

**ERASMUS UNIVERSITY ROTTERDAM**

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**Master Thesis Accounting, Auditing, and Control**

**Do expanded audit reports influence investment efficiency?**

**Abstract**

Policymakers across the globe have recently provided multiple initiatives in the auditor reporting model. These amendments aim to address the perceived insufficient informativeness and transparency of audit reports by including KAMs or CAMs. In the U.K., the new standard, ISA 700 (revised 2013) mandated auditors to include the risks of material misstatement (RMMs) that had the greatest effect on the financial statement audit in their reports. Focusing on the first two years of ISA 700 implementation this paper empirically examines the causal effect of the requirement on corporate investment efficiency in a difference-in-differences framework. This study uses premium-listed firms on the LSE Main Market that were obliged to comply with the new standard as the treatment group and firms listed in the Alternative Investment Market as the control group. The findings suggest that expanded audit reports are generally not associated with a higher level of investment efficiency.

**Keywords:** Expanded audit reports, investment efficiency, Information asymmetry

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# Table of Contents

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<b>1 Introduction</b>	<b>2</b>
<b>2 Theoretical Background and Hypothesis Development</b>	<b>4</b>
2.1 The New Audit Reporting Regime	4
2.2 Prior Literature on Critical Audit Matters and Investment	5
2.2.1 Critical Audit Matters	5
2.2.2 Investment Efficiency	6
2.3 Hypotheses Development	7
<b>3 Research Design</b>	<b>8</b>
3.1 Sample Selection	8
3.2 Empirical Model	9
3.2.1 Measuring Investment Efficiency	9
3.2.2 Model Specification	9
3.3 Descriptive Statistics	11
<b>4 Empirical Results</b>	<b>13</b>
<b>5 Conclusion</b>	<b>15</b>
<b>References</b>	<b>16</b>

## 1 Introduction

Prior studies suggest that higher-quality financial reporting and accounting are associated with increased investment efficiency (Biddle & Hilary, 2006; Bushman & Smith, 2001; Healy & Palepu, 2001; Lambert et al., 2007; Verdi, 2006). The underlying debate is that information asymmetry is the primary determinant of investment efficiency and it is effective through adverse selection and agency problems (Berle & Means, 1932; Jensen & Meckling, 1976; Jensen, 1986; Lambert et al., 2007; Myers & Majluf, 1984). Verdi (2006) finds that financial reporting quality mitigates the information asymmetry between investors and the firm or the manager, thus improving investment efficiency. Moreover, one of the potential solutions to the information asymmetry problem is engaging information intermediaries in private information production to uncover managers' superior information (Healy & Palepu, 2001).

In addition, regulators have started to introduce new audit reporting standards in response to investors' tendency for more transparency. In the first step, the Financial Reporting Council (FRC) revised the reporting requirements already in the U.K. in June 2013 to enhance the transparency of the auditor's report. The ultimate goal of this amendment is better communication between auditors and users. Provisions of International Standards on Auditing (ISA) 700 (Revised June 2013) have mandated the auditors to disclose and discuss the Key Audit Matters (KAMs) identified in the audit process in their reports (FRC 2013a). Afterward, other standard-setters inclusive of The International Auditing and Assurance Standards Board (IAASB) and Public Company Accounting Oversight Board (PCAOB) adopted the new approach as well and required the auditors to include additional company-specific information in their reports. Generally, the main purpose of regulators to require expanded auditor's reports is to reduce the information asymmetries by increasing the value relevance of auditor reports for financial statement users, (FRC, 2013b).

A substantial part of the literature investigates whether this has been achieved. However, the evidence is mixed.

On the one hand, Gutierrez et al. (2018) and Lennox et al. (2022) find no evidence that the new reporting regime is incrementally informative for investors. They suggest that investors already know about the risks, prior to auditors disclosing them, through different channels. Consistent with these findings, Boolaky and Quick (2016) show that there is no significant impact of new changes on the perceived quality of the financial statements, the audit quality, or the perceived information value of the audit report.

On the other hand, Reid et al. (2019) as well as Kitiwong and Sarapaivanich, (2020) argue that the adoption of an expanded audit report can improve audit quality due to putting more effort by auditors and the threat of disclosure. Also, Smith (2023), as well as Seebeck and Kaya (2022), find that the communicative value of expanded audit reports has significantly increased, yet their results regarding the informativeness of this value are divergent. Consistently, Elsayed et al. (2023) in a very recent study suggest that the expanded report regime and information content have significant economic consequences for both complying firms and capital market participants and they are

useful for users. I can conclude if the main goal of the new regime is achieved, it would impact investment efficiency. But given the contradicted results, the association between expanded audit reports and investment efficiency through the canal of mitigating information asymmetry is not clear.

Furthermore, this new reporting regime could also have unintended consequences, such as a change in litigation risk (Minutti-Meza, 2021). Needless to say, these unknown effects could impact investment efficiency through other factors such as corporate governance. Besides, to the best knowledge of the author, no similar research has examined the consequences of KAM requirements on investment efficiency or cost of capital.

