

MARKET INSIGHTS

An Encyclopaedia of
Australian Buy-Write Returns
(April 2005-December 2011)



*By Dr. Elvis Jarnecic and Anthony Flint
of the University of Sydney*

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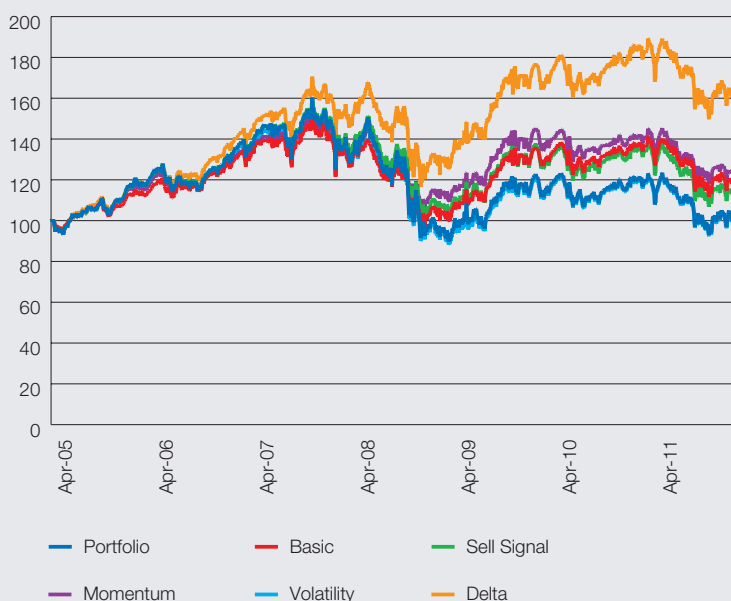
Dr. Elvis Jarnecic, Anthony Flint and Ming Ying Lim

EXECUTIVE SUMMARY

During periods of flat or declining stock returns, option strategies can be implemented to protect the investor against downside risk while improving portfolio performance. This study examines the investment performance of passive and active implementations of a buy-write strategy for both a stock portfolio and on individual stocks traded on the ASX.

A buy-write strategy involves going long an asset while simultaneously writing call options based on the asset. The buy-write strategy may be preferable for investors who are willing to sacrifice upside return for partial downside protection. The time interval examined is from 1 April, 2005 to 22 December, 2011. The key findings of this study are –

- Over the whole time period, each buy-write strategy generates a higher risk-adjusted return relative to a long-only stock portfolio.
- The best performing strategy is the delta strategy, which generates the highest risk-adjusted return amongst all the strategies.
- The weakest strategy is the volatility strategy, which generates the lowest risk-adjusted return amongst all the strategies.
- The outperformance of the different buy-write strategies is greatest during the bear market period of July, 2007 to February, 2009.
- The buy-write strategies generally underperform during the bull market period of April, 2005 to June, 2007.



Introduction

A buy-write option strategy involves writing an option while simultaneously buying the underlying asset. This study examines the risk and return characteristics of passive and active buy-write strategies for stocks traded on the ASX.¹ Specifically, we examine a strategy which involves writing a 1-month equity call option against a long call position in the stock. This limits the upside return, with the upper bound set to the strike price of the call option. However, downside risk is partially protected as the call option premium increases the return relevant to the share price below the strike price. The buy-write strategy may therefore be preferable to holding a long position in the stock, if the investor has an expectation that the price of the stock is not going to increase.

The buy-write strategy can be easily implemented on the ASX. An investor who has an equity position in a stock that wishes to protect against downside risk can trade ASX Equity Exchange Traded Options (ETOs).

Methodology

The study examines the implementation of both passive and active buy-write strategies for stocks with ETOs listed on the ASX and compares the performance of these strategies to the underlying stock performance. Thirty stocks are examined, which are selected based on having the highest total option trading volume for the time period under examination. The time interval examined is from 1 April, 2005 to 22 December, 2011. At the portfolio level, the time period is split into three sub-samples; a bull market period from 1 April 2005 to 30 June, 2007, a bear market period from 1 July, 2007 to 28 February, 2009, and a neutral market period from 1 March, 2009 to 22 December, 2011. Performance measures used to compare the different strategies include:

- Average annual return
- Annualised standard deviation
- Sharpe Ratio²
- Maximum drawdown
- Correlation with the underlying stock
- Minimum and maximum monthly return
- Cumulative Return
- Rolling 12-month annualised return and standard deviation

The trading strategies employed follow mechanical rules to conduct trades, where a trade is always taken based on the rules for that particular strategy. An investor who has an equity position in a stock that wishes to protect against downside risk can trade ASX Equity Exchange Traded Options (ETOs).

1 This study follows a similar approach employed in Bishop, M., Brasher, R., Fitter, A., Gibson, S., Saba, M and Taubman, P. "An Encyclopedia of Australian Buy-Write Strategies and Returns," Goldman Sachs JBWere, July 2004.

2 The Sharpe Ratio is a measure of the excess return per unit of risk of an investment. An issue with the Sharpe Ratio is that when the returns are negative, the investment with the lowest return per unit of risk will have the largest ratio number. In this situation, the strategy with the smallest ratio number is the better strategy.

Strategy 1: Basic Strategy

- A passive buy-write strategy that does not vary with market conditions.
- A buy-write is created through entering a long position in the stock and selling a one-month out-the-money (5% OTM) call option. When the option expires, the option is settled at intrinsic value and a new option is rolled into.³
- At each point when the portfolio is rolled-over, the portfolio is rebalanced to ensure the same ratio of the underlying stock and call options. Returns are calculated using the closing traded price of the stock and option.⁴

Strategy 2: Sell Signal Momentum Strategy, constantly held stock with calls sold after stock sell signal

- Under this strategy, the stock is held for the entire period with no buying or selling. Call options are sold if the momentum indicator generates a sell signal.
- The momentum indicator that is employed is known as the simple moving average cross-over. This study uses the 30-day and the 180-day moving average as the short-term and long-term moving average, respectively.
- The stock is said to be in an upward trend if the short-term moving average (SMA) is above the long-term moving average (LMA) and vice versa. A buy signal is generated if the SMA crosses above the LMA and a sell signal is generated if the SMA crosses below the LMA.
- If in the month prior to the rollover date a sell signal is generated and the SMA is still below the LMA at the rollover date, a 5% OTM call option is sold.

Strategy 3: Momentum Strategy, strike for call chosen according to stock performance

- Call options are constantly sold with different levels of moneyness depending on the momentum indicator signals (discussed above).
- If at the time of rollover the SMA is below the LMA, ATM options are sold. If the SMA is above the LMA then 10% OTM options are sold.
- The lower the strike price the higher the call option premium thus providing better downside protection. If the stock is in an uptrend, an OTM option with a corresponding higher strike price provides a lower call option premium but provides better upside participation.

Strategy 4: Volatility Strategy

- Under this strategy, the stock is held for the entire period with call option selling limited to when implied volatility is relatively high.
- To determine when the implied volatility is high, a volatility index is created measuring the daily average of the implied volatilities of the options on each stock.
- Stock option volatility is considered high if at the rollover date the index is above the 50-day one standard deviation Bollinger band based on the 50-day moving average of the index.
- One of the drivers of buy-write strategy returns is the volatility risk premium, where prior literature documents that the implied volatility of the option is greater than the historical realized volatility over the remaining lifetime of the option.
- Selling a call option during periods of high implied volatility may increase returns if the investor receives an abnormally high volatility risk premium.

³ At time of rollover, if an option expiring next month does not exist then the option chosen is the next closest to expiry.

⁴ Transaction costs are incorporated, with the option and stock bid-ask spreads set at 0.50% and 0.10% each way respectively, and the option and stock commission set at 0.50% and 0.20% each way. This method is used for each subsequent strategy.

Strategy 5: Delta Strategy

- Under this strategy, if the delta of the sold call option moves above 0.85 the sold call option is purchased and another option expiring on the same date that is closest to 5% OTM is sold.
- The delta of the option refers to the sensitivity of the option value to share price changes. The call writer may be facing exercise at maturity when an option is well ITM (i.e. a delta of about 0.80). To avoid this, the position may be modified by buying back the call option while simultaneously selling another call option with a higher strike price.
- An investor may therefore consider modifying the position in the event that the share price moves up strongly over the strike price.

Strategy 6: Periodic Buy-Write Strategy

- The buy-write is constructed after a buy signal. Both the stock and option trade is only conducted after the momentum trigger, rather than the stock always being held with episodic call option sales.
- The periodic buy-write is enacted when in the month prior to the rollover date a buy signal is generated and the SMA is still above the LMA at the rollover date. The call option sold is a 5% OTM call option.
- A stock that continues its upward trend will outperform the periodic buy-write, however this is beneficial as the upside above the strike price has been monetised and the downside is protected.
- Since this strategy is enacted for part of the time, results are comparable to the stock performance for these periods rather than the full analysis periods as for other buy-writes.

Strategy 7: Ex-Dividend Strategy

- Under this strategy, the stock is purchased the day before the ex-dividend day and the stock is held for 46 days following the purchase.
- With the stock held for this period, the return includes franking credits on the franked dividends paid.
- When the underlying stock is purchased, a call option is sold. To access the franking credits, the delta of the call option cannot be greater than 0.7, meaning the net delta position of both the stock and call option must be above 0.3.
- Since this strategy is enacted for part of the time, results are comparable to the stock performance for these periods rather than the full analysis periods as for other buy-writes.

Conclusions

The performance results for each buy-write strategy are provided in the following pages at both the portfolio and individual stock level. For each stock, the individual results pages provide a brief discussion of the performance of the different strategies for each stock. Here we provide some general observations on the performance of the different strategies analysed at the portfolio level.

- The basic buy-write strategy outperforms the portfolio of stocks with a lower annualised standard deviation.
- A stock portfolio with calls sold after various share price increases performs better, with a smaller standard deviation.
- Holding stocks with calls sold with different levels of moneyness provides even better returns with yet a smaller standard deviation.
- The volatility strategy adds little return compared to the stocks' performance.
- The delta strategy provides the best return amongst all other strategy portfolios.
- With a smaller standard deviation, the periodic buy-write strategy outperforms the stock portfolio.
- The ex-dividend strategy outperforms the stock portfolio with a relatively smaller standard deviation.

Portfolio Performance – April 2005 to December 2011

Performance Measures (All 30 Stocks)

	Stocks	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-3.55	3.74	3.20	5.03	0.15	7.25
Annualised Standard Deviation	14.79	12.06	13.21	11.44	14.61	12.77
Sharpe Ratio	-0.61	-0.43	-0.44	-0.34	-0.60	-0.14
Maximum Drawdown	-6.72	-5.04	-6.25	-5.04	-6.63	-6.00
Correlation with Stock	1	0.96853	0.97153	0.95757	0.99888	0.97411
Min Monthly Return	-41.26	-37.67	-37.67	-34.71	-37.67	-37.67
Max Monthly Return	15.19	5.74	6.04	5.96	15.19	6.60
% Up Months	49	52	51	52	49	56
% Down Months	51	48	49	48	51	44

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Periodic
Annualised Return*	2.83	1.09
Annualised Standard Deviation	7.49	5.98
Sharpe Ratio	-0.35	-0.25
Maximum Drawdown	-22.06	-3.66
Correlation with Stock	1	0.87487
Min Monthly Return	-16.78	-13.78
Max Monthly Return	37.54	7.90
% Up Months	53	57
% Down Months	47	43

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Ex-Div
Annualised Return*	17.03	0.64
Annualised Standard Deviation	6.67	5.03
Sharpe Ratio	1.74	2.44
Maximum Drawdown	-20.15	-14.65
Correlation with Stock	1	0.93911
Min Monthly Return	-49.45	-41.37
Max Monthly Return	39.92	21.97
% Up Months	65	71
% Down Months	35	29

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

Bull Market Portfolio Performance – April 2005 to June 2007

Performance Measures (All 30 Stocks)

	Stocks	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	17.78	-1.86	0.44	-1.25	-0.38	2.05
Annualised Standard Deviation	14.79	7.61	9.25	8.07	9.57	8.29
Sharpe Ratio	0.84	1.38	1.38	1.38	1.25	1.74
Maximum Drawdown	-6.72	-5.04	-6.25	-5.04	-6.63	-6.00
Correlation with Stock	1	0.97601	0.99864	0.98493	0.99906	0.98767
Min Monthly Return	-5.48	-37.67	-5.45	-5.21	-5.40	-4.97
Max Monthly Return	6.25	5.74	5.88	4.77	6.17	5.66
% Up Months	73	52	73	73	73	85
% Down Months	27	48	27	27	27	15

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Periodic
Annualised Return*	17.53	-3.36
Annualised Standard Deviation	8.07	6.06
Sharpe Ratio	1.50	1.44
Maximum Drawdown	-5.37	-3.66
Correlation with Stock	1	0.97706
Min Monthly Return	-10.54	-10.18
Max Monthly Return	7.57	5.06
% Up Months	72	76
% Down Months	28	24

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Ex-Div
Annualised Return*	25.39	-5.57
Annualised Standard Deviation	3.95	2.60
Sharpe Ratio	5.05	0.00
Maximum Drawdown	-20.15	-11.76
Correlation with Stock	1	0.93368
Min Monthly Return	-8.83	-6.48
Max Monthly Return	19.71	11.12
% Up Months	67	72
% Down Months	33	28

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

Bear Market Portfolio Performance – July 2007 to February 2009

Performance Measures (All 30 Stocks)

