

**A transaction cost economics approach to investigating the  
control of wholly owned foreign subsidiaries**

**James Wakefield**

**A thesis submitted for the degree of Doctor of Philosophy**

**2012**

**Discipline of Accounting  
UTS Business School  
University of Technology, Sydney**

## **Certificate of Authorship/Originality**

I certify that the work in this thesis has not previously been submitted for a degree, nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student

---

## Acknowledgements

I would like to thank my supervisors Professors Zoltan Matolcsy and Dr Francesco Giacobbe for their supervision and acknowledge their contributions to this thesis. Zoltan and Francesco have been a great source of encouragement and guidance to me throughout the PhD program. I greatly appreciate this and all the time they have spent guiding me throughout this process.

I would like to thank all the visiting academics at the UTS Business School Discipline of Accounting who have provided valuable feedback and suggestions on the thesis. In particular, thank you to Professor Teemu Malmi who provided critical and constructive feedback which has played an important role in this thesis and my learning experience.

Thank you to the participants at the conferences, workshops and doctoral colloquiums this research was presented at for their helpful, valuable and constructive feedback and suggestions: the 2009 Accounting and Finance Association of Australia and New Zealand (AFAANZ) conference and doctoral colloquium; the 2009 Monash University Forum for Management Accounting (MONFORMA) doctoral colloquium; the 2010 British Accounting Association conference and doctoral colloquium; the University of NSW seminar series; the 2011 American Accounting Association (AAA) Management Accounting Section Research and Case Conference and Institute of Management Accountants doctoral colloquium; the 2011 Global Management Accounting Symposium (GMARS) Emerging Scholars Forum; the 2012 British Accounting for Finance Association (BAFA) conference; and the 2012 AFAANZ conference.

Thank you to all my colleagues at UTS for the feedback, suggestions and support they have provided regarding this thesis. In particular, thank you to Dr Jonathan Tyler for his insightful guidance, advice and direction. I have really enjoyed working with Jonathan over the last few years and it has been a great learning experience. I would also like to thank Dr Matthew Peters for his valuable advice, feedback and suggestions, particularly concerning the survey development, administration and data analysis.

Thank you to all of the interviewees who provided their valuable time, despite busy schedules, that allowed the case study data to be collected. They provided critical data and important insights, invaluable to the completion of this thesis. In addition, thank you to all

the survey participants for completing the survey questionnaire and those who provided important feedback and suggestions during the survey testing.

I would like to thank the UTS Discipline of Accounting and Professor Peter Wells as Discipline Head for all the support I have received throughout my PhD. The generous support of the Discipline of Accounting has allowed me to collect the extensive case study and survey data set used in this thesis, access valuable feedback and suggestions from visiting academics and at conferences, as well as time to complete this thesis.

A big thank you to my parents, Marcia and Russell, for all their support provided over the years. My studies at UTS have been a long and enjoyable journey, thank you for always being there.

## Table of Contents

<b>List of Figures.....</b>	<b>vii</b>
<b>List of Tables .....</b>	<b>viii</b>
<b>Abstract.....</b>	<b>xi</b>
<b>Chapter 1: Introduction .....</b>	<b>1</b>
1.1    Objective .....	1
1.2    Motivation .....	1
1.3    Activity traits and management control systems in the WOFS context.....	4
1.4    Research method .....	6
1.5    Key findings .....	7
1.6    Contribution .....	8
1.7    Thesis structure .....	9
<b>Chapter 2: Transaction cost economics theory of management control .....</b>	<b>10</b>
2.1    Introduction .....	10
2.2    Transaction cost economics theory of management control .....	10
2.2.1    Control problems facing headquarters .....	10
2.2.2    Management control archetypes and activity traits .....	12
2.2.2.1.    Archetype 1: Arm’s length control .....	13
2.2.2.2.    Archetypes 2 & 3: Results and action oriented machine control.....	15
2.2.2.3.    Archetype 4: Boundary control .....	19
2.2.2.4.    Archetype 5: Exploratory control .....	20
2.2.2.5.    TCE theory of management control summarised .....	22
2.3    Conclusion.....	23
<b>Chapter 3: Theory examination – control of wholly owned foreign subsidiaries .....</b>	<b>24</b>
3.1    Introduction .....	24
3.2    Research method .....	25
3.3    Theory examination.....	28
3.3.1.    Archetype 1: Arm’s length control .....	28
3.3.2.    Machine control .....	30
3.3.3.    Archetype 4: Boundary control.....	31
3.3.4.    Archetype 5: Exploratory control .....	33
3.4    Theory examination discussion .....	34
3.5    Conclusion.....	36

