MARKET QUALITY INDICATORS

ASX Equity and Equity Index Derivatives

By Dr Andrew Lepone and Steve Lecce
of the University of Sydney, Australia

June quarter 2010

in association with

ASX
AUSTRALIAN SECURITIES EXCHANGE

INTRODUCTION

In this bi-annual series of *Market Quality Indicators*, Dr Andrew Lepone and Steven Lecce from the Discipline of Finance at the University of Sydney describe the trading activity and market dynamics of the ASX equities, index futures and index options. These statistics highlight the extent of trading opportunities on the ASX for global institutions such as hedge funds and commodity trading advisors, as well as the costs associated with executing trades on the ASX.

I trust you will find these statistics useful in assessing the opportunities that ASX might present to your own organisation.

Regards

Richard Murphy
General Manager, Equity Markets
ASX Limited

ASX
AUSTRALIAN SECURITIES EXCHANGE

THE COMPANY

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ASX Equity and Equity Index Derivatives

Andrew Lepone and Steve Lecce

EXECUTIVE SUMMARY

The purpose of this booklet is to provide up-to-date semi-annual statistics that enable global institutions to evaluate trading opportunities in ASX equities and equity index derivatives. These statistics are provided for the (i) underlying securities of the S&P/ASX 200 Index; (ii) SPDR S&P/ASX 200 ETF; (iii) *ASX SPI 200® Index Futures*; and (iv) *ASX SPI 200® Index Options*. The key findings for the financial year ending June 30, 2010 are as follows:

1. **There has been a significant improvement in the market quality of the S&P/ASX 200 Index underlying securities.**
   Trading activity during the financial year ending June 30, 2010 in the underlying securities of the S&P/ASX 200 Index increased both from 2008 and 2009. From 2009 to 2010, daily traded volume increased by 26%, turnover increased by 18% and traded value ($AUD) increased by 17%. Over the same period, the average market depth at the best five quotes increased by 191%, the average bid-ask spread decreased by 33% and price impact decreased by at least 37% across all trade sizes. The decline in spreads, increase in market depth and increased trading activity represent an improvement in investor confidence following the continued recovery from the global financial crisis.

2. **The SPDR S&P/ASX 200 ETF (STW) continues to be an efficient way for investors to gain exposure to the Australian equities market.**
   The SPDR S&P/ASX 200 (STW) is an exchange-traded fund (ETF) that offers exposure to the returns of the S&P/ASX 200 Index. From 2009 to 2010, the number of trades, volume transacted and dollar value increased by 21%, 5% and 23% respectively. The increased trading activity in the SPDR S&P/ASX 200 was met by a 100% increase in average market value of depth at the best five quotes. Over the same period, the average bid-ask spread fell by 55% and price impact fell for all trade sizes by at least 51%. This reduction in transaction costs highlight that the SPDR S&P/ASX 200 provides an efficient way for investors to obtain exposure to the Australian equities market index.

3. **There has been a continued improvement in the quality of the ASX SPI 200® Index Futures market**
   The average bid-ask spread was 1.2 index points in the June quarter 2010, representing AUD29.51 or 3 one-hundredths of one percent of contract value. Over the same period, there were an average of 15 lots available at the bid and 21 lots available at the offer which is more than sufficient to accommodate the average trade size during day sessions (2 lots). The weekly average absolute tracking error of returns on the nearest expiry month contract against the S&P/ASX 200 accumulation index ranged from 10 to 26 one-hundredths of one percent over the six quarters to June 2010. These low and stable tracking errors demonstrate that *ASX SPI 200®* Index Futures provide an efficient way for investors to obtain Australian equities market index exposure synthetically. Overall, *ASX SPI 200®* Index Futures continue to provide an efficient way for investors to obtain Australian equities market index exposure synthetically.

4. **There has been a significant improvement in the quality of the S&P /ASX 200® Index Options market.**
   S&P / ASX 200® Index Options (XJO Options) are exchange-traded Index options that offer exposure to the returns of the S&P/ASX 200 Index. The number of trades and volume transacted in XJO Options increased by 10% and 32% respectively from 2009 to 2010. The increased trading activity in XJO Options from 2009 to 2010 is met by a 124% increase in average market volume of depth at the best quotes. The average bid-ask spread fell by 47%, from 9.31 index points to 4.92 index points, over the 2009 to 2010 period. The increased trading activity in XJO Options represents the increased liquidity present in these options.

