



Durham
University

Business School

Research Methods and Methodologies in Accounting

MSc Accounting Offer Holder Webinar

24th July 2024

Terry Harris PhD.,
Associate Professor in Accounting
Durham University Business School, UK



Introduction and Agenda

- Importance of Research Methods in Accounting: Qualitative and Quantitative
- Overview of Mainstream Quantitative (Empirical) Accounting Research
 - The Philosophy of Research
 - Formulating Research Questions and Hypotheses
 - Statistical Tools and Software
 - Regression Analysis in Accounting
 - Live Demo: Regression Analysis using STATA
 - Q&A Session
- Additional Resources and Reading
- Conclusion and Next Steps

Importance of Research Methods in Accounting

- This module provides students in accounting with a sound framework for understanding and conducting qualitative and quantitative research in accounting.
- On the successful completion of this course of study, students will be able to:
 - demonstrate an understanding of the nature of academic research;
 - critically review academic literature and formulate a research topic;
 - critically discuss alternative research philosophies and approaches; and
 - formulate a research design.

Overview of Mainstream Quantitative (Empirical) Accounting Research

- Let's discuss the overarching research methodology adopted in the quantitative research methods section of the course.
- To begin with, we will explore the philosophical foundations of social scientific research. Then we will examine the suitability of positivism as the philosophy under-pinning mainstream quantitative (empirical) research.

Overview of Mainstream Quantitative (Empirical) Accounting Research

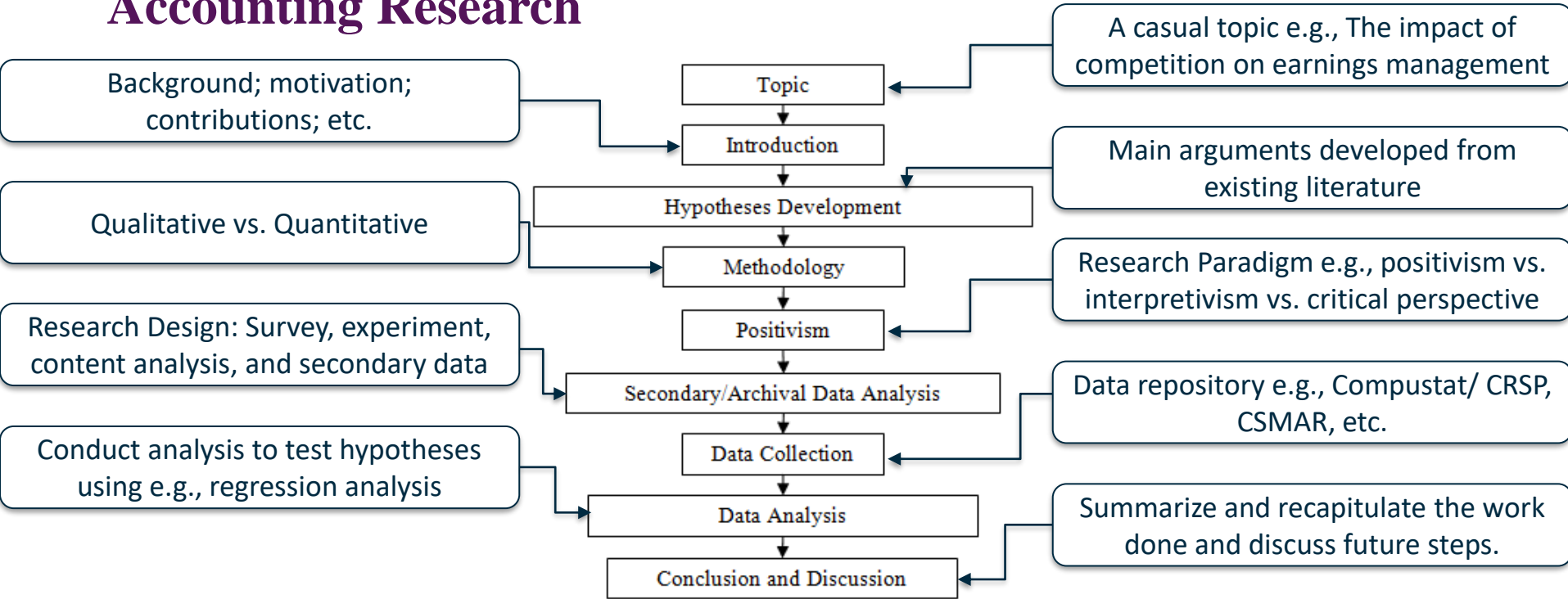


Figure 1: High-level view of the research architecture that we will adopt.