<b>Chapter 4: Theory testing – control of wholly owned foreign subsidiaries.....</b>	<b>37</b>
4.1	Introduction .....37
4.2	Research method .....37
4.2.1	Survey method and development of the survey instrument.....38
4.2.2	Sample .....42
4.2.3	Statistical modelling .....45
4.2.3.1.	Uncertainty .....46
4.2.3.2.	Asset specificity .....46
4.2.3.3.	Ex-post information asymmetry .....47
4.2.3.4.	Activity trait dummy variables .....47
4.2.3.5.	Management control system .....49
4.2.3.6.	Ordinary least squares regressions.....51
4.3	Data validity .....54
4.3.1	Non-response bias .....54
4.3.2	Construct validity .....57
4.3.2.1.	Indicator reliability .....57
4.3.2.2.	Composite reliability .....60
4.3.2.3.	Descriptive statistics .....61
4.3.2.4.	Construct linearity .....62
4.3.2.5.	Discriminant validity .....64
4.4	Results .....65
4.4.1.	Arm’s length control .....65
4.4.2.	Results oriented machine control.....66
4.4.3.	Action oriented machine control.....67
4.4.4.	Boundary control .....68
4.4.5.	Exploratory control .....69
4.4.6.	Sensitivity testing.....70
4.5	Results discussion.....71
4.6	Conclusion .....74
<b>Chapter 5: Theory testing extended – alternative specification .....</b>	<b>75</b>
5.1	Introduction .....75
5.2	Alternative specification of proposition testing.....76
5.3	Alternative specification testing .....77
5.3.1	Median activity trait determination.....77
5.3.2	Continuous activity trait variables .....79
5.3.3	Moderate activity trait firms deleted from sample.....81

5.3.4	Control archetype dummy variables .....	85
5.3.5	Control archetype continuous measures .....	88
5.4	Conclusion .....	91
<b>Chapter 6: Conclusion and Implications .....</b>		<b>93</b>
6.1	Conclusion .....	93
6.2	Limitations .....	96
6.3	Future Research .....	98
<b>References.....</b>		<b>99</b>
<b>Appendices.....</b>		<b>105</b>
	Appendix 1: Case study analyses.....	105
	Appendix 2: Survey instrument .....	135
	Appendix 3: Descriptive statistics of indicators .....	153
	Appendix 4: Factor analysis .....	161
	Appendix 5: Construct validity statistics .....	177
	Appendix 6: Archetype construct correlations .....	183
	Appendix 7: Mining firms deleted sample results .....	184
	Appendix 8: Asset specificity sensitivity testing.....	185
	Appendix 9: Complete sample regression results.....	187

## List of Figures

Figure 1.1 – Foreign direct investment by Australian companies globally .....	3
Figure 2.1 – Speklé’s (2001) TCE theory of management control.....	22
Figure A1.1 – Corporations A & B case summary .....	111
Figure A1.2 – Corporation C1 case summary .....	118
Figure A1.3 – Corporation C2 case summary .....	122
Figure A1.4 – Corporation D case summary .....	128
Figure A1.5 – Corporation E case summary.....	134



