How Much New Information Is There in Earnings? Corporate Decision-Making and Quantitative Analysis - Individual Report

Melisa Mazaeva

Jan 22, 2025

Abstract

This project uses the TRR 266 Template for Reproducible Empirical Accounting Research (TREAT) to provide infrastructure for open science-oriented empirical projects. Leveraging data from the CRSP and Compustat databases via WRDS, alongside Worldscope and Datastream via Thomson/Refinitiv, this repository showcases a reproducible workflow integrating Python scripts for data preparation, analysis, and visualization. Integrating multiple databases adds complexity, requiring a detailed understanding of their structures and careful scripting to extract, align, and analyze data effectively. The project replicates and extends Ball and Shivakumar (2008) to analyze the informativeness of quarterly earnings announcements and their contribution to annual share price movements, highlighting their critical role in investment decisions and impact on investors, analysts, and policymakers. Key tasks include replicating and comparing original results, extending the analysis to 2007–2023, and applying the methodology to a non-U.S. country. The project also documents research design choices, discusses variations between original and reproduced results, and provides insights into earnings informativeness across different timeframes and jurisdictions. Additionally, it sketches a research design for a non-archival study to evaluate the paper's findings. This code base, adapted from TREAT, demonstrates how the template applies to this project and serves as a structured guide for reproducible empirical research in accounting.

Table of contents

List of Figures

List of Tables

1 List of Abbreviations

CRSP: Center for Research in Security Prices

CQA: Corporate Decision-Making and Quantitative Analysis

DV: Dependent Variable **IV**: Independent Variable **EU**: European Union ## **IDE**: Integrated Development Environment

TREAT: TRR 266 Template for Reproducible Empirical Accounting Research

UK: United Kingdom ## **WRDS**: Wharton Research Data Services

2 Introduction

The aim of this paper is to illustrate the use of open science tools in empirical accounting research. This project builds on the methodological framework established in the Corporate Decision-Making and Quantitative Analysis (CQA) course, which explored a range of empirical research methods—including archival analysis, field experiments, and survey-based approaches—to develop a comprehensive understanding of corporate decision-making and quantitative analysis. Expanding on prior empirical research conducted in Assignments I and II, this paper extends the empirical focus of the course. Assignment I examined audit market concentration in the EU using Transparency Reports data, offering insights into the dominance of major audit firms and the structure of the European audit market. Assignment II explored the economic implications of corporate financial reporting, focusing on Graham, Harvey, and Rajgopal (2005) to analyze managerial decision-making, earnings management strategies, and voluntary disclosure practices. This study highlighted the trade-offs between short-term earnings predictability and long-term firm value and provided a foundation for understanding corporate incentives in financial reporting.

Building on these foundations, Assignment III investigates the informativeness of quarterly earnings announcements and their contribution to annual share price movements. The project replicates and extends Ball and Shivakumar (2008), assessing the extent to which earnings releases serve as a source of new information for financial markets. By integrating multiple datasets from WRDS and applying an event-study methodology, this study evaluates the economic role of earnings disclosures in market efficiency, showcasing the valuation purpose of accounting. The integration of multiple databases adds complexity, requiring a detailed understanding of their structures and careful scripting to extract, align, and analyze data effectively. Key tasks include replicating and comparing original results, extending the analysis to data from 2007–2023, and applying the methodology to a non-U.S. country to explore cross-market variations.

Beyond empirical replication, the project also documents research design choices, replication steps, and explicit assumptions made whenever the original paper was unclear on how to proceed. It discusses variations between original and reproduced results and provides insights into the timeliness and market impact of earnings announcements across different timeframes and jurisdictions. Additionally, it sketches a research design for a non-archival study to evaluate the

paper's findings through an alternative methodological lens. This project leverages the TRR 266 Template for Reproducible Empirical Accounting Research (TREAT) to establish an open science-oriented infrastructure, ensuring transparency, replicability, and structured workflows for empirical accounting research.

Earnings announcements provide investors with valuable information about a firm's market value, with stock prices reacting significantly when earnings news deviates from expectations (Fink 2021, 2). The seminal study by Ball and Brown (1968) was the first to document this relationship, showing that stock prices anticipate earnings surprises, with most of the market reaction occurring before the official announcement, suggesting that earnings reports primarily confirm rather than introduce new information. Over the past decades, more than a thousand studies have examined the interplay between capital markets and financial statements, a research stream that originated with Ball and Brown (1968) (Kothari 2001). This reinforces the role of earnings announcements as a crucial source of financial information.

