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# Does the Level of Enforcement Shape the Complexity in Accounting Standards?

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**Abstract:** This paper examines whether the level of enforcement shapes the complexity in accounting standards. First, in order to identify the level of complexity in accounting standards, we calculated a new measure that conceptualizes accounting complexity based on the theoretical dimensions of multiplicity and diversity. To calculate this new measure, the content of each International Financial Reporting Standard and International Accounting Standard, in 2018, was analyzed. Second, we investigated whether the level of enforcement affects this score, using the number of enforcements published by the European Securities and Markets Authority (ESMA). Our results show that accounting standards with a higher number of enforcements by ESMA are also more complex, suggesting that enforcement is an important factor that explains the level of complexity of an accounting standard. This study is particularly relevant for regulators in the accounting, auditing, and enforcement fields, since it provides evidence of how enforcement contributes to increasing the level of complexity of accounting standards. This study contributes to the debate on the interdependence of enforcement and accounting regulation, showing that enforcement mechanisms can influence accounting standards. This study also calculates a new measure of complexity in accounting standards, rather than using a quantitative proxy.

**Keywords:** accounting complexity; enforcement; multiplicity; diversity; IFRS

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## 1. Introduction

One of the main objectives of the International Financial Reporting Standards (IFRS) is to develop a set of high-quality, understandable, enforceable, and globally accepted financial reporting standards. The goal is for these standards to be based on clearly articulated principles to provide users with high-quality, transparent, and comparable information in financial reporting to help them with their economic decisions.<sup>1</sup> The literature generally depicts principles-based accounting standards as less complex, although this allows for greater flexibility in their application (Nelson 2003; Ng and Tan 2003). However, the constant requests by users of financial statements for more information and the greater complexity of the business reality as well as the increasing lengths of and the revisions and amendments to international accounting standards have led standard setters to think about the need to simplify the standards.

At the American Institute of Certified Public Accountants (AICPA) conference, Russell G. Golden (2013), the former chairman of the Financial Accounting Standards Board (FASB), gave a speech on what the FASB was doing to improve the Generally Accepted Accounting Principles (GAAP) by reducing complexity. He indicated that this complexity was costly to stakeholders and the financial reporting system at large. In 2014, the FASB launched the Simplification Initiative to simplify and improve accounting standards through several short-term projects.<sup>2</sup> In Europe, Hans Hoogervorst (2015), chairman of the International Accounting Standards Board (IASB), also mentioned in his speech about

Switzerland and the IFRS that he was aware of the increasing complexity and disclosure overload in financial reporting. He argued that most of this complexity was unavoidable due to the increasingly complex reality, but that the IASB was determined to make complexity more manageable through the simplification of financial disclosures with the launch of the Disclosure Initiative project. Thus, the level of complexity in accounting standards is a relevant research topic (Baudot et al. 2018).

Despite the existence of several studies about the complexity in financial accounting, no formal definition of complexity exists within the academic literature on accounting. Those papers use different quantitative proxies of complexity. For example, Mergenthaler (2011) developed a rules-based continuum (RBC), where rules and principles reflect extremes in a continuum of complexity in the content of accounting standards. Li (2008); Lang and Stice-Lawrence (2015); Guay et al. (2016); and Bonsall et al. (2017) used the length of the report or its readability to measure the complexity in financial reporting. To identify the level of complexity of accounting standards, we first calculate a new measure of financial complexity based on a description of two theoretical dimensions of complexity (Baudot et al. 2018): multiplicity and diversity. Multiplicity is defined as the number of choices and the amount and nature of the information required by the accounting standard. Diversity is related to the number of concepts and treatments across standards and between different sets of standards.

The complexity of accounting standards affects different areas such as financial restatements, voluntary disclosures, and information asymmetry as well as analysts' use of information (Hoitash and Hoitash 2018; Bushee et al. 2018). Previous studies also provide evidence on how companies seek to reduce the possible adverse effects of the complexity in financial reporting (Chychyla et al. 2019; Guay et al. 2016). However, little is known about the impact of the level of enforcement on the complexity of accounting standards. Quagli et al. (2021) highlighted the importance of accounting enforcement in financial reporting quality, and Rijsbergen and Scholten (2016) claimed that more attention should be given to the interaction of European supervisors such as ESMA and other authorities in fulfilling their role as supervisors. In this context, we seek to fill this gap by analyzing whether there is any relationship between enforcement actions and the complexity of accounting standards issued by regulators.

To analyze this impact, and based on previous research, we used the constraining opportunism theory. Under this theory, regulators and standard setters share a common goal: to constrain managerial opportunism to avoid accounting scandals. Based on a USA sample, Donelson et al. (2012) showed that accounting standards mentioned by the Securities and Exchange Commission (SEC) as areas of concern or accounting standards violated in major frauds become more rules-based, showing the influence that regulators and supervisors have on the content of accounting standards. Rey et al. (2020) also showed that the "winning" lobbyists come from countries with stricter enforcement mechanisms, suggesting that IASB may be more inclined to change its position for lobbyists coming from countries with stronger governance rules and enforcement mechanisms.

To identify how the level of enforcement affects the complexity of accounting standards, we use the number of enforcements published by the European Securities and Markets Authority (ESMA). ESMA is the European Union's securities and markets regulator, and its main role is to promote the consistent application of IFRS and the convergence of enforcement practices across Europe. Since 2007, ESMA has published extracts of the enforcement decisions on financial statements, showing the accounting standard (IFRS/IAS) involved.