## List of Tables

Table 3.1 – Activity traits & control archetypes observed in case studies .....	34
Table 4.1 – Summary of survey distribution and response rates .....	43
Table 4.2 – General response characteristics .....	44
Table 4.3 – Position of respondents .....	44
Table 4.4 – Industry involvement of respondents.....	45
Table 4.5 – Subsidiary location .....	45
Table 4.6 – Control archetypes summarised (Speklé 2001) .....	49
Table 4.7 – Indictors of control archetypes (before factor analysis) .....	50
Table 4.8 – Early & late respondent constructs compared .....	55
Table 4.9 – Corporation size (employees) compared .....	56
Table 4.10 – Industry involvement compared .....	56
Table 4.11 – Factor analysis of machine control archetypes .....	58
Table 4.12 – Factor analysis of arm’s length & machine control archetypes.....	59
Table 4.13 – Factor analysis of all control archetypes.....	60
Table 4.14 – Construct composite reliability based on Cronbach Alpha .....	61
Table 4.15 – Combination index descriptive statistics .....	61
Table 4.16 – Frequency of dummy variables.....	62
Table 4.18 – Skewness & Kurtosis of combination index variables after normalisation .....	64
Table 4.19 – Arm’s length control & activity traits OLS regression.....	65
Table 4.20 – Results oriented machine control & activity traits OLS regression.....	66
Table 4.21 – Action oriented machine control & activity traits OLS regression .....	67
Table 4.22 – Boundary control & activity traits OLS regression .....	68
Table 4.23 – Exploratory control & activity traits OLS regression.....	69
Table 4.24 – OLS regression results summarised.....	69
Table 5.1 – Dummy variable frequencies (based on median determination) .....	78
Table 5.2 – OLS regression results based on median dummy variable determination.....	78
Table 5.3 – Descriptive statistics of continuous activity trait (AT) variables .....	80
Table 5.4 – OLS regression results based on continuous variables .....	80
Table 5.5 – Descriptive statistics of combination index variables in sample with moderate activity trait firms deleted .....	82
Table 5.6 – Dummy variable frequencies in sample with moderate activity trait firms deleted .....	82
Table 5.7 – Moderate activity trait firms deleted sample OLS regression results.....	83
Table 5.8 – Descriptive statistics of combination index variables in reduced sample with median activity trait firms deleted .....	84
Table 5.9 – Dummy variable frequencies in sample with median activity trait firms deleted .....	84
Table 5.10 – Median activity trait firms deleted sample OLS regression results .....	84
Table 5.11 – Frequency of control archetype dummy variables.....	86
Table 5.12 – Dependent dummy variable and independent absolute activity trait (AT) dummy variable determination binary logistic regression results .....	87
Table 5.13 – Dependent dummy variable and independent relative activity trait (AT) dummy variable determination binary logistic regression results .....	87
Table 5.14 – Dependent dummy variable and independent continuous activity trait (AT) variable binary logistic regression results .....	88
Table 5.15 – Descriptive statistics of individual control archetype variables .....	89
Table 5.16 – Dependent activity trait variable and independent absolute activity trait (AT) dummy variable determination OLS regression results .....	90

Table 5.17 – Dependent activity trait variable and independent relative activity trait (AT) dummy variable determination OLS regression results .....	90
Table 5.18 – Dependent dummy variable and independent continuous activity trait (AT) variable OLS regression results .....	91
Table A3.1 – Descriptive statistics of indicators (zero employee subsidiaries deleted from sample).....	153
Table A3.2 – Descriptive statistics of indicators (complete sample).....	157
Table A4.1 – Factor analysis (zero employee subsidiaries deleted from sample).....	161
Table A4.2 – Factor analysis (zero employee subsidiaries deleted from sample).....	165
Table A4.3 – Factor analysis (complete sample).....	168
Table A4.4 – Factor analysis of machine control archetypes (complete sample) .....	172
Table A4.5 – Factor analysis of arm’s length & machine and control archetypes (complete sample).....	172
Table A4.6 – Factor analysis of all control archetypes (complete sample).....	173
Table A4.7 – Factor analysis (statistics for removed indicators, complete sample).....	174
Table A5.1 – Arm’s length control - correlation between constructs (square root of AVE on diagonal) .....	177
Table A5.2 – Results oriented machine control - correlation between constructs (square root of AVE on diagonal).....	177
Table A5.3 – Action oriented machine control - correlation between constructs (square root of AVE on diagonal).....	177
Table A5.4 – Boundary control - correlation between constructs (square root of AVE on diagonal) .....	178
Table A5.5 – Exploratory control - correlation between constructs (square root of AVE on diagonal) .....	178
Table A5.6 – Construct composite reliability based on Cronbach Alpha (complete sample).....	179
Table A5.7 – Combination index descriptive statistics (complete sample).....	179
Table A5.8 – Dummy variable frequencies (complete sample) .....	180
Table A5.9 – Skewness & Kurtosis statistics (complete sample) before normalisation .....	180
Table A5.10 – Skewness & Kurtosis statistics recalculated (complete sample) after normalisation .....	180
Table A5.11 – Arm’s length control - correlation between constructs (square root of AVE on diagonal, complete sample).....	181
Table A5.12 – Results oriented machine control - correlation between constructs (square root of AVE on diagonal, complete sample) .....	181
Table A5.13 – Action oriented machine control - correlation between constructs (square root of AVE on diagonal, complete sample) .....	181
Table A5.14 – Boundary control - correlation between constructs (square root of AVE on diagonal, complete sample).....	182
Table A5.15 – Exploratory control - correlation between constructs (square root of AVE on diagonal, complete sample).....	182
Table A6.1 – Control archetype construct correlations .....	183
Table A7.1 – Mining firms deleted OLS regression results .....	184
Table A8.1 – OLS Regressions results based on skilled employee asset specificity .....	185
Table A8.2 – OLS Regressions results based on training program asset specificity.....	185
Table A8.3 – OLS Regressions results based on physical asset specificity .....	185
Table A8.4 – OLS Regressions results based on technological systems asset specificity ....	185
Table A8.5 – OLS Regressions results based on product customisation asset specificity ....	186
Table A8.6 – OLS Regressions results based on branding rights asset specificity .....	186