Study Methodology

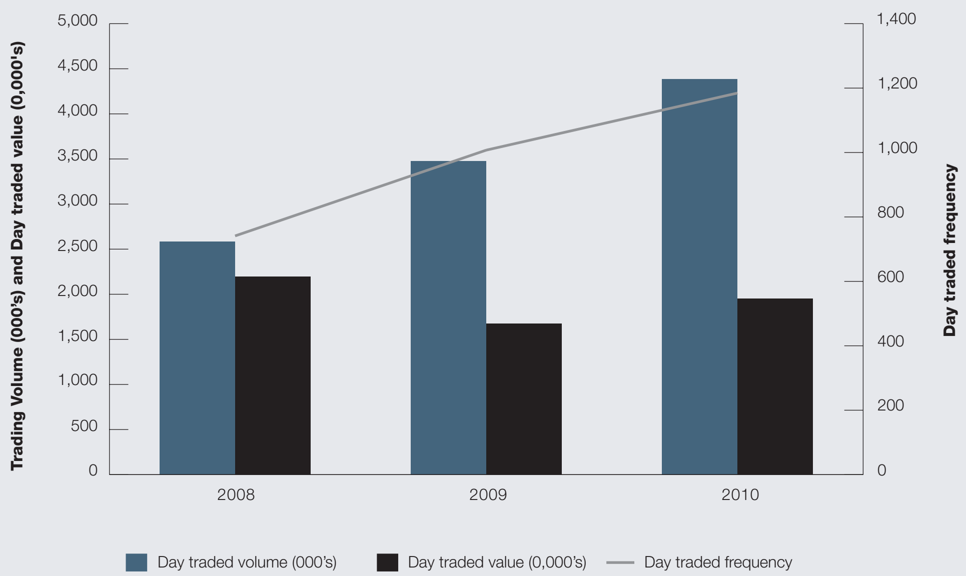
To assess how market quality has evolved through time, various aspects of the market are examined. The data are sourced from Reuters and contain information on the price and volume of *every* on-market transaction executed, together with prevailing bid and ask quotes and volumes. Specifically, we examine the following aspects of market quality

- Trading activity (day traded volume/value and trading frequency)
- Liquidity (bid-ask spreads and quoted depth)
- Price Impact

Detailed Findings

1. *There has been a significant improvement in the market quality of the S&P/ASX 200 Index underlying securities.*

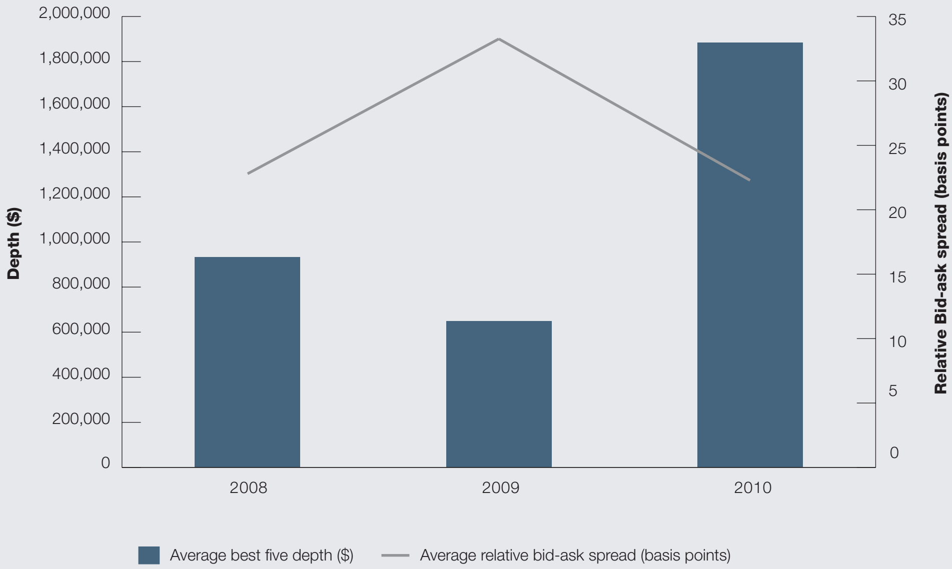
Trading Activity



- During the financial year ending July 2010, trading value, trading volume and day traded frequency in the underlying securities of the S&P/ASX 200 Index increased by 17%, 26% and 18%, respectively from 2009. [1]
- This represents a continuing improvement in trading activity following the decline in the S&P/ASX 200 Index during 2008 and 2009.
- The increase in trading activity provides opportunities for investors to trade in a market without the need to search for counterparties.