	Stocks	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-41.01	13.61	12.60	19.82	1.93	18.22
Annualised Standard Deviation	17.92	14.62	15.96	14.22	17.60	15.32
Sharpe Ratio	-2.59	-2.25	-2.12	-1.87	-2.53	-1.84
Maximum Drawdown	-4.11	-3.66	-4.38	-4.10	-4.17	-4.43
Correlation with Stock	1	0.97353	0.97497	0.97011	0.999	0.98346
Min Monthly Return	-41.26	-37.67	-37.67	-34.71	-37.67	-37.67
Max Monthly Return	3.86	3.82	4.14	4.40	3.92	4.19
% Up Months	30	30	35	30	30	39
% Down Months	70	70	65	70	70	61

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Periodic
Annualised Return*	-17.67	4.65
Annualised Standard Deviation	5.69	4.26
Sharpe Ratio	-4.06	-4.33
Maximum Drawdown	-36.24	-4.74
Correlation with Stock	1	0.79539
Min Monthly Return	-14.49	-11.90
Max Monthly Return	37.54	7.09
% Up Months	48	62
% Down Months	52	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Ex-Div
Annualised Return*	-20.58	7.46
Annualised Standard Deviation	10.24	6.94
Sharpe Ratio	-2.54	0.00
Maximum Drawdown	0.00	0.00
Correlation with Stock	1	0.95278
Min Monthly Return	-49.45	-41.37
Max Monthly Return	25.95	21.97
% Up Months	47	55
% Down Months	53	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

Neutral Market Portfolio Performance – March 2009 to December 2011

Performance Measures (All 30 Stocks)

	Stocks	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-0.24	3.77	1.55	0.67	0.67	5.58
Annualised Standard Deviation	13.65	11.76	12.63	10.84	13.79	12.49
Sharpe Ratio	-0.42	-0.16	-0.33	-0.24	-0.36	-0.01
Maximum Drawdown	-16.41	-6.02	-6.36	-6.26	-16.41	-6.71
Correlation with Stock	1	0.96051	0.9642	0.94313	0.99981	0.96133
Min Monthly Return	-30.34	-30.34	-30.34	-30.34	-30.34	-30.34
Max Monthly Return	15.19	5.74	6.04	5.96	15.19	6.38
% Up Months	44	44	44	50	44	47
% Down Months	56	56	56	50	56	53

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Periodic
Annualised Return*	-4.70	4.33
Annualised Standard Deviation	6.96	6.07
Sharpe Ratio	-1.46	-0.95
Maximum Drawdown	-7.43	-6.49
Correlation with Stock	1	0.97901
Min Monthly Return	-12.71	-11.42
Max Monthly Return	7.08	6.27
% Up Months	45	47
% Down Months	55	53

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	Stocks	Ex-Div
Annualised Return*	37.05	-4.60
Annualised Standard Deviation	6.59	3.59
Sharpe Ratio	4.80	0.00
Maximum Drawdown	0.00	0.00
Correlation with Stock	1	0.91441
Min Monthly Return	-31.19	-31.19
Max Monthly Return	39.92	19.30
% Up Months	69	79
% Down Months	31	21

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

AMC – Sample Period April 2005 to December 2011

Performance Measures

	AMC	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	1.69	6.72	6.72	7.78	1.79	7.95
Annualised Standard Deviation	19.67	18.59	19.58	18.71	19.85	18.56
Sharpe Ratio	-0.19	0.16	0.15	0.22	-0.10	0.23
Maximum Drawdown	-6.56	-6.73	-6.56	-11.58	-6.56	-6.73
Correlation with Stock	1	0.97505	0.97986	0.93534	0.99642	0.98537
Min Monthly Return	-20	-19	-19	-17	-20	-19
Max Monthly Return	15	17	16	18	17	14
% Up Months	54	65	60	61	56	65
% Down Months	46	35	40	39	44	35

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

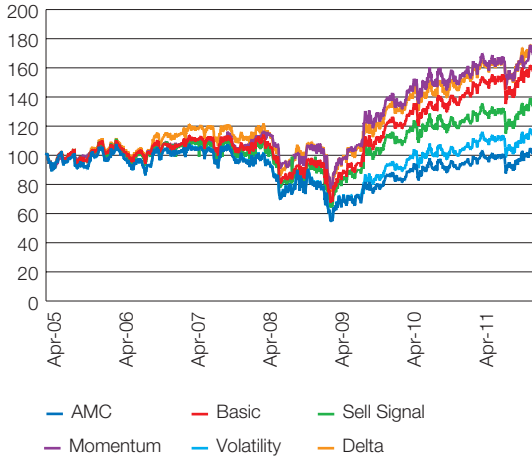
	AMC	Periodic
Annualised Return*	2.65	4.54
Annualised Standard Deviation	13.36	11.88
Sharpe Ratio	-0.21	0.15
Maximum Drawdown	-9.73	-9.13
Correlation with Stock	1	0.98208
Min Monthly Return	-10	-9
Max Monthly Return	7	7
% Up Months	59	59
% Down Months	41	41

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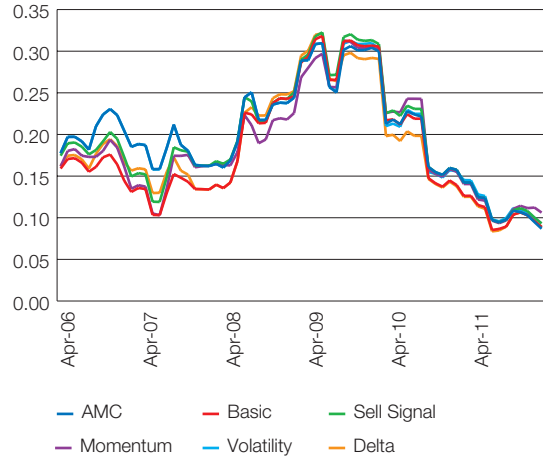
	AMC	Ex-Div
Annualised Return*	28.98	-0.93
Annualised Standard Deviation	18.30	12.22
Sharpe Ratio	1.29	1.85
Maximum Drawdown	-14.29	-9.82
Correlation with Stock	1	0.96792
Min Monthly Return	-4	-2
Max Monthly Return	13	11
% Up Months	71	79
% Down Months	29	21

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

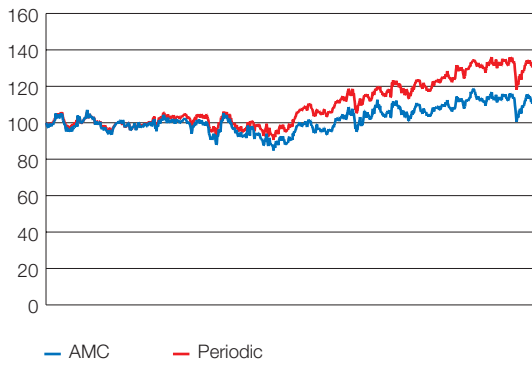
*Growth of \$100
April 2005 to December 2011*



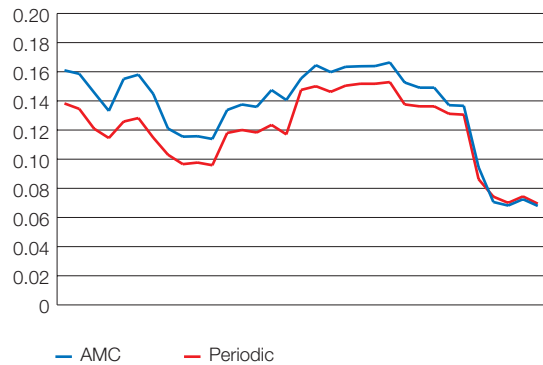
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



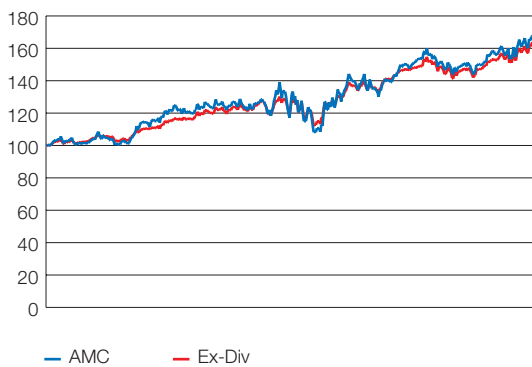
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good returns from constructing buy-writes after a buy signal. Constantly sold call options gives excellent excess returns. These returns are further improved by selling options dependent upon their moneyness. Best excess returns earned from rolling of call options when delta of call option moves above its benchmark.

AMP – Sample Period April 2005 to December 2011

Performance Measures

	AMP	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-7.23	8.61	8.61	12.15	0.58	9.44
Annualised Standard Deviation	21.07	18.30	18.70	16.80	21.05	19.01
Sharpe Ratio	-0.60	-0.22	-0.22	-0.03	-0.57	-0.17
Maximum Drawdown	-8.70	-8.25	-8.25	-7.48	-8.70	-8.29
Correlation with Stock	1	0.97955	0.98012	0.90349	0.99922	0.98596
Min Monthly Return	-25	-21	-21	-19	-25	-21
Max Monthly Return	14	11	11	10	14	13
% Up Months	46	55	54	58	48	55
% Down Months	54	45	46	43	53	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

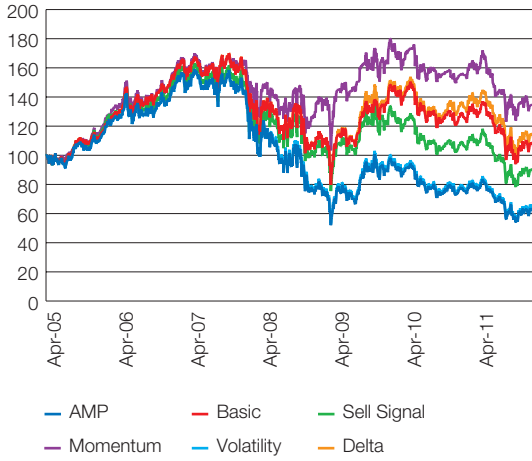
	AMP	Periodic
Annualised Return*	1.19	6.36
Annualised Standard Deviation	17.29	15.99
Sharpe Ratio	-0.25	0.13
Maximum Drawdown	-38.55	-26.84
Correlation with Stock	1	0.9858
Min Monthly Return	-15	-13
Max Monthly Return	7	7
% Up Months	59	59
% Down Months	41	41

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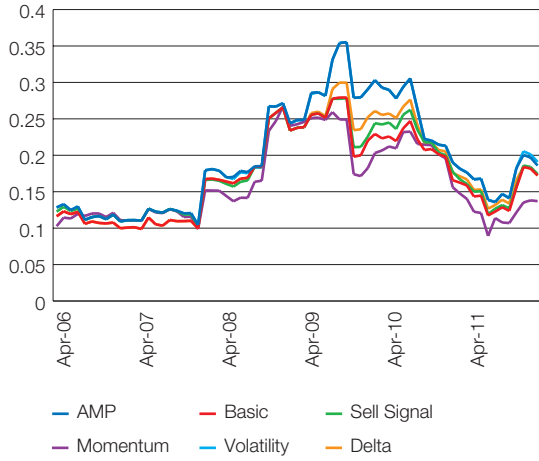
	AMP	Ex-Div
Annualised Return*	58.26	-11.68
Annualised Standard Deviation	40.09	15.73
Sharpe Ratio	1.32	2.62
Maximum Drawdown	-49.06	-21.29
Correlation with Stock	1	0.94922
Min Monthly Return	-3	0
Max Monthly Return	40	19
% Up Months	67	100
% Down Months	33	0

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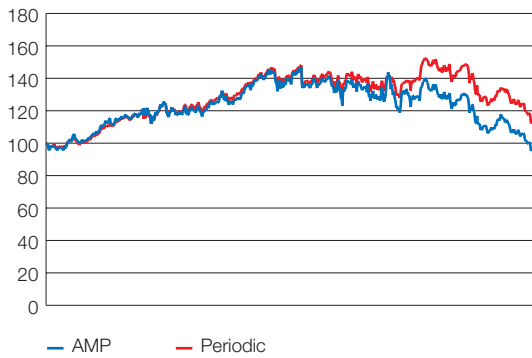
*Growth of \$100
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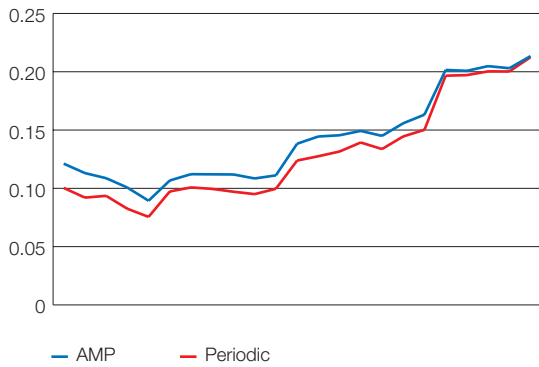
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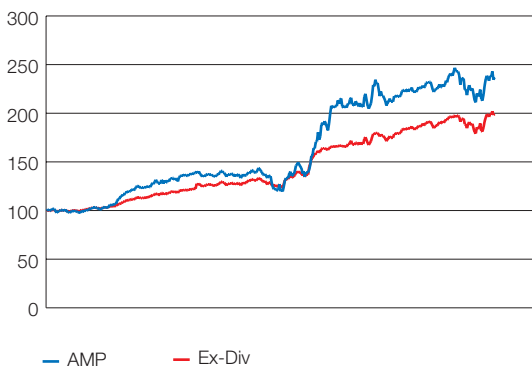
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Good excess returns from constantly sold calls, improved however by selling calls dependent upon their moneyness. Excellent returns from constructing buy-writes only after a buy signal.