Table A8.7 – OLS Regressions results based on reputational capital asset specificity .....	186
Table A9.1 – Control archetype (combination index) & activity traits (dummy variables) OLS regression results (complete sample).....	187
Table A9.2 – Control archetype (combination index) & activity traits determined based on median values (dummy variables) OLS regression results (complete sample).....	188
Table A9.3 – Control archetype (combination index) & activity traits (continuous variables) OLS regression results (complete sample) .....	189
Table A9.4 – Firms with activity traits at moderate levels deleted from the sample OLS regression results (complete sample).....	190
Table A9.5 – Firms with activity traits at median levels deleted from the sample OLS regression results (complete sample).....	190
Table A9.6 – Dependent dummy & independent absolute activity trait dummy variable determined binary logistic regression results (complete sample).....	191
Table A9.7 – Dependent dummy & independent relative activity trait dummy variable determined binary logistic regression results (complete sample).....	191
Table A9.8 – Dependent dummy & independent continuous activity trait variable binary logistic regression results (complete sample).....	191
Table A9.9 – Dependent control archetype variable & independent absolute activity trait dummy variable determined OLS regression results (complete sample) .....	192
Table A9.10 – Dependent control archetype variable & independent relative activity trait dummy variable determined OLS regression results (complete sample).....	192
Table A9.11 – Dependent control archetype variable & independent continuous activity trait variable OLS regression results (complete sample).....	192

## **Abstract**

This thesis investigates the transaction cost economics (TCE) theory of management control conceptualised by Speklé (2001) in the context of wholly owned foreign subsidiary (WOFS) operations controlled by multinational corporation headquarters. Investigating this theory provides the basis of a comprehensive understanding of management control system choices, specifically in the WOFS context where activity traits (uncertainty, asset specificity and ex-post information asymmetry) are of particular relevance. Mixed methods are applied in this study to rigorously investigate the theory. First, a series of five case studies are conducted and used to comprehensively examine the control archetypes proposed in the theory. The evidence from the case studies suggests headquarters exercise the control archetypes proposed in the theory; however, combinations rather than single and distinct control archetypes are exercised by headquarters. In addition, not all control archetype choices are associated with activity traits as the theory proposes. Second, data was collected through a cross sectional survey questionnaire to test Speklé's (2001) theory. Factor analysis of the control archetype construct indicators demonstrates that the five control archetypes proposed in the theory are representative of headquarters' control choices. However, the data indicates headquarters use multiple rather than distinct control archetypes which is inconsistent with Speklé's (2001) theory, but consistent with the case study suggestions. The ordinary least squares (OLS) regression results indicate that the association between activity traits and control archetypes proposed in Speklé's (2001) theory are supported in some cases, but not in all. In particular, results and action controls are widely exercised by headquarters, inconsistent with Speklé's (2001) propositions. This thesis contributes to theory through applying the TCE theory of management control in the context of WOFS operations, facilitating a comprehensive approach to understanding control choices. This provides guidance to practice concerning important factors, activity traits, influencing control archetype choices.