO firms 1997-2004	ASC 606	Bad debt expense	Allowance for uncollectible, Write-offs of uncollectible accounts.	IPO firms record higher delinquent debt expenses and are less likely to record revenue-enhancing delinquent debt expenses than corresponding non-IPO firms.
AC11	Chan, Lin, and Strong (2011)	Accounting and Business Research	U.K. 6,132 firm–year obs. 1983-2002	FRS 3	Earnings before exceptional and extraordinary items, Earnings after exceptional and extraordinary items	Annual return in fiscal year. Negative annual return in fiscal year	The results were that, after FRS 3, the asymmetric opportunity of earnings before special items increased, and the association of earnings conservatism with discretionary accruals was weaker.
AC12	Da Costa et al. (2020)	Contemporary Accounting Research	U.K. 7,312 and 7,546 firm-year obs. 1985-2016	FRS15 and IAS 16	Upwardly revalued its operating assets	Standard-deviation of the first earnings forecast, Standard deviation of stock returns, and Cost of capital	During the period that requires pre-commitment, there was less forecast dispersion, lower return volatility, and lower cost of capital for firms that commit to high asset revaluations, compared to firms that choose not to revalue their operating assets upwards.
AC13	Dunne (1990)	Journal of Accounting and Public Policy	U.S. 158 firms 1983-1985	APB 16	Model of pooling and Purchase method	Owner-control, Accounting-based compensation plans, Lending agreements, and Political visibility	The results show the firm-specific characteristics associated with the choice of interest pool or purchase accounting.
AC14	Fedyk, Singer and Soliman (2017)	Review of Accounting Studies	U.S. 3,763 IPO firms 1989-2011	SFAS 2	Market value of equity	Earnings, Sales growth, and R&D expenditures	Investors tend to weigh sales and R&D growth more heavily than gains in valuing STEM firms and managers respond by managing these items rather than bottom-line gains.
AC15	Glaum, Keller and Street (2017)	Accounting and Business Research	France, Germany and the U.K. 3,207 firm-year 2005-2013	IAS 19	Method for actuarial gains/losses	Estimated short-term effects on P&L and on equity, volatility of actuarial gains/losses, Average magnitude of actuarial gains/losses, Several other potential determinants of the pension accounting choice.	Firms' decisions to early adopt the equity method in the first year in which this accounting option was available were motivated by short-term effects on shareholders' equity.
AC16	Goto and Yanase (2016)	Journal of Business	Japan 13,058 firm-	IAS 19	Annual Stock Return	Forecast and pension funding variables	Firms with large business uncertainty, large accruals or high effective tax rates, the proportion of pension funding predicts management forecast errors

		Finance and Accounting	year 2000-2014				significantly beyond the conventional control variable and pension accounting management effects.
17	Nathan and Dunne (1991)	Journal of Accounting and Public Policy	U.S. 321 stock-for-stock acquisitions 1971-1985	APB 16 and APB 17	Purchase-pooling choice	Goodwill, levarage, APB 16	The choice of purchase pool is influenced by the goodwill, acquirer leverage, and the issuance of the APB 16.
18	Restrepo and Taillard (2021)	Journal of Business Finance and Accounting	Colombia 103,402 firm-year 2003-2010	Inflation adjustments rules	Inflation adjustments	Earnings before inflation adjustments, Taxes, Bank dependence, Auditing requirements, and earnings management variables	Firms avoid reporting small pre-tax losses by exercising considerable discretion in the use of inflation adjustments and find that this discretion is greater for firms that rely more on bank financing.
19	Stadler and Nobes (2014)	Abacus-A Journal of Accounting Finance and Business Studies	10 jurisdictions 323 firms 2005-2010	16 IFRS policy choice	16 IFRS policy choice	Country, Industry, Topic, and Control variables	Country factors are particularly influential when the choice does not affect an important accounting number, and industry and topic factors influence the choice of some topics.
AC20	Stadler and Nobes (2018)	Journal of Accounting and Public Policy	15 countries 559 firms 2013-2014	IAS 20	Asset grants presented as deferred income	Deferred income treatment obligation for government grants	Disclosure quality is better for firms using the "deferred income" option and is also better in countries where a higher proportion of firms have received government subsidies.
AC21	Szczesny and Valentincic (2013)	Journal of Business Finance and Accounting	Germany 18,057 firm-year 2003-2006	HGB §253 and §254	Write-offs variables	Reported operating profit before tax, Financial debt variables, and Dividends paid	Private firms decide to retire and retire more in terms of the total value if they are: (i) more profitable, (ii) have more financial debt, and (iii) pay dividends.
AC22	Wyatt (2005)	Accounting Review	Australia 1,366 firm-year 1993-1997	AASB 1013 and AASB 1011	Intangible assets	Technology conditions; Firm´s ability to appropriate future benefits; Contracting, Operating performance, and Signaling variables	Management's choice to record intangible assets is associated with the strength of the technology that affects the firm's operations, the length of the technology's cycle time, and property rights-related factors that affect the firm's ability to appropriate investment benefits.
			Panel C - Earnings Management (N = 15 articles)				
EM1	Adams, Frank and Perry (2011)	Accounting Horizons	U.S. 22,050 firm-years 1991-2005	ASC 715-30	Expected rate of return (ERR)	n/a	Firms do not experience an overall increase in related revenue through the ERR during the sample period.