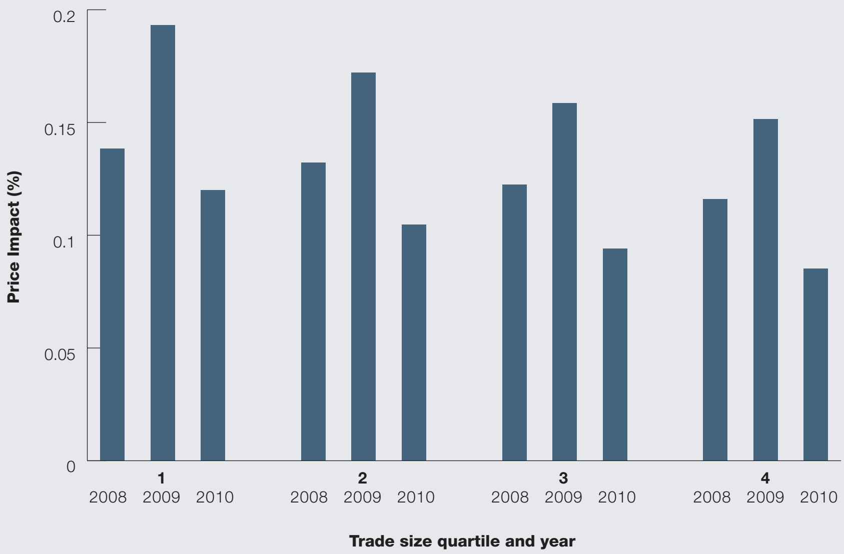
1 Day traded volume/value and day traded frequency are average values per stock per day.

Market Depth and Bid-ask spreads



- The increased trading activity has been met by a 191% increase in the average market depth at the best five quotes from 2009 to 2010.
- Over the same period, the average bid-ask spread has decreased by 33% which represents a 10.97 basis point decrease from 33.26 basis points in 2009, to 22.28 basis points in 2010.

Price Impact

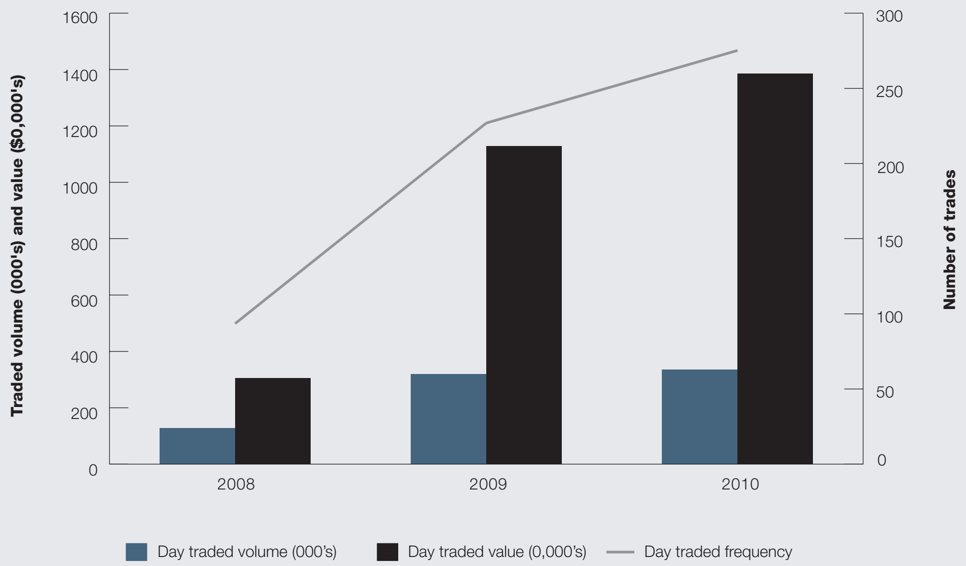


Note: Quartile 1 represents the largest 25% of trades. These trades are selected per stock (i.e. the largest 25% of trades for the stock), and then aggregated across the 200 stocks. Quartile 4 represents the smallest trades, which are in the bottom 25% of all trades for that particular security. Price impact is a transaction cost measure that examines the impact that different sized trades have on market depth and provides an estimate of the transaction cost incurred by different trade sizes. This measure captures both the bid-ask spread and the amount of liquidity present in the limit-order book immediately before each trade.