This study makes several contributions to the research. First, we use a new measure of the complexity in accounting standards that is based on the theoretical dimensions of complexity that Baudot et al. (2018) identified. Some studies use a variety of measures for the complexity in accounting standards such as the rules-based continuum score (RBC) (Mergenthaler 2011; Donelson et al. 2012) and the degree to which companies rely on principles-based standards PSCORE (Folsom et al. 2017), as well as the length of the report

(Guay et al. 2016; Miller 2010) and its readability (Bonsall et al. 2017; Li 2008; Miller 2010; Lang and Stice-Lawrence 2015). Our measure differs from these measures of complexity because it is based on a description of the theoretical dimensions of complexity (Baudot et al. 2018), rather than being a quantitative proxy.

Second, this study contributes to the debate on the interdependence of enforcement and accounting regulation. This interdependence can occur in two ways: accounting regulation can impact on enforcement mechanisms, or the mechanisms of enforcement may affect the form and content in which the accounting standards are issued. There is a large set of previous studies that provide evidence that the adoption of accounting standards can influence the nature and the level of enforcement. For example, several studies show that rules-based accounting standards affect litigation (Donelson et al. 2012; Grenier et al. 2015). However, little is known about whether enforcement mechanisms influence accounting standards. Due to this interdependency, it is reasonable to expect that accounting standards evolve in concert with other elements of the institutional framework to facilitate, among other things, financial enforcement. We extend the research by showing that the level of enforcement also plays an important role in the accounting standards' complexity. Higher scrutiny of some accounting standards' application, measured by the number of enforcements published by ESMA, seems to motivate IASB to introduce amendments and revisions to accounting standards, making them more complex. Therefore, this study is particularly relevant for regulators in the accounting, auditing, and enforcement fields, since it provides evidence of how enforcement contributes to increasing the level of complexity of accounting standards.

The rest of this paper is organized as follows. Section 2 discusses the literature and hypothesis. Section 3 describes the research design, and Section 4 describes the sample and methodologies. Section 5 presents the empirical findings. Section 6 concludes this paper.

## 2. Literature Review and Hypothesis Development

Accounting standards that are most frequently revised and amended tend to be more complex (Schipper 2003; Chychyla et al. 2019). These changes in accounting standards, i.e., amendments and revisions, may result from lobbying strategies to achieve a desirable outcome for a specific sector (Watts and Zimmerman 1978; Rey et al. 2020; Monsen 2022); demands by users, preparers, or auditors endeavoring to remove inconsistencies and reduce judgments (Giner and Arce 2012; Jorissen et al. 2012); or supervisors and regulators attempting to constrain managerial opportunism (Donelson et al. 2012). The need to manage these different interests affects the content of the accounting standard and its level of complexity.

The interrelationship between accounting standard setters and regulators poses an interesting setting for identifying its impacts on the complexity of accounting standards. Both accounting setters and regulators have a common goal of reducing managerial opportunism to avoid accounting scandals and to improve the financial information quality. Applying the rationale pointed out by Ehrlich and Posner (1974), accounting standards are addressed to two audiences: those who might violate or be accused of violating the accounting standards (e.g., preparers, auditors), and those that participate in the process of determining whether a violation has occurred (e.g., regulators, supervisors).

The existence of enforcement measures in a specific accounting standard may demonstrate the need for more detailed rules to lead to the desired behavior. More precise accounting standards demand less resources in the enforcement process, giving the regulator an advantage in the enforcement, dissuading managerial opportunism. Kaplow (1992) showed that principles-based accounting standards are costlier to enforce. In addition, more complete accounting standards also encourage compliance, since preparers know exactly how to account for a specific transaction. Ehrlich and Posner (1974) discussed the idea that individuals are more likely to comply with more detailed rules, reducing the need for enforcement. Finally, the risk of a company appealing an enforcement

decision is higher for less complex accounting standards, due to the greater judgment and subjectivity (Kadous and Mercer 2016; Donelson et al. 2016). Enforcement measures about standards that have more principles are more difficult to prove than enforcement measures about explicit rules, which may increase the reputational costs for the regulators. Based on these arguments, we can predict that the existence of enforcement measures will tend to create incentives to amend and revise accounting standards, making them more complex, or to issue more complex accounting standards.

However, Donelson et al. (2012) also presented an argument in the opposite direction. More complex accounting standards (more rules-based standards) tend to encourage firms to structure transactions so as to avoid certain undesirable accounting treatments, suggesting that regulators may incentivize more principles-based accounting standards (Agoglia et al. 2011; Collins et al. 2012). Based on this argument, we can predict that the existence of enforcement measures will tend to create incentives to amend and revise accounting standards, making them less complex, or to issue less complex, more principles-based accounting standards.

Considering that opposing effects can occur regarding the influence of the number of enforcement measures on the complexity of accounting standards, we state our hypothesis without making the direction of such an influence explicit:

**H1.** *The number of enforcements affects the level of complexity of accounting standards.*

### 3. Research Design

#### 3.1. Complexity in International Accounting Standards

In this section, we use an instrument that measures the level of complexity to calculate the complexity of international accounting standards and to analyze the influence of enforcement measures on the complexity of accounting standards.