ANZ – Sample Period April 2005 to December 2011

Performance Measures

	ANZ	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-0.73	0.17	0.17	3.76	-1.47	2.79
Annualised Standard Deviation	23.04	18.30	20.27	18.10	21.98	19.74
Sharpe Ratio	-0.27	-0.33	-0.30	-0.13	-0.35	-0.17
Maximum Drawdown	-8.30	-4.95	-8.30	-5.24	-8.30	-5.05
Correlation with Stock	1	0.93839	0.95368	0.90548	0.96772	0.97386
Min Monthly Return	-17	-16	-16	-15	-17	-16
Max Monthly Return	17	11	14	13	14	14
% Up Months	54	56	55	63	56	56
% Down Months	46	44	45	38	44	44

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

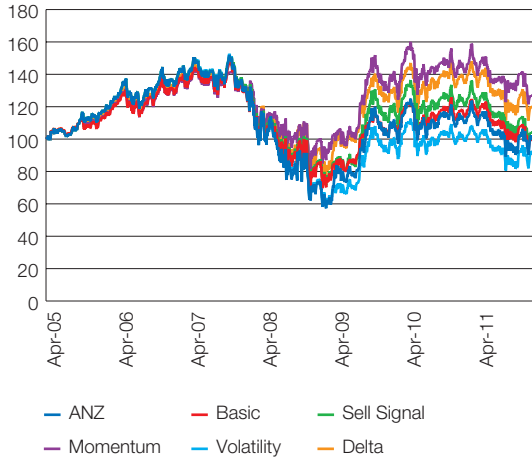
	ANZ	Periodic
Annualised Return*	7.55	-1.13
Annualised Standard Deviation	18.20	15.22
Sharpe Ratio	0.12	0.06
Maximum Drawdown	-21.19	-18.00
Correlation with Stock	1	0.95699
Min Monthly Return	-10	-10
Max Monthly Return	14	7
% Up Months	59	61
% Down Months	41	39

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

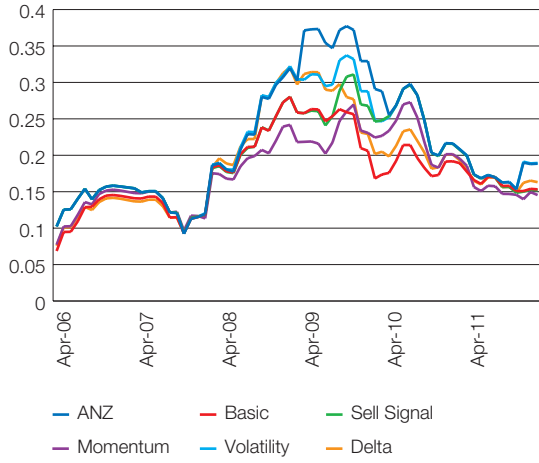
	ANZ	Ex-Div
Annualised Return*	-44.54	27.63
Annualised Standard Deviation	19.44	13.75
Sharpe Ratio	-2.57	-1.62
Maximum Drawdown	0.00	0.00
Correlation with Stock	1	0.96086
Min Monthly Return	-21	-10
Max Monthly Return	3	5
% Up Months	22	33
% Down Months	78	67

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

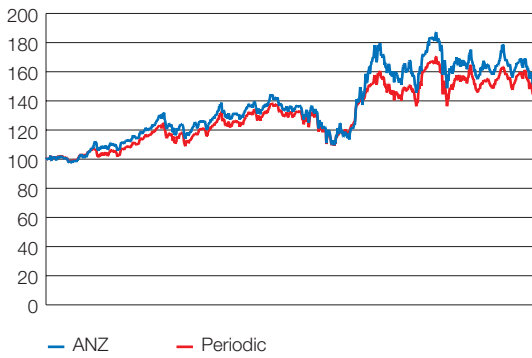
*Growth of \$100
April 2005 to December 2011*



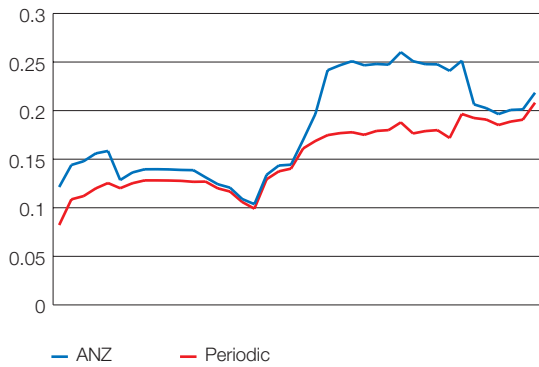
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



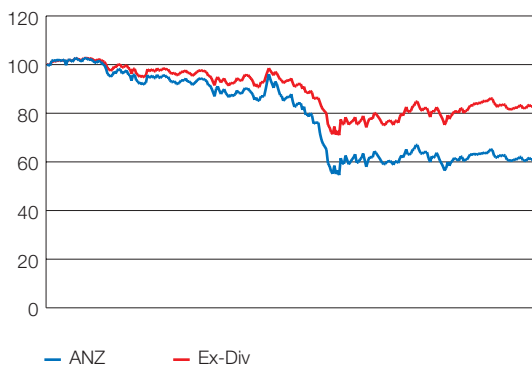
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Good excess returns from selling calls according to the varied option moneyness. Excess returns also earned from rolling of call options when delta of call is above benchmark. Excellent excess returns obtained from buying stock and selling call before the ex-dividend day.

AWC – Sample Period April 2005 to December 2011

Performance Measures

	AWC	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-24.02	10.05	10.05	13.08	-1.18	10.54
Annualised Standard Deviation	39.42	32.59	36.20	32.27	38.92	34.32
Sharpe Ratio	-0.75	-0.60	-0.54	-0.51	-0.79	-0.55
Maximum Drawdown	-16.67	-9.59	-16.67	-13.87	-16.67	-11.80
Correlation with Stock	1	0.95905	0.9764	0.95134	0.99795	0.97135
Min Monthly Return	-51	-42	-42	-42	-51	-42
Max Monthly Return	22	17	22	18	22	19
% Up Months	45	53	49	53	45	53
% Down Months	55	48	51	48	55	48

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

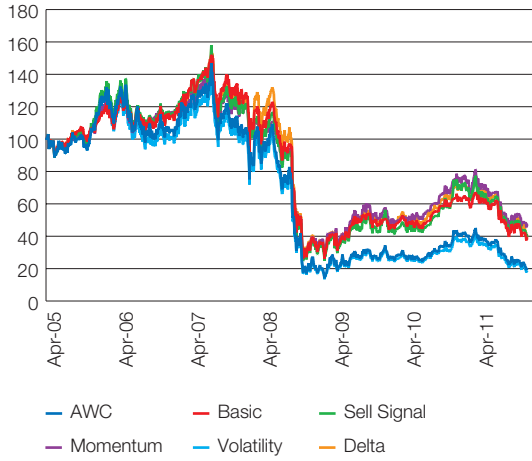
	AWC	Periodic
Annualised Return*	8.53	-1.37
Annualised Standard Deviation	27.41	16.05
Sharpe Ratio	0.11	0.11
Maximum Drawdown	-50.87	-36.43
Correlation with Stock	1	0.92902
Min Monthly Return	-14	-10
Max Monthly Return	21	9
% Up Months	41	56
% Down Months	59	44

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

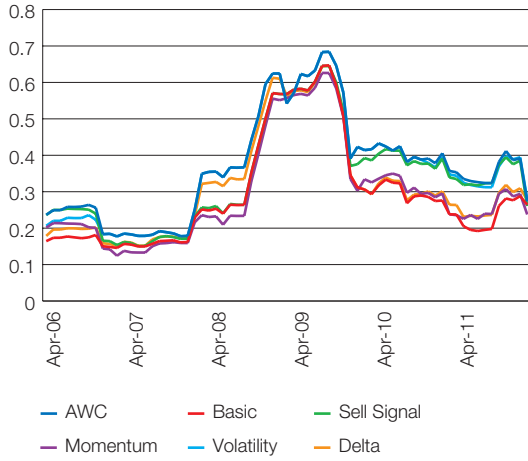
	AWC	Ex-Div
Annualised Return*	-33.25	16.76
Annualised Standard Deviation	40.19	35.24
Sharpe Ratio	-0.96	-0.62
Maximum Drawdown	-0.92	-8.04
Correlation with Stock	1	0.9948
Min Monthly Return	-49	-41
Max Monthly Return	9	8
% Up Months	50	60
% Down Months	50	40

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

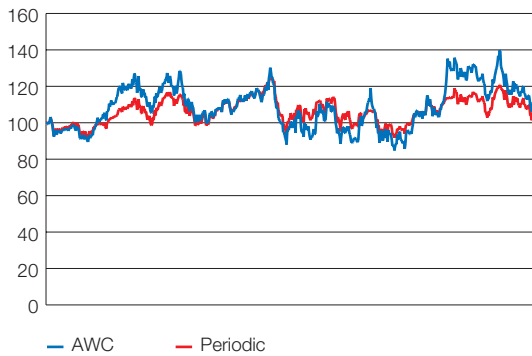
*Growth of \$100
April 2005 to December 2011*



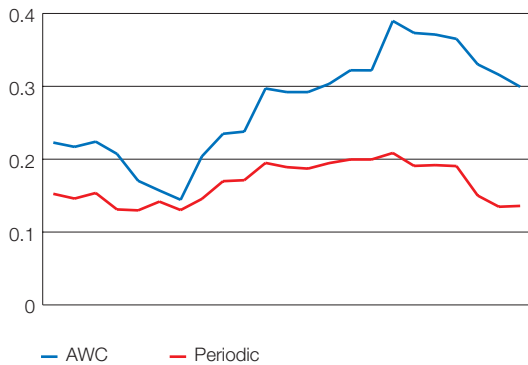
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



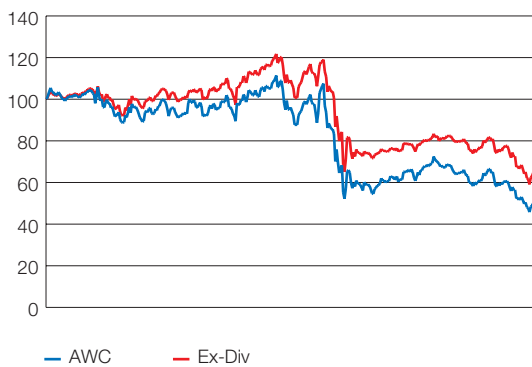
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constantly sold calls, improved by selling calls dependent upon their moneyness. Buying stock and selling call before the ex-dividend day provides excellent returns.

BHP – Sample Period April 2005 to December 2011

Performance Measures

	BHP	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	11.55	0.81	0.81	3.10	0.00	6.08
Annualised Standard Deviation	25.32	20.69	23.48	21.64	25.32	22.16
Sharpe Ratio	0.24	0.33	0.30	0.43	0.24	0.55
Maximum Drawdown	-15.96	-8.90	-15.96	-14.96	-15.96	-14.98
Correlation with Stock	1	0.93616	0.95933	0.91443	1	0.97169
Min Monthly Return	-29	-25	-25	-22	-29	-25
Max Monthly Return	17	15	15	15	17	15
% Up Months	58	64	60	61	58	63
% Down Months	43	36	40	39	43	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

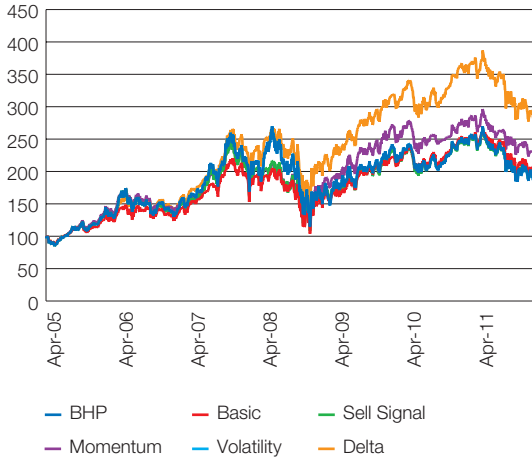
	BHP	Periodic
Annualised Return*	17.97	0.68
Annualised Standard Deviation	22.79	17.56
Sharpe Ratio	0.55	0.75
Maximum Drawdown	-42.58	-33.54
Correlation with Stock	1	0.96011
Min Monthly Return	-13	-12
Max Monthly Return	13	9
% Up Months	60	71
% Down Months	40	29

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

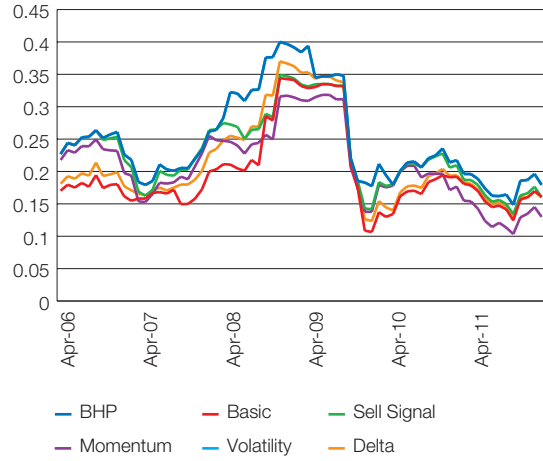
	BHP	Ex-Div
Annualised Return*	23.42	-4.10
Annualised Standard Deviation	33.40	25.85
Sharpe Ratio	0.54	0.54
Maximum Drawdown	-21.78	-9.68
Correlation with Stock	1	0.94711
Min Monthly Return	-32	-27
Max Monthly Return	20	10
% Up Months	77	77
% Down Months	23	23

