

## Table of contents

### CHAPTER 1

<b>Introduction</b>	<b>1</b>
---------------------	----------

### CHAPTER 2

<b>Literature review and hypothesis development</b>	<b>8</b>
---	----------

2.1 Tax effects on the pricing of stock index futures	8
2.1.1 Impact of taxes on futures prices	8
2.1.2 Taxes and ex-dividend day stock price behaviour	10
2.2 Index arbitrage and the relationship between spot and futures prices	11
2.2.1 Information transfer	11
2.2.2 Risks faced by index arbitrageurs	13
2.2.3 Transaction costs	16
2.3 Price formation and liquidity surrounding large trades	18
2.3.1 Price effects and speed of adjustment	18
2.3.2 Liquidity effects and speed of adjustment	21
2.3.3 Information content of futures trades	24
2.4 Summary	28
Appendix 2.1 Price effects of large trades in world equity markets	31
Appendix 2.2 Price effects of large trades in Australian equity markets	34

### CHAPTER 3

<b>Tax effects on the pricing of Australian stock index futures</b>	<b>35</b>
---	-----------

3.1 Introduction	35
3.2 Basis value	35
3.3 Institutional setting and data	40
3.3.1 Data description	40
3.3.2 Variable measurement	42
3.4 Econometric method and results	45
3.4.1 Econometric method	45
3.4.2 Results	48
3.4.3 Robustness tests	51
3.5 Summary	55

<b>CHAPTER 4</b>	
<b>Index arbitrage and the pricing relationship between Australian stock index futures and their underlying shares</b>	<b>56</b>
4.1 Introduction	56
4.2 Institutional setting and data	56
4.2.1 Data and sample	57
4.2.2 Variable measurement	60
4.3 Empirical results	61
4.3.1 Behaviour of the mispricing series	61
4.3.2 Modelling mispricing	63
4.3.3 Robustness tests	77
4.4 Summary	80
<b>CHAPTER 5</b>	
<b>Price formation and liquidity surrounding large trades in interest rate and equity index futures</b>	<b>82</b>
5.1 Introduction	82
5.2 Market structure, sample and methodology	82
5.2.1 Institutional setting	82
5.2.2 Data and sample	83
5.2.3 Classification and aggregation of buy and sell transactions	87
5.2.4 Excess return and excess spread calculations	88
5.3 Changes in the levels of bid and ask quoted prices	90
5.4 Impact of trades on liquidity	97
5.5 Summary	110
Appendix 5.1 Information and volatility of bid and ask quoted prices	112
Appendix 5.2 Trading direction, size and frequency	118
<b>CHAPTER 6</b>	
<b>Conclusion</b>	<b>130</b>
<b>References</b>	<b>136</b>

## List of figures

3.1	Time-to-expiry pattern in dividends on the underlying stocks	42
3.2	Time-to-expiry patterns in mispricing of near futures contracts	46
4.1	Time-to-expiry pattern in the absolute value of the pre-filtered mispricing series employing the tax-adjusted cost-of-carry model	65
4.2	Time-to-expiry patterns in price volatility and bid-ask spreads	67
4.3	Time-to-expiry patterns in trading activity	68
4.4	Time-to-expiry patterns in dividend yield uncertainty and interest rate volatility	70
4.5	Time-to-expiry patterns in dividend announcements and economic releases	71
5.1	Cumulative excess quote returns surrounding purchases	92
5.2	Cumulative excess quote returns surrounding sales	93
5.3	Excess bid-ask spreads surrounding purchases	98
5.4	Excess bid-ask spreads surrounding sales	99
5.5	Excess market depth surrounding purchases	100
5.6	Excess market depth surrounding sales	101
A5.1.1	Excess quote volatility surrounding purchases	113
A5.1.2	Excess quote volatility surrounding sales	114
A5.1.3	Time intervals between quotes surrounding purchases	116
A5.1.4	Time intervals between quotes surrounding sales	117
A5.2.1	Purchases surrounding purchases	119
A5.2.2	Sales surrounding sales	120
A5.2.3	Excess transaction sizes surrounding purchases	121
A5.2.4	Excess transaction sizes surrounding sales	122
A5.2.5	Time intervals between trades surrounding purchases	125
A5.2.6	Time intervals between trades surrounding sales	126

## List of tables

3.1	Summary statistics on the value of the carry components	44
3.2	Value of financing cost, cash dividends and imputation tax credits and day-of-the-week patterns in futures contract mispricing	49
3.3	Value of gross dividends and day-of-the-week patterns in futures contract mispricing incorporating the full financing cost	52
3.4	Value of cash dividends and imputation tax credits and day-of-the-week patterns in futures contract mispricing incorporating the full financing cost	54
4.1	Autocorrelations for changes of the logarithm of price in SFE SPI 200 <sup>TM</sup> futures and the S&P/ASX 200 index	59
4.2	Summary statistics on the levels of mispricing in SFE SPI 200 <sup>TM</sup> Index Futures contracts employing the tax-adjusted cost-of-carry model	62
4.3	Dynamic and fixed time series components of the tax-adjusted mispricing series	64
4.4	Summary statistics for entire dataset	74
4.5	Estimation of the explanatory coefficients for the absolute value of the pre-filtered mispricing series employing the tax-adjusted cost-of-carry model	75
4.6	Dynamic and fixed time series components of the unadjusted mispricing series	79
4.7	Estimation of the explanatory coefficients for the absolute value of the pre-filtered mispricing series employing the unadjusted cost-of-carry model	80
5.1	Descriptive statistics for purchases and sales	86
5.2	Quote excess returns by direction and size of trade	94
5.3	Bid-ask spreads by direction and size of trade	102
5.4	Depth by direction and size of trade	104
A5.2.1	Transaction sizes surrounding trades by direction and size of trade	123