The concept of complexity is unclear, and the accounting literature has approached it from different perspectives (Baudot et al. 2018). Bushman et al. (2004) measured organizational complexity as geographic or product line diversification to relate it to financial accounting information. Li (2008) measured the complexity of annual reports by their length and with a readability index (fog index) from the computational linguistics literature. Morais (2020) concluded that IFRS are becoming more complex because they are becoming more rules-based. Considering that the literature does not discuss the concept of accounting complexity, Baudot et al. (2018) aimed to conceptualize this concept by examining the accounting profession's engagement with, and discourse on, the complexity in accounting standards.

Several proxies are used in the research to define complexity. The number of subsidiaries, the number of foreign subsidiaries, the proportion of foreign assets, and the number of Standard Industrial Classification (SIC) codes are the most typical indicators of the complexity in the economic reality (Hay et al. 2006). The length of the report or its readability, as measured by indicators such as the Flesch–Kincaid Grade Level, the Gunning fog index, and the SMOG Grade<sup>3</sup> (Li 2008; Lang and Stice-Lawrence 2015; Guay et al. 2016; Miller 2010; Bonsall et al. 2017), are frequently used to measure the complexity in financial reporting. The type of accounting standards (rules- vs. principles-based), the length of accounting standards, greater accounting choices, and the increasing changes in accounting standards are also viewed in the literature as leading to more complex information (Morais 2020; Chychyla et al. 2019; Peterson 2012; Plumlee 2003).

Baudot et al. (2018) highlighted that, despite the existence of several studies regarding the consequences of greater complexity in financial accounting, no formal definition of complexity exists within the academic literature on accounting. Therefore, through the analysis of comment letters on FASB accounting proposals submitted by the Big Four, these authors conceptualize the idea of accounting complexity and identify three theoretical dimensions of complexity: multiplicity, diversity, and interrelatedness.

Thus, in this study, for all IAS and IFRS in force in 2018, we compute a score of complexity (COMINDEX) that considers the multiplicity and diversity in accounting standards (Baudot et al. 2018).

Baudot et al. (2018) viewed multiplicity as the number of choices and the amount and nature of the information required by the accounting standard. Diversity is related to the number of concepts and treatments across standards and between different sets of standards. Interrelatedness comprises the functions of standards, such as their operability, usability, and auditability, and their interactions with the dimensions of multiplicity and diversity.

For our measure, we focus on the first two dimensions (multiplicity and diversity). We exclude from the score the third dimension, namely, interrelatedness. Interrelatedness is related to the functions that standards perform for key stakeholders and whether those functions interact in a consistent way (Baudot et al. 2018). Baudot et al. (2018) used three themes to measure interrelatedness: operability of standards (implementation cost, availability/reliability of estimates, and understandable concepts), usability of standards (relevant information for decision making, understandable concepts, and subjectivity/volatility), and availability of standards (availability/reliability of evidence, litigation concerns, and enforcement of standards). We remove interrelatedness from our score for two main reasons. First, we calculate the complexity score by analyzing the content of each international accounting standard. From this content analysis, it is not possible to measure the categories that represent each theme. For example, based on the content of an accounting standard, we cannot estimate its implementation cost. Second, the objective of our study is to analyze the relationship between the complexity of accounting standards and the enforcement measures. As such, we consider that the complexity score should not reflect any interaction between stakeholders.

Therefore, based on the overarching dimensions of multiplicity and diversity applied to accounting standards that are described in Baudot et al. (2018), we use the following variables in our measure (Table 1).

**Table 1.** Dimensions used in the complexity index of accounting standards.

Dimensions	Description
<b>Multiplicity</b>	
1. Degree of Choice	This dimension is measured by counting the following keywords: not subject, not consider, excl*, exem*, not apply, condition*, scope except*, and special treatment.
Exceptions, exemptions, special treatments, and conditions	
Approaches, options, alternatives, and elections	Reading the accounting standards, we identify the number of accounting options or alternatives.
2. Level of Clarity	Regarding the implementation guidance, we use two different measures. First, we count the number of SIC/IFRIC that provide guidance on financial reporting issues that are not addressed in IAS/IFRS. Second, we also count the number of application examples presented in each accounting standard. The comment letters analyzed by Baudot et al. (2018) indicate that “the examples can be improved by providing guidance to more complex situations” (2010 1840-100 PwC in Baudot et al. 2018).
1 Detailed implementation guidance	
2 Examples	As in Mergenthaler (2011), a bright line is a numeric threshold that delineates which of two alternative accounting treatments is appropriate, identified using the following keywords: criteri*, condition*, provision*, require*, and percent*. The total number of bright-line thresholds in each standard is recorded.
3 Bright-line rules	
(Re-)Definition of constructs or conceptual improvements	We count and record the number of definitions included in each accounting standard.
Level of detail in financial statements and footnotes	We count the number of disclosures for each standard. We use the Deloitte IFRS compliance, presentations, and checklist 2018 ( <a href="https://www.iasplus.com/en/publications/global/models-checklists/2018/ifrs-checklist">https://www.iasplus.com/en/publications/global/models-checklists/2018/ifrs-checklist</a> , accessed on 15 January 2020).

