

MARKET INSIGHTS

The Impact of Pre-negotiation for
SFE SPI 200™ Options on the Cost
of Trading and Trading Activity¹

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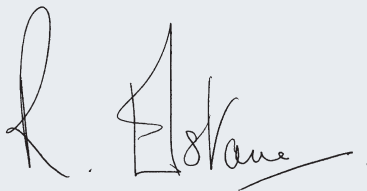
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INTRODUCTION

In this 18th edition of Market Insights Professor Alex Frino, Dr Andrew Lepone and Angelo Aspris from the Discipline of Finance at the University of Sydney provide an assessment of market quality following the introduction of pre-negotiation in SFE SPI 200™ Options. Their works highlights the benefits to brokers and clients who are afforded greater flexibility in the trade execution process. I trust you will find it both interesting and useful when examining the opportunities that SFE might present to your own particular organisations.

Regards



Robert G. Elstone
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The Impact of Trade Pre-negotiation in SFE SPI 200™ Options¹

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EXECUTIVE SUMMARY

The Sydney Futures Exchange (SFE) introduced pre-negotiation for SPI 200™ options in the 4th Quarter of 2004. Pre-negotiation was introduced to improve trader flexibility arrangements by allowing market participants to seek and pre-arrange deals with counterparties outside the scope of the centralised marketplace. Sufficient time has now passed to allow an in depth assessment of the rule change on market quality.

This paper documents a decrease in trading costs and an increase in trading volume following the introduction of pre-negotiation. Specifically, we find that the introduction of pre-negotiation has led to:

- A reduction in the cost of trading by an average of 11.5%.
- An increase in the daily number of trades by an average of 46.1%.
- An increase in the daily average trading volume by an average of 19.7%

In summary, market participants have benefited from the introduction of pre-negotiation in SFE SPI 200™ Options. This benefit is the result of improved flexibility in the trading process and is reflected in the lower trading costs and improved liquidity in the SPI 200™ options market.

¹ This market insights is a subset of an upcoming academic paper “The Impact of Trade Pre-negotiation; Evidence from the Sydney Futures Exchange”.

Introduction

This paper examines the effect on market quality in the SFE SPI 200™ options market following the introduction of the pre-negotiation process. This paper examines trade data for the period July 1, 2003 to January 31, 2006 (fifteen months surrounding the implementation date) for the SFE SPI 200™ Options contract².

Pre-negotiation

On October 19, 2004 the SFE introduced a change in the trade execution process for options listed on the SPI 200™ Index Futures contract. The change in the execution process was designed to improve trading efficiency and overall market quality by relaxing rigid negotiation and disclosure impositions on market participants³.

Following the introduction of pre-negotiation rules, brokers are permitted to withhold an order from the centralised market for the purpose of soliciting counterparties for trades of any size. The details of the particular order can be disclosed to selected customers such that the broker can choose to aggregate client orders in satisfaction (or part satisfaction) of the original client order. This negotiated business is then required to be disclosed to the exchange to ensure best execution, however, price nor trade size need to be communicated⁴.

² Data is obtained via a Reuters database covering outright options. Multi-legged options are excluded on the basis that there is no means of effectively quantifying the appropriate strategies.

³ In addition to the inefficiency and inflexibility of existing arrangements, market participants were also required to disseminate details of their trade strategies to the market which was potentially detrimental as it provided free-riding price discovery opportunities to other participants.

⁴ The market test allows the broker to withhold price and volume information from the market. Withholding this information from the market in the pre-period was forbidden.

Data and Summary Statistics

Consistent with academic studies in derivative markets, this analysis is confined to daytime trading⁵. Additionally, longer term options are excluded, as they are thinly traded, thus making any inferences difficult⁶. The final sample consists of 4,891 trades in call options and 5,728 trades in put options in the pre- and post-negotiation periods. Table I describes the characteristics of the trades in this study.

Table I

SAMPLE TRADE CHARACTERISTICS BETWEEN JULY 1, 2003 AND JANUARY 31, 2006.

