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Changes in Accounting Estimates. Exploring Impact and Trends

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Abstract

This study explores the frequency and distribution of changes in accounting estimates across different industries and company sizes, and develops a typology of firms: **one time-changers**, **occasional changers** and **chronical changers**. The findings indicate that industries characterized by complex operations and high uncertainty, such as manufacturing and services, report the largest number of estimate adjustments, whereas sectors such as agriculture and public administration predominantly record single adjustments. The results confirm a significant association between industry type and the frequency of changes ($p < 0.001$). Moreover, the study makes an original contribution by identifying and analyzing patterns in firms' accounting estimate changes. It also investigates the impact of firm size on the number of changes in accounting estimates – an aspect that has received limited attention in the existing literature, which has primarily focused on the underlying motivations for adjustments or on earnings management strategies.

The findings of this study are relevant for managers, investors, auditors, and standard-setters, as they support decision-making processes and the development of control and reporting policies tailored to the specific characteristics of each industry. Nevertheless, the study is exploratory in nature but can serve as a foundation for future research adopting predictive or longitudinal approaches, incorporating a larger sample of companies and additional variables captured at the individual level.

Key words: accounting estimates; changes in accounting estimates; IAS 8; ASC 250; industry; company size; one-timers; occasional changers; chronic changers;

JEL Classification: M41, M42, R32, G32, L25

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1. Introduction

In the business environment, particularly within the current financial and economic dynamics, the quality of financial reporting plays a crucial role. Both primary and secondary stakeholders have a direct interest in the accuracy of financial-accounting information. The importance of maintaining the quality of financial-accounting information has been extensively discussed both at the normative level by regulatory bodies (IASB – *International Accounting Standards Board*, FASB – *Financial Accounting Standards Board*, SEC – *Securities and Exchange Commission*, EFRAG – *European Financial Reporting Advisory Group*) and within the academic field (Barth et al., 2001; Dechow et al., 2010).

One of the greatest challenges arises when, within the complex picture presented by financial statements, there are elements that rely on the application of expertise and professional judgment. We refer here to accounting estimates, which are based on the available data, yet uncertainty and subjectivity cannot be avoided. Given the highly dynamic nature of the financial and economic environment, new information may become available. In this context, accounting estimates require revision, leading to changes in accounting estimates, which are then reflected in the current or future reporting periods.

According to FASB (2005), changes in accounting estimates are a necessary consequence of the emergence of new information, but at the same time they may also represent “an appealing mechanism through which managers achieve their reporting objectives” (DeFond et al., 2019). The challenge for stakeholders, and especially for auditors, stems from this very paradox: while changes in accounting estimates are necessary, they also carry the “potential” to become a tool for manipulation.

With regard to potential risks, concerns have been raised both by practitioners (KPMG, 2016; Ernst & Young, 2017) and by academic researchers (Ghosh & Siriviriyakul, 2019; Beaulieu et al., 2022; Chung et al., 2022; Albrecht et al., 2024; Li & Luo, 2024).

When it comes to changes in accounting estimates, standard-setting authorities (IASB, FASB) consider them merely a means of updating or disclosing additional information required for financial reporting. Their expectations align with the findings of existing research (Ghosh & Siriviriyakul, 2019). The authors of this research argue that the likelihood of using changes in accounting estimates as a means of intentional misrepresentation is

low, precisely because of the inherent risks that are evident to investors as well as the disclosure requirements in financial reporting (Ghosh & Siriviriyakul, 2019).

On the other hand, it is precisely this heightened exposure to the risk of intentional misrepresentation that enables managers to manipulate results through changes in accounting estimates - whether such changes are necessary or not.

The aim of this study is to analyze and classify companies based on the frequency of changes in accounting estimates, in order to identify behavioral patterns that can provide relevant insights regarding the quality of financial reporting, the stability of accounting policies, and the associated potential risks. Accordingly, this paper seeks to provide a starting point for observing recurring patterns in how companies adjust their estimates, facilitating comparisons within and across industries.