<b>Diversity</b>	We analyze and count the issues debated in the IFRS Interpretations Committee meetings ( <a href="https://www.iasplus.com/en/meeting-types/ifrs-ic/2007">https://www.iasplus.com/en/meeting-types/ifrs-ic/2007</a> , accessed on 15 January 2020) between 2007 and 2018 about a specific accounting standard. We normalize the number of issues by the age of the accounting standard.
3. Level of Consistency	
Uniform interpretation and application of standards	
Comprehensive effort versus partial or subset	We count the number of IFRS/IAS issued, revised, and amended from 2003 to 2018. We normalize the number of revisions and amendments by the age of the accounting standard.
4. Variation in Standards	We count the number of differences between US Generally Accepted Accounting Principles (GAAP), as promulgated by the Financial Accounting Standards Board (FASB), and IFRS, as promulgated by the International Accounting Standards Board (IASB). For this count, we use the EY book “US GAAP and IFRS: the basics” ( <a href="https://www.ey.com/Publication/vwLUAssets/IFRSBasics_00901-181US_23February2018/\$FILE/IFRSBasics_00901-181US_23February2018.pdf">https://www.ey.com/Publication/vwLUAssets/IFRSBasics_00901-181US_23February2018/\$FILE/IFRSBasics_00901-181US_23February2018.pdf</a> , accessed on 15 January 2020).
GAAP and IFRS/other	

Source: adapted from Baudot et al. (2018).

COMPINDEX is a measure of the complexity in an accounting standard that includes all the characteristics described above. Appendix A presents an example of the calculation of the complexity measure for a specific accounting standard, IAS 16: Property, plant and equipment.

Following Mergenthaler (2011), we compute a mean and variance adjusted index as follows:

$$COMPINDEX = \sum_{i=1}^{i=10} \frac{Value_{ij} - \overline{Value_i}}{STDEV(Value_i)}$$

$Value_{ij}$  is the value of characteristic  $i$  for the accounting standard  $j$ ;  $\overline{Value_i}$  is the average value of characteristic  $i$  across all accounting standards; and  $STDEV(Value_i)$  is the standard deviation in characteristic  $i$  across all accounting standards. A higher value of each characteristic is always associated with higher complexity. Therefore, a higher COMPINDEX means a more complex accounting standard. A negative value of COMPINDEX implies that several characteristics have a value below the average of that characteristic, showing that the accounting standard is less complex.

We also decompose the COMPINDEX into two sub-indices in the multiplicity (COMPINDEXMULT) and diversity (COMPINDEXDIV) dimensions by summing the characteristics associated with each of these dimensions.

In addition to the complexity of the standards themselves, it is also necessary to consider that the implementation of the standards by practitioners can also introduce some complexity. Therefore, it should be noted that our score includes this type of complexity through the dimension of the level of clarity. In the score, we consider the implementation guidance not only through the number of SIC/IFRIC codes that provide guidance on financial reporting issues that are not addressed in IAS/IFRS, but also by counting the number of application examples presented in each accounting standard.

### 3.2. Enforcement and Accounting Standard Complexity

To test if accounting standards' complexity is explained by the number of enforcement decisions taken by individual European enforcers (ESMA), we estimate the following model across all accounting standards in existence in 2018 (Donelson et al. 2016):

$$COMPINDEX_i = \alpha_0 + \beta_1 ENFORC_i + \beta_2 AGE_i + \beta_3 MoU_i + \varepsilon_i \quad (1)$$

COMPINDEX is the score that measures the complexity in an accounting standard, as explained above, computed for the year of 2018. ENFORC is the number of enforcement decisions published by ESMA that involved a specific accounting standard  $i$ . To assure

causality between enforcement and accounting complexity, we use all the decisions issued between 2005 and 2018. The AGE of an accounting standard  $i$  is the difference between 2018 and the year the standard was initially issued by a regulation. We include this variable to investigate whether the movement of IASB towards more principles-based accounting standards in recent years has reduced or increased the complexity of accounting standards.

MoU is a dummy variable that equals one if an IFRS was included in the Memorandum of Understanding between the FASB and the IASB (IAS 11, IAS 12, IAS 18, IAS 19, IAS 20, IAS 23, IAS 32, IAS 36, IFRS 3, IFRS 8, IFRS 10, and IFRS 13), and zero otherwise. We include this variable as Donelson et al. (2012) provided evidence that accounting standards included in the MoU are becoming closer to US accounting standards, which are more rules-based and, therefore, more complex.

#### 4. Sample and Data

We first discuss our complexity score and then conduct a cross-sectional test to validate our score, investigating the association between the number of enforcement measures and the complexity of accounting standards.

Therefore, we compute our score of complexity as described above for accounting standards in force in 2018. Although IAS 39 was only effective until 31 December 2017, we considered this accounting standard taking into account that there were several enforcements concerning it in the period under review. We did not consider the accounting standard IAS 17—Leases, as the key issues about this topic are related to the new leasing standard (IFRS 16) that is effective for fiscal years beginning on or after 1 January 2019. Additionally, we did not consider IFRS 4—Insurance Contracts, because the significant issues with this topic are related to the new standard for insurance contracts (IFRS 17) that became effective for fiscal years beginning on or after 2021 but was delayed to 2023.

We collected the list of decisions published in the extracts from the EEC's database of enforcement with decisions for financial year-end from 2005 to 2018.<sup>4</sup> The European Securities and Markets Authority (ESMA) has developed a confidential database of enforcement decisions taken by individual European enforcers as a source of information in order to inform market participants about which accounting treatments European national enforcers may consider as complying with IFRS.<sup>5</sup>

Table 2 presents our complexity score for each of the 40 accounting standards analyzed and the total number of decisions of enforcement. The higher the COMPIINDEX score, the more complex the accounting standard is.