EM2	Belze et al. (2019)	European Accounting Review	France 46 Employee Stock Option - ESO 2005-2014	IFRS 2	ESO understatement	Non-tradability period, Dilution, Diff (Vol exp – Vol HM), and Historical effect	When considering the transaction costs of Employee Stock Option (ESO) plans, model adjustments lead to a median understatement of 52% over the BSM model price.
[3	Bratten, Jennings, and Schwab (2016)	Contemporary Accounting Research	U.S. 23,358 firm-year 2004-2011	ASC 718 and SFAS 123R	Fair value differences	Non-executive stock options, options canceled, Employee count, split its stock, Fair value of the stock options granted	Some firms have reported and calculated fair values for options that differ by more than ten percent. These differences are rigid and often significant as a percentage of net income. In addition, fair value differences are greater for firms that present lower-quality financial reports, among other characteristics.
[4	Caylor (2010)	Journal of Accounting and Public Policy	U.S. 15,193 (7284) firm-year 2001-2005	ASC 606	Gross accounts receivable and deferred revenue	Avoid loss, avoid earnings decrease, and avoid negative earnings surprise	Managers accelerate the recognition of revenue using short-term deferred revenue and gross accounts receivable when pre-managed earnings miss the analyst benchmark by a small amount.
[5	Chambers, Jennings, and Thompson (2003)	Journal of Accounting, Auditing and Finance	U.S. 14,573 firm-years 1986-2000	SFAS 2	MV of common equity, BV of common equity	R&D expense	Capitalizing and amortizing R&D costs is capable, in principle, of producing economically significant financial reporting benefits.
EM6	Chen et al. (2020)	Journal of Accounting and Public Policy	China 6,309 firm-years 2007-2015	ASBE 3	Fair value for investment property	Past Earnings Management, Special treatment firms, Location, Government control, Chair of the board, Dominant firms	The fair value option for investment property is significantly more likely to be chosen by firms with poor performance and are under delisting pressure.
EM7	Choudhary (2011)	Journal of Accounting and Economics	U.S. 7,730 firm year obs. 1996-2008	SFAS 123R	Mandatory recognition, Bias (Accuracy)	Equity Issuance, Acquisition, Interest Coverage, CEO bonus, CEO ownership, and Outside director stock	Opportunism increases with recognition compared to disclosure, and that is associated with incentives to manage results. However, the precision does not decrease for the recognizers and differs between voluntary and mandatory recognition.
EM8	Guthrie, Irving, and Sokolowsky (2011)	Accounting Horizons	U.S. 72 adopters 2007-2008	SFAS 159	SFAS 159 adoption	Earnings, retained Earnings and Stockholders' Equity, meet or Beat the Consensus Earnings Forecast and Earnings Management	The findings do not support a systematic opportunistic election of the fair value option.
EM9	Herbohn, Tutticci, and Khor (2010)	Journal of Business Finance and Accounting	Australia 1,205 firm-year obs. 1999-2005	AASB 1020	Unrecognized tax assets and performance measures	Earnings management, unrecognized tax assets	The potential existence of earnings management does not reduce the ability of changes in unrecognized deferred tax assets from carried forward losses to predict one-year-ahead performance and, to a much lesser extent, three-year-ahead performance.