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

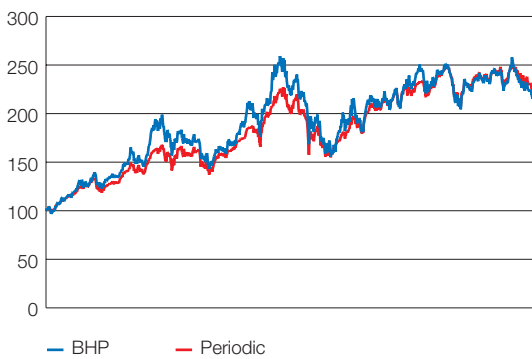
*Growth of \$100
April 2005 to December 2011*



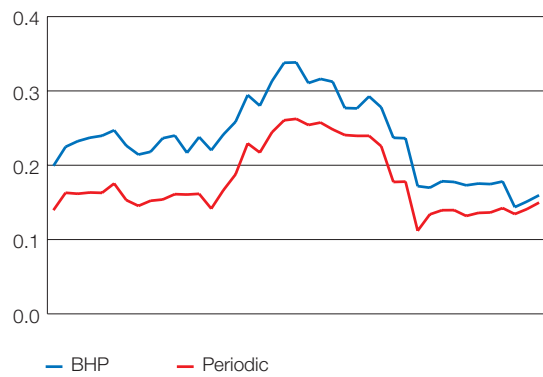
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



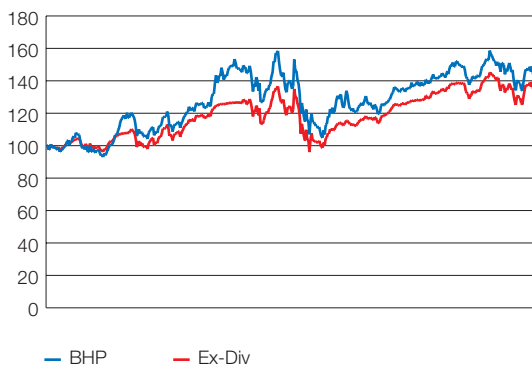
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Constantly sold call options gives good excess returns, especially if dependent upon moneyness. Good absolute returns from buy-writes executed only after a buy signal. Rolling of call options when delta of option is above benchmark provides excellent excess returns.

CBA – Sample Period April 2005 to December 2011

Performance Measures

	CBA	Basic	Sell Signal	Momentum	Volatility	Strategy 65)
Annualised Return*	4.58	1.05	1.05	0.88	0.70	2.48
Annualised Standard Deviation	21.35	18.76	19.82	18.13	21.30	19.17
Sharpe Ratio	-0.04	0.01	0.01	0.00	-0.01	0.09
Maximum Drawdown	-9.06	-7.87	-9.06	-9.04	-9.06	-7.87
Correlation with Stock	1	0.96826	0.97487	0.9219	0.99904	0.98477
Min Monthly Return	-18	-16	-17	-16	-18	-16
Max Monthly Return	15	9	12	12	16	12
% Up Months	63	64	64	64	63	64
% Down Months	38	36	36	36	38	36

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

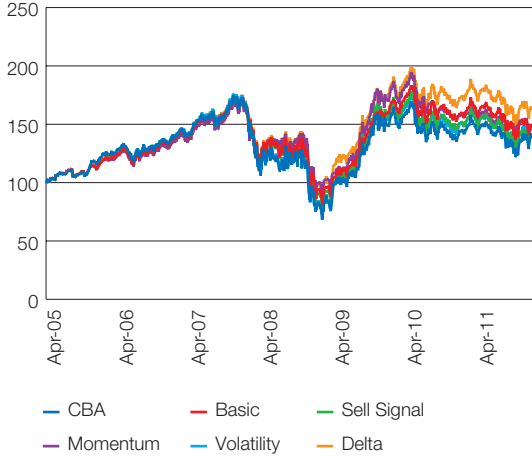
	CBA	Periodic
Annualised Return*	5.42	1.29
Annualised Standard Deviation	18.15	16.45
Sharpe Ratio	0.00	0.08
Maximum Drawdown	-40.29	-36.47
Correlation with Stock	1	0.98489
Min Monthly Return	-0.21	-0.18
Max Monthly Return	0.10	0.07
% Up Months	0.69	0.71
% Down Months	0.31	0.29

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

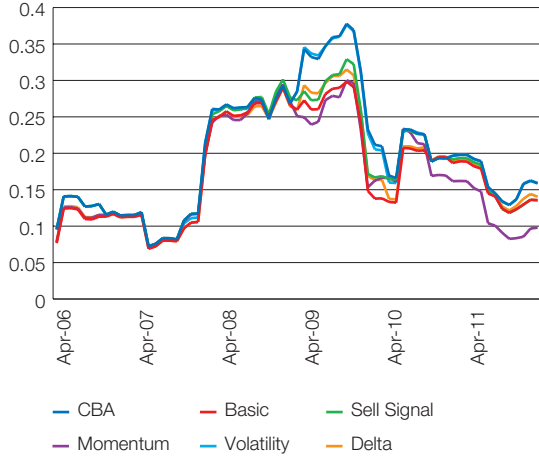
	CBA	Ex-Div
Annualised Return*	77.05	-13.18
Annualised Standard Deviation	24.93	18.17
Sharpe Ratio	2.87	3.22
Maximum Drawdown	-29.63	-24.56
Correlation with Stock	1	0.94687
Min Monthly Return	-1	3
Max Monthly Return	26	22
% Up Months	90	100
% Down Months	10	0

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

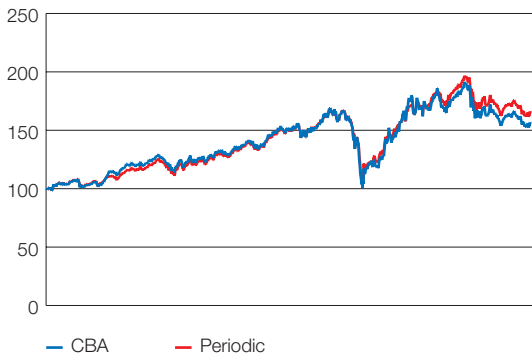
*Growth of \$100
April 2005 to December 2011*



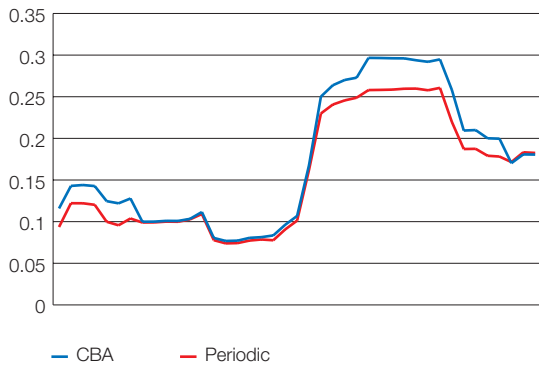
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



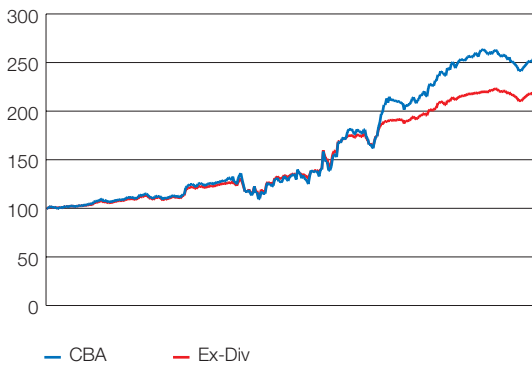
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns selling calls constantly over a stock position or after buy signals. Very good excess returns from rolling of call options when delta of option is above benchmark.

CSL – Sample Period April 2005 to December 2011

Performance Measures

	CSL	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	16.75	-2.01	-2.01	-2.69	-2.23	3.30
Annualised Standard Deviation	24.12	18.38	21.75	17.55	22.58	20.24
Sharpe Ratio	0.47	0.51	0.43	0.49	0.40	0.72
Maximum Drawdown	-21.15	-11.18	-21.15	-11.40	-21.15	-12.64
Correlation with Stock	1	0.95042	0.98335	0.89787	0.97133	0.95733
Min Monthly Return	-16	-12	-12	-12	-16	-12
Max Monthly Return	19	13	19	12	17	16
% Up Months	60	59	59	64	60	59
% Down Months	40	41	41	36	40	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

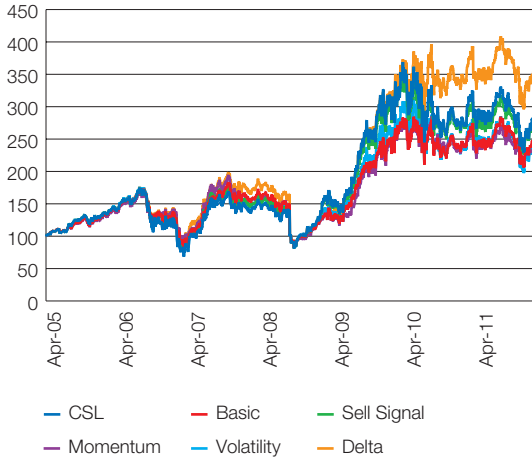
	CSL	Periodic
Annualised Return*	13.35	-2.99
Annualised Standard Deviation	25.22	18.67
Sharpe Ratio	0.31	0.26
Maximum Drawdown	-48.42	-37.62
Correlation with Stock	1	0.94607
Min Monthly Return	-13	-12
Max Monthly Return	19	7
% Up Months	56	63
% Down Months	44	37

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

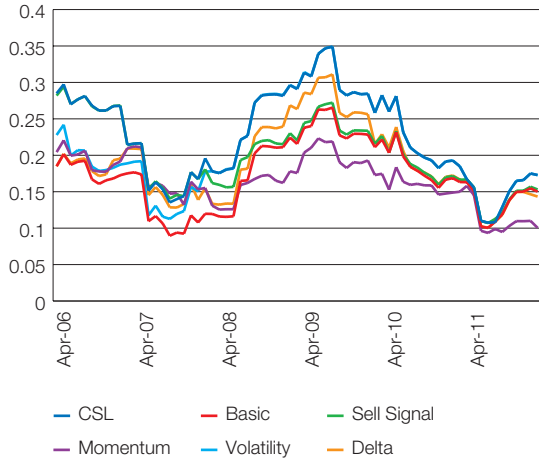
	CSL	Ex-Div
Annualised Return*	38.83	-20.35
Annualised Standard Deviation	22.66	16.96
Sharpe Ratio	1.47	0.77
Maximum Drawdown	-17.88	-9.04
Correlation with Stock	1	0.72407
Min Monthly Return	-9	-8
Max Monthly Return	16	10
% Up Months	83	75
% Down Months	17	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

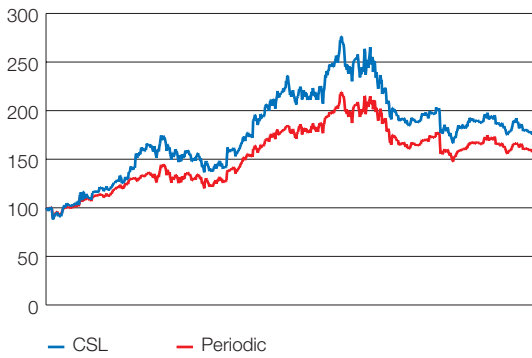
*Growth of \$100
April 2005 to December 2011*



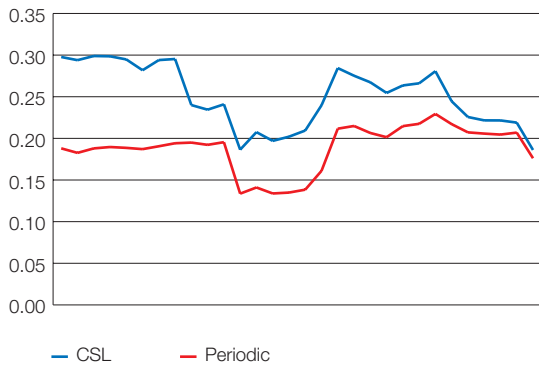
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



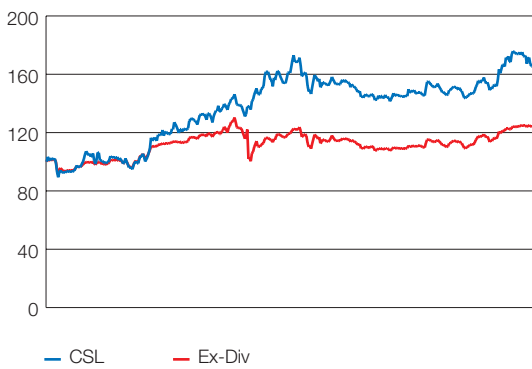
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Very good excess returns earned from rolling of call options based on benchmark delta.