**Table 2.** Complexity score and list of decisions of enforcement.

Standard	COMPIINDEX	ENFORC
IAS1	10.70	24
IAS2	−5.40	3
IAS7	−2.40	11
IAS8	0.60	15
IAS10	−6.30	0
IAS12	6.50	10
IAS16	1.60	4
IAS19	4.70	6
IAS20	−4.00	1
IAS21	−1.30	4
IAS23	−6.00	1
IAS24	−4.50	5
IAS26	−6.20	0
IAS27	−5.10	8

IAS28	−2.50	5
IAS29	−8.80	1
IAS32	3.50	14
IAS33	−3.80	1
IAS34	−3.80	10
IAS36	0.90	28
IAS37	−0.50	5
IAS38	3.10	19
IAS39	18.10	38
IAS40	−4.70	5
IAS 41	−5.50	1
IFRS1	5.10	4
IFRS2	3.50	5
IFRS3	5.50	22
IFRS4	3.20	0
IFRS5	−2.60	11
IFRS6	−8.40	2
IFRS7	4.00	14
IFRS8	−3.90	6
IFRS9	11.80	5
IFRS10	5.70	11
IFRS11	−2.00	4
IFRS12	−2.90	2
IFRS13	4.80	10
IFRS14	−6.60	0
IFRS15	4.20	2

COMPINDEX (Complexity index) is a score that measures the complexity in an accounting standard. ENFORC is the number of enforcement decisions published by ESMA that involved a specific accounting standard *i*.

IAS 39—Financial Instruments: Recognition and Measurement<sup>6</sup> and IAS 1—Presentation of Financial Statements simultaneously are the most complex accounting standards (COMPINDEX of 18.33 and 10.70) and record a higher number of enforcements (ENFORC of 38 and 24). These two variables present a high coefficient of correlation (0.61), which is statistically significant at the 1% level. The highest number of enforcements was registered in 2005, the year of adoption of International Financial Reporting Standards (IFRS) by the European Union (EU), with 45 enforcements, followed by the years of 2007 and 2008, with 35 enforcements.

## 5. Results

Table 3 shows the results of the analysis of our model that was used to determine if the number of enforcements in which an accounting standard is involved is related to the level of complexity of the accounting standard.

**Table 3.** Association between the number of enforcements and the complexity of an accounting standard.

Independent Variables	Coefficient	Predicted Sign	Coefficient	<i>p</i> -Value
Intercept	$\beta_0$	?	2.694	0.437
ENFORC	$\beta_1$	+	0.495 ***	0.000
AGE	$\beta_2$	?	−0.514 **	0.032
MoU	$\beta_3$	+	0.161	0.92
N° of observations			40	



Adjusted-R<sup>2</sup>

52.18%

This table presents the results of estimating Equation (1), which examines the influence of the number of enforcements published by ESMA that involved a specific accounting standard and the level of complexity of that standard. ENFORC is the number of enforcement decisions published by ESMA that involved a specific accounting standard  $i$ . The AGE of an accounting standard  $i$  is the difference between 2018 and the year the standard was initially issued by a regulation. MoU is a dummy variable that equals one if an IFRS was included in the Memorandum of Understanding, and zero otherwise. \*\* and \*\*\* denote significance at the 5% and 1% levels, respectively.

The results show that accounting standards that were involved in more enforcement measures have become more complex. The coefficient of ENFORC is positive ( $\beta_1 = 0.495$ ) and statistically significant at the 1% level of significance. Our results also show that the Memorandum of Understanding has no impact on the complexity of accounting standards, and that accounting standards become less complex as they age (the coefficient of the variable AGE is negative and statistically significant at the 5% level of significance).

In order to analyze if these results are not influenced by external factors such as the financial crisis of 2007/2008, we estimated Equation (1) including only the number of enforcement decisions published by ESMA in 2007 and 2008, and including all the other enforcement decisions excluding these two years. The results are presented in Table 4 in panels A and B, respectively.

**Table 4.** Association between the number of enforcements and the complexity of an accounting standard by year.

<b>Panel A: Number of Enforcements of 2007 and 2008</b>				
<b>Independent Variables</b>	<b>Coefficient</b>	<b>Predicted Sign</b>	<b>Coefficient</b>	<b>p-Value</b>
Intercept	$\beta_0$	?	4.811	0.228
ENFORC	$\beta_1$	+	1.253 ***	0.038
AGE	$\beta_2$	?	−0.557 *	0.097
MoU	$\beta_3$	+	0.854	0.673
N° of observations			40	
Adjusted-R <sup>2</sup>			35.30%	
<b>Panel B: Number of Enforcements of 2005, 2006, and 2009/2018</b>				
<b>Independent Variables</b>	<b>Coefficient</b>	<b>Predicted Sign</b>	<b>Coefficient</b>	<b>p-Value</b>
Intercept	$\beta_0$	?	1.421	0.675
ENFORC	$\beta_1$	+	0.666 ***	0.000
AGE	$\beta_2$	?	−0.431 *	0.062
MoU	$\beta_3$	+	0.053	0.972
N° of observations			40	
Adjusted-R <sup>2</sup>			52.70%	

This table presents the results of estimating Equation (1), which examines the influence of the number of enforcements published by ESMA that involved a specific accounting standard and the level of complexity of that standard considering the years of 2007/2008 (panel A) and 2005, 2006, and 2009/2018 (panel B). ENFORC is the number of enforcement decisions published by ESMA that involved a specific accounting standard  $i$ . The AGE of an accounting standard  $i$  is the difference between 2018 and the year the standard was initially issued by a regulation. MoU is a dummy variable that equals one if an IFRS was included in the Memorandum of Understanding, and zero otherwise. \* and \*\*\* denote significance at the 10% and 1% levels, respectively.