We proceed from the premise that a clearer understanding of the frequency of changes in accounting estimates, along with grouping companies into categories (clusters) or developing patterns, offers a useful analytical framework for companies and investors (in assessing financial quality and stability), for auditors, and as a foundation for future predictive research.

2. Literature review

To identify the current state of research on this topic, we began with a quantitative analysis of works already published in the literature. We accessed three leading databases: Web of Science (WOS), Springer Link, and Science Direct–Elsevier. This part of our research was facilitated through the ANELIS Plus platform, which provides electronic access to scientific and research literature.

Following the search protocols of each database, in the Web of Science Core Collection (WOS), searches were conducted using the “Topic” field, which covers titles, abstracts, and author keywords. Using the query “changes in accounting estimates,” nine articles were initially identified, of which two were excluded due to irrelevance. The remaining seven articles, published between 2017 and 2025, indicate a growing interest in this subject in recent years. This increase is also explained by the availability of the accounting estimate changes module provided exclusively by Audit Analytics since 2013. An alternative search using the phrase “accounting estimate

changes” returned only one article, already included among the seven selected.

In Springer Link, using the same search structure adapted to the database, we obtained three results, two of which were book chapters addressing accounting estimates only tangentially, and one article already found in WOS.

On Science Direct platform, following the same approach, we retrieved 69 articles using the search structure “accounting estimate changes” OR “changes in accounting estimates”. However, only nine were openly accessible, and upon review, the topic of accounting estimate changes was addressed tangentially, appearing no more than five times in these nine studies.

These observations indicate that the topic of accounting estimate changes still leaves ample room for exploration (DeFond et al., 2024). Over the years, the literature has paid particular attention to the inherent uncertainty of accounting estimates and the risk of intentional misstatement, with significant implications for auditors (Bell & Griffin, 2012; Christensen et al., 2012; Bratten et al., 2013; Griffin, 2014; Joe et al., 2017).

Given the increasing number of accounting estimates in a dynamic business environment, management must periodically evaluate the input data used for these estimates. Adjustments to accounting estimates are therefore inevitable; as economic conditions change, new information and assumptions emerge, making it imperative for managers to accurately reflect the financial reality. Nevertheless, in this context characterized by uncertainty, there remains the potential for biased adjustments.

In response, IASB and FASB have contributed to creating a more coherent and rigorous framework for managing and reporting changes in accounting estimates through recent standard revisions (IASB, 2021; FASB, 2009; FASB, 2015a; FASB, 2015b). Both IAS 8 – *Accounting Policies, Changes in Accounting Estimates and Errors*, issued by IASB, and ASC 250 – *Accounting Changes and Error Corrections*, issued by FASB, have clarified the distinction between changes in accounting policies and changes in estimates. Moreover, both authorities treat changes in estimates prospectively (IASB, 2003; IASB, 2014; FASB, 2015a).

In addition to the limited volume of literature, the findings on the motivation behind changes in accounting estimates are inconsistent. Some authors argue that these changes are strategically motivated (Beaulieu et al., 2018; Seidel et al., 2020; Chung et al., 2022; Albrecht et al., 2024) to

achieve profit targets or other reporting objectives.

Conversely, other studies provide empirical evidence suggesting that accounting estimate changes primarily serve to reflect new information (Cassell et al., 2015; Ghosh & Siriviriyakul, 2019). While management may have incentives to manipulate earnings through estimates and related changes, this is considered unlikely due to the ease with which markets can detect distortions, driven by rigorous financial reporting and disclosure requirements (Ghosh & Siriviriyakul, 2019). Li & Luo (2024) examined the impact of estimate changes during periods of crisis or uncertainty (e.g., COVID-19), highlighting the challenges for investors in assessing true performance and for auditors in identifying intentional opportunism.

Most studies associate changes in accounting estimates with earnings management and managerial opportunism, and some also explore the potential for these firms to issue financial restatements (Albrecht et al., 2024; Beaulieu et al., 2023).

Following a logical perspective, we start from the idea that accounting estimates are increasingly necessary in a dynamic market environment but require careful attention from investors and auditors due to their susceptibility to manipulation for various reasons already analyzed in the literature (Christensen et al., 2012; Bratten et al., 2013; Griffin, 2014; Abernathy et al., 2015; Brink et al., 2016).