Therefore, this paper addresses this gap in the literature by raising the following research question:

***RQ: “Do expanded audit reports influence investment efficiency?”***

This study investigates the research question in the U.K. setting which could be beneficial for various reasons such as being a more informative environment with less litigation risk. Furthermore, the current study can take advantage of a regulatory change and use it as an exogenous shock. The ISA 700 Requirements were effective only for companies with a premium listing of equity shares on the London Stock Exchange (LSE) Main Market, with fiscal years commencing on or after October 1, 2012 (i.e., fiscal year-ends on or after September 2013). Thus, I first use the Pre-Post-Adoption Model and compare investment efficiency for LSE premium companies applying expanded audit report requirements in the pre-and post-adoption periods from September 2011 to September 2015 which covers two years before and two years after the cut-off point. Subsequently, I study the differential effect of the new reporting regime on this group of companies as the “treatment group” versus companies listed in the LSE Alternative Investment Market (AIM), that were not required to adopt the regulation, as the “control group” implementing Difference-In-Difference Analysis.

Using the absolute value of the residual from the investment model multiplied by -1 as the proxy of investment efficiency, the author finds no evidence that the expanded auditor’s report in the United Kingdom is associated with corporate investment efficiency. The findings support the idea that new requirements to include more disclosures in audit reports do not improve the information content of the audit reports, resulting in no impact on information asymmetry for users.

This paper can contribute to the growing literature on the consequences of expanded audit reports and help to resolve conflicting findings in papers in terms of the informativeness of the new reporting regime. Moreover, this study fills a gap in the literature since it is one of the first studies that examine the effects of expanded audit reporting on investment efficiency in the U.K.

In addition, this study has a policy implication with the post-implementation review of the new audit reporting standard. If there is a lack of information content and the main purpose of the policymakers is not achieved, they might consider other advantages and disadvantages (gains and costs) of the new standards and provide new adjustments if necessary.

The remainder of the paper is organized as follows. Section 2 gives a review of the background and develops the testable hypothesis. Section 3 represents the research design including sample construction and data descriptions. Section 4 presents and discusses the empirical results. Section 5 concludes.

## **2 Theoretical Background and Hypothesis Development**

### **2.1 The New Audit Reporting Regime**

After various reporting scandals earlier this century and the global financial crisis of 2008, many investors and other stakeholders have asked for more information in the auditor's report. This public interest led regulators and standard setters to consider altering the binary model of “pass or fail” in audit reporting.

In 2013, the Financial Reporting Council (FRC) adopted the revised ISA (U.K. and Ireland) 700 “The Independent Auditor’s Report on Financial Statements” and mandated the auditors in premium listed companies on the London Stock Exchange (LSE) Main Market to provide information concerning a) those assessed risks of material misstatement (RMMs) that were identified to have the greatest effect on the overall strategy, the allocation of resources in the audit, and directing the efforts of the engagement team, b) the application of the concept of materiality in audit process as well as c) a review of the audit scope in their audit reports. This has been effective for fiscal years beginning on or after October 1, 2012, i.e., fiscal year ends on or after September 2013 (FRC 2013a).

The IAASB also issued International Standard on Auditing (ISA) 701 in 2014. This ISA requires public companies to communicate Key Audit Matters (KAM) selected from among the most substantial matters communicated to those charged with governance, such as the audit committee, in the independent auditor’s report for periods ending on or after December 15, 2016.

Regarding the most recent amendment, The Public Company Accounting Oversight Board (PCAOB) released a new audit reporting standard, AS3101, The Auditor’s Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion. The new standard mandated public companies in the U.S. to communicate Critical Audit Matters (CAMs), the issues that arose during the audit and involved “especially challenging, subjective or complex auditor judgment”.

The main objective of all these requirements is to provide increased information and transparency to achieve enhanced relevance, communicative value, and usefulness of financial statements and audit reports for intended users (ISA 700, ISA 701, IASSB guidance). KAMs or CAMs illustrate the most significant areas of the audit that required the most effort and attention from auditors, as well as the risks associated with those areas. Such disclosure increases transparency and enhances the quality of financial statements, thereby developing trust and confidence in the capital market. The Securities and Exchange Commission (SEC) has highlighted the importance of extending the auditor's report to improve the reliability and credibility of financial statements, as stated in their

Release No. 33-10445, “The Importance of Disclosure- Relevance of Audited Financial Information to Investment and Voting Decisions”

## **2.2 Prior Literature on Critical Audit Matters and Investment Efficiency**

### **2.2.1 Critical Audit Matters**

There is rich literature supporting the idea that information asymmetry reduction and improved investment efficiency are related, and the relation is effective through the reduction of the frictions such as adverse selection and agency problems (Berle & Means, 1932; Jensen & Meckling, 1976; Jensen, 1986; Lambert et al., 2007; Myers & Majluf, 1984). It is also argued that increased disclosure levels are associated with information asymmetry reduction (Verrecchia 2001). Based on these underlying theories, Lai et al. (2014) find that enhanced disclosure levels improve investment efficiency.