Overview of Mainstream Quantitative (Empirical) Accounting Research: The Philosophy of Research

- The ontological and epistemological framework that will guide us when conducting quantitative (empirical) research is that of the realist.
- To the realist “the real world” exist somewhere “out there” independent of human interpretation.
- The realist perspective can be contrasted with that of the nominalist. To the nominalist humans can never truly experience “the real world” independent of their own personal contexts.

Overview of Mainstream Quantitative (Empirical) Accounting Research: The Philosophy of Research

- Given our realists stance, we move on to consider a research paradigm where this approach has been taken i.e. positivism. To the positivist the purpose of a theory is to explain and predict phenomenon. Therefore, to determine if a theory is valid, we gather data from the real world and compare the data to the theory.
- Criticisms of Positivism
 - Implicit in the positivist’s argument is the realist assumption that reality exist “out there” and that we can measure it objectively. This is questionable.
 - Accordingly, those accounting researchers who adopt a more nominalist stance posit alternative research paradigms such as interpretivism, critical perspective, or post modernism.

Overview of Mainstream Quantitative (Empirical) Accounting Research: Formulating Research Questions and Hypotheses

- Identify the problem or area of interest.
- Review existing literature.
- Define the scope and objectives.
- We then formulate research questions (RQs):
 - RQ1: What is the impact of competition on earnings management activity?



Overview of Mainstream Quantitative (Empirical) Accounting Research: Formulating Research Questions and Hypotheses

- To answer the research question(s) we gather data and tests hypotheses about the nature of the relationship. For instance, using our own intuition, reasoning and the existing literature we might hypothesize a positive relationship between competition and accruals-based earnings management but a negative relationship between competition and real earnings management activity.
- The study hypotheses may be presented (in alternate form) as shown below:
 - H1: Competition is positively associated with the accruals-based earnings management activity.
 - H2: Competition is negatively associated with real earnings management.

Overview of Mainstream Quantitative (Empirical) Accounting Research: Statistical Tools and Software

- Once we have gathered our empirical data, we will have to perform various statistical analyses.
- During course, you will be taught how to conduct empirical analysis using STATA. STATA is a statistical software tool that can help with various types of analysis. E.g., regression analysis.

Overview of Mainstream Quantitative (Empirical) Accounting Research: Regression Analysis in Accounting

- Regression analysis is the primary statistical tool for understanding and conducting positive research in accounting.
- It essentially tries to identify how a change in the independent (i.e. explanatory or predictor) variable(s) impacts on (or is related to) a dependent (outcome) variable.
- Recall our previously stated research question:
 - RQ1: What is the impact of competition on earnings management activity?
 - Competition is the independent (explanatory or predictor) variable
 - Earnings management is the dependent (outcome) variable

Overview of Mainstream Quantitative (Empirical) Accounting Research: Regression Analysis in Accounting

- General types of regression analysis include:
 - Linear regression analysis: The dependent (outcome) variable is continuous.
 - Logistic regression analysis: The dependent (outcome) variable is binary.
 - Panel data models: Fixed effects models and random effects models.

Overview of Mainstream Quantitative (Empirical) Accounting Research: Regression Analysis in Accounting

- To test the idea the competition impacts earnings management behaviour we regress measures of discretionary working capital accruals (*DWCA*) and real earnings management (*REM*) on competition (*COMP*) plus a constant and a series of controls. These regression equations are shown below:

$$DWCA = \alpha_1 + \beta_1 \cdot COMP + \beta_2 \cdot AGE + \beta_3 \cdot BIG4 + \beta_4 \cdot MODIFIED + \beta_5 \cdot LEV + \beta_6 \cdot MTB + \beta_7 \cdot TENURE + \beta_8 \cdot CLAIM + \beta_9 \cdot LIT + \beta_{10} \cdot SIZE + \beta_{11} \cdot ZSCORE + \epsilon \quad (1)$$

$$REM = \alpha_1 + \beta_1 \cdot COMP + \beta_2 \cdot AGE + \beta_3 \cdot BIG4 + \beta_4 \cdot MODIFIED + \beta_5 \cdot LEV + \beta_6 \cdot MTB + \beta_7 \cdot TENURE + \beta_8 \cdot CLAIM + \beta_9 \cdot LIT + \beta_{10} \cdot SIZE + \beta_{11} \cdot ZSCORE + \epsilon \quad (2)$$

Overview of Mainstream Quantitative (Empirical) Accounting Research: Regression Analysis in Accounting

```
//Plain pooled OLS
reg DWCA COMP AGE BIG4 MODIFIED LEV MTB TENURE ICLAIM LIT SIZE ZSCORE
```

STATA results:

- Number of observations.
- Adj R-squared: this is our goodness of fit measure.
- The sign of the coefficient determines the direction of the relationship.
- The *t*-values and/or *p*-values indicate if the relationship is significant.