EM10	Jiang (2011)	Review of Quantitative Finance and Accounting	U.S. 15,534 firm-year obs. 1988-2007	SFAS 158	Change in the URGL	Lagged change in the URGL, Discount rate and the compensation growth rate, Actual average rate of return	The results of panel data and firm-specific analyzes suggest that the corridor amortization procedure is ineffective. It also, in practice, allows deferred gains (or losses that result, at least partially, from biased estimates to persist and accumulate.
M11	Jones (2011)	Accounting Horizons	Australia 8,894 non-failed firm years and 856 failed firm years 1989-2004	AASB 138	Voluntarily capitalize intangibles	Incentives-related variables	Insolvent firms capitalize intangible assets more aggressively than non-bankrupt firms during the sample period, particularly during the five-year period that led to bankruptcy.
M12	Murphy (1996)	Journal of Accounting, Auditing and Finance	U.S. 1,000 largest firms 1993	1992 SEC´s Proxy Disclosure Rules	Option value variables	Option value assumptions, Compensation variables	Managers adopt methodologies that reduce perceived levels of compensation and increase reported levels of performance.
M13	Petrovits (2006)	Journal of Accounting and Economics	U.S. 1,731 firm-year obs. 1989-2000	SFAS 116 and SFAS 124	Expense recorded on the parent firm's books	Foundation's net asset value, Expense recorded on the parent firm's books, and Amount given to external charities	Firms that slightly outperformed the prior period earnings benchmark report lower discretionary contribution expenses than firms that miss this earnings benchmark.
EM14	Robinson and Burton (2004)	Accounting Horizons	U.S. 97 firms 2001-2002	SFAS 123	Cumulative abnormal returns	Size, Leverage-related constraints, Retained-earnings debt constraints and Scaled free-cash flows	There is a significant positive abnormal return in the three days around adoption announcements, suggesting that the decision to spend ESO using the fair value method is value-relevant.
EM15	Zalata and Roberts (2017)	Journal of International Accounting, Auditing and Taxation	U.K. 1,552 firm-year obs. 2008-2010	IAS 1	Core earnings, unexpected core earnings	Non-recurring expenses and Control variables	After IFRS adoption, managers are more likely to misclassify some recurring items as non-recurring when it allows them to report basic earnings increases.
Panel D - Goodwill Impairment (N = 16 articles)							
GW1	Albersmann, and Quick (2020)	Abacus-A Journal of Accounting Finance and Business Studies	Germany 2,119 firm-year obs. 2006-2013	IAS 36	Recognized goodwill impairment	Timeliness variables; Auditor characteristics and Other variables	Firms do not recognize goodwill impairments in a timely manner and delay at least one to two years, influenced by the characteristics of the auditor.