	Calls	Puts
No. of Trades	4,891	5,728
Option Price	41	33.16
Implied Volatility (%)	7.97	15.24
Notional Value (\$)	950,710	1,272,951
Size (Contracts)	9.90	14.10
Average Daily Volume	808.36	855.53
Average Daily No. Trades	52.87	54.47
Average Days to Maturity	66.58	71.66

Table I presents summary statistics relating to the trades in our sample for index call and put options, respectively. Over the sample period, average trade size for index call options is 9.90 contracts which equates to an average notional value of \$950,710 per trade⁷. The average trade size for put option trades is significantly higher at 14.10 contracts or a notional value of \$1,272,951 per trade⁸. Table I further reports that the average volatility implied by the price of trades, in put options, (15.24%) is higher than for call options (7.97%)⁹. Consistent between call and put index option series is the average days to maturity. The average time to maturity is 67 days for calls and 72 days for puts over the sampled pre- and post-negotiation periods.

5 See Frino A, Hill A, Jarnecic E and Aitken M (2004) 'The impact of electronic trading on bid-ask spreads: Evidence from futures markets in Hong Kong, London and Sydney', *Journal of Futures Markets*, vol.24, No.7

6 See for example – De Fontmouvelle P, Fische R, and Harris J (2003) 'The Behaviour of Bid-Ask Spreads and Volume in Options Markets during the Competition for Listings in 1999' *Journal of Finance*, Vol 58, No.6

7 The notional value is calculated as the index option price multiplied by the prevailing index value and the number of contracts traded.

8 The delta adjusted notional value of trades for index call and put options is \$408,805 and \$280,049, respectively. These figures describe the clients' net long or short position in the underlying investment.

9 Implied volatilities are calculated using the Black Scholes model at each trade price as suggested in Hull (2002).

The Cost of Trading

We examine the on-market cost of trading before and after the introduction of pre-negotiation¹⁰. The cost of trading is measured as the difference between the best prevailing bid and offer prices (at the time a trade is executed) relative to the midpoint of the prevailing bid-ask quote:

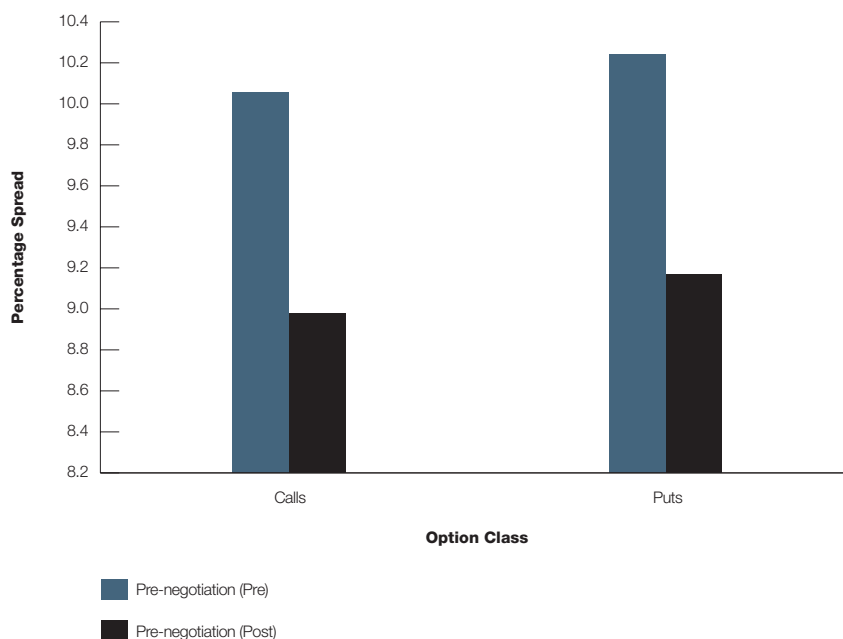
$$\% \text{ Spread} = \frac{(Ask - Bid)}{(Ask + Bid)/2}$$

Figure 1 indicates that the average percentage bid-ask spread for trades in call and put options over a range of maturities and strike-price categories fell on average by 12% and 11.67% respectively, following the introduction of pre-negotiation. The average percentage spread for call and put options trades in the post-negotiation period is 8.98% and 9.17%, respectively which is consistent with levels reported across international markets¹¹. This finding supports the premise that more flexible trading arrangements improve market quality.