- The price impact for the underlying securities of the S&P/ASX 200 Index decreased by at least 37% across all trade sizes from 2009 to 2010.
- This reflects an overall improvement in liquidity for the underlying securities of the S&P/ASX 200 Index which is consistent with the decrease in bid-ask spreads and higher market depth during 2010.

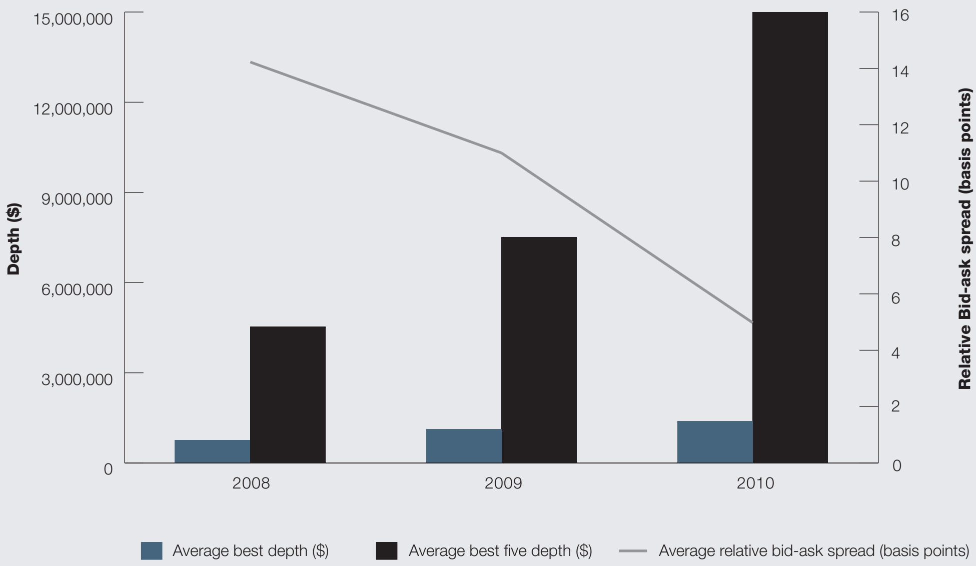
2. *The SPDR S&P/ASX 200 ETF (STW) continues to be an efficient way for investors to gain exposure to the Australian equities market.*

Trading Activity



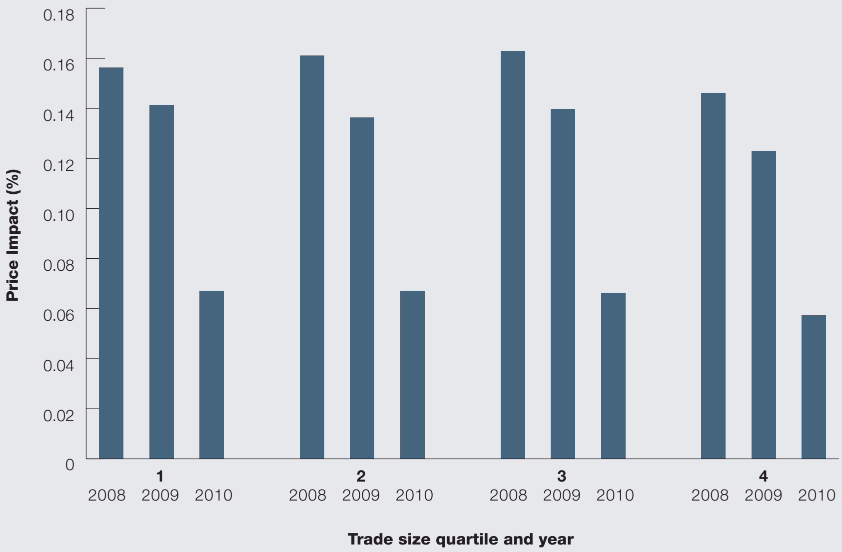
- The SPDR S&P/ASX 200 (STW) is an exchange-traded fund (ETF) that offers exposure to the returns of the S&P/ASX 200 Index.
- The number of trades, volume transacted and dollar value in STW increased by 21%, 5% and 23% respectively from 2009 to 2010.
- The increased trading activity in STW represents the increased liquidity present in the SPDR S&P/ASX 200 and its increased continued popularity over the past 3 years.