GW2	Alshehabi, and Georgiou (2021)	Journal of International Accounting Auditing and Taxation	21 countries 18,143 firm-year obs. 2005-2018	IAS 36	Value relevance of GIL	Book value, Earnings, Goodwill impairments variables, Quality institutional cluster, Investor protection, Enforcement Quality, and Equity Market development	Firms domiciled in countries with high-level institutional quality (IQ) have a substantially higher GIL value relevance than firms in countries where the IQ is relatively low.
GW3	Ayres et el. (2019)	Review of Accounting Studies	U.S. 33,854 firm-years obs. 2004-2015	SFAS 142 (now ASC 350)	Goodwill impairment	Expected impairment, Number of analysts, Analyst recommendation, Control and Fixed effects variables.	The probability of loss reported by firms is more strongly related to an expected loss when analyst coverage is greater.
GW4	Beatty and Weber (2006)	Journal of Accounting Research	U.S. 553 firms 2001	SFAS 142	Goodwill impairment and the dollar value of the goodwill impairment.	Net worth covenant, Accounting changes in covenant calculations, risk, Bonus, Tenure and Delist	The results suggest that firms' stock market concerns affect their preference for above-the-line versus below-the-line accounting treatment, and firms' debt, bonus, turnover, and delisting incentives affect their decisions to accelerate or delay expenses. recognition of the GIL.
GW5	Cheng, Dunne and Nathan (1997)	Journal of Accounting and Public Policy	U.S. 262 acquisitions 1982-1989	Tax Reform Act of 1986	Offer premium	Amortization of goodwill, goodwill deductible tax, Competing bids, and goodwill	Firms that use reserve accounting for goodwill are more likely to acquire targets; U.S. firms with large amounts of goodwill than firms that must write off goodwill.
GW6	Filip, Jeanjean, and Paugam (2015)	Journal of Business Finance and Accounting	U.S. 38,667 firm-year obs. 2003-2011	SFAS 142 (ASC 350)	Cash flows management, Operating cash flows management, Free cash flow management, and Accruals earnings management	Matched firms that do not impair goodwill	Managers manipulate upward current cash flows to support their choices to avoid reporting an impairment loss.
GW7	Filip, Lobo, and Paugam (2021)	Journal of Business Finance and Accounting	36 countries 3,916 firm-year obs. 2007-2014	SFAS 142 (ASC 350) and IAS 36	Goodwill impairment	Non-impairers matched to impairers in the same industry-year and Enforcement	Firms in countries with high oversight use a higher discount rate to test goodwill for impairment than firms in countries with low oversight.
GW8	Glaum, Landsman, and Wyrwa (2018)	Accounting Review	21 countries 9,468 firm-year obs. 2005-2011	IAS 36	Goodwill impairment	Economic determinants, Managerial/Firm incentives, Debt Contracting, Governance and Monitoring; and Enforcement.	The timing of goodwill impairments and the degree to which goodwill impairment decisions are influenced by incentives depend on the strength of national accounting and auditing enforcement systems, however, private monitoring through institutional investors can serve as a substitute for enforcement.

GW9	Hamberg, Paananen, and Novak (2011)	European Accounting Review	Sweden 1,691 firm-year obs. 2001-2007	IFRS 3	Goodwill impairments loss	Goodwill impairments under Swedish GAAP, Economic incentives, Stock market reactions	The decision to reduce the recoverable value in the first-time adoption of IFRS 3 shows that stable management is negatively associated with the decision to reduce the recoverable value.
GW10	Han, Tang, and Tang (2020)	European Accounting Review	China 3,618 firm-year obs. 2007-2016	CAS 8	Goodwill impairments loss	Analyst coverage variables	Analyst coverage associates negatively with goodwill impairment, consistent with pressuring from securities analysts.
GW11	Knauer and Wohrmann (2015)	European Accounting Review	U.S. or the European Union 564 goodwill write-down 2005-2009	SFAS 142 and IAS 36	Cumulative abnormal returns	Unexpected goodwill write-off variables	The results indicate that investors react more negatively when a country's level of legal protection is low and allows greater managerial discretion.
GW12	Lapointe-Antunes, Cormier, and Magnan (2009)	International Journal of Accounting	Canada 394 firms 2004	SFAS 142 and Section 3062	Market value of equity	Goodwill impairment loss	There is a negative relationship between reported goodwill impairment losses and the share price. Investors place a higher valuation weight on losses reported by firms that are expected to record a loss.
GW13	Lee (2011)	Journal of Accounting and Public Policy	U.S. 14,202 firm-year obs. 1995-2006	SFAS 142	Cash flow from operations	Impairment of goodwill, firm's goodwill, Discretionary accruals	Goodwill's ability to predict future cash flows has improved since the Financial Accounting Standards Board (FASB) adopted SFAS 142.
GW14	Li and Sloan (2017)	Review of Accounting Studies	U.S. 28,339 firm-year obs. 1996-2011	SFAS 142	Future stock returns, estimated goodwill impairment	Market indicators of impairment, Goodwill impairment magnitudes	Some managers exploited the discretion granted by SFAS 142 to delay goodwill losses, thereby temporarily inflating earnings and stock prices.
GW15	Ramanna and Watts (2012)	Review of Accounting Studies	U.S. 124 firms 2003-2006	SFAS 142	Goodwill impairment	Private information motive, Contracting motives, Valuation motives, and Reporting flexibility	Evidence of an association between goodwill non-impairment and CEO compensation, CEO reputation, and debt-covenant violation concerns.
GW16	Shalev, Zhang and Zhang (2013)	Journal of Accounting Research	U.S. 320 acquisitions 2001-2008	SFAS 141 and SFAS 142	Goodwill plus other intangible assets with indefinite lives over the deal value	Bonus intensity and control variables	CEOs whose compensation packages rely more on earnings-based bonuses are more likely to allocate the purchase price to goodwill, the most significant asset recorded after acquisition.