Figure 1

PERCENTAGE SPREAD FOR THE SFE SPI 200™ INDEX OPTIONS CONTRACT
(CLASS: CALLS/PUTS)

Pre-negotiation: (Pre-Period) 1 July 2003 to 17 October 2004
(Post-Period) 19 October 2004 to 31 January 2006



While these results provide some weak evidence to suggest that pre-negotiation leads to lower trading costs for market participants, exogenous factors known to influence spreads are not controlled for. Accordingly we perform a regression analysis (specified in Appendix – Equation 1.1) to isolate the effect of pre-negotiation on percentage bid-ask spreads. Amongst the control variables, we include: option price, implied volatility, delta, gamma, time to maturity and degree of moneyness of the option series. Table A1 provides statistically significant evidence to indicate that the introduction in pre-negotiation is associated with a decrease in percentage bid-ask spreads.

¹⁰ Percentage spreads are used instead of absolute spreads because the discreteness in quote prices means that the absolute spread may not deal smoothly with option prices. Clients cannot trade within the quoted bid-ask spread. Percentage spreads quantify the minimum cost of trading SFE SPI 200™ Index Options.

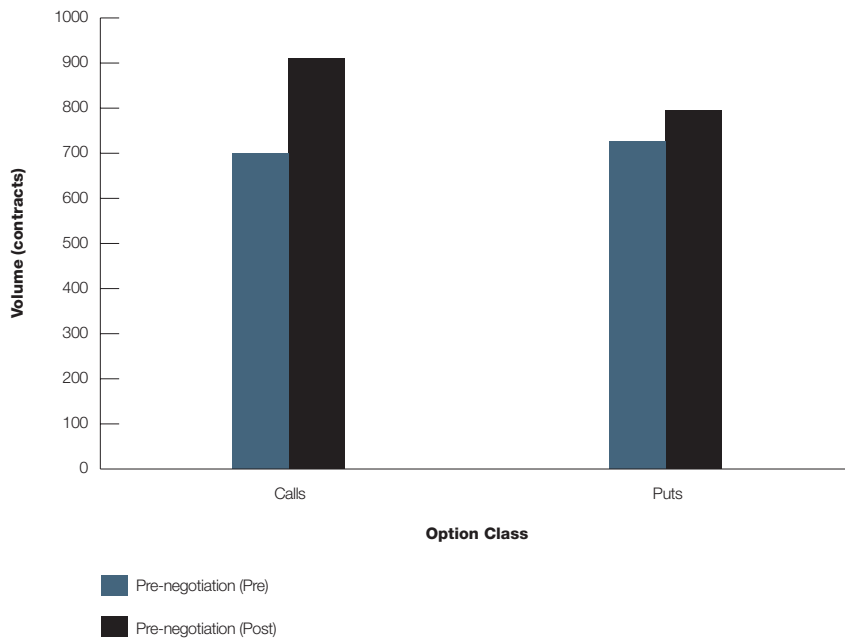
¹¹ George and Longstaff (1993) and Engle and Cho (1999) both examine trading costs for the S&P 100 Index Options Market.

Changes in Trading Activity

Figures 2 and Figures 2a depict the average daily volume and the average daily number of trades in the period before and after the introduction of pre-negotiation. Figure 2 illustrates an increase in daily average trading volume for index call and put options. Index call options daily average volume increases by an average of 30% whilst index put option daily volume by increases by 9.4% following the introduction of pre-negotiation.

Figure 2
DAILY AVERAGE VOLUME FOR THE SFE SPI 200™ INDEX OPTIONS CONTRACT
 (CLASS: CALLS/PUTS)

Pre-negotiation: (Pre-Period) 1 July 2003 to 17 October 2004
(Post-Period) 19 October 2004 to 31 January 2006