Market Depth and Bid-ask spreads



- The increased trading activity in the SPDR S&P/ASX 200 from 2009 to 2010 is met by a 100% increase in average market value of depth at the best five quotes.
- The average bid-ask spread fell by 55%, from 11.01 basis points to 4.98 basis points, over the 2009 to 2010 period.

Price Impact

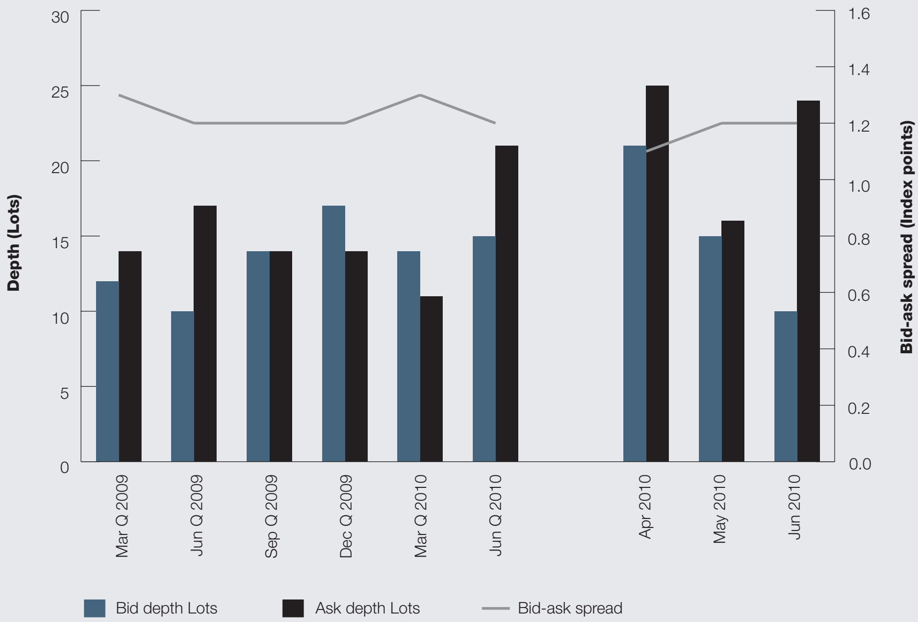


Note: Quartile 1 represents the largest trades, which are in the top 25% of all trades for that particular security. Quartile 4 represents the smallest trades, which are in the bottom 25% of all trades for that particular security. Price impact is a transaction cost measure that examines the impact that different sized trades have on market depth and provides an estimate of the transaction cost incurred by different trade sizes. This measure captures both the bid-ask spread and the amount of liquidity present in the limit-order book immediately before each trade.

- Price impact in the SPDR S&P/ASX 200, from 2009 to 2010, has fallen by a minimum of 51% for all trade sizes.
- Price impact results demonstrate that transaction costs in the SPDR S&P/ASX 200 have reduced significantly over the 2009 to 2010 period.
- The reduction in transaction costs highlight that the SPDR S&P/ASX 200 provides an efficient way for investors to obtain exposure to the Australian equities market index. This is reflected in the large increases in trading activity over the past 3 years.

3. There has been an improvement in the quality of the ASX SPI 200® Index Futures market

Transaction cost indicators



- The average market depth at the best bid and best ask in the nearest expiry month contract increased in the June quarter 2010, compared to the same quarter of the previous year.
- The ASX 200 index during the most recent quarter ranged from a low of 4265 points to a high of 5002 points. There were an average of 15 lots available at the bid and 21 lots available at the offer during the June quarter 2010.
- This level of liquidity is more than sufficient to accommodate the average trade size during day sessions (2 lots).
- The average bid-ask spread was 1.2 index points in the June quarter 2010, representing AUD29.51 or 3 one-hundredths of one percent of contract value.
- The cost of trading *ASX SPI 200® Index Futures* continues to be low.