Appendix 2

Laws and accounting standards for each country (Part 1)

Country	ad1	ad2	ad3	ad4	ad5	ad6	ad7
Argentina	RT 17	RT 17	RT 17.5	RT 17	RT 21	RT 17, RT 23	RT 18
Australia	AASB 9.4	AASB 102.8	AASB 138.57	AASB 123.8	AASB 128.20	AASB 119.57/ AAS 25.50B	AASB 16.4
Austria	N/A	UGB §192/209	UGB §226	UGB §203	UGB §264	UGB §211	N/A
Belgium	CBN 2012/20	CBN 132/1	CBN/ CNC 2012/13, CBN/ CNC 138/5	CBN 2015/9	CBN 129/1, 2013/4	CBN 107-3	CBN 2015/4
Brazil	CPC 48.4	CPC 16.25	CPC 04.57	CPC 20.8	CPC 18.20	CPC 33.57	CPC 06.8/ 06.20/ 06.33
Canada	Section 3856	Section 3031	Section 3064	Section 3061.11	Section 3051	Section 3462.23/ 3462.32/ 3462.29A	Section 3065
Chile	IFRS 9.4	IAS 2.25	IAS 38.57	IAS 23.8	IAS 28.20	IAS 19.57	IAS 17. 8/ 17.20/ 17.33
China	CAS 22.32/ 22.33/ 22.38	CAS 01.14	CAS 6.8/ 9	CAS 17.4	CAS 2.9	CAS 9.17/9.18	CAS 21.5
Denmark	Chapter 24.2	Chapter 17.3	Chapter 12.2.3	Chapter 32.1	Chapter 16.4	Chapter 22.2	Chapter 14.1
Finland	Chapter 5.2	Chapter 4.5	Chapter 5.8	Chapter 5.7	Chapter 6.12	Not Adressed	Chapter 5.5b
France	N/A	PCG 213-31	CC R 123-186 and PCG art. 212-3.1	CC R 123-178/2 and PCG art. 213-9/1	CRC 99-02 §292	ANC n ° 2013-02/11/ 2013 §6262	CRC 99-02 §300

Germany	N/A	HGB §240.4/256	HGB §255.2	HGB §255.3	HGB §312.4	HGB §253.1	N/A Tax rules
Greece	Art 22.4	Art 20.7a	Art 18.1d	Art 18.2d	Art 35.1	Art 22.13/ 22.14	Art 18.5
Hong Kong	Section 11.2/ 11.41	Section 13.18	Section 18.14	Section 25.2	Section 14.4	Section 28.24	Section 20.9
India	IndAS109.4	IndAS2.25	IndAS 38.57	IndAS 23.12	IndAS 28.20	IndAS 19.57	IndAS 17.4
Ireland	Section 11.2/ 11.41	Section 13.18	Section 18.8H	Section 25.2	Section 14.4A/14.4B	Section 28.25/28.25A	Section 20.4
Italy	OIC 19.41	OIC 13.45	OIC 24.49	OIC 16.42	OIC 17.107	N/A	OIC 17.103
Japan	CAS 10.15	CAS 9.6-2/9.34-4	AS for R&D Costs 3	Deprec. of fixed assets 1,4,2	AG 22	CAS 26, PGA 34	CAS 13, AG 16.9
Malaysia	Section 11.2/ 11.41	Section 13.18	Section 18.14	Section 25.2	Section 14.4	Section 28.24	Section 20.4
Mexico	NIF C-19.42	NIF C-4.46	NIF C-8.57	NIF D-6.17	NIF C-7.41	NIF D-3.45	D5 IN9
Netherlands	RJ 290.504/ 290.508-522	RJ 220.314-317	RJ 210	RJ 273.204-212	RJ 214.325/ 214.504	RJ 271.306	RJ 292.118, 292.120
New Zealand	NZ IFRS 9.5	NZ IAS 2.25	NZ IAS 38.65	NZ IAS 23.8	NZ IAS 28.22	NZ IAS 19.122	NZ IAS 19.122
Norway	NRS 18.17/§5.8.	NRS 1.3/ §5.5	NRS 19.2.1	§ 7-12/ §5.4	NRS(F) 2.1/ §5.17	NRS 6.55	§7.13
Pakistan	IFRS 9.4	IAS 2.25	IAS38.57	IAS 23.8	IAS 28.20	IAS 19.57(d)	IAS 17. 8/ 17.20/ 17.33
Philippines	PFRS 9.4	PAS 2.25	PAS 38.57	PAS 23.8	PAS 28.20	PAS 19.57(d)	PAS 17.8/ 17.20/ 17.33