CSR – Sample Period April 2005 to December 2011

Performance Measures

	CSR	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-19.16	0.59	0.59	1.32	-0.06	5.10
Annualised Standard Deviation	39.88	31.38	34.54	30.67	39.34	33.81
Sharpe Ratio	-0.62	-0.76	-0.69	-0.76	-0.63	-0.58
Maximum Drawdown	-21.84	-8.94	-21.84	-11.40	-21.84	-11.97
Correlation with Stock	1	0.95042	0.98335	0.89787	0.97133	0.95733
Min Monthly Return	-46	-43	-43	-43	-46	-43
Max Monthly Return	26	14	20	15	26	22
% Up Months	44	46	46	45	43	46
% Down Months	56	54	54	55	58	54

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

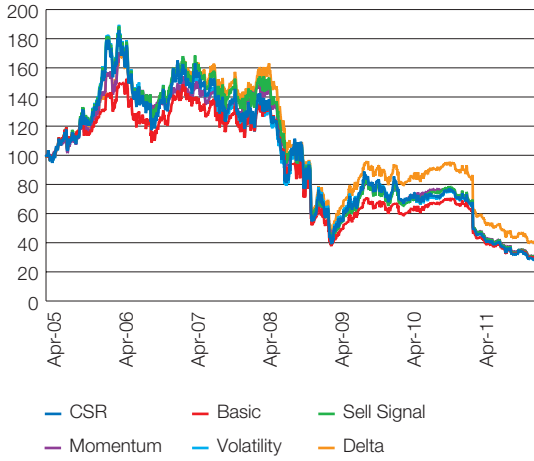
	CSR	Periodic
Annualised Return*	-9.89	-0.70
Annualised Standard Deviation	28.82	20.13
Sharpe Ratio	-0.53	-0.80
Maximum Drawdown	-79.94	-58.55
Correlation with Stock	1	0.9241
Min Monthly Return	-15	-14
Max Monthly Return	17	8
% Up Months	40	51
% Down Months	60	49

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

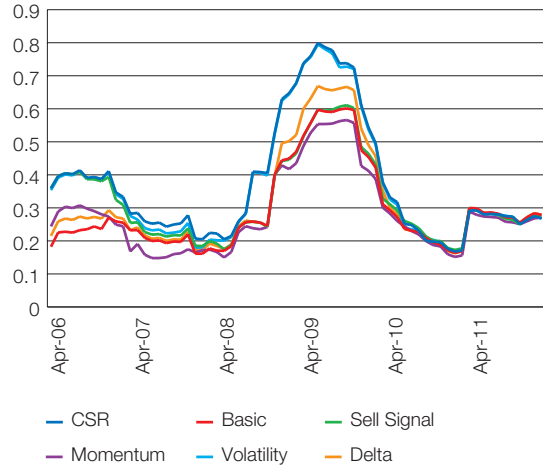
	CSR	Ex-Div
Annualised Return*	-28.03	7.67
Annualised Standard Deviation	41.61	33.48
Sharpe Ratio	-0.80	-0.77
Maximum Drawdown	-21.59	-9.07
Correlation with Stock	1	0.9571
Min Monthly Return	-34	-31
Max Monthly Return	20	12
% Up Months	43	43
% Down Months	57	57

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

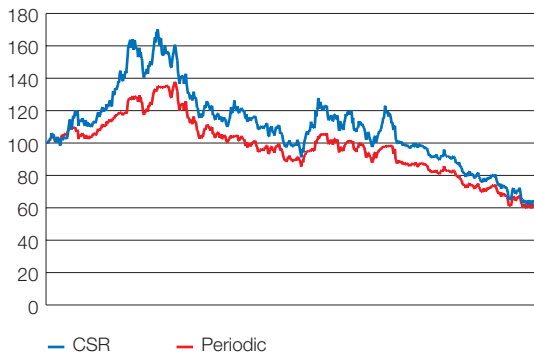
*Growth of \$100
April 2005 to December 2011*



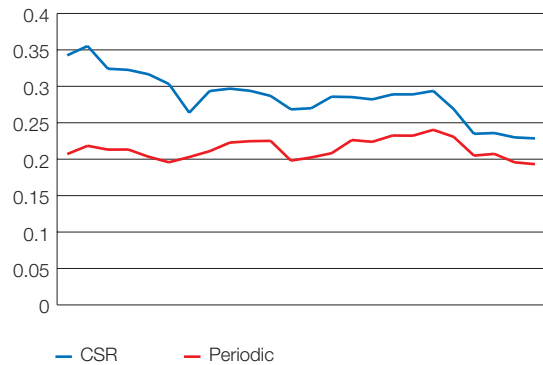
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



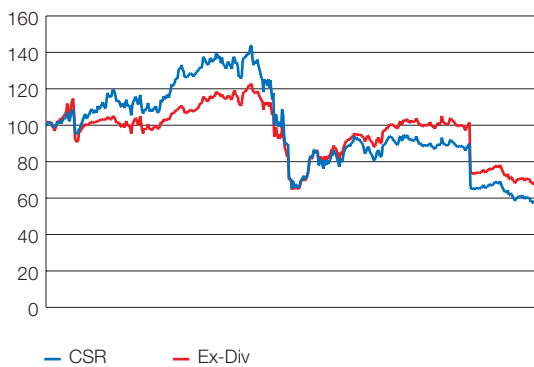
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Excess returns from constantly sold calls, improved by selling calls dependent upon moneyness. Good excess returns from rolling of call options dependent upon benchmark delta. Very good excess returns earned from buying stock and selling call before the ex-dividend day.

FXJ – Sample Period April 2005 to December 2011

Performance Measures

	FXJ	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-25.12	9.49	9.49	13.49	0.60	11.14
Annualised Standard Deviation	34.13	28.89	30.32	27.57	33.25	29.72
Sharpe Ratio	-0.90	-0.73	-0.69	-0.62	-0.90	-0.65
Maximum Drawdown	-10.29	-7.10	-10.30	-10.72	-10.29	-9.61
Correlation with Stock	1	0.95063	0.96769	0.9383	0.99598	0.95574
Min Monthly Return	-41	-38	-38	-35	-38	-38
Max Monthly Return	19	17	17	14	19	17
% Up Months	44	54	51	55	44	55
% Down Months	56	46	49	45	56	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

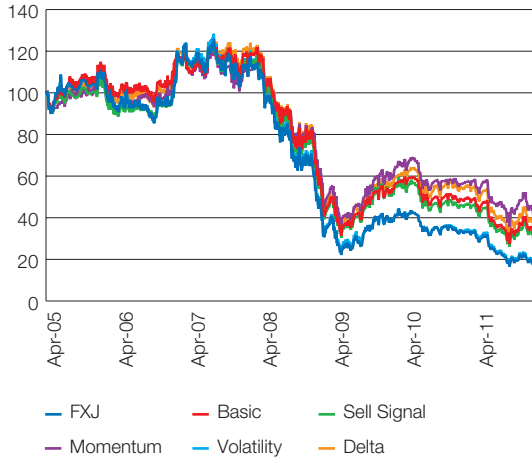
	FXJ	Periodic
Annualised Return*	6.81	0.78
Annualised Standard Deviation	26.00	19.48
Sharpe Ratio	0.05	0.11
Maximum Drawdown	-20.83	-18.57
Correlation with Stock	1	0.93
Min Monthly Return	-18	-17
Max Monthly Return	16	8
% Up Months	50	63
% Down Months	50	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

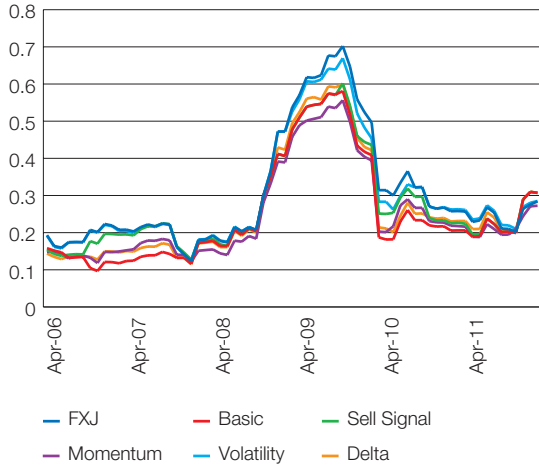
	FXJ	Ex-Div
Annualised Return*	11.65	2.83
Annualised Standard Deviation	34.63	28.44
Sharpe Ratio	0.18	0.32
Maximum Drawdown	-18.73	-8.27
Correlation with Stock	1	0.96906
Min Monthly Return	-25	-19
Max Monthly Return	18	18
% Up Months	75	75
% Down Months	25	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

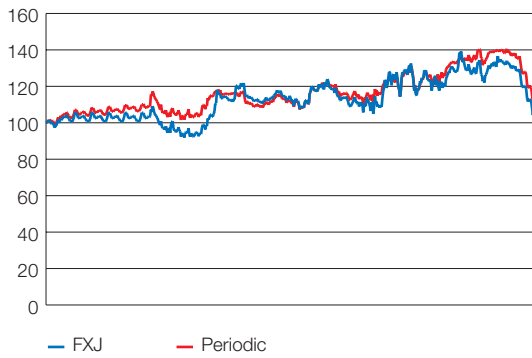
*Growth of \$100
April 2005 to December 2011*



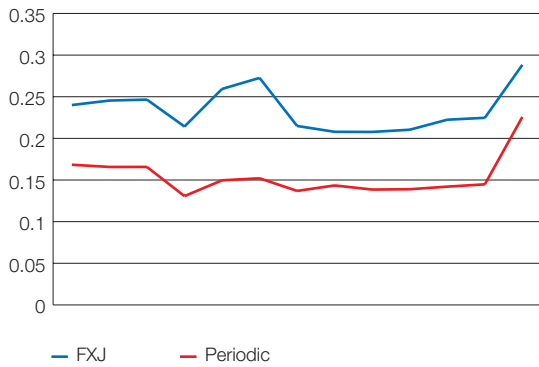
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



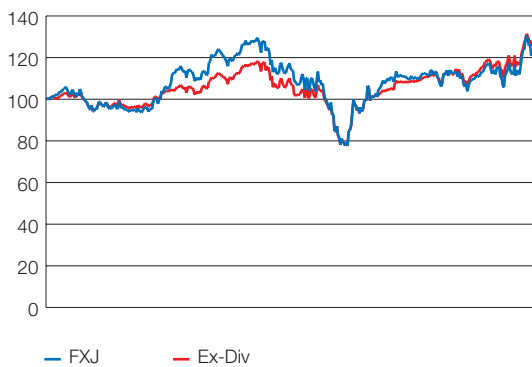
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Very good excess returns from constantly selling calls. Excellent excess returns by selling options dependent on their moneyness. Buy-write executed only after buy signals also generates very good excess returns. Good excess returns also earned from rolling of call options when delta is above benchmark and from execution of the ex-dividend strategy.

GPT – Sample Period April 2005 to December 2011

Performance Measures

	GPT	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-26.80	16.26	16.26	14.86	2.07	15.94
Annualised Standard Deviation	38.48	36.07	36.65	35.76	37.88	35.30
Sharpe Ratio	-0.84	-0.44	-0.44	-0.49	-0.80	-0.46
Maximum Drawdown	-9.32	-5.86	-9.32	-6.37	-9.32	-7.95
Correlation with Stock	1	0.96599	0.97772	0.95564	0.9972	0.97204
Min Monthly Return	-85	-80	-80	-80	-80	-80
Max Monthly Return	23	27	27	27	23	21
% Up Months	55	63	58	58	56	64
% Down Months	45	38	43	43	44	36

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

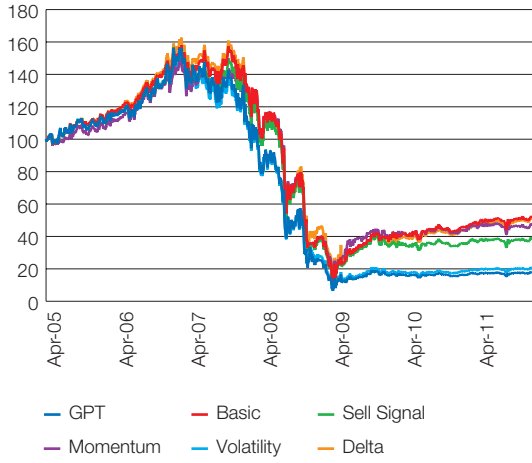
	GPT	Periodic
Annualised Return*	6.82	8.23
Annualised Standard Deviation	13.15	11.82
Sharpe Ratio	0.11	0.81
Maximum Drawdown	-19.47	-12.38
Correlation with Stock	1	0.95631
Min Monthly Return	-11	-8
Max Monthly Return	9	9
% Up Months	62	67
% Down Months	38	33

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

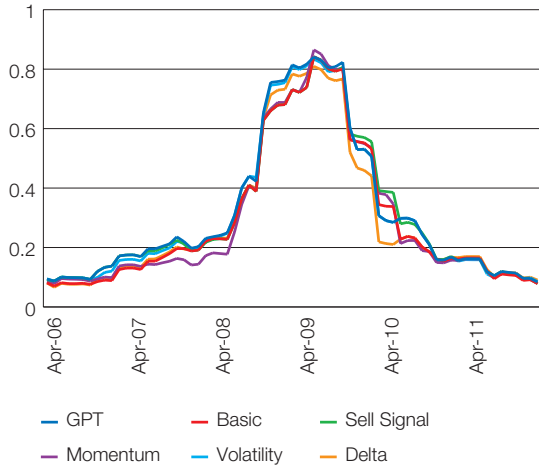
	GPT	Ex-Div
Annualised Return*	14.47	-0.01
Annualised Standard Deviation	31.88	23.14
Sharpe Ratio	0.28	0.39
Maximum Drawdown	-12.51	-9.53
Correlation with Stock	1	0.91925
Min Monthly Return	-43	-35
Max Monthly Return	25	15
% Up Months	62	81
% Down Months	38	19

