

EVIDENCE OF THE BANKS' ROLE *in filling gaps in the exchange-traded derivatives market*

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This paper examines the market capitalisation, relative trading volume and volatility of the S&P/ASX 200 Index constituent stocks. We classify stocks into three groups: stocks with listed exchange-traded options (ETOs); stocks with listed warrants but no ETOs (warrant-only); and stocks that have no listed exchange-traded derivatives. We find that ETO stocks have large market capitalisations relative to warrant-only stocks. However, ETO stocks do not have higher relative trading volumes or lower volatility compared with warrant-only stocks. When comparing warrant-only stocks with stocks that have no exchange-traded derivatives, warrant-only stocks are larger, have higher relative trading volumes and are more volatile. These results are consistent with banks taking advantage of the opportunity to profit by listing warrants on stocks that do not have ETOs.

Exchange-traded options (ETOs) and warrants are derivative securities traded on the Australian Securities Exchange (ASX). ETOs were first traded on the Sydney Stock Exchange (the previous entity to the ASX) in 1976 when it became the first exchange outside of North America to list ETOs over equities. However, it was not until 1991 that warrants trading began on the ASX. The stocks on which ETOs are listed are determined by the ASX Listing Guidelines (ASX 2012).

These listing guidelines require that:

- > the security must have an issued capital of at least AUD \$250 million
- > the security's relative liquidity must be greater than 20 per cent over six months (where relative liquidity is the total value of turnover, including off-market trades, divided by average market capitalisation)
- > the security must be a component of the S&P/ASX 200 Index (or likely to be in the near future)
- > the ASX must have two market makers willing to cover the ETOs.

Warrant creation and listing is, however, decided by the warrant issuer, typically an investment or domestic bank. Furthermore, warrants cannot be short sold and the buyers of warrants assume counterparty risk. However, for warrant-only stocks, the warrants (particularly vanilla call and put trading warrants) may act as a substitute in providing a security with similar contract specifications to those of ETOs. Some warrants, such as instalment warrants, also provide the investor with the opportunity to engage in a leveraged investment and thereby receive the dividends and associated franking credits of the underlying stock. Self-managed super funds limited to non-recourse borrowing may use this form of indirect leverage provided by the instalment warrants.

Mayhew and Mihov (2004) identify market capitalisation, volume and volatility as the characteristics that make stocks more likely to be selected for option listing as it is these characteristics that are likely to maximise the exchange's profit (from trading fees) through high trading volumes reflecting an increased capacity to trade (market capitalisation), investor interest (trading volumes) and the potential to profit on a speculative position or from meeting the needs of hedgers (volatility). The four central listing guidelines for ASX ETOs that are noted above are consistent with Mayhew and Mihov (2004) with respect to market capitalisation and volume. However, volatility is not mentioned in the guidelines.

Consistent with the ASX listing guidelines, stocks with ETOs are expected to be those with the largest market capitalisation and highest trading volume. But as volatility is a priori a driver of potential profitability for derivatives traders, banks may be expected to exploit the gap in the listing criteria used for ETOs by issuing warrants on stocks without ETOs that have high volatility, consistent with Mayhew and Mihov (2004). As banks issuing warrants are motivated by profit, they will maximise their own profit by choosing to issue warrants on stocks for which demand for the warrants issued is expected to be high.

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High-volatility stocks would be expected to have higher demand for the following reasons. First, investors would be more likely to hedge using warrants when volatility of the underlying stock is high. Speculators would also be most interested in the profitable opportunities available in warrants for which volatility in the underlying stock is high (Aitken and Segara 2005). This, coupled with evidence that the warrant market is overpriced, would be expected to motivate banks to issue warrants on underlying stocks with high volatility to help maximise both premium revenue and profit (Hunt and Terry 2011). Therefore, arguably, warrant issuers may also be willing to trade off-market capitalisation and volume to issue warrants on stocks with high volatility. As instalment warrants also provide a way for retail investors to obtain a 'buy and hold' leveraged position in a stock with less cash outlay than a direct purchase this also allows banks to potentially benefit from the implicit interest rates in the implied borrowings.

Furthermore, market-making obligations in ETOs are more demanding than the warrant issuer's market-making obligations. In order for the ETO market maker to receive discounted trading and clearing fees on their options for a top 20 ETO Class, the market maker must continuously quote in 48 options series around the money. For ETOs outside the top 20 stocks, the market maker is required to continuously quote in 24 option series around the money (ASX 2014). The ETO market maker is also required to provide 'orders on request for all series with up to twelve months expiration in the minimum quantity and at or within the maximum spread' (ASX 2014, p. 1). However, the warrant issuer only has to quote their static strike warrant listing.¹ This difference between the static quoting requirements of the warrant issuer versus the dynamic quoting obligations of the ETO market maker, coupled with the ASX ETO listing guideline that two market makers must commit to an ETO listing, sets a higher infrastructure bar (that also offers warrant issuers a listing opportunity in stocks that are derivatives listing candidates) to which ETO market makers are unwilling to commit.

This issue may have increasing significance in the future as the ASX has been faced with pronounced disengagement by their ETO market makers in recent years. Tibra and IMC Pacific have both cut their market-making commitments in ASX ETOs and Optiver publicly announced their resignation as an ASX Participant on 1 September 2014.

To examine whether banks exploit this opportunity, this paper examines the market capitalisation, trading volume and volatility of three categories of stocks that comprise the S&P/ASX 200 Index: those with ETOs; those with warrants only; and those with no exchange-traded derivatives.