Portugal	NCRF 27.11	NCRF 18.25	NCRF06.56	NCRF 10.9	NCRF 13.43	NCRF 28.43(a)	NCRF 09.10/ 09.30
Singapore	SFRS 109.4	SFRS 2.25	SFRS38.57	SFRS 23.8	SFRS 28.20	SFRS 19.57(d)	SFRS 17.8/ 17.20/ 17.33
South Africa	GRAP 104.17	GRAP 12.36	GRAP 31.52	GRAP 5.10	GRAP 7.16	GRAP 25.105	GRAP 13.11
South Korea	Chapter 6.14/6.30	Chapter 7.13	Chapter 11.20	Chapter 18.6	Chapter 8.8	Chapter 21.10 (2)	Chapter 13.5/ 13.13/ 13.19
Spain	Part2 Chapter 9.3.3	Part2 Chapter 10.1.3	Part2 Chapter 6a	Part2 Chapter 2.1	Part2 Chapter 2.5.2/7	Part2 Chapter 16	Part2 Chapter 8
Sweden	Chapter 11.1	Chapter 4.11/ 4.13.1	Chapter 18.7	Chapter 25.3	Chapter 7.25	Chapter 28.14	Chapter 20.3
Switzerland	Chapter 2.7–2.8/ 2.11/ 2.13/ 27.3–27.6	Chapter 17.6, 17.21– 17.25	Chapter 10.2	Chapter 18.4, 18.6/ 18.7	Chapter 2.11/30.4	Chapter 16.3	Chapter 13.2
Turkey	Bulletin 9.11	Bulletin 6.20	Bulletin 14.17	Bulletin 17.2	Bulletin 10.10	N/A	Bulletin 15.6
United Kingdom	Section 11.2/ 11.41	Section 13.18	Section 18.8H	Section 25.2	Section 14.4A/ 14.4B	Section 28.25/ 28.25A	Section 20.4
United States	ASC 825	ASC 330	ASC 730-20-35	ASC 835-20	ASC 825	ASC 410-20	ASC 840-10-25-14

Appendix 2

Laws and accounting standards for each country (Part 2)

Country	ad8	ad9	ad10	ad11	ad12	ad13	ad14
Argentina	RT 31, RT 40	RT 17, RT 18	RT 17	RT 17	RT 17	RT 8, RT 9, RT 31	RT 17.4
Australia	AASB 140.30	AASB 138.89	AASB 3.B63/ 136.117	AASB 136. 117	AASB 136.9	AASB 5.1	AASB 116.29
Austria	N/A	UGB §204	UGB § 208/203	UGB §208	UGB §204	N/A	N/A
Belgium	N/A	CBN 2012/13	CBN 2012/13 CBN 2013/3	CBN 2011/14	CBN 2010/15	N/A	CBN/ CNC 2011/14
Brazil	CPC 28.30	CPC 04.89	CPC 15.B69/ 01.124	CPC 01.109	CPC 01.7	CPC 31.1	CPC 27.29
Canada	Section 3061.3	Section 3064.56	Section 3831	Section 3063	Section 3063	Section 3475.6/ 3475.13	Section 3061.4
Chile	IAS 40.30	IAS 38.97/ 38.107-108	IFRS 3.B69/ IAS 36.10/ IAS 36.124	IAS 36.119	IAS 36.9	IFRS 5.15/ 5.25	IAS 16.29
China	CAS 3.9/ 3.10/ 3.AG.II	CAS 6.16/ 6.17/ 6.18/ 6.19/ 6.21	CAS 20.13/ 8.17	CAS 8.17	CAS 8.4	CAS 42.13/42.20	CAS 4.14~20
Denmark	Chapter 15.3	Chapter 12.2	Chapter 35.6/12.3	Chapter 12.3/ 13.3	Chapter 12.3/13.3	Chapter 12.5/ 13.5	Chapter 13.4.1
Finland	Chapter 5.2b	Chapter 5.5a	Chapter 5.9/ 5.17	Chapter5.17	Chapter 5.13	N/A	Chapter 5.17