Tracking error

	Mar Q 2009	Jun Q 2009	Sep Q 2009	Dec Q 2009	Mar Q 2010	Jun Q 2010	Apr 2010	May 2010	Jun 2010
Mean of $\lvert R_{AP} - R_{cash} \rvert$									
Weekly (%)	0.26	0.10	0.15	0.16	0.20	0.13	0.10	0.15	0.16
Daily (%)	0.16	0.10	0.07	0.09	0.08	0.08	0.07	0.11	0.07
Standard deviation of $(R_{AP} - R_{cash})$									
Weekly (%)	0.24	0.10	0.17	0.25	0.19	0.11	0.06	0.18	0.06
Daily (%)	0.20	0.13	0.08	0.15	0.11	0.10	0.10	0.13	0.07

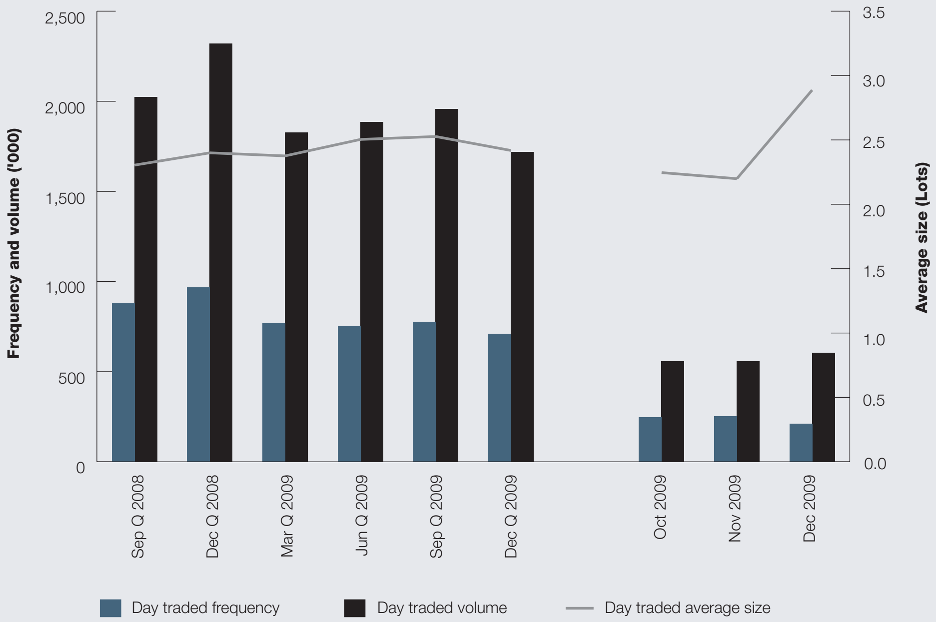
- The weekly average absolute tracking error of returns on the nearest expiry month contract against the S&P/ASX 200 accumulation index ranged from 10 to 26 one-hundredths of one percent over the six quarters to June 2010.
- The week-to-week variability (standard deviation) of the difference in returns between the nearest expiry month contract and the S&P/ASX 200 accumulation index ranged from 10 to 25 one-hundredths of one percent.
- These low and stable tracking errors demonstrate that *ASX SPI 200® Index Futures* provide an efficient way for investors to obtain Australian equities market index exposure synthetically.

Volatility

	Mar Q 2009	Jun Q 2009	Sep Q 2009	Dec Q 2009	Mar Q 2010	Jun Q 2010	Apr 2010	May 2010	Jun 2010
Standard deviation of return									
Weekly (%)	4.51	2.43	3.15	2.62	2.08	3.50	1.34	6.12	2.22
Daily (%)	1.52	1.39	1.18	1.11	0.93	1.35	0.80	1.83	1.26
Average range (Index points)									
Monthly	532	309	429	349	382	465	259	734	402
Weekly	233	197	191	202	157	233	113	432	183
Daily	103	87	77	83	73	95	57	146	84

- Price volatility on the nearest expiry month contract increased in the June quarter 2010 relative to both the December and March 2010 quarters. The unusually high price volatility in the December and March 2010 quarters resulted from global uncertainty as well as the credit crisis which had a rippling effect on the Australian market.
- The average daily price range of 95 index points for the June quarter 2010 represents AUD2,383 of contract value or 34 percent of the initial margin effective from 19 February 2009. While price volatility has increased, the index price range still provides profit-making opportunities for traders with a short-term (intraday) trading horizon.