The results show that—even when removing the decisions of the years 2007 and 2008, characterized by the financial crisis that was experienced in those years—accounting

standards that were involved in more enforcement measures have become more complex, regardless of external factors such as the financial crisis.

Finally, in order to analyze whether enforcements have an impact on the different dimensions of complexity, we estimated the model using two sub-indices that measure the multiplicity (COMPINDEXMULT) and diversity (COMPINDEXDIV) dimensions. Table 5 shows that there is a higher impact of enforcements when it comes to the dimension of the multiplicity of accounting standards, with  $\beta_1 = 0.344$ , while the coefficient is  $\beta_1 = 0.154$  for the dimension of diversity. Both coefficients are statistically significant at the 1% level.

**Table 5.** Association between the number of enforcements and the complexity of an accounting standard by the complexity dimensions: multiplicity and diversity.

<b>Panel A: COMPINDEXMULT – Multiplicity</b>				
<b>Independent Variables</b>	<b>Coefficient</b>	<b>Predicted Sign</b>	<b>Coefficient</b>	<b>p-Value</b>
Intercept	$\beta_0$	?	2.334	0.265
ENFORC	$\beta_1$	+	0.344 ***	0.000
AGE	$\beta_2$	?	−0.391 ***	0.008
MoU	$\beta_3$	+	0.022	0.983
N° of observations			40	
Adjusted-R <sup>2</sup>			54.80%	
<b>Panel B: COMPINDEXDIV – Diversity</b>				
<b>Independent Variables</b>	<b>Coefficient</b>	<b>Predicted Sign</b>	<b>Coefficient</b>	<b>p-Value</b>
Intercept	$\beta_0$	?	0.329	0.846
ENFORC	$\beta_1$	+	0.154 ***	0.000
AGE	$\beta_2$	?	−0.122	0.304
MoU	$\beta_3$	+	0.138	0.852
N° of observations			40	
Adjusted-R <sup>2</sup>			34.95%	

This table presents the results of estimating Equation (1), which examines the influence of the number of enforcements published by ESMA that involved a specific accounting standard and the level of complexity of that standard, splitting the complexity index into the dimensions of multiplicity (panel A—COMPINDEXMULT) and diversity (panel B—COMPINDEXDIV). ENFORC is the number of enforcement decisions published by ESMA that involved a specific accounting standard  $i$ . The AGE of an accounting standard  $i$  is the difference between 2018 and the year the standard was initially issued by a regulation. MoU is a dummy variable that equals one if an IFRS was included in the Memorandum of Understanding, and zero otherwise. \*\*\* denote significance at the 1% level.

## 6. Discussion and Conclusions

Accounting standards' complexity affects not only the professional judgment used in financial reporting but also the interaction between accounting standard setters and enforcement mechanisms. After calculating a measure of accounting standards' complexity based on the theoretical dimensions of complexity identified in Baudot et al. (2018), we investigated how the level of enforcement measures affects accounting standards' complexity. The results show that an increase in the level of enforcements disclosed by ESMA implies an increase in the complexity of accounting standards. Our results are in line with the literature, which indicates that, by wanting to avoid managerial opportunism, regulators and supervisors may be introducing complexity into standards. The results also provide evidence that more recent accounting standards are more complex than older ones. Since IASB states that accounting standards are becoming more principles-based, our results suggest that being based on principles does not positively impact complexity. This

result is in line with previous papers that show that IFRS are becoming more complex (Morais 2020).

The results also show that this relationship is not influenced by external factors such as the financial crisis of 2007/2008, and that the impact of the number of enforcements on the complexity of accounting standards is more pronounced for the dimension of multiplicity. Therefore, we can conclude that the complexity related to the number of choices and the amount and nature of the information of accounting standards (multiplicity) surpasses the complexity associated with features across standards and between different sets of standards (diversity).

This study extends the research by showing the interrelationship between the level of complexity and the level of enforcement. The results also give support to the constraining opportunism theory, as the accounting standards mentioned as enforcement areas have become more complex, showing the influence that regulators and supervisors have on the content of accounting standards. This study also contributes to a better understanding of the implications of non-compliance with accounting standards. Tarca (2020) stated that more research on compliance with accounting standards is needed, mentioning that the evidence of non-compliance is relevant to standard setters, as it reflects a problem with accounting standards' clarity and understandability. Our findings can help these entities to gain a better understanding of what factors may affect the complexity of accounting standards, contributing positively to the attempt to simplify the accounting framework.

Our findings point to some important implications for the accounting, auditing, and enforcement fields as we investigated the interdependence between two important actors, namely, the accounting standard setter (IASB) and the regulator (ESMA), that play key roles in promoting the quality of financial reporting. This shows that the level of enforcement of ESMA may have implications for the complexity of accounting standards, with implications for preparers, auditors, regulators, and national supervisors.

This study has several limitations. Although our measure of accounting complexity is based on the theoretical dimensions of complexity, we did not include the dimension of interrelatedness referred to in Baudot et al. (2018). Therefore, our measure may not perfectly capture the level of discretion and professional judgment in applying a standard. Second, our study is limited to the enforcement measures issued by ESMA, without considering the magnitude of their impact.

This study can be a starting point for future research on the relationship between compliance and the complexity, comparability, and transparency of accounting standards. Tarca (2020) highlighted that it would be useful to examine why non-compliance occurs and how various entity and country factors interact to affect compliance.