Since higher-quality financial reporting can further mitigate information asymmetry between investors and the firm or the manager (Verdi, 2006), it is also positively related to investment efficiency (Bushman & Smith, 2001; Biddle and Hilary 2006; Healy & Palepu, 2001; Lambert et al., 2007). Documenting the channels of the relation, Biddle et al. (2009) extend this argument and demonstrate that higher-financial reporting quality reduces either over- or under-investment.

Numerous studies have been published analyzing the intended and unintended consequences of introducing these enhanced audit reports. Notwithstanding, the findings are mixed, particularly regarding the effects on the quality and informativeness of financial reporting.

Gutierrez et al. (2018) examine the effects of regulatory change on investors’ decision-making, audit quality, and fees. Using two main and three alternative proxies for investors’ reactions, they find little evidence that this requirement is useful or incrementally informative to investors. In addition, their evidence illustrates that the expanded reports are not associated with audit costs and quality. The authors further examine whether the outcomes are contingent on the report’s content. They find little evidence to support this state.

Lennox et al. (2022) investigate the explanations for the additional disclosures in expanded audit reports not being informative. First, they extend the cross-sectional tests performed by Gutierrez et al. (2018) and they show similar results for lack of incremental information and no evidence of information content for RMMs disclosures. The findings are the same even in a poor information environment. Then, they find that insignificant market reactions are not related to a delayed reaction of investors to disclosures. Finally, they show that despite the value relevance of RMMs disclosures, investors are already informed about the majority of them.

Burke et al. (2023) consistently find no significant market reaction to the new critical audit matter requirement in the U.S. setting. However, they find a negative market reaction to CAM disclosures which are not predictable, suggesting that the reason for insignificant results is that CAM disclosures are expected on average.

On the contrary, a portion of the literature is in accordance with the purpose of the FRC. Reid et al. (2019) illustrate that financial reporting quality significantly increased following the implementation of the new U.K. reporting regime for expanded reports. Furthermore, they find no evidence suggesting audit costs including fees or delays significantly change after these reporting requirements.

Similar to a substantial part of the expanded audit report literature, Bens et al. (2019) use the ISA 700 audit regulation as an exogenous shock in the regulatory environment. The results of their investigation show that including more disclosures about materiality levels, and specific audit risks in expanded audit reports is associated with decreased market uncertainty and increased financial reporting quality.

Seebeck and Kaya (2022) exploit companies with a premium listing on the LSE and find that the communicative value of audit reports significantly increases due to KAM disclosures. However, results suggest that this communicative value is not incrementally informative for investors.

Similarly, using the data from the first two years after the implementation of ISA 700 in the U.K., Smith (2023) highlights that the new reporting regime provides incremental improvements to the users of audit reports due to the changes in content, readability, and word choice.

In a most recent study, Elsayed et al. (2023) investigate the research question of whether expanded auditor reporting with a higher level of disclosure on risks of material misstatement and application of materiality is meaningful. Implementing intertemporal analysis, they examine the usefulness and informativeness of the new change in reporting regulatory regime. The evidence suggests that new requirements are useful to the capital market. Furthermore, it suggests that these disclosures are associated with market-based measures including the firm's risk fundamentals, information asymmetry, and risk perceptions of the financial statement's users. The authors find a substantial explanation for their results being different from that of Gutierrez et al (2018) and Lennox et al. (2022). Based on measuring the insignificant estimates for the number of disclosure risks and significant estimates for the disclosure content, they conclude that considering just the number rather than the content may be the reason why those studies fail to find KAMs' requirement to be informative.

### **2.2.2 Investment Efficiency**

Investment efficiency leads to sustainable profitability and growth for the firms and ultimately the economics of the entire society. Consequently, it is a crucial concept in both from a macro and micro perspective. Within the neo-classical framework, companies consider the costs associated with installing new capital and invest in capital to the point where the marginal benefit equals the marginal cost. This model can be summed up with Tobin's Q theory according to which the optimal rate of investment is the rate that equates the market value of new additional investment goods with their replacement costs (Hayashi, 1982). Managers are responsible for acquiring

financing for projects that have a positive net present value at the current economy-wide interest rate and returning excess cash to investors.

However, the frictions of information asymmetry and agency conflicts lead to deviation from the optimal investment allocation in the real market (Stein, 2003). First, a company that encounters restrictions on financing may forego profitable projects with positive net present value because of the significant expenses associated with obtaining capital, leading to under-investment. These significant costs are the result of the information asymmetry between the firm and investors (adverse selection problem). For instance, the model presented by Myers and Majluf (1984) shows this causal relation. Second, information asymmetry can disturb optimal investment due to the differing levels of information possessed by managers and shareholders, which is commonly known as a principal-agent conflict. This situation can cause under or over-investment although most parts of the literature support the idea of over-investment (Verdi, 2006). Although the main incentive of managers is that they intend to maximize their personal welfare other incentives such as career concerns (Holmstrom, 1999) have been investigated in studies.

In addition, there are some studies that explore other determinants of investment efficiency. For instance, it has been illustrated that corporate governance mechanisms are associated with investment efficiency (Bimo et al., 2022; Chen et al., 2017; Menshawey et al., 2021).