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

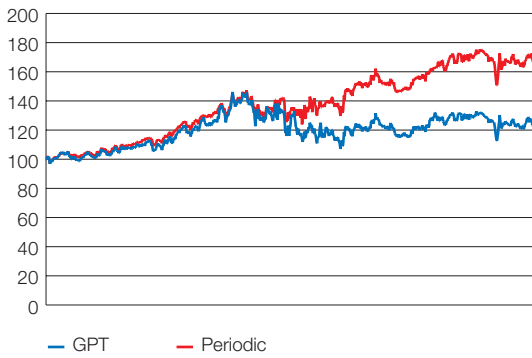
*Growth of \$100
April 2005 to December 2011*



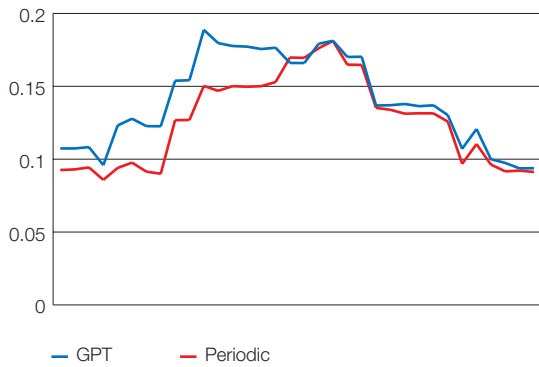
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



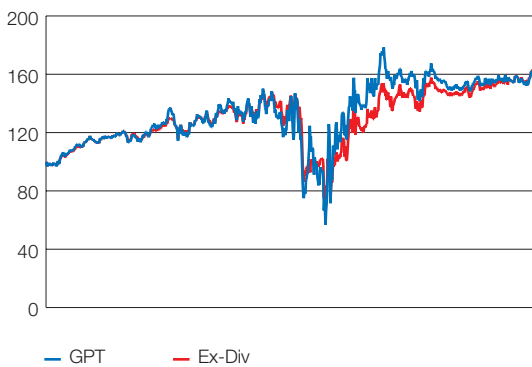
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Excellent excess returns selling calls under any strategy. Good absolute returns from buy-write constructed after buy signals.

IAG – Sample Period April 2005 to December 2011

Performance Measures

	IAG	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-10.25	6.93	6.93	8.28	-0.07	7.92
Annualised Standard Deviation	19.58	15.89	17.11	15.23	19.55	16.52
Sharpe Ratio	-0.80	-0.55	-0.51	-0.49	-0.81	-0.47
Maximum Drawdown	0.00	0.00	0.00	0.00	0.00	0.00
Correlation with Stock	1	0.97025	0.97222	0.95512	0.99796	0.989
Min Monthly Return	-15	-12	-14	-13	-15	-12
Max Monthly Return	17	10	10	10	17	11
% Up Months	45	55	53	56	46	55
% Down Months	55	45	48	44	54	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

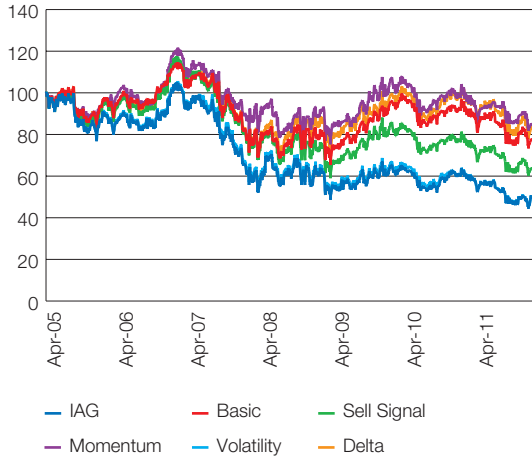
	IAG	Periodic
Annualised Return*	-20.01	8.08
Annualised Standard Deviation	20.30	17.48
Sharpe Ratio	-1.25	-0.99
Maximum Drawdown	-61.81	-40.23
Correlation with Stock	1	0.98118
Min Monthly Return	-16	-14
Max Monthly Return	10	6
% Up Months	39	39
% Down Months	61	61

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

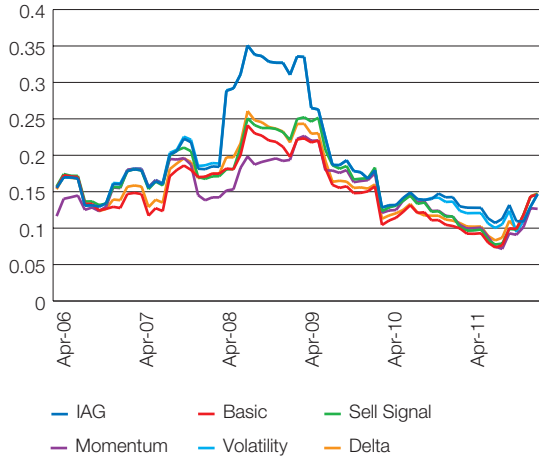
	IAG	Ex-Div
Annualised Return*	31.73	2.44
Annualised Standard Deviation	23.37	14.58
Sharpe Ratio	1.13	1.97
Maximum Drawdown	-23.75	-10.62
Correlation with Stock	1	0.90322
Min Monthly Return	-8	-4
Max Monthly Return	21	10
% Up Months	58	67
% Down Months	42	33

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

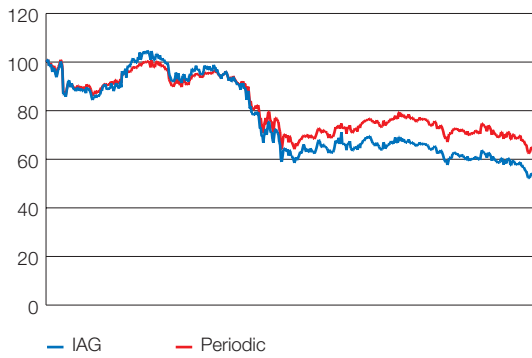
*Growth of \$100
April 2005 to December 2011*



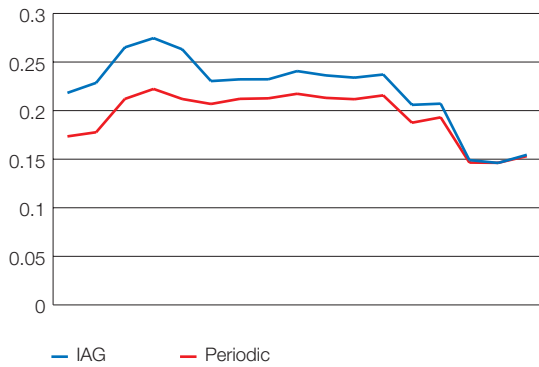
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



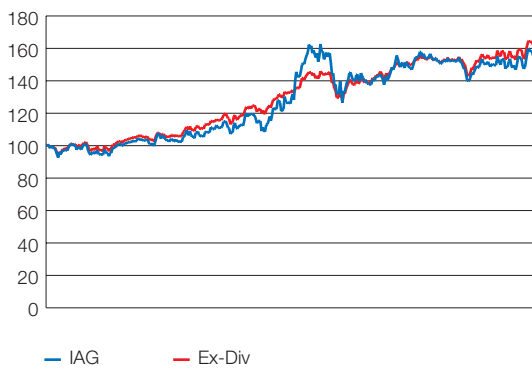
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Very good excess return selling calls under any strategy except the volatility strategy. This is improved when calls are sold dependent upon their moneyness. Some excess returns also earned from buying stock and selling call before the ex-dividend day.

NAB – Sample Period April 2005 to December 2011

Performance Measures

	NAB	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-3.30	0.16	0.16	1.43	-0.66	3.74
Annualised Standard Deviation	22.56	19.43	20.89	18.29	21.79	20.11
Sharpe Ratio	-0.39	-0.44	-0.41	-0.40	-0.43	-0.25
Maximum Drawdown	-8.26	-4.92	-8.26	-7.93	-8.26	-5.39
Correlation with Stock	1	0.9348	0.939	0.88806	0.99763	0.96112
Min Monthly Return	-18	-17	-17	-15	-18	-17
Max Monthly Return	16	9	16	11	14	12
% Up Months	51	56	56	58	50	56
% Down Months	49	44	44	43	50	44

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

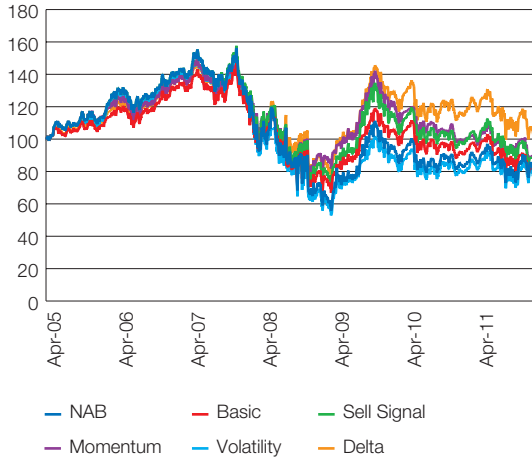
	NAB	Periodic
Annualised Return*	3.24	-2.25
Annualised Standard Deviation	17.20	14.15
Sharpe Ratio	-0.13	-0.31
Maximum Drawdown	-34.99	-31.22
Correlation with Stock	1	0.96518
Min Monthly Return	-9	-9
Max Monthly Return	12	7
% Up Months	49	51
% Down Months	51	49

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

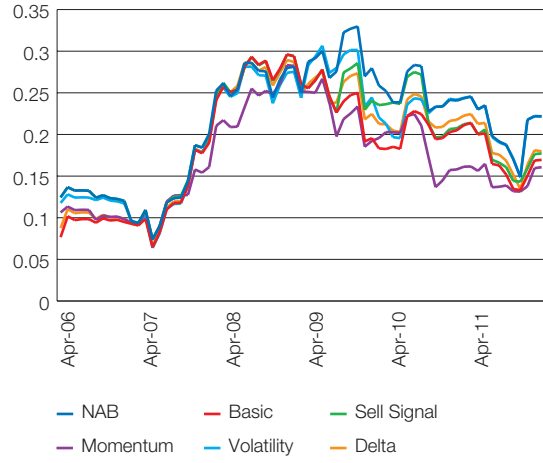
	NAB	Ex-Div
Annualised Return*	-14.66	9.86
Annualised Standard Deviation	15.70	13.00
Sharpe Ratio	-1.28	-0.79
Maximum Drawdown	-4.33	-4.26
Correlation with Stock	1	0.98739
Min Monthly Return	-12	-9
Max Monthly Return	7	7
% Up Months	42	50
% Down Months	58	50

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

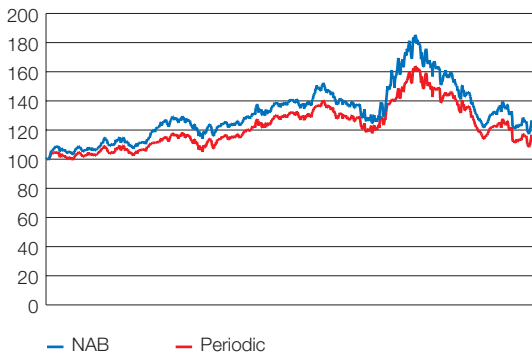
Growth of \$100
April 2005 to December 2011



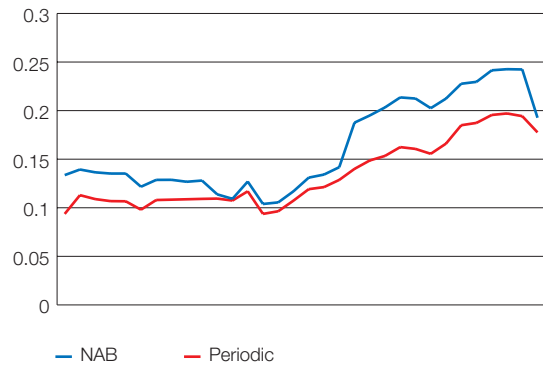
Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



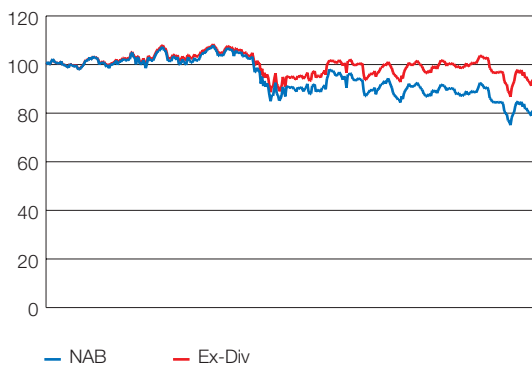
Growth of \$100
April 2005 to December 2011



Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



Growth of \$100
April 2005 to December 2011



Conclusion

Excess returns from selling calls constantly, especially when calls sold dependent upon their moneyness. Very good excess returns from buying stock and selling calls before ex-dividend day. Good absolute returns earned from rolling of call options based on delta of the option.