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## Appendix A

**Table A1.** Example of the Calculation of the Score, Which Measures the Complexity in an Accounting Standard—IAS 16: Property, Plant and Equipment.

Dimensions	Sub-dimensions	Sub-Items	Examples from IAS 16
<b>Multiplicity</b> In this dimension, we include the degree of choice and the level of clarity.	<b>Degree of choice</b> This item includes two sub-items: exceptions, exemptions, special treatments, and conditions; and approaches, options, alternatives, and elections.	<b>Exceptions, exemptions, special treatments, and conditions</b> This sub-item is measured by counting the following keywords: not subject, not consider, excl*, exem*, not apply, condition*, scope except*, and special treatment.	We found 12 sub-items. Examples of 2 of the 12 sub-items: <i>“This Standard shall be applied in accounting for property, plant and equipment <u>except</u> when another Standard requires or permits a different accounting treatment”</i> (§2). <i>“This Standard does <u>not apply</u> to: (a) property, plant and equipment classified as held for sale in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations; (b) biological assets related to agricultural activity (see IAS 41 Agriculture); (c) the recognition and measurement of exploration and evaluation assets (see IFRS 6 Exploration for and Evaluation of Mineral Resources); or (d) mineral rights and mineral reserves such as oil, natural gas and similar non-regenerative resources”</i> (§3).
		<b>Approaches, options, alternatives, and elections</b> This sub-item is measured by the number of accounting options or alternatives in the standards.	We found 3 sub-items. Examples of 2 of the 3 sub-items: <i>“An entity shall <u>choose</u> either the cost model in paragraph 30 or the revaluation model in paragraph 31 as its accounting policy and shall apply that policy to an entire class of property, plant and equipment.”</i> (§29) <i>“An entity may <u>choose</u> to depreciate separately the parts of an item that do not have a cost that is significant in relation to the total cost of the item.”</i> (§47)
	<b>Level of clarity</b> This item includes five sub-items: detailed implementation guidance; examples; bright-line rules; (re-)definition of constructs or conceptual improvements; and level of detail in financial statements and footnotes.	<b>Detailed implementation guidance</b> This sub-item is measured by the number of SIC/IFRIC codes that provide guidance on financial reporting issues that are not addressed in IAS/IFRS.	We found 6 sub-items. Examples of 2 of the 6 sub-items: IFRIC 12—Service Concession Arrangements. IFRIC 20—Stripping Costs in the Production Phase of a Surface Mine.
		<b>Examples</b> This sub-item is measured by the number of examples presented in the standards.	We found 11 sub-items. Examples of 2 of the 11 sub-items: <i>“<u>For example</u>, a chemical manufacturer may install new chemical handling processes to comply with environmental requirements for the production and storage of dangerous chemicals; related plant enhancements are recognised as an asset because without them the entity is unable to manufacture and sell chemicals.”</i> (§11) <i>“<u>For example</u>, a furnace may require relining after a specified number of hours of use, or aircraft interiors such as seats and galleys may require replacement several times during the life of the airframe. Items of property, plant and equipment may also be acquired to make a less frequently recurring replacement, such as replacing the interior walls of a building, or to make a nonrecurring replacement.”</i> (§13)
		<b>Bright-line rules</b>	We found 0 sub-items.

		<p>This sub-item is measured by counting the following keywords: criteri*, condition*, provision*, require*, and percent*.</p> <p><b>(Re-)Definition of constructs or conceptual improvements</b></p> <p>This sub-item is measured by the number of definitions included in each accounting standard.</p>	<p>We found 18 sub-items. Examples of 2 of the 18 sub-items:</p> <p><i>“Property, plant and equipment are tangible items that: (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and (b) are expected to be used during more than one period.” (§6)</i></p> <p><i>“Recoverable amount is the higher of an asset’s fair value less costs to sell and its value in use.” (§6)</i></p>
		<p><b>Level of detail in financial statements and footnotes</b></p> <p>This sub-item is measured by the number of disclosures for each standard. We use the Deloitte IFRS compliance, presentations, and checklist 2018 (<a href="https://www.iasplus.com/en/publications/global/models-checklists/2018/ifrs-checklist">https://www.iasplus.com/en/publications/global/models-checklists/2018/ifrs-checklist</a>, accessed on 15 January 2020).</p>	<p>We found 11 sub-items. Examples of 2 of the 11 sub-items:</p> <p><i>“The financial statements shall disclose, for each class of property, plant and equipment: (a) the measurement bases used for determining the gross carrying amount; (b) the depreciation methods used; (c) the useful lives or the depreciation rates used; (d) the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period; and (e) a reconciliation of the carrying amount at the beginning and end of the period showing: (i) additions; (ii) assets classified as held for sale or included in a disposal group classified as held for sale in accordance with IFRS 5 and other disposals; (iii) acquisitions through business combinations; (iv) increases or decreases resulting from revaluations under paragraphs 31, 39 and 40 and from impairment losses recognised or reversed in other comprehensive income in accordance with IAS 36; (v) impairment losses recognised in profit or loss in accordance with IAS 36; (vi) impairment losses reversed in profit or loss in accordance with IAS 36; (vii) depreciation;...” (§73)</i></p> <p><i>“If items of property, plant and equipment are stated at revalued amounts, the following shall be disclosed: (a) the effective date of the revaluation; (b) whether an independent value was involved; (c) the methods and significant assumptions applied in estimating the items’ fair values;...” (§77)</i></p>
<b>Diversity</b>	<b>Level of consistency</b>	<b>Uniform interpretation and application of standards</b>	
In this dimension, we include the level of consistency and the variation in standards.	This item includes two sub-items: uniform interpretation and application of standards; and comprehensive effort versus partial or sub-set.	This sub-item is measured by the issues debated in the IFRS Interpretations Committee meetings ( <a href="https://www.iasplus.com/en/meeting-types/ifrs-ic">https://www.iasplus.com/en/meeting-types/ifrs-ic</a> , accessed on 15 January 2020) between 2007 and 2018 about a specific accounting standard.	<p>We found 51 sub-items. Examples of 2 of the 51 sub-items:</p> <p><i>IAS 16 was discussed in 10 meeting during 2014, for example:</i></p> <p><i>“IFRS Interpretations Committee meeting—11 November 2014</i></p> <p><i>The IFRS Interpretations Committee met at the IASB’s offices in London on 11 November 2014. The Committee (1) continued discussion of issues arising on IFRS 11, IAS 19, IFRS 5, IAS 12 and IAS 2; (2) considered finalising tentative agenda decisions on IFRS 12, IAS 16/IAS 2, IAS 16, IAS 21 and IAS 39; and (3) considered new issues on IFRS 10, IAS 32, IAS 21, IAS 12, IAS 28 and IAS 19. 11 Nov 2014–11 Nov 2014”</i></p> <p><i>“IFRS Interpretations Committee meeting—15–16 July 2014</i></p> <p><i>The IFRS Interpretations Committee met in London on 15–16 July 2014. The Committee (1) continued discussions on a number of issues related to IFRS 11, IAS 12, IAS 16, IAS</i></p>