France	N/A	PCG 214-15	CRC 99-02 §21.130 e CC art. R 233-5 CRC 99-02 §32.011	CRC 99-02 §21130	PCG 214-6	N/A	CC L 123-18 and PCG art. 214-27
Germany	N/A	HGB §253.3	HGB §253.3/ 253.5	HGB §253.5	HGB §253.3	N/A	N/A
Greece	Art 24.1/ 24.6	Art 18.3.a.7	Art 18.3.a.7/ 18.3.b.5	Art18.3.b.4	Art 18.3.b	Art18.4	Art24.1
Hong Kong	Section 16.7	Section 18.19	Section 19.23/27.28	Section 27.29	Section 27.7	Section 17.26	Section 17.15
India	IndAS 40.30	IndAS38.88	IndAS 36.10b/ 103.B37	IndAS114	IndAS 36.9	IndAS 105.1	IndAS 16.29
Ireland	Section 16.7	Section 18.19	Section 19.23/ 27.28	Section 27.29/ 27.29	Section 27.7	Section 17.26	Section 17.15
Italy	N/A	OIC 24.60/OIC 24.78	OIC 24.66/ OIC 9.28	OIC 9.29	OIC 9.14	N/A	OIC 16.74
Japan	CAS 20	CAP 3 ,4(1)B, 5	CAS 22.24, CAS 21.32, AG 6.37(4)	CAS 22.24, CAS 21.32	AG 6.37(2)	AG6	CAP 3
Malaysia	Section 16.7	Section 18.19	Section 19.23/ 27.28	Section 27.29/ 27.29	Section 27.7	Section 17.26	Section 17.15
Mexico	NIF C-6.20/ Circular 55	NIF C-8.81/C-8.82	NIF C-8.92/ C-8.96/ C-15.67	C-15.67	C-15.16/C-15.25	NIF B-11.35	NIF C-6.BC5
Netherlands	RJ 140.206/ 213.501-515	RJ 210.407/ 210.401/ 210.416	RJ 121.202/ 216.230/ 121.601-614	RJ 121.601-614	RJ 121.202/ 216.230	RJ 212.501-503	RJ 212