At the same time, adjustments to accounting estimates are essential to accurately reflect business conditions and new information. Based on the necessity of estimates and subsequent changes, we can conclude that while such adjustments are inevitable and indispensable, they paradoxically represent a source of vulnerability and an avenue for potential manipulation, often manifesting in financial restatements (Beaulieu et al., 2023). This raises the question of how financial statement quality and audit quality can be maintained despite regulatory efforts.

Therefore, there is a continued need to explore accounting estimates and their changes due to the ongoing controversies and sometimes contradictory findings in existing research. Our exploratory study aims to contribute to the literature by developing a perspective focused on characterizing aggregated company behavior, rather than solely analyzing the individual motives behind changes. The main objective is to identify reporting patterns and classifications that enable understanding of behavioral differences across firms regarding estimate changes. This analysis can serve as a foundation for future quantitative and qualitative studies on accounting estimate changes.

In the following section, we develop our study framework, explaining how we created this behavioral classification of companies reporting changes in accounting estimates.

3. Research methodology

For this study, we used data provided by Audit Analytics, a comprehensive database that includes information on accounting estimate changes within one of its modules. The available data in Audit Analytics pertain only to U.S.-listed companies. Using the most recent data available on this topic, the database provided information on estimate changes up to June 30, 2025.

We initially started with 14,704 observations, representing 5,383 companies, covering the period 1999-2005. From this initial dataset, we removed observations corresponding to the 1999-2003 period, which accounted

for 1,656 observations and 759 companies (Table no. 1). These observations were excluded for two main reasons. First, the Audit Analytics database does not code accounting estimate changes for periods prior to 2002. Second, the reporting requirements related to internal control over financial reporting, introduced by the Sarbanes-Oxley Act of 2002 (Section 404), began to be gradually implemented in 2003, leading to a significant improvement in the quality and comparability of reported information. After these exclusions, the final dataset comprised 13,048 observations for 4,624 companies.

Financial sector companies were included in the analysis to maintain the representativeness of all industries and to avoid introducing bias, given that these firms provide relevant information regarding the frequency and impact of accounting estimate changes.

Table no. 1. Sample selection

Step	Description	Number of observations	Number of companies
1	Initial observations from Audit Analytics (1999–2025)	14,704	5,383
2	Minus: observations from the period 1999–2003 (Audit Analytics does not code changes prior to 2002; SOX internal control reporting requirements came into effect in 2003)	1,656	759
Total observations remaining for analysis		13,048	4,624

Source: own projection, based on processed data

For each company, Audit Analytics reported all accounting estimate changes disclosed in annual or quarterly filings. The data were primarily extracted from the following forms: 10-Q, 10-K, 20-F, 40-F, and 6-K, supplemented with information from SEC comment letters. Audit Analytics also provides the period during which estimate changes occurred, the reason for these changes (classified according to a well-defined taxonomy), their impact on earnings, as well as additional information about the companies in question.

Based on all the information provided by Audit Analytics, we created our own dataset, extracting only the information necessary to achieve the objectives of this study. It should be noted that our research is exploratory and descriptive in nature.

To identify potential reporting patterns of accounting estimate changes, the sample companies were grouped

into three distinct categories, defined according to the number of reported changes over the analyzed period.

The first category consists of **one time changers** – companies that made only one change to accounting estimates throughout the entire observation period. This group may reflect firms with stable accounting policies, making adjustments only in the context of specific, well-justified events. The second category includes **occasional-changers** – companies that recorded between two and five estimate changes during the sample period. This pattern may suggest a moderate level of adjustments, typically correlated with changes in economic conditions, regulatory updates, or periodic revisions of accounting policies. The third category comprises **chronical changers** – companies reporting more than five accounting estimate changes. The high frequency of adjustments in this group may be associated with a more volatile operating environment, significant

uncertainties, or, in some cases, managerial practices involving a high degree of subjectivity in financial reporting.