NCM – Sample Period April 2005 to December 2011

Performance Measures

	NCM	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	10.90	3.93	3.93	1.37	0.09	12.62
Annualised Standard Deviation	37.20	28.88	32.72	29.13	36.91	32.36
Sharpe Ratio	0.15	0.33	0.29	0.23	0.15	0.56
Maximum Drawdown	-20.71	-16.08	-23.48	-13.80	-20.71	-18.52
Correlation with Stock	1	0.94945	0.96327	0.89615	0.99257	0.97631
Min Monthly Return	-28	-25	-25	-23	-28	-25
Max Monthly Return	32	23	23	21	32	29
% Up Months	58	65	56	60	59	65
% Down Months	43	35	44	40	41	35

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

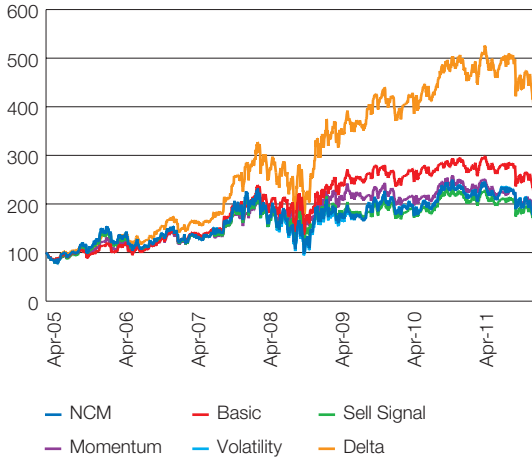
	NCM	Periodic
Annualised Return*	-2.47	6.84
Annualised Standard Deviation	29.93	22.67
Sharpe Ratio	-0.26	-0.05
Maximum Drawdown	-43.72	-24.33
Correlation with Stock	1	0.91885
Min Monthly Return	-19	-16
Max Monthly Return	19	10
% Up Months	47	61
% Down Months	53	39

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

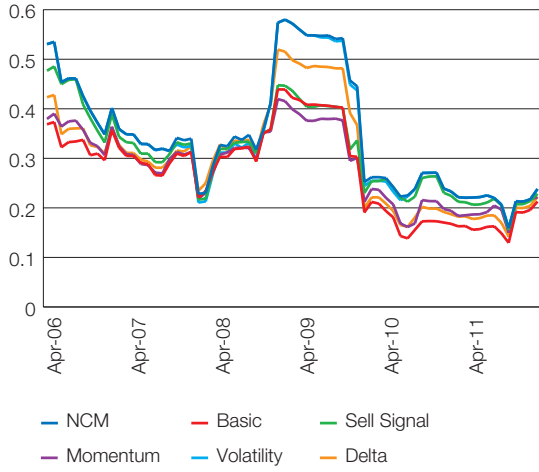
	NCM	Ex-Div
Annualised Return*	27.48	3.49
Annualised Standard Deviation	26.73	16.27
Sharpe Ratio	0.82	1.57
Maximum Drawdown	-15.73	-13.04
Correlation with Stock	1	0.96979
Min Monthly Return	-10	-5
Max Monthly Return	15	12
% Up Months	63	63
% Down Months	38	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

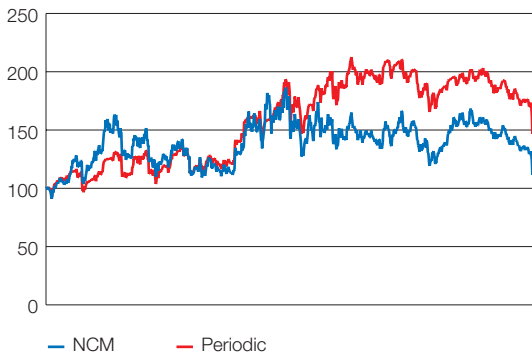
*Growth of \$100
April 2005 to December 2011*



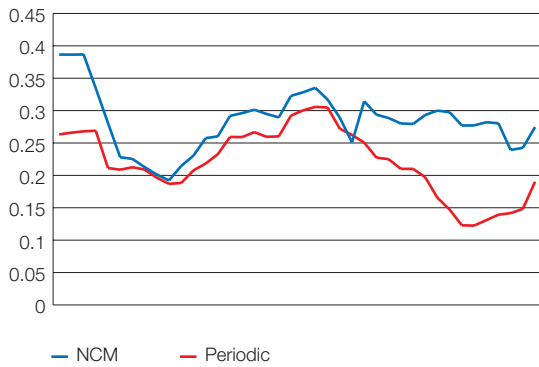
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



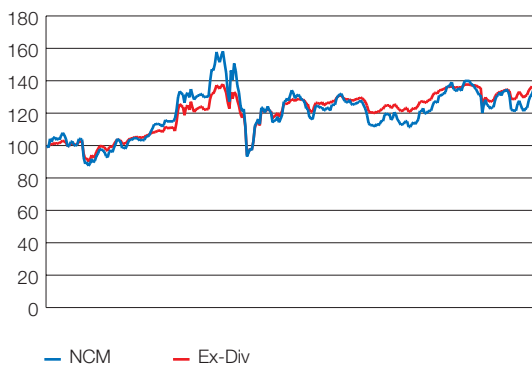
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constantly selling calls, with good absolute returns from executing buy-writes after a buy signal. Excellent returns from rolling of call options dependent upon its benchmark delta. Some excess returns from buying stock and selling calls before the ex-dividend day.

NWS – Sample Period April 2005 to December 2011

Performance Measures

	NWS	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-1.80	6.99	6.99	10.28	0.19	9.93
Annualised Standard Deviation	24.64	20.73	22.38	19.68	24.62	22.12
Sharpe Ratio	-0.29	-0.01	-0.01	0.15	-0.29	0.12
Maximum Drawdown	-10.93	-8.30	-10.93	-11.34	-10.93	-11.02
Correlation with Stock	1	0.94191	0.97096	0.93406	0.99859	0.97356
Min Monthly Return	-23	-19	-19	-17	-23	-19
Max Monthly Return	17	16	17	14	17	16
% Up Months	49	58	55	58	51	58
% Down Months	51	43	45	43	49	43

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

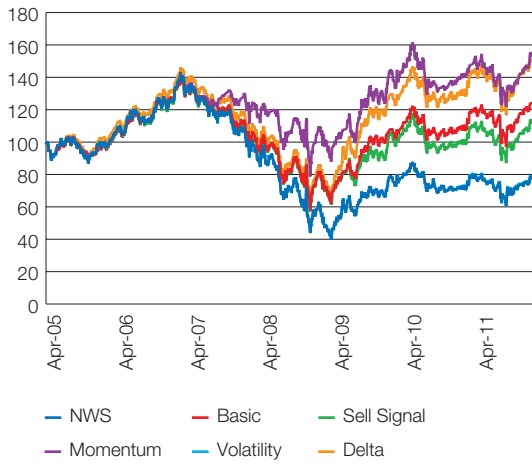
	NWS	Periodic
Annualised Return*	10.84	2.86
Annualised Standard Deviation	18.62	15.34
Sharpe Ratio	0.29	0.54
Maximum Drawdown	-28.65	-22.33
Correlation with Stock	1	0.96136
Min Monthly Return	-8	-7
Max Monthly Return	14	9
% Up Months	53	55
% Down Months	48	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

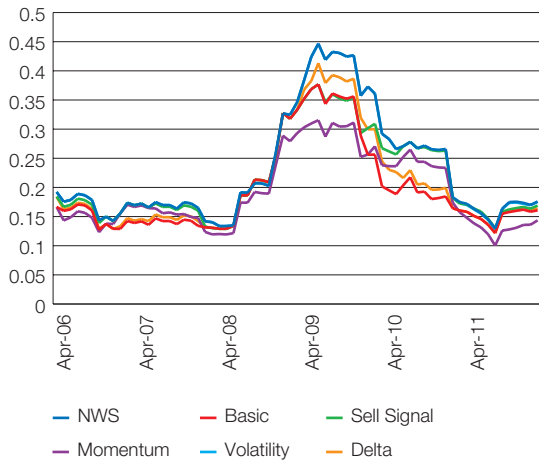
	NWS	Ex-Div
Annualised Return*	10.00	-5.14
Annualised Standard Deviation	34.52	22.10
Sharpe Ratio	0.13	-0.03
Maximum Drawdown	-12.02	-5.73
Correlation with Stock	1	0.95288
Min Monthly Return	-23	-20
Max Monthly Return	26	12
% Up Months	58	67
% Down Months	-23	-20

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

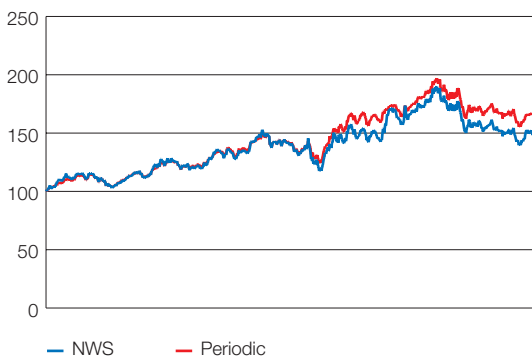
*Growth of \$100
April 2005 to December 2011*



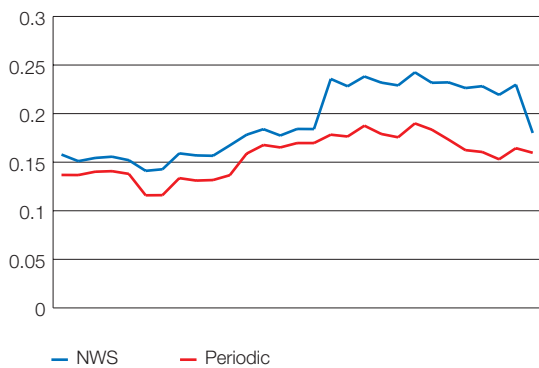
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



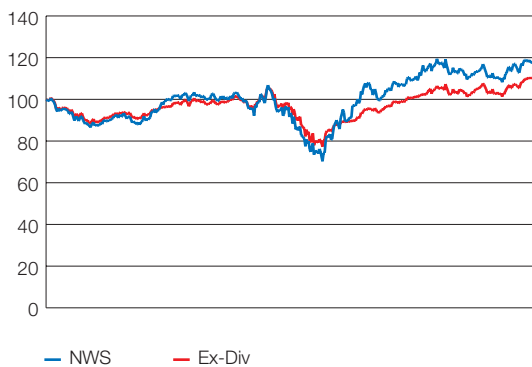
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Best results from constantly sold calls dependent upon moneyness, otherwise very good excess returns from constantly selling calls or selling calls after sell signals. Good excess returns from buy-writes constructed after buy signals and rolling of call options when option is above its benchmark delta.

ORG – Sample Period April 2005 to December 2011

Performance Measures

	ORG	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	9.71	-1.94	-1.94	-4.26	-1.40	6.04
Annualised Standard Deviation	27.36	15.87	24.67	15.36	26.79	25.26
Sharpe Ratio	0.16	0.15	0.09	0.00	0.11	0.41
Maximum Drawdown	-35.44	-10.38	-31.98	-9.85	-35.44	-43.53
Correlation with Stock	1	0.97307	0.98257	0.95323	0.99987	0.97944
Min Monthly Return	-14	-12	-14	-13	-14	-12
Max Monthly Return	42	10	36	12	42	41
% Up Months	50	59	53	60	50	59
% Down Months	50	41	48	40	50	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

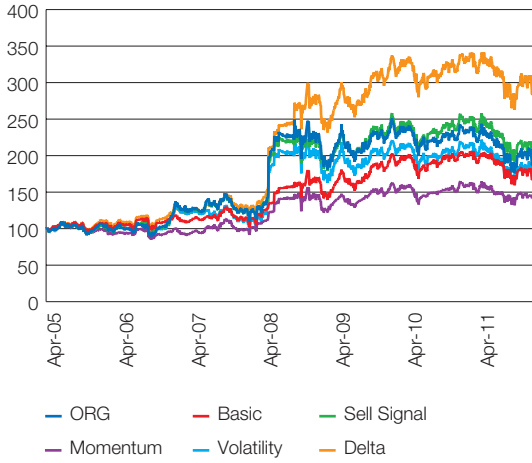
	ORG	Periodic
Annualised Return*	-1.41	-5.70
Annualised Standard Deviation	31.76	15.94
Sharpe Ratio	-0.22	-0.79
Maximum Drawdown	-44.69	-34.15
Correlation with Stock	1	0.80683
Min Monthly Return	-12	-11
Max Monthly Return	38	7
% Up Months	40	51
% Down Months	60	49

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

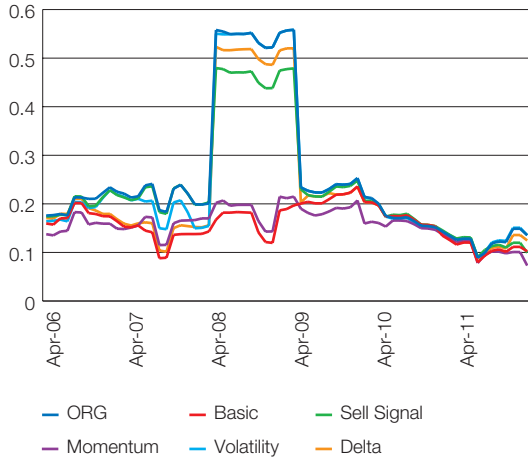
	ORG	Ex-Div
Annualised Return*	26.09	-4.51
Annualised Standard Deviation	18.11	12.88
Sharpe Ratio	1.14	1.25
Maximum Drawdown	-15.75	-12.15
Correlation with Stock	1	0.89696
Min Monthly Return	-6	-5
Max Monthly Return	15	11
% Up Months	60	73
% Down Months	40	27