Building on this foundation, the original study by Ball and Shivakumar (2008) investigates the extent to which quarterly earnings announcements contribute new information to the market, assessing their role in shaping annual share price movements. By estimating the R^2 from regressions of annual stock returns on earnings announcement window returns, the paper quantifies the informativeness of earnings releases, finding that they account for only 1% to 2% of total annual volatility. This challenges the assumption that earnings provide substantial new information and instead suggests a confirmatory role in financial reporting, reinforcing prior market expectations rather than acting as a primary source of new insights. The study further documents an increasing trend in earnings informativeness in recent years, potentially linked to regulatory changes, shifts in analyst activity, or broader market conditions.

While Ball and Shivakumar (2008) provide key insights into the informativeness of earnings announcements, their study was conducted within a specific timeframe and market context. Since then, financial markets have undergone significant changes due to regulatory reforms, economic crises, and technological advancements in financial information processing. Moreover, the extent to which earnings informativeness varies across international markets remains underexplored. By replicating their study with updated data from 2007–2023 and applying the methodology to a non-U.S. country, this project reassesses the robustness of their findings, examines long-term trends, and

evaluates cross-country differences in earnings informativeness. Through this approach, it critically evaluates the generalizability of the original results and provides further insights into the economic role of earnings announcements in financial markets, offering a contemporary perspective on their evolving informativeness and implications for investors, analysts, and policymakers.

The paper is structured into sections corresponding to Tasks 1–3 (Section 3, Section 4, Section 5), each detailing the research design choices and assumptions, documenting the replication steps, and analyzing the replication results for the respective segment. Section 6 sketches the survey design as a non-archival study that allows evaluating the key findings of the seminal paper. The concluding remarks are provided in Section 7.

3 Task 1

This paper replicates Figure 3 from the European Commission's (**EC_Report_2024?**) report, which visualizes the market shares of audit firms — Big 4, CR4, and 10KAP — by the number of PIE statutory audits conducted in 2021 across EU countries and at the EU level. The replication provides insights into market concentration and the dominance of major audit firms, reflecting variations in audit practices and competition across Europe.

4 Task 2

5 Task 3

6 Task 4 - Research Design for a Non-Archival Study

7 Conclusion

This project effectively demonstrates the use of a systematic and collaborative workflow for empirical accounting research, leveraging the TRR 266 Template for Reproducible Empirical Accounting Research. By following an open science approach, I successfully replicated key tables and figures from Ball and Shivakumar (2008), providing insights into how earnings announcements contribute to price formation and market efficiency. While exact replications often yield different

samples and outcomes due to dataset updates or methodological variations, my results align closely with the statistics presented in the original study, reinforcing the reliability of the replication process. Moreover, by extending the analysis beyond the original study's U.S. market focus, the project highlights how market structures and investor behaviors influence the informativeness of earnings disclosures in different jurisdictions.

The study contributes to the ongoing discussion on market efficiency and the economic role of corporate disclosures by providing empirical evidence on how earnings informativeness has evolved over time and across jurisdictions. The cross-country analysis highlights variations in market responses to earnings announcements, suggesting that institutional factors, market structures, and investor behavior play a role in shaping how financial information is processed. These findings have implications for investors, analysts, and policymakers, as they underscore the importance of regulatory consistency and market transparency in shaping the effectiveness of financial reporting.

This assignment required a comprehensive application of programming skills and institutional knowledge gained throughout the course, integrating data analysis, replication, and visualization techniques in line with open science principles. In the future, this repository can be cloned or forked (if made public) to facilitate further research on earnings informativeness, enabling additional extensions or robustness tests. Additionally, the survey developed as part of the non-archival study proposal can be further refined and expanded, providing a structured framework for gathering primary data on market participants' interpretations of earnings announcements. Through this approach, the study not only revisits a fundamental question in financial research but also provides a foundation for future empirical investigations into the evolving role of earnings announcements in global capital markets, both through archival and non-archival methodologies. Thanks for reading!

References

Ball, Ray, and Philip Brown. 1968. "An Empirical Evaluation of Accounting Income Numbers." *Journal of Accounting Research* 6 (2): 159. https://doi.org/10.2307/2490232.

Ball, Ray, and Lakshmanan Shivakumar. 2008. "How Much New Information Is There in Earnings?" *Journal of Accounting Research* 46 (5): 975–1016. https://doi.org/10.1111/j.1475-679X.2008.00299.x.

Fink, Josef. 2021. "A Review of the Post-Earnings-Announcement Drift." *Journal of Behavioral and Experimental Finance* 29 (March): 100446. https://doi.org/10.1016/j.jbef.2020.100446.

Graham, John R., Campbell R. Harvey, and Shiva Rajgopal. 2005. "The Economic Implications of Corporate Financial Reporting." *Journal of Accounting and Economics* 40 (1): 3–73. https://doi.org/https://doi.org/10.1016/j.jacceco.2005.01.002.

Kothari, S. P. 2001. "Capital Markets Research in Accounting." *Journal of Accounting and Economics* 31 (1-3): 105–231. https://doi.org/10.1016/S0165-4101(01)00030-1.