The thresholds were established to capture distinct behaviors, ranging from firms that rarely change estimates

to those that do so frequently, thereby facilitating a clearer understanding of estimate-change patterns. As there is no universal convention in the literature for these thresholds, this classification is descriptive and aims to organize the data for further analysis.

Table no. 2. Variable description

Variable Name	Description	Details
COMPANY_NAME	Company name	According to Audit Analytics
YEAR_CAE	Year in which accounting estimate changes occurred	2004–2025
CAE_TYPE	Cause of the accounting estimate changes or the item triggering the change	14 types of changes according to Audit Analytics taxonomy (see Appendix 1)
CODE_CAE	Code assigned by the author for each cause	1–14
EFFECT_CAE	Net effect generated by the estimate change	Positive, Negative, Unidentified
CODE_EFFECT	Code assigned by the author	1 – Positive 2 – Negative 3 – Unidentified
SIC_CODE	Industry code	According to Audit Analytics
TOTAL_CHANGES	Number of estimate changes (based on the number of years and the number of occurrences of the company in the database)	Processed in Stata
CHANGER_TYPE	Classification of companies based on the number of accounting estimates	<ul style="list-style-type: none"> • One time changers – 1 change • Occasional-changers– 2-5 changes • Chronical changers – more than 5 changes
INDUSTRY_NAME	Industry name based on SIC codes	Agriculture, Mining, Construction, Manufacturing, Transportation, Wholesale, Retail, Financial Services / Finance, Services, Public Administration
INDUSTRY_CAT	Numeric code for each industry	Processed in Stata, coded from 1 to 10 (according to SIC code and existing industry types)
COMPANY_SIZE	Company size	Natural logarithm of total assets, processed in Stata

Source: own projection, based on processed data

In **Table no. 2** we present the working variables extracted from Audit Analytics or created subsequently in the statistical and econometric software Stata. These variables allowed us to perform the statistical tests necessary to present the impacts and trends related to changes in accounting estimates.

4. Results and discussions

The statistical analyses we conducted are reported based on the number of companies included in the sample. To understand the distribution of accounting estimate changes across companies and industries, we performed several descriptive statistical tests.

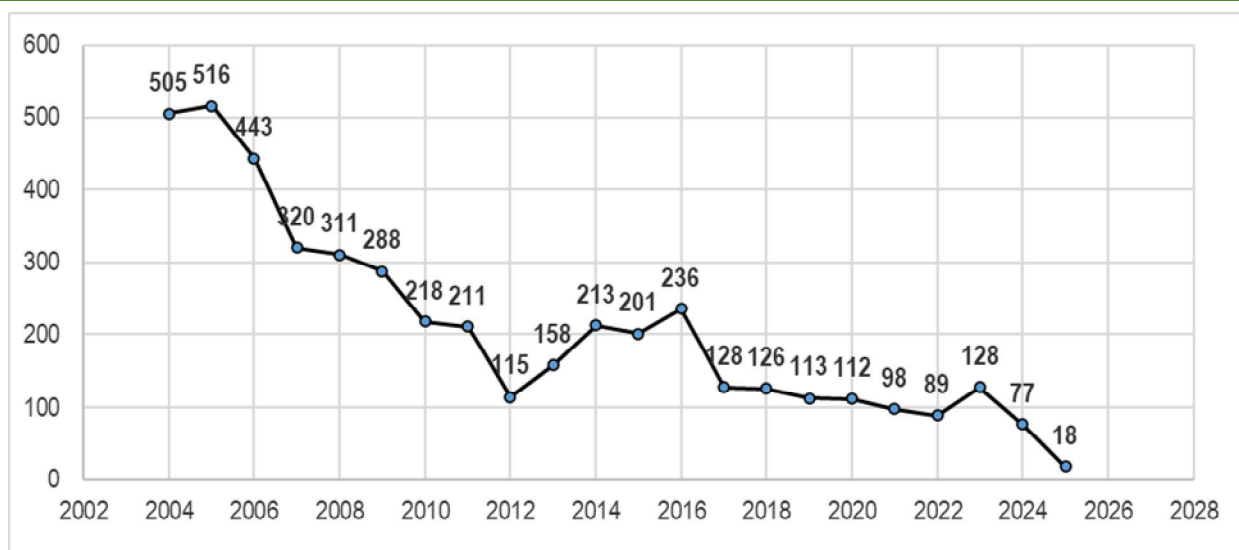
As shown in **Figure no. 1**, the number of distinct companies reporting at least one accounting estimate change during the period 2004 - June 2025 is presented. The data clearly indicate a pronounced decline in the number of companies reporting estimate changes, from 505 companies in 2004 to only 77 companies in 2024, and 18 companies reporting changes in the first two quarters of 2025.