		19 and IFRIC 14, (2) considered finalising tentative agenda decisions on IAS 1, IAS 39, IAS 34, IFRS 2 and IAS 12, and (3) considered new issues on IFRS 12, <u>IAS 16</u> , IAS 39 and IAS 21. 15 Jul 2014–16 Jul 2014”. ( <a href="https://www.iasplus.com/en/meeting-types/ifrs-ic/2014">https://www.iasplus.com/en/meeting-types/ifrs-ic/2014</a> , accessed on 15 January 2020)		
	<b>Comprehensive effort versus partial or subset</b> This sub-item is measured by the number of IFRS/IAS issued, revised, and amended from 2003 to 2018.	We found 17 sub-items. Examples of 2 of the 17 sub-items: <i>IAS 16 was amended in 22 May 2008 (<u>Amended by routine sales of assets held for rental</u>) and in 17 May 2012 (<u>Amended by classification of servicing equipment</u>).</i>		
<b>Variation in standards</b> This item includes two sub-items: GAAP and IFRS/other; and industry standards and guidance.	<b>GAAP and IFRS/other</b> This sub-item is measured by the number of differences between US Generally Accepted Accounting Principles (GAAP), as promulgated by the Financial Accounting Standards Board (FASB), and IFRS, as promulgated by the International Accounting Standards Board (IASB). For this count, we use the EY book “ <i>US GAAP and IFRS: the basics</i> ” ( <a href="https://www.ey.com/Publication/vwLUAssets/IFRSBasics_00901-181US_23February2018/\$FILE/IFRSBasics_00901-181US_23February2018.pdf">https://www.ey.com/Publication/vwLUAssets/IFRSBasics_00901-181US_23February2018/\$FILE/IFRSBasics_00901-181US_23February2018.pdf</a> , accessed on 15 January 2020).	We found 2 sub-items. Examples of those 2 sub-items:		
		<b>Significant differences</b>	<b>US GAAP</b>	<b>IFRS</b>
		<u>Revaluation of assets</u>	Revaluation is not permitted.	Revaluation is a permitted accounting policy election for an entire class of assets, requiring revaluation to fair value on a regular basis.
		<u>Depreciation of asset components</u>	Component depreciation is permitted, but it is not common.	Component depreciation is required if components of an asset have differing patterns of benefit.
	<b>Industry standards and guidance</b> This sub-item is measured by the amount of guidance for a specific industry.	We found 2 sub-items. Examples of those 2 sub-items: “For example, it may be appropriate to depreciate separately the <u>airframe and engines of an aircraft</u> , whether owned or subject to a finance lease.” (§41) “For example, a furnace may require relining after a specified number of hours of use, or <u>aircraft interiors</u> such as seats and galleys may require replacement several times during the life of the airframe. Items of property, plant and equipment may also be acquired to make a less frequently recurring replacement, such as replacing the interior walls of a building, or to make a nonrecurring replacement.” (§13)		

## Notes

1. <https://www.iasplus.com/en/resources/ifrsf/governance/ifrsf>, access on 15 January 2020
2. See <https://www.fasb.org/home>, access on 15 January 2020.
3. These formulas measure readability or predict the level of education necessary for understanding the text, based on linguistic criteria, such as average sentence length, complex words, average word length, and the number of sentences (Loughran and McDonald 2014).
4. Available at [https://www.esma.europa.eu/sites/default/files/library/esma32-63-365\\_list\\_of\\_decisions.pdf](https://www.esma.europa.eu/sites/default/files/library/esma32-63-365_list_of_decisions.pdf), accessed on 15 January 2020.
5. Available at <https://www.iasplus.com/en/news/2014/11/esma>, accessed on 15 January 2020.
6. Superseded by IFRS 9 effective 1 January 2018, where IFRS 9 is applied.

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