Data and analysis

This study examines the firm characteristics of the constituents of the S&P/ASX 200 Index as at 30 June 2014. Of the 200 stocks that comprised the index at that time, 71 had listed ETOs. Of the 71, 68 also had warrant listings; generally, the higher the company's market capitalisation, the more warrants that were listed. Of the remaining 129 companies, 79 had warrants only and the remaining 50 companies had no exchange-traded derivatives (i.e. no ETOs or warrants). For the six-month period from 1 January 2014 to 30 June 2014 the total value of ETOs traded was approximately \$14.6 billion compared with \$1.8 billion in total warrants traded.² While the ETO market is substantially bigger than the warrant market with respect to trading, the warrant market is still a sizable and important component of the exchange-traded derivatives market.

We begin by examining the 129 constituent firms that do not have ETOs. All 129 stocks passed the ASX \$250 million market capitalisation listing guidance test and only five stocks failed the six-month relative liquidity listing guideline. Clearly these listing guidelines provide necessary tests with very achievable hurdle metrics.

Table 1 provides an examination of the differences between the characteristics of stocks with exchange-traded derivatives (ETOs or warrants) and those that do not have exchange-traded derivatives. Market capitalisation is as at 30 June 2014 and the relative trading volume is measured as the previous six-month trading volume of the stock as a percentage of the number of shares on issue as at 30 June 2014. The relative trading value is measured as the previous six-month trading value as a percentage of the market capitalisation as at 30 June 2014,³ while volatility is measured as the standard deviation of daily return over the 100 trading days up to and including 30 June 2014.

TABLE 1: Characteristics of stocks with and without exchange-traded derivatives

	Stocks with ETOs ⁴ (n=71)	Stocks with warrants only (n=79)	Stocks with no exchange-traded derivatives (n=50)	Difference between means (stocks with ETOs less stocks with warrants only)	Difference between means (stocks with warrants only less stocks with no exchange-traded derivatives)
Average market capitalisation	\$16.7 billion	\$2.1 billion	\$1.5 billion	\$14.6 billion (4.48)**	\$0.6 billion (2.29)*
Relative turnover (value)	57%	64%	49%	-7% (-1.06)	15% (2.23)*
Relative turnover (volume)	54%	62%	47%	-8% (-1.46)	15% (2.61)**
Volatility	24%	35% ⁵	27%	-11% (-4.60)**	8% (3.28)**

Notes: z-statistics are provided in parentheses. *denotes significance at 5%. **denotes significance at 1%.

Consistent with expectations, the results provided in Table 1 show that ETO stocks have larger market capitalisations (eight times larger) than warrant-only stocks. If the ETO stocks are sorted by market capitalisation, the average market capitalisation of the bottom half of firms with ETOs is still almost three times larger than the average market capitalisation of firms with warrants only. While relative turnover (both value and volume) were not significantly different between the two groups, the larger market capitalisation and dollar turnover of ETO stocks provides greater potential for the value of related option trading. Consistent with expectations, we also found that volatility was significantly greater for warrant-only stocks (35 per cent per annum) compared with ETOs (24 per cent per annum). While Mayhew and Mihov (2004) find exchanges list exchange-traded options on stocks with large market capitalisation, high trading volume and high volatility, ETO listing in the Australian market is largely driven by market capitalisation.⁶

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For stocks in the S&P/ASX 200 Index that do not have ETOs, consistent with Aitken and Segara (2005) and using the Mayhew and Mihov (2004) characteristics of market capitalisation, trading volume and volatility as a guide for exchange profitability, it would be expected that banks would also maximise their own profitability on the basis of market capitalisation, trading volume and volatility for potential warrant issuances. Again, consistent with expectations, the results reported in Table 1 show that stocks with warrants only are significantly larger, have higher trading volumes and have higher volatility when compared with stocks with no exchange-traded derivatives.

Conclusion

By examining the market capitalisation, trading volume and volatility of the S&P/ASX 200 Index constituent stocks with and without exchange-traded derivatives we find that ETO stocks have large market capitalisations relative to warrant-only stocks. This is consistent with Mayhew and Mihov (2004) with respect to market capitalisation. However, when compared with warrant-only stocks, ETO stocks do not have higher relative trading volumes or lower volatility. Consistent with Mayhew and Mihov (2004) when comparing warrant-only stocks with stocks with no exchange-traded derivatives, warrant-only stocks are larger, have higher relative trading volumes and are more volatile.

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Notes

1. Warrants are issued by banks on a one-off basis with a prescribed or 'static' strike price. The warrant issuer must generally make two-way bid and offer quotes in the static warrant strike for 90 per cent of the trading day (ASX 2007). An ETO market maker, however, is 'dynamically' obligated to quote over time on new series of options listed by the exchange with new strike prices, unlike the issuer of the warrant who is quoting on an unchanged product.
2. Trading value comparisons may not be reflective of comparisons between open interest (ETOs) and amounts on issue (warrants).
3. Relative turnover by value differs from relative turnover by volume as the prices of the trades used to calculate the trading value over the six-month period from 1 January to 30 June 2014 differ from the price as at 30 June 2014 when market capitalisation is calculated.
4. As Scentre Group was only listed on 25 June 2014 it was removed from the sample.
5. For Karoon Gas Australia Limited, the 100 trading days prior to it being placed in a trading halt on 25 May 2014 were used to calculate volatility.
6. Our results are robust when we exclude the three stocks that have ETOs but no warrants.

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