The results for the 2004–2008 period, characterized by a higher number of companies reporting estimate changes, can be explained by the introduction or intensification of reporting obligations (Cohen et al., 2008). Similarly, the

2008–2010 period shows a gradual decline, likely due to economic changes, including the financial crisis of 2008–2009. This aligns with prior research suggesting that firms reduce or avoid accounting estimate changes during unstable periods, as such changes may be more easily interpreted as earnings management or negative signals by market participants (Chan & Laux, 2010; Daske et al., 2013).

Additionally, the downward trend in the number of estimate changes may reflect the continuous efforts of IASB and FASB to provide clarifications and additional guidance for accounting estimate treatment.

Figure no. 1. Evolution of accounting estimate changes by year



Source: own projection, based on processed data

The distribution of companies across categories, as described above, based on the number of reported changes, is presented in **Table no. 3**. **Table no. 4** shows the distribution by category and year. Notably, 54.24% of the sample consists of **one-time changers**, indicating that more than half of the companies made only one change in estimates, possibly in response to a specific event. **Occasional-changers**, representing 36.76% of the sample (with 2-5 estimate changes), were likely influenced by cyclical or industry-specific factors. The final category, **chronical changers**, accounts for 9% of all companies reporting estimate changes during the 2004-2025 period. This category warrants particular attention due to the potential for managerial opportunism.

Table no. 3. Distribution of companies by change type

Changers_type	Frequency	Percentage	Cumulative
One-time changer	2508	54.24	54.24
Occasional changer	1700	36.76	91.00
Chronic changer	416	9.00	100.00
Total	4624	100.00	

Source: own projection, based on processed data

Table no. 4. Distribution of companies by year and change category

YEAR	One-time	Occasional	Chronic	%One-time	%Occasional	%Chronic
2004	239	189	77	47.33	37.43	15.25
2005	241	227	48	46.71	43.99	9.30
2006	232	167	44	52.37	37.70	9.93
2007	140	149	31	43.75	46.56	9.69
2008	159	129	23	51.13	41.48	7.40
2009	151	110	27	52.43	38.19	9.38
2010	126	73	19	57.80	33.49	8.72
2011	127	64	20	60.19	30.33	9.48
2012	61	41	13	53.04	35.65	11.30
2013	89	53	16	56.33	33.54	10.13
2014	123	80	10	57.75	37.56	4.69
2015	121	70	10	60.20	34.83	4.98
2016	154	74	8	65.25	31.36	3.39
2017	84	39	5	65.63	30.47	3.91
2018	74	41	11	58.73	32.54	8.73
2019	64	30	19	56.64	26.55	16.81
2020	63	39	10	56.25	34.82	8.93
2021	44	43	11	44.90	43.88	11.22
2022	48	34	7	53.93	38.20	7.87
2023	89	33	6	69.53	25.78	4.69
2024	61	15	1	79.22	19.48	1.30
2025	18	0	0	100.00	0.00	0.00
Total	2508	1700	416	-	-	-

Source: own projection, based on processed data

From **Table no. 4** it is evident that the financial crisis period of 2008-2009 was associated with a decrease in the frequency of accounting estimate changes and an increase in the proportion of single changes, reflecting managerial caution (Bratten et al., 2013).

Descriptive statistics also show a clear concentration of estimate changes in certain sectors, with manufacturing (38.13%) and services (19.49%) together accounting for nearly 58% of all companies reporting estimate changes. Industries such as wholesale, retail, construction, agriculture, and mining exhibit much lower frequencies.