Source	SS	df	MS			
Model	8783.46621	11	798.496929	Number of obs	=	65,842
Residual	4012773.12	65,830	60.9566021	F(11, 65830)	=	13.10
Total	4021556.58	65,841	61.0798223	Prob > F	=	0.0000
				R-squared	=	0.0022
				Adj R-squared	=	0.0020
				Root MSE	=	7.8075

DWCA	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
COMP	1.268982	.3664956	3.46	0.001	.5506502	1.987313
AGE	-.0043718	.005137	-0.85	0.395	-.0144403	.0056967
BIG4	-.2185963	.0768744	-2.84	0.004	-.3692702	-.0679225
MODIFIED	-1.26996	1.664983	-0.76	0.446	-4.533327	1.993407
LEV	-.1060544	.0237984	-4.46	0.000	-.1526992	-.0594096
MTB	-.0115578	.0197684	-0.58	0.559	-.0503038	.0271882
TENURE	-.0161599	.0057291	-2.82	0.005	-.027389	-.0049308
ICLAIM	.2491153	.0806776	3.09	0.002	.0909873	.4072433
LIT	-.0861272	.0658429	-1.31	0.191	-.2151793	.0429249
SIZE	-.0198099	.0175345	-1.13	0.259	-.0541776	.0145578
ZSCORE	.0274259	.0042346	6.48	0.000	.0191261	.0357257
_cons	.1498403	.1333213	1.12	0.261	-.1114696	.4111501

Overview of Mainstream Quantitative (Empirical) Accounting Research: Regression Analysis in Accounting

```
//Plain pooled OLS
reg REM COMP AGE BIG4 MODIFIED LEV MTB TENURE ICLAIM LIT SIZE ZSCORE
```

Source	SS	df	MS			
Model	91246.6127	11	8295.14661	Number of obs	=	65,842
Residual	1320827.94	65,830	20.0642251	F(11, 65830)	=	413.43
Total	1412074.55	65,841	21.4467361	Prob > F	=	0.0000
				R-squared	=	0.0646
				Adj R-squared	=	0.0645
				Root MSE	=	4.4793

REM	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
COMP	-3.728879	.2102663	-17.73	0.000	-4.141001	-3.316757
AGE	-.0170974	.0029472	-5.80	0.000	-.0228739	-.0113209
BIG4	.5498357	.0441045	12.47	0.000	.463391	.6362805
MODIFIED	.5725465	.9552359	0.60	0.549	-1.299716	2.444809
LEV	-.0872198	.0136536	-6.39	0.000	-.113981	-.0604587
MTB	.4810668	.0113415	42.42	0.000	.4588374	.5032961
TENURE	-.0222722	.0032869	-6.78	0.000	-.0287146	-.0158299
ICLAIM	-.0659468	.0462864	-1.42	0.154	-.1566682	.0247746
LIT	.3037346	.0377755	8.04	0.000	.2296947	.3777745
SIZE	.1225748	.0100599	12.18	0.000	.1028573	.1422923
ZSCORE	-.0218366	.0024295	-8.99	0.000	-.0265984	-.0170748
_cons	-.5050876	.0764893	-6.60	0.000	-.6550066	-.3551687

Overview of Mainstream Quantitative (Empirical) Accounting Research

Any Questions?

Additional Resources and Reading

- Textbooks, such as:
 - “Introductory Econometrics” by Jeffrey Wooldridge
 - “Research Methods for Business Students” by Mark Saunders et al.
 - “Quantitative Research Methods and Methodologies in Accounting: A Student Reader” by Terry Harris

Other online resources like academic journals, STATA tutorials, and university libraries are also provided.

Conclusion

This was a seminar on the Research Methods and Methodologies in Accounting module at Durham University. Today we,

1. Discussed the Importance of Research Methods in Accounting.
2. Overviewed Quantitative (Empirical) Research in Accounting.
 - Formulate a research question and hypothesis
 - Using STATA for regression analysis
 - Interpreting regression results
3. Highlighted Additional Resources.

My Contact Information: terry.harris@durham.ac.uk



Thank you for your time and participation!