New Zealand	NZ IAS 40.32A	NZ IAS 38.97/ 38.107	NZ IFRS 3.B67 (a) / NZ IAS 36.124	NZ IAS 36.114	NZ IAS 36.9	NZ IFRS 5.15/ 5.25	NZ IAS16
Norway	§ 7.13	NRS 19.2	NRSF(F)7/ §7.14	NRSF (F)7	NRSF (F)1	NRS 17.51/ §7.13	N/A
Pakistan	IAS 40.30	IAS 38.97/38.107-108	IFRS 3.B69(d)/ IAS 36 10(b)/ IAS 36.124	IAS 36.119	IAS 36.9	IFRS 5.15/ 5.25	IAS 16.29
Philippines	PAS 40.30	PAS 38.97/38.107-108	PFRS 3.B69(d)/ PAS 36.10(b), PAS 36.124	PAS 36.119	PAS 36.9	PFRS 5.15/ 5.25	PAS 16.29
Portugal	NCRF 11.30	NCRF 06.88	NCRF 12.6(b)/ 14.35	NCRF 58	NCRF 12.5	NCRF 8.15/8.25	NCRF 07.29
Singapore	SFRS 40.30	SFRS 38.97/38.107-108	SFRS 103.B69(d)/ 36.10(b)/36.124	SFRS 36.100	SFRS 36.9	SFRS 105.15/105.25	SFRS 16.29
South Africa	GRAP 16.43	GRAP 31.97/ 31.104/ 31.107	GRAP 21.64/ 106.BC20	GRAP 21.64	GRAP 21.20	N/A	GRAP 17.32
South Korea	Chapter 10.3/ 10.47	Chapter 11.26/ 11.36	Chapter 12.32/ 20.28	Chapter 20.21	Chapter 20.4	Chapter 20.6	Chapter 10.22
Spain	Part2 Chapter 4	Part2 Chapter 5.2	Part2 Chapter 6c	Part2 Chapter 2.2	Part2 Chapter 2.2	Part2 Chapter 7	Part2 Chapter 3
Sweden	Chapter 16.3/ 16.4	Chapter 18.19	Chapter 19.14/ 27.14	Chapter 27.14	Chapter 27.3/ 27.14	N/A	17.114 kap. 6 § ÅRL
Switzerland	Chapter 18.14	Chapter 10.8	Chapter 30.14–30.16/30.18/30.23	Chapter 20.15–20.19/30.24	Chapter 20.1/20.21	Chapter 18.8–18.13	Chapter 18.8
Turkey	Bulletin 13.7	Bulletin 14.22/ 14.33	Bulletin 18.37	Bulletin 18.32	Bulletin 18.4	Bulletin 12.35/ 12.36/ 18.11	Bulletin 12.15

United Kingdom	Section 16.7	Section 18.19	Section 19.23/ 27.28	Section 27.29/ 27.29	Section 27.7	Section 17.26	Section 17.15
United States	ASC 360	ASC 350/805	ASC 805	ASC 360	ASC 360	ASC 360-10	ASC 360-10-35

Appendix 3

Local accounting rules

Country	**Argentina**	**Australia**	**Austria**	**Belgium**	**Brazil**	**Canada**	**Chile**
Source	Argentine Professional Accounting Standards (RT)	Accounting Standards from Australian Accounting Standards Boards (AASB)	Corporate Code (UGB)	Accounting Standards Commission (CBN)	Accounting Pronouncements Committee (CRC)	Accounting Standards for Private Enterprises	International Finanial Reporting Standads (IFRS)
Country	**China**	**Denmark**	**Finland**	**France**	**Germany**	**Greece**	**Hong Kong**
Source	Chinese Accounting Standards (CAS)	Accounting Guide for Class B and C Companies	Law 1336	General Chart of Accounts (PCG), Accounting Standards Authority (ANC), Accounting Regulatory Committee (CRC) and Commerce Code (CC).	German Commercial Code (HGB)	NOMOS NO. 4308 Greek Accounting Standards, related settings and other provisions.	Hong Kong Financial Reporting Standard for Private Entities
Country	**India**	**Ireland**	**Italy**	**Japan**	**Malaysia**	**Mexico**	**Netherlands**
Source	Indian Accounting Standards	FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland	Italian Accounting Body (OIC)	Corporate Accounting Principles (CAP) Corporate Accounting Standard (CAS), Practical Guidance for Accounting (PGA) and Application Guideline (AG)	Malaysian Private Entities Reporting Standard	Mexican Financial Reporting Standards (NIF)	Guidelines for Annual Reporting (RJ)
Country	**New Zealand**	**Norway**	**Pakistan**	**Philippines**	**Portugal**	**Singapore**	**South Africa**
Source	New Zealand Equivalent to International	Norwegian Standards (NRS) and Accounting Law	International Financial Reporting	Philippine Financial Reporting Standards (PFRS)	Accounting and Financial Reporting Standard (NCRF)	Financial Reporting Standards (FRS)	Generally Recognized

	Financial Reporting Standard (NZ IFRS)		Standards (IFRS)				Accounting Practice (GRAP)
Country	**South Korea**	**Spain**	**Sweden**	**Switzerland**	**Turkey**	**United Kingdom**	**United States**
Source	General Corporate Accounting Standards	General Accounting Plan 2007 (updated)	General Accounting Council (K3)	Swiss GAAP FER	Financial Reporting Standard for Large and Medium Sized Entities (BOBI FRS)	FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland	USGAAP