Regarding the effect of accounting estimates on earnings, as reported in Audit Analytics, **Figure no. 2** shows that out of the 4,624 companies, 50% (2,325) reported estimate changes with a positive effect on earnings, while approximately 40% (1,880) reported changes with a negative effect.

Furthermore, to better understand the tendencies of companies in reporting changes to accounting estimates

and to examine the extent to which these changes depend on company type or industry, we conducted several statistical tests, including ANOVA, post-hoc tests, and Chi-square tests, the results of which are presented below.

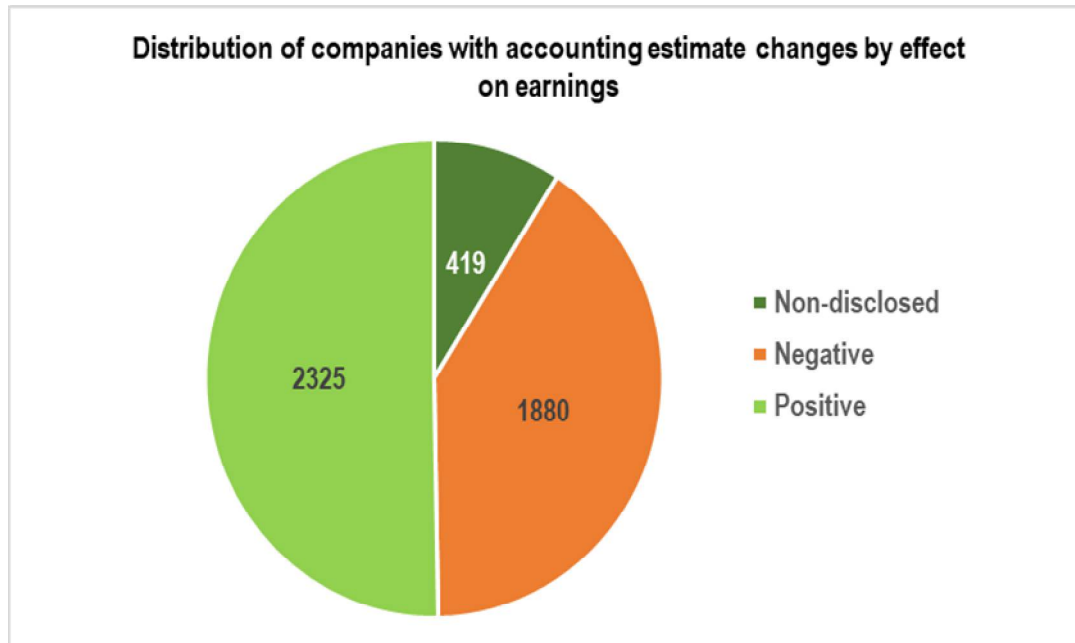
To investigate the relationship between company size and the frequency of changes in accounting estimates, we analyzed differences in company size (logarithm of total assets) according to the category of frequency of changes (changer_type). One-way analysis of variance (ANOVA, **Table no. 5**) revealed statistically significant differences among the three groups: companies with a single change, occasional changes, and recurrent changes in accounting estimates. The results suggest that company size varies significantly depending on the frequency of estimate changes, with firms making recurrent changes having, on average, larger total assets than those with occasional or single changes ($F(2, 4450) = 134.99, p < 0.001$).

Subsequent Tukey post-hoc tests indicated that all three categories of companies differ significantly from one another: firms with recurrent changes in accounting

estimates are indeed the largest, followed by those with occasional changes, while firms with a single change are the smallest. Also, the firms with occasional accounting changes are significantly larger than those registering only one change in estimates for the analyzed period.

These findings suggest the existence of a distinct company profile based on the frequency of changes in accounting estimates, with larger firms tending to adjust estimates more frequently. This pattern may reflect the complexity of operations or a higher degree of uncertainty associated with these entities' activities.