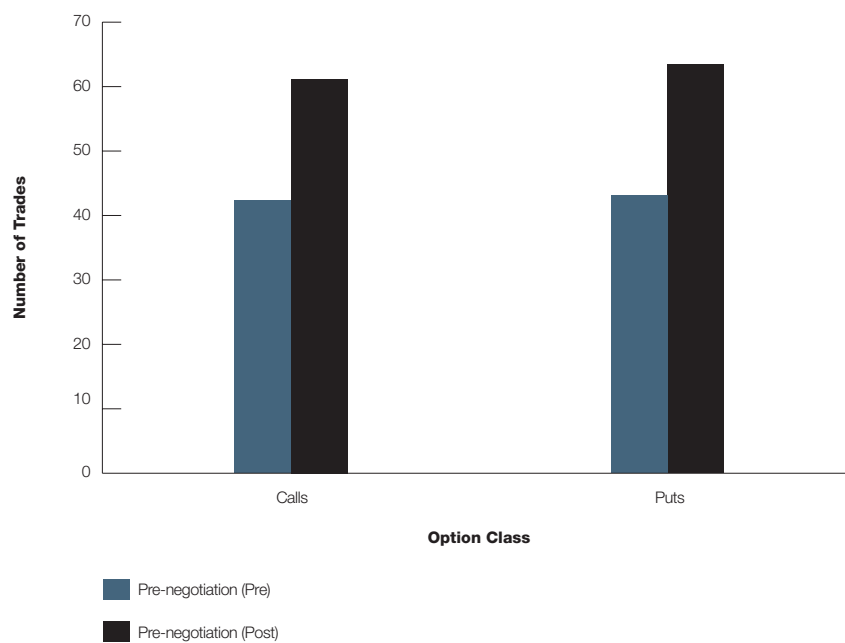
Similarly, Figure 2a shows a substantial increase in the number of trades executed daily. The daily average number of call and put option trades increases from 42.3 trades to 61.2 trades and 43.07 to 63.21 trades respectively, in the period after pre-negotiation is introduced. This represents an increase in average daily trades for call and put options of 44.7% and 47.61%, respectively. This finding is consistent with expectations that more flexible and fairer trading arrangements are the impetus for lower trading costs and greater trading activity in the post-negotiation period¹².

Figure 2a

DAILY AVERAGE NUMBER OF TRADES FOR THE SFE SPI 200™ INDEX OPTIONS CONTRACT
(CLASS: CALLS/PUTS)

Pre-negotiation: (Pre-Period) 1 July 2003 to 17 October 2004

(Post-Period) 19 October 2004 to 31 January 2006



12 See for example Hansch, O, Naik, N, Viswanathan, S, "Preferencing, Internalisation, Best Execution, and Dealer Profits" Journal of Finance, Vol 54 No. 5 - regarding best execution and flexible trading arrangements.

Appendix

Other factors may have had an impact on trading costs around the time of change to pre-negotiation. Trading costs in index options are influenced by a range of factors including the price of an option, implied volatility of the options return, the delta and gamma of an option, time to maturity and the degree of moneyness associated with the particular class of option as well as the overall liquidity of the series¹³.

Using the sample discussed above, an examination of spreads is undertaken using regression analysis to control for changes in these variables. This analysis, furthermore controls for any time-series changes by incorporating a control contract in the ASX S&P 200 Index Options. This contract is written on the underlying S&P/ASX 200 Index. The results of the analysis are presented in Table A1.

Table A1
DETERMINANTS OF BID-ASK SPREADS

This table shows reports the results from the following regression model:

$$\% \text{BAS} = a_0 + a_1 OP_t + a_2 IV_t + a_3 \text{Delta}_t + a_4 \text{Gamma}_t + a_5 \text{Control} + a_6 \text{SFE}_t + \varepsilon_t$$

Variable	Index Call Options		Index Put Options	
	Parameter Estimate	t-statistic	Parameter Estimate	t-statistic
Intercept	4.19	36.61*	4.53	29.44*
Option Price	-0.63	-13.86*	-0.67	-74.1*
Implied Volatility	0.13	4.98**	-0.15	-3.67*
Delta	-0.23	-3.00*	0.22	6.38*
Gamma	-0.0167	0.40	0.11	8.97*
Control Period	-0.05	2.94*	0.08	4.97*
SFE post	-0.11	-5.82*	-0.16	-9.40*
Sample Size	10,363		11,439	
Adjusted R-squared	0.51		0.50	

- A single and double asterisk implies 99% and 95% levels of significance, respectively.

13 De Fontnouvelle P, Fische R, and Harris J (2003) 'The Behaviour of Bid-Ask Spreads and Volume in Options Markets during the Competition for Listings in 1999' Journal of Finance, Vol 58, No.6

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