### 2.3 Hypotheses Development

There is a literature gap to investigate the direct impact of the new reporting regime on investment efficiency and this is my incentive to do this research. Taken together, theory suggests that investment efficiency may change due to new reporting requirements through at least three canals; change in the levels of disclosure, change in the information asymmetry, and change in the quality of financial reporting. However, the consequences of the KAM requirement on these measures have remained unclear. Although the level of disclosure has increased through these expanded reports, the change in other measures has remained unclear. If following the new regulatory regime, the information asymmetry also declines as the regulators intended, and the quality of the audit report enhances (Bens et al., 2019; Elsayed et al., 2023; Reid et al., 2019; Smith, 2023; Seebeck & Kaya, 2022;), investment efficiency could also improve. If the disclosures made are found to lack information and usefulness for users and fail to effectively enhance the quality of the audit report (Burke et al., 2023; Gutierrez et al., 2018; Lennox et al., 2022), the investment efficiency does not improve through this channel. This novel reporting system may give rise to additional repercussions, including but not limited to the alteration of litigation risk (Minutti-Meza, 2021). It is important to note that these unintended consequences have the potential to influence investment efficiency by affecting elements like corporate governance. Consequently, the ultimate outcome of the impact of these measures remains uncertain.

Given these conflicting arguments, I formulate my hypothesis in a null form:

**H1: Expanded audit reports are not associated with investment efficiency.**



### 3 Research Design

#### 3.1 Sample Selection

The data collection process occurred in the following manner. First, I obtained the list of companies with premium stocks in the LSE Main Market and Great Britain as an incorporation country from the London Stock Exchange website<sup>1</sup>. The initial list consists of 747 companies. Then, in line with prior literature, I eliminated firms from the financial sector with the 4-digit ICB codes from 8000 to 8999 since these firms tend to be heavily regulated, and their accounting practices and investment behavior have fundamental differences compared to those of other industries. As a result, this can help reduce complexity and increase the comparability and generalizability of the research findings in accounting-related studies. The financial data of firms was collected from the COMPUSTAT database covering 4 years from September 2011 to September 2015. To merge the list of companies with COMPUSTAT, first, I used the company names. However, there were a significant number of un-matchings due to different spelling or changed names that I manually dealt with. The ultimate sample consists of 274 firms and 1005 firm-year observations for the treatment group. The process for control group data was similar, resulting in 361 firms and 1215 firm-year observations. Table 1 illustrates the detailed sample selection.

**Table 1 Sample Selection**

This table presents the sample selection process for my pre-post and DID analysis. I use September 2013 as the cut-off date since the FRC required premium listed companies in LSE Main Market to provide an Expanded audit report for the fiscal year ends on Sep 2013 or after. Besides, I use companies traded in AIM as a control group because the requirement was not mandatory for them.

	# of firms		# of firm-year observations	
	Premium listed - Main Market	AIM	Premium listed - Main Market	AIM
Companies incorporated GB and traded in LSE	747	721		
Eliminate because:				
Being in the financial sector	(378)	(97)		
Not being in Compustat	(9)	(81)		
Number of companies after eliminating	360	543	1458	2176
Eliminate because:				
Not enough data for the dependent and control variables	(86)	(182)	(453)	(961)
Ultimate sample	274	361	1005	1215

<sup>1</sup> The list of all companies listed in the London Stock Exchange can be found through the historical month-end archives at <http://www.londonstockexchange.com/statistics/companies-and-issuers/companies-and-issuers.htm>. The lists are classified by markets in which the stocks are traded. I use the September 2015 list for both treatment and control group companies.

## 3.2 Empirical Model

### 3.2.1 Measuring Investment Efficiency

Based on theory, investment efficiency, that is high capital allocation efficiency, implies creating capital flows to projects with the highest returns and preventing them from those with lower returns. Nevertheless, the empirical observations of these flows and estimating the return level of the projects are very challenging. Despite this, scholars in the fields of finance and accounting have devoted significant effort to devising techniques for detecting and measuring the effectiveness of capital investments (Gao & Yu, 2020). As a large portion of the literature, I employ the model that (Biddle et al, 2009) use in their paper to provide an expectation on the level of a firm's investment. The authors then estimate the deviation from this predicted optimal level as a proxy for investment inefficiency.

$$Investment_{i,t} = \beta_0 + \beta_1 S.Growth_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

Investment is the total investment of firm *i* in year *t* and defined as the sum of capital expenditures, R&D expenditures, and acquisitions minus sales of PPE, scaled by lagged total assets. The underlying basis of function (1) is the accelerator theory of investment which suggests that the level of investment is associated with the level of output. The *S. Growth* is the percentage change in sales from year *t-2* to *t-1* and is the proxy for the output growth. The model is estimated cross-sectionally for each industry and year based on four-digit ICB codes and with at least 5 observations.

There are different approaches to use this residual. Some studies use the main value of the error term, and some use the absolute value. Others classify firms into over or under-investing and benchmark groups based on the magnitude of the residuals. Following Gomariz and Ballesta, (2014), I take the second approach.