Figure no. 2. Effect of accounting estimates on earnings



Source: own projection, based on processed data

Table no. 5. Analysis of variance (ANOVA) for company size by type of change in accounting estimates

Source	Df*	Sum of Squares	Mean Square	F	P-value
Between groups	2	2147.38	1073.69	134.99	<0.001
Within groups	4450	35395.31	4450		
Total	4452	37542.69			

* Df represents degrees of freedom; "Between groups" reflects the variation explained by the group factor, while "Within groups" indicates unexplained (residual) variation.

Source: own projection, based on processed data

The results obtained confirm the hypothesis that company size is correlated with the frequency of changes in accounting estimates. This finding supports observations in the literature, where larger firms are associated with a higher degree of operational and financial complexity, necessitating more frequent adjustments of accounting estimates (Dechow & Schrand, 2004). Additionally, according to Ball & Shivakumar (2005), the frequency of estimate changes reflects a higher level of uncertainty in the business environment, a phenomenon that appears more pronounced in firms with large total assets.

To explore whether the frequency of changes in accounting estimates varies across industries, we conducted a Chi-square test of independence between the categorical variable changer_type (frequency of changes: single, occasional, recurrent) and the industry in which companies operate. This test allows us to assess whether

a significant association exists between the two categorical variables. The results (Table no. 6) indicate a significant difference in the distribution of accounting estimate changes across industries (Pearson $\chi^2(18) = 91.26, p < 0.001$).

Thus, the data reveal the existence of distinct industry profiles regarding the frequency of changes in accounting estimates. Industries characterized by complex operations and high uncertainty, such as Manufacturing, Finance, and Services, show a significantly higher proportion of firms with recurrent changes in accounting estimates. In

contrast, sectors such as Agriculture and Public Administration are dominated primarily by companies making single changes, suggesting a lower frequency of estimate adjustments in these areas. These findings indicate that the industry in which a company operates significantly influences both the extent and frequency of accounting estimate adjustments, likely due to differences in the complexity of operational processes, industry-specific regulations, and the level of uncertainty associated with the activity.

Table no. 6. Association between the frequency category of accounting estimate changes and company industry (Chi-square Test)

Industry	One-time changers	Occasional changers	Chronical changers	Total
Agriculture	12	5	0	17
Construction	19	20	19	58
Finance	394	217	48	659
Manufacturing	930	653	180	1763
Mining	197	104	12	313
Public Administration	1	0	0	1
Retail	109	80	10	199
Services	494	319	88	901
Transportation	292	265	54	611
Wholesale	60	37	5	102
Total	2508	1700	416	4624

Pearson $\chi^2(18) = 91.2552, Pr = 0.000$

Source: own projection, based on processed data

Penman and Zhang (2002) emphasize that industries characterized by high uncertainty and strict regulations, such as finance and manufacturing, exhibit a higher frequency of changes in accounting estimates in response to dynamic economic conditions. This relationship between operational complexity, company size, and the frequency of estimate adjustments is also supported by Francis et al. (2004), who argue that these characteristics influence the quality and nature of financial reporting.

We conducted a factorial ANOVA to investigate the combined impact of industry and the frequency of changes in accounting estimates on company size. The interaction between the two variables was not significant ($F(15, 4426) = 0.95, p = 0.50$), indicating that the effect of the frequency

of estimate changes on company size is similar across all industries.

To analyze whether the effect of accounting estimate changes on outcomes differs depending on the frequency of these changes, we performed a Chi-square test on the distribution of effects (positive, negative, undisclosed) across the three categories of firms. The results (Table no. 7) indicate statistically significant differences between groups in the distribution of the effect of changes (Pearson $\chi^2(4) = 26.47, p < 0.001$).

Thus, the analysis highlights that firms with single changes exhibit a higher proportion of positive effects from accounting estimate adjustments compared to firms with occasional or recurrent changes. The latter, although

representing a smaller number of observations, show a relatively higher proportion of negative effects, suggesting a different dynamic depending on the frequency of the changes.