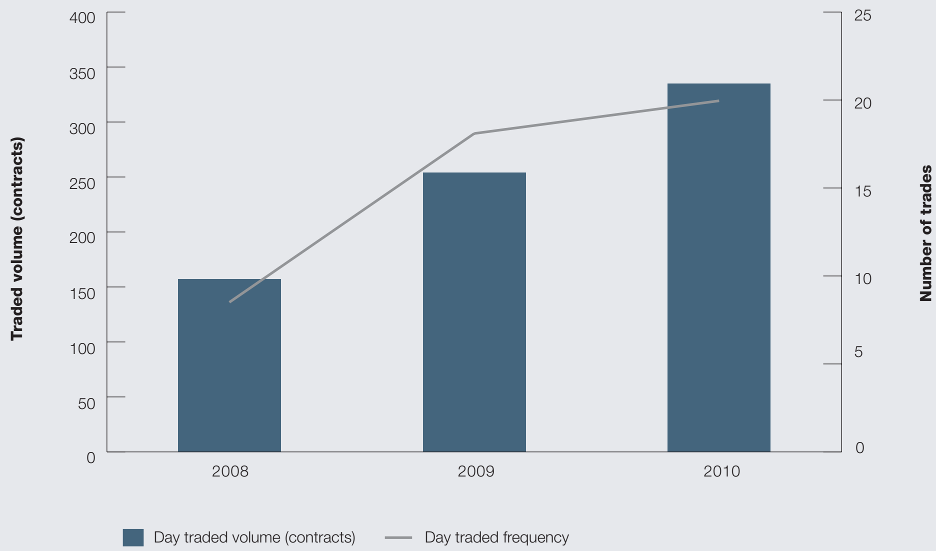
Trading Activity



- The number of trades and volume transacted during day sessions in the nearest expiry month contract increased in the June quarter 2010 relative to the same quarter of the previous year.
- The average trade size during day sessions remained constant at approximately 2 lots in the June quarter 2010.
- This trading frequency seen in *ASX SPI 200® Index Futures* reflects that counterparties are promptly found and effectively reduces the component of execution cost that occurs due to delays in trade execution.

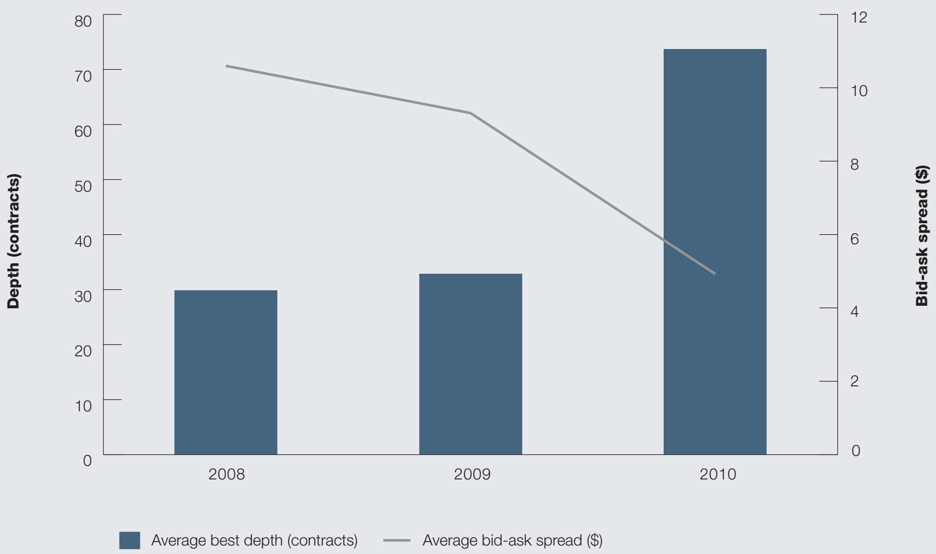
4. There has been a significant improvement in the quality of the S&P /ASX 200® Index Options market.

Trading Activity



- S&P / ASX 200® Index Options (XJO Options) are exchange-traded index options that offer exposure to the returns of the S&P/ASX 200 Index. There are put and call index options with different exercise prices and a tick value of $10 per point of the S&P/ASX 200 Index. While there are multiple contracts available, we examine all contracts that are nearest to expiry (within one month) and closest to 'in the money' (index level plus/minus 2.5% of strike price).
- The number of trades and volume transacted in XJO Options increased by 10% and 32% respectively from 2009 to 2010. The increased trading activity in XJO Options represents the increased liquidity present in these options and an increased popularity over the past 3 years.

Market Depth and Bid-ask spreads



- The increased trading activity in XJO Options from 2009 to 2010 is met by a 124% increase in average market volume of depth at the best quotes.
- The average bid-ask spread fell by 47%, from 9.31 index points to 4.92 index points, over the 2009 to 2010 period.

Notes

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