The residuals from the regression model show how much a company's investment level deviates from what is expected. I use these residuals to measure how efficient a company is at investing. A positive residual displays the company with over-investment, while a negative residual means they are investing less. The absolute value of the residuals multiplied by -1 is the dependent variable of my main model, with a higher value indicating better efficiency.

### 3.2.2 Model Specification

To begin the test of H1, I examine the single time-series difference before and after ISA 700 implementation date for U.K. companies. Specifically, I identify all premium listed companies in LSE Main Market between September 2013 and September 2015 to compare their investment efficiency levels with the two prior years of the same companies. However, a significant concern about this analysis is that the baseline specification may be contaminated by time-related trends during the pre- and post-periods. An alternative attitude to mitigate this concern is to compare U.K. companies subjected to include these disclosures for the first time to a control group of

companies that do not experience the same treatment. To do so, I suggest the Difference-In-Difference Model considering firms in the AIM market as a control group. This approach using two years before and after mandatory including KAMs in audit reports mirrors the design in Gutierrez et al. (2018). Using this balanced sample, I estimate the following equations to test my hypotheses:

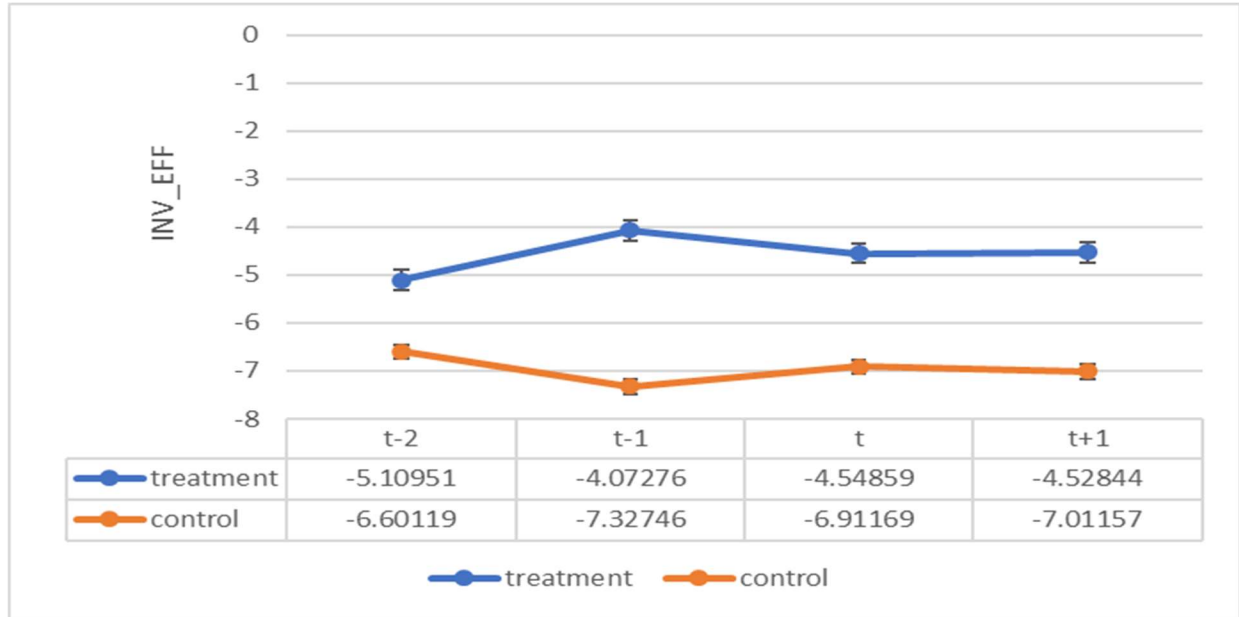
$$\begin{aligned}
 INV\_EFF_{i,t} = & \alpha_0 + \alpha_1 Post_{i,t} + \alpha_2 Treat_{i,t} + \alpha_3 Post * Treat_{i,t} + \alpha_4 Size + \alpha_5 LnAge_{i,t} \\
 & + \alpha_6 Tang_{i,t} + \alpha_7 F.Slack_{i,t} + \alpha_8 Loss_{i,t} + \alpha_9 Cash_{i,t} + \alpha_{10} Z.Score_{i,t} \\
 & + IndustryFE + \varepsilon_{i,t}
 \end{aligned}$$

The dependent variable *INV\_EFF* is the investment efficiency, measured as described in detail above. *Post* is a dummy variable indicating the period following the expanded audit report adoption. *Post* equals 1 for fiscal year-ends on or after September 2013 and 0 for fiscal year-ends Sep 2011- Sep 2013. The treatment variable *Treat* is an indicator variable that takes the value of one if the company is traded in the Main Market with premium listing shares and zero if traded in AIM. The difference-in-differences effect is captured by *Post \* Treat*. If the treatment group experiences a relative improvement in investment efficiency when moving from the pre-event window to the post-event window, then I would expect positive coefficients on *Post \* Treat* in Equation (2).