Table no. 7. Relationship between the frequency of accounting estimate changes and their effect (Chi-square Test)

Changer_type/ Change effect	N/A	Negative	Positive	Total
One time (1)	265	984	1259	2508
Occasional (2-5)	133	736	831	1700
Chronical (>5)	19	163	234	416
Total	417	1883	2324	4624

Pearson $\chi^2(4) = 26.47, Pr = 0.000$

N/A – effect not disclosed on the outcome/ Negative – negative effect on the outcome/ Positive – positive effect on the outcome

Source: own projection, based on processed data

5. Conclusions

The primary objective of this exploratory study was to identify and characterize companies that frequently adjust accounting estimates over multiple years, with the aim of highlighting their distinctive features in terms of size, industry, and the nature of the effects generated, as well as capturing potential trends associated with this behavior.

While previous research has focused on the impact of external shocks, such as the pandemic, or on the timing of estimate changes for earnings management purposes, the present analysis shows that larger firms tend to record a higher number of recurrent adjustments. This finding suggests that structural characteristics of firms, such as size, may influence the complexity and frequency of accounting estimates, thereby complementing the existing literature and providing additional insights for managers, investors, and auditors interested in informational risks and financial reporting strategies.

The exploratory analysis indicates a downward trend in the frequency of accounting estimate changes over the period 2004 - June 2025. Periods of higher frequency (2004-2008) may coincide with the introduction of new reporting requirements, while the subsequent decrease (2008-2010) could be associated with the financial crisis

and managerial prudence. The results also show that the financial crisis period was associated with an increase in the proportion of firms with single changes, again suggesting a tendency toward cautious management. The overall declining trend implies that IASB and FASB guidance and clarifications have contributed to reducing the frequency of accounting estimate adjustments.

Furthermore, the results highlight that the group of firms classified as making recurrent changes – i.e., those that performed more than five revisions of accounting estimates during the analyzed period – exhibit distinct characteristics compared to firms with single or occasional changes. These companies are concentrated in industries with a high degree of operational complexity and uncertainty, such as manufacturing, finance, and services, where frequent estimate adjustments are often necessary due to market volatility, technological changes, or legislative updates.

The analysis of company size by type of estimate change and the effect of those changes (modification type × effect of estimate changes) shows that firms making frequent adjustments are, on average, significantly larger than those making occasional or single changes. Thus, size not only increases transaction volume but also the diversity of situations requiring professional judgment and estimate adjustments, explaining why companies with recurrent changes modify estimates more frequently. Chi-square test results indicate that firms with recurrent estimate changes have a relatively higher proportion of negative effects, suggesting that repeated adjustments often reflect the prudent recognition of adverse developments. These findings support the notion that the frequency of accounting estimate changes is not random but is influenced by structural and contextual factors specific to a company's operational environment (Dechow & Schrand, 2004; Francis et al., 2016).

In conclusion, this exploratory study demonstrates that accounting estimate changes are concentrated in industries with complex operations and high uncertainty. These results are useful for managers, investors, auditors, and regulatory authorities, providing a clearer picture of sectors where estimates are more frequently adjusted and, consequently, where financial reporting risks are higher. Understanding these trends can support strategic decision-making processes and the development of control and reporting policies better tailored to the realities of each industry, helping companies manage both

operational and estimate-specific uncertainty more effectively.

Thus, the findings regarding the link between company size and the frequency of accounting estimate changes represent an original contribution, complementing the existing literature, which primarily focuses on the motives and context of estimate changes rather than on firms' structural characteristics.

It should be noted, however, that this study is exploratory and cannot be used to predict future changes in accounting estimates. The results may serve as a starting point for future research with predictive approaches and longitudinal models, which could provide more precise and company-specific estimations.

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Appendix 1

Code	Taxonomy of CAE (Audit Analytics, 2025)
1	Accounts/loans receivable, investments & cash issues
2	Acquisitions, mergers, disposals, re-organizations
3	Asset retirement obligations
4	Deferred, stock-based and/or executive comp
5	Depreciation, depletion or amortization
6	Expenses (payroll, SGA, other)
7	Financial derivatives/hedging
8	Inventory
9	Liabilities, accruals or reserves
10	Other accounting estimates
11	Pension and other post-retirement benefit
12	PPE & Intangible assets
13	Revenue recognition
14	Tax expense/benefit/deferral/other