The rest are control variables that are largely consistent with established studies. I include a set of firm-level financial characteristics that have been identified to likely impact the investment efficiency of a firm: *Size* the natural logarithm of total assets, *LnAge* natural logarithm value of the number of years between fiscal year and listing year, *Tang* the ratio of tangible fixed assets (net PPE) to total assets, *F. Slack* the ratio of cash to tangible fixed assets, *Loss* dummy variable equals one for a firm-year with negative net income before extraordinary items and zero otherwise, *Cash* the ratio of cash to total assets and *Z.Score* which is a variable to control for the financial solvency of the firm, measured as  $(3.3 * \text{pretax income}) + (\text{sales}) + (0.25 * \text{retain earning}) + (0.5 * (\text{total current assets} - \text{total current liabilities}))$  all scaled by total assets.

In order to ensure the validity of the analysis, it is crucial to establish the parallel trend assumption. This assumption suggests that, in the absence of the expanded audit report, the investment efficiency levels of the treatment and control groups would have followed similar trends over time. To visually inspect the parallel trend assumption, I plot the investment efficiency levels of the premium-listed companies in the LSE Main Market (treatment group) and companies listed in the LSE Alternative Investment Market (control group) during both the pre- and post-periods, figure 1. A preliminary examination of the plot indicates that the investment efficiency levels in both periods appear to be following parallel paths. This provides some evidence in support of the parallel trend assumption, indicating that there were no significant time-related trends that could potentially bias the baseline specification. Thus, I can proceed with confidence that any differences observed in investment efficiency can be attributed to the expanded audit report, rather than other confounding factors. The consistent trend in investment efficiency after the regulatory change also

suggests that the reporting requirements did not have a substantial impact on investment efficiency. This finding supports the notion that expanded audit reports, as represented by the inclusion of KAMs, do not significantly influence investment efficiency in the context of premium listed companies on the LSE Main Market.



**Fig 1.** Visual inspection of parallel trend

### 3.3 Descriptive Statistics

Table 2 represents summary statistics for dependent and control variables used in the analysis and were defined previously. For the full sample, presented in Panel A, tangible assets and cash account for 20% and 16% of total assets, respectively.

In Panel B, summary statistics for both markets are reported. The firms in Main Market are relatively larger and have substantially higher levels of tangibility than those in AIM. Moreover, the cash holdings of firms in the control group are higher compared to the treatment group. This is aligned with the study conducted by Farinha et al. (2018) which suggests AIM firms tend to hold more cash due to lower degrees of listing requirements, regulatory oversight, and financial disclosure. Comparing the descriptive statistics, both studies show lower Z-scores for AIM firms that suggest more possibility of being in a distress zone.

Panel C of Table 2 illustrates correlations among control variables and dependent variables. Based on the low levels of pairwise correlations observed, it can be concluded that multicollinearity does not appear to be a significant issue in this sample. However, it is worth noting that some pairwise correlations do exist among the independent variables: i) larger firms have better Z-score, more tangibility, lower levels of cash, and less frequency of loss; ii) higher Z-score (lower probability of bankruptcy) is negatively related with frequency of loss and cash holdings.

**Table 2 Summary Statistics**

Panel A represents descriptive statistics for the full sample and Panel B illustrates these statistics for the treatment group versus the control group for dependent and control variables. Panel C presents correlations for these variables: *INV\_EFF* is the investment efficiency, measured as described in section 3.2.1. *Size* is the natural logarithm of total assets. *LnAge* is the natural logarithm value of the number of years between fiscal year and listing year. *Tang* is the ratio of tangible fixed assets (net PPE) to total assets. *F.Slack* is the ratio of cash to tangible fixed assets. *Loss* is dummy variable equals one for a firm-year with negative net income before extraordinary items and zero otherwise. *Cash* is the ratio of cash to total assets and *Z.Score* is a variable to control for the financial solvency of the firm, measured as  $(3.3 * \text{pretax income}) + (1 * \text{sales}) + (1.4 * \text{retain earning}) + (1.2 * (\text{total current assets} - \text{total current liabilities}))$  all scaled by total assets.

Panel A: Full Sample

Variables	OBS	Mean	STD	Min	Max
INV_EFF	2220	-5.88	7.51	-74.60	-0.00
Post	2220	0.52	0.50	0.00	1.00
Treat	2220	0.45	0.50	0.00	1.00
Size	2220	4.75	2.27	-1.41	11.87
LnAge	2220	2.34	0.96	0.00	4.34
Tang	2220	0.20	0.23	0.00	0.99
F.Slack	2220	13.02	107.27	0.00	3153.80
Loss	2220	0.30	0.46	0.00	1.00
Cash	2220	0.16	0.18	0.00	0.97
Z.Score	2220	0.50	4.71	-74.39	13.58

Panel B: Main vs. AIM

Variables	Mean		STD		Min		Max	
	Main	AIM	Main	AIM	Main	AIM	Main	AIM
INV_EFF	-4.55	-6.97	5.58	8.64	-74.60	-69.93	0.00	0.00
Size	6.54	3.26	1.80	1.38	1.27	-1.41	11.87	6.91
LnAge	2.89	1.89	0.97	0.66	0.00	0.00	4.34	2.94
Tang	0.25	0.17	0.24	0.22	0.00	0.00	0.89	0.99
F.Slack	5.03	19.62	99.56	112.87	0.00	0.00	3133.80	1988.20
Loss	0.13	0.44	0.33	0.50	0.00	0.00	1.00	1.00
Cash	0.11	0.20	0.11	0.21	0.00	0.00	0.71	0.97
Z.Score	1.76	-0.55	1.71	5.98	-17.76	-74.39	13.58	7.44

Panel C: Correlation Matrix

	INV_EFF	Post	Treat	Size	LnAge	Tang	F.Slack	Loss	Cash	Z.Score
INV_EFF	1.00									
Post	0.00	1.00								
Treat	0.16	-0.01	1.00							
Size	0.19	0.02	0.72	1.00						
LnAge	0.13	0.02	0.52	0.38	1.00					
Tang	0.04	0.01	0.19	0.34	0.10	1.00				
F.Slack	-0.07	0.02	-0.07	-0.08	-0.04	-0.10	1.00			
Loss	-0.18	0.05	-0.34	-0.36	-0.25	-0.07	0.13	1.00		
Cash	-0.19	0.04	-0.26	-0.35	-0.19	-0.25	0.28	0.26	1.00	
Z.Score	0.31	-0.04	0.25	0.28	0.16	-0.02	-0.10	-0.50	-0.24	1.00

## 4 Empirical Results

The findings of the study, presented in Table 3, aim to test the hypothesis regarding the impact of expanded audit reports on investment efficiency, using *INV\_EFF* as the dependent variable. Columns (1) through (3) display the coefficients and t-statistics for the Difference-In-Differences Model (Eq. 2). Column (1) provides the results without considering any fixed effects, while column (2) includes industry fixed effects, and column (3) introduces company fixed effects while excluding the *Post* variable and industry fixed effects.

Interestingly, the coefficient on *Post \* Treat*, which indicates the interaction effects, is statistically insignificant. These results remain robust when accounting for either industry or company fixed effects. Specifically, the respective coefficients for *Post \* Treat* are estimated to be  $-0.198$ ,  $0.050$ , and  $0.349$ , with p-values greater than 0.1. This suggests that the regulatory change in 2013, which required premium listing companies in the LSE Main Market to include Key Audit Matters (KAMs) in their audit reports, did not have a significant impact on investment efficiency.

Moving on to the Pre-Post Adoption Model, represented in columns (4) through (6), I obtain similar outcomes. All three columns exhibit statistically insignificant coefficients for the *Post* indicator. The estimated coefficients for the *Post* indicator were  $0.112$ ,  $-0.039$ , and  $-0.065$ , all with p-values greater than 0.10. These results align with the initial analysis findings and further support the conclusion that the inclusion of KAMs in audit reports did not have a significant effect on investment efficiency. It is worth noting that columns (5) and (6) differ from column (4) in that they include fixed effects for the industry or company. Accounting for these fixed effects provides further support for the insignificant relationship between expanded audit reports and investment efficiency.

Overall, the empirical evidence derived from this study suggests that the inclusion of Key Audit Matters (KAMs) in the audit reports of premium listing companies in the LSE Main Market, as mandated by the regulatory change in 2013, did not have a significant impact on investment efficiency. These findings remain robust even when controlling for industry and company fixed effects. The results are consistent with that part of the literature which finds no evidence for expanded audit reports to be useful or improve the quality of the financial statements and the audit quality (Boolaky & Quick, 2016; Gutierrez et al., 2018; Lennox et al., 2022).

Nonetheless, this paper is subject to several caveats which could represent important avenues for future empirical works. First, I calculate the dependent variable of the main model (investment efficiency) based on the residuals of the regression model suggested by Biddle et al, 2009. However, the choice of appropriate measurement of investment efficiency is a challenging issue in all related studies because the optimal investment level within a company is not directly observable (Gao & Yu, 2020). Generally, there are three approaches to measure investment efficiency including their own pros and cons. So, the variable likely suffers from measurement error which can affect the interpretation of the results. Future empirical works might propose and

**Table 3 Investment efficiency analysis** (Dependent variable = INV\_EFF)

Columns (1) through (3) display the coefficients and t-statistics for the Difference-In-Differences Model (Eq. 2). Columns (4) through (6) present the coefficients and t-statistics for the Pre-Post Adoption Model. INV\_EFF is the investment efficiency, measured as described in section 3.2.1. Size is the natural logarithm of total assets. LnAge is the natural logarithm value of the number of years between fiscal year and listing year. Tang is the ratio of tangible fixed assets (net PPE) to total assets. F.Slack is the ratio of cash to tangible fixed assets. Loss is dummy variable equals one for a firm-year with negative net income before extraordinary items and zero otherwise. Cash is the ratio of cash to total assets and Z.Score is a variable to control for the financial solvency of the firm, measured as  $(3.3 * \text{pretax income}) + (1 * \text{sales}) + (1.4 * \text{retain earning}) + (1.2 * (\text{total current assets} - \text{total current liabilities}))$  all scaled by total assets. \*\*\*, \*\*, \* indicate statistical significance from two-tailed tests at 0.01, 0.05, and 0.1, respectively

	(1)	(2)	(3)	(4)	(5)	(6)
Treat	0.032 (0.575)	-0.550 (0.541)				
Post	0.253 (0.409)	-0.0001 (0.371)	-0.521 (0.442)	0.112 (0.337)	-0.039 (0.302)	-0.065 (0.305)
Size	0.268*** (0.103)	0.509*** (0.102)	0.854 (0.618)	0.328*** (0.102)	0.437*** (0.111)	0.819 (0.996)
LnAge	0.338* (0.185)	0.272 (0.176)	1.274 (0.912)	0.223 (0.174)	0.218 (0.175)	0.371 (1.064)
Loss	0.242 (0.399)	0.395 (0.376)	0.457 (0.472)	-0.464 (0.548)	0.116 (0.522)	0.359 (0.554)
Z-Score	0.995*** (0.088)	0.669*** (0.088)	1.130*** (0.169)	1.366*** (0.158)	0.961*** (0.173)	0.794*** (0.373)
Cash	-3.821*** (0.942)	0.329 (0.926)	16.224*** (1.981)	-4.449*** (1.618)	-1.025 (1.668)	13.874*** (3.927)
Tang	-0.356 (0.714)	-1.426 (0.927)	-3.623 (3.048)	1.100 (0.760)	-0.294 (1.216)	-0.671 (5.118)
F.Slack	-0.001 (0.001)	0.001 (0.001)	0.0003 (0.002)	0.002 (0.002)	0.001 (0.002)	-0.050 (0.056)
Post * Treat	-0.198 (0.605)	-0.050 (0.548)	0.349 (0.514)			
Constant	-8.382*** (0.652)			-9.229*** (0.977)		
Observations	2220	2220	2220	1005	1005	1005
R <sup>2</sup>	0.117	0.294	0.613	0.099	0.316	0.659
Adjusted R <sup>2</sup>	0.113	0.276	0.455	0.091	0.279	0.526
Residual Std. Error	7.069 (df= 2209)	6.388 (df= 2164)	5.541 (df= 1576)	5.315 (df=996)	4.734 (df=953)	3.839 (df=723)

develop better measures of investment efficiency and check if the results are robust to alternative measurements. Second, this study focuses on the short-term impacts of the regulatory change. However, several intended objectives might be achieved in the long term due to trial and error in earlier periods or other reasons. Thus, future research could consider long-window tests to explore any relation. Third, this paper does not investigate the explanations for why the new audit reporting requirements do not improve investment efficiency. For instance, there could be other unintended consequences of the expanded auditor's report that are not captured by this paper but impact the results. Investigating these issues provides a good area for further research. Finally, this paper

investigates the research question on premium-listed companies in the U.K. The features of the sample could impact the results so that could limit the generalization ability of the findings. The litigation risk is relatively lower in comparison with U.S. market, as well as the levels of disclosures. However, investors and other parties have a high level of information about these large companies. The different corporate governance characteristics and different requirements for expanded audit reports could be crucial. As a result, more research in other jurisdictions or considering the cross-sectionally variation in the content of the new reports could be interesting.

## 5 Conclusion

In recent years, some developments have been witnessed in the way auditors report their findings. One of these changes is the inclusion of Key Audit Matters in the auditor's report. These are the important matters that the auditor deems most significant in their assessment of the financial statements for that period. Implementing the issuance of ISA 700 in U.K. as the cut-off point, this paper set out to investigate whether this regulatory change has impact on the levels of investment efficiency. The standard was applicable for firms with a premium listing of shares in LSE Main Market and was effective for fiscal periods beginning on or after October 1, 2012. The sample selection covers two years before and after the adoption of requirement. I employ a difference-in-differences research design and use firms listed in the AIM as the control group. This study finds no incremental effect of including KAM disclosures in the audit reports. The results are similar after controlling for industry and company fixed effects as well as using Pre-post Adoption Model.

Ultimately, a number of important deficiencies should be considered. First, this study operationalizes the construct of investment efficiency using the model suggested by Biddle et al, 2009. However, there are a number of models to measure this concept and each has its own pros and cons. Second, the research design only captures the short-term impact. Third, the author investigates the existence of any relation between the adoption of expanded audit reports requirements and does not explore the explanations of the findings. Finally, the unique features of the U.K. jurisdiction add further caution regarding the generalizability of these findings. These issues would provide a fruitful area for further work.

The present study confirms previous findings and contributes additional evidence that suggests the lack of information content in expanded audit reports. However, other factors might drive the absence of a relation between the new reporting regime and investment efficiency. The present study adds to the growing body of research on the consequences of expanded audit reports since it has been one of the first attempts to directly examine the impact of regulatory change on corporate investment efficiency. The findings of this study have practical implications in terms of helping standard setters particularly FRC in their post-implementation review or revising of the new standards.



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