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

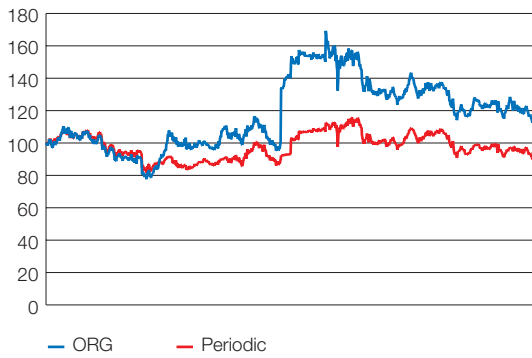
*Growth of \$100
April 2005 to December 2011*



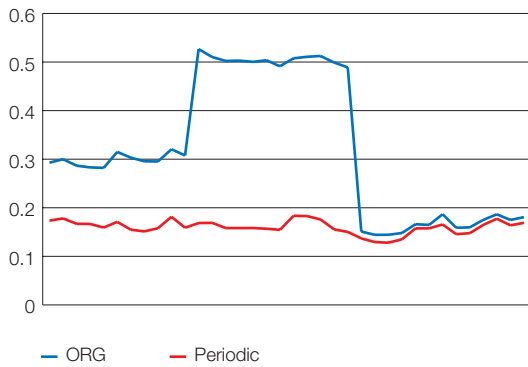
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



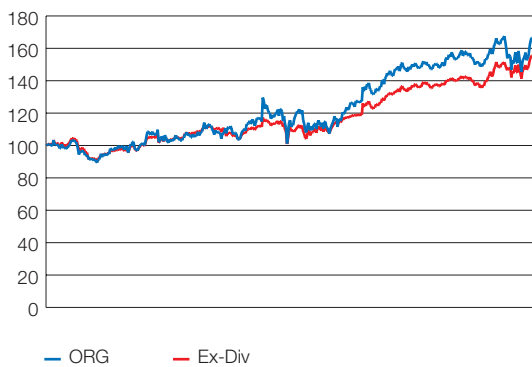
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good returns from constructing buy-writes after a buy signal. Constantly sold call options gives excellent excess returns. These returns are further improved by selling options dependent upon their moneyness. Best excess returns earned from rolling of call options when delta of call option moves above its benchmark.

ORI – Sample Period April 2005 to December 2011

Performance Measures

	ORI	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	6.86	-0.19	-0.19	-2.51	-0.02	5.53
Annualised Standard Deviation	24.22	17.39	20.24	16.23	23.98	19.86
Sharpe Ratio	0.06	0.07	0.06	-0.07	0.06	0.35
Maximum Drawdown	-24.26	-8.07	-24.26	-10.41	-24.26	-10.67
Correlation with Stock	1	0.81626	0.98989	0.81885	0.98908	0.96688
Min Monthly Return	-22	-19	-19	-17	-22	-19
Max Monthly Return	22	9	22	10	22	16
% Up Months	53	64	58	69	54	65
% Down Months	48	36	43	31	46	35

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

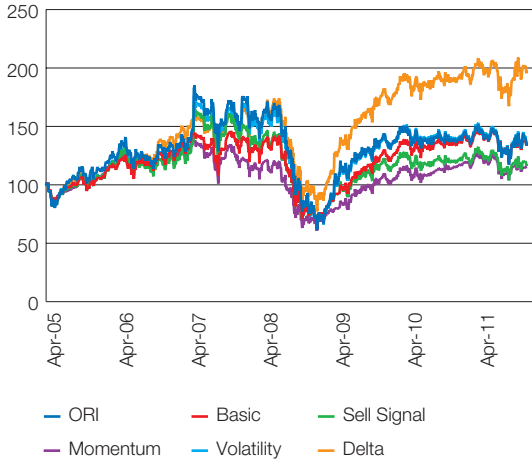
	ORI	Periodic
Annualised Return*	5.46	2.37
Annualised Standard Deviation	21.52	14.97
Sharpe Ratio	0.00	0.16
Maximum Drawdown	-30.34	-21.45
Correlation with Stock	1	0.85025
Min Monthly Return	-10	-10
Max Monthly Return	25	7
% Up Months	45	59
% Down Months	55	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

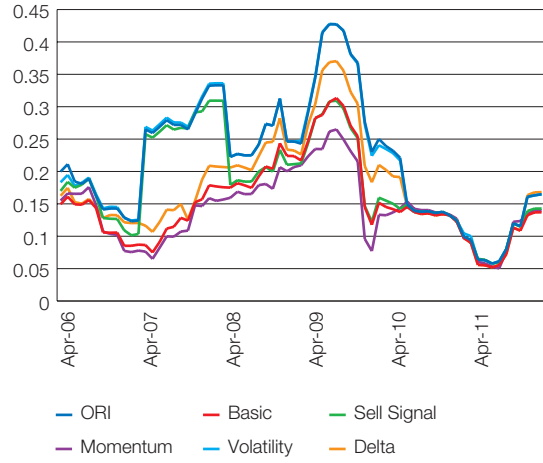
	ORI	Ex-Div
Annualised Return*	7.96	7.35
Annualised Standard Deviation	26.16	20.21
Sharpe Ratio	0.10	0.49
Maximum Drawdown	-8.96	-7.40
Correlation with Stock	1	0.99124
Min Monthly Return	-20	-13
Max Monthly Return	9	8
% Up Months	83	83
% Down Months	17	17

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

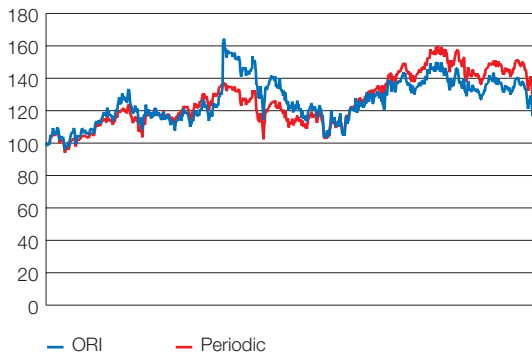
*Growth of \$100
April 2005 to December 2011*



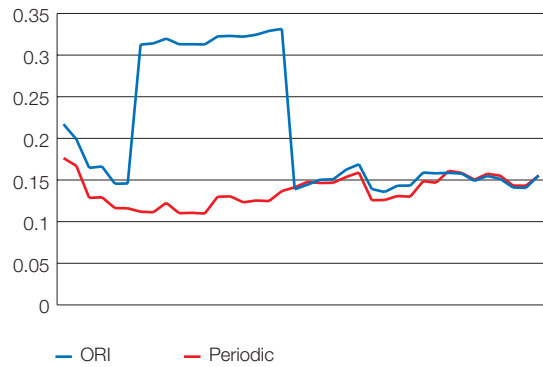
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



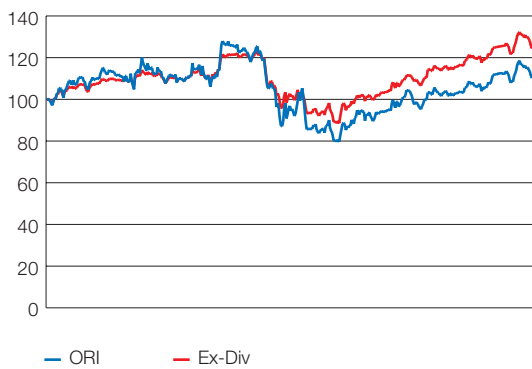
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constructing buy-writes after buy signals. Very good excess returns from rolling of call options that have delta above its benchmark delta and execution of the ex-dividend strategy.

OSH – Sample Period April 2005 to December 2011

Performance Measures

	OSH	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	15.27	3.51	3.51	1.47	0.44	11.09
Annualised Standard Deviation	30.31	22.31	28.64	24.43	29.92	25.20
Sharpe Ratio	0.32	0.60	0.47	0.46	0.34	0.83
Maximum Drawdown	-27.92	-14.82	-27.92	-25.65	-27.92	-20.57
Correlation with Stock	1	0.89283	0.95614	0.816	0.99581	0.93406
Min Monthly Return	-22	-17	-22	-18	-22	-17
Max Monthly Return	26	14	26	23	26	19
% Up Months	53	64	58	69	54	65
% Down Months	48	36	43	31	46	35

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

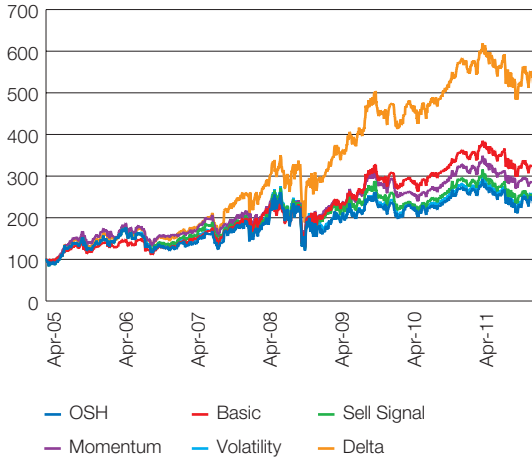
	OSH	Periodic
Annualised Return*	6.60	3.46
Annualised Standard Deviation	32.84	24.68
Sharpe Ratio	0.04	0.19
Maximum Drawdown	-61.93	-38.77
Correlation with Stock	1	0.91039
Min Monthly Return	-29	-24
Max Monthly Return	30	10
% Up Months	58	60
% Down Months	42	40

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

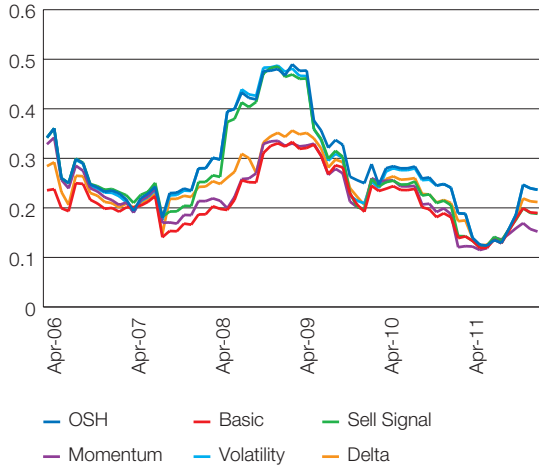
	OSH	Ex-Div
Annualised Return*	29.40	-3.30
Annualised Standard Deviation	27.77	14.34
Sharpe Ratio	0.86	1.44
Maximum Drawdown	-19.46	-9.33
Correlation with Stock	1	0.88305
Min Monthly Return	-13	-6
Max Monthly Return	18	9
% Up Months	67	75
% Down Months	33	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

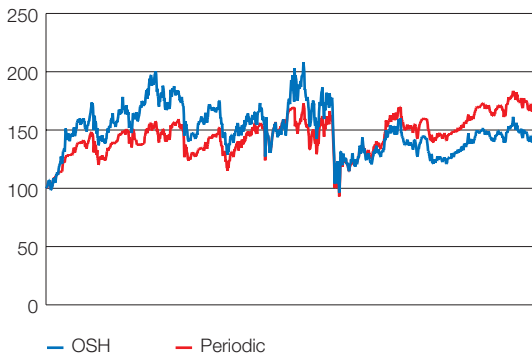
*Growth of \$100
April 2005 to December 2011*



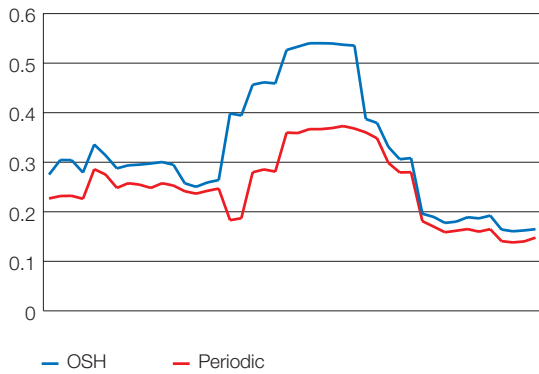
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



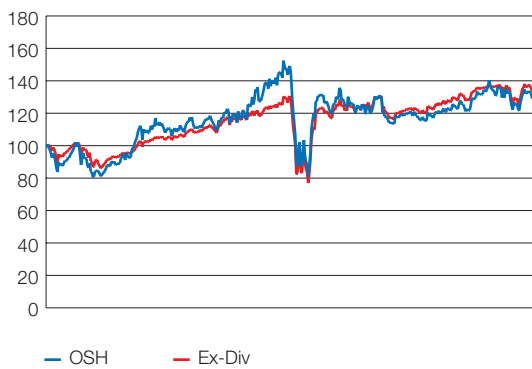
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Good excess returns from both constantly selling calls and executing buy-writes only after buy signals. Rolling of call options when delta is above pre-specified benchmark delta gives excellent excess returns.

QAN – Sample Period April 2005 to December 2011

Performance Measures

	QAN	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-11.76	6.72	6.72	5.81	0.28	10.36
Annualised Standard Deviation	32.69	28.30	29.72	26.12	32.69	30.22
Sharpe Ratio	-0.53	-0.37	-0.35	-0.44	-0.52	-0.23
Maximum Drawdown	-16.75	-8.13	-13.24	-10.34	-16.75	-19.36
Correlation with Stock	1	0.8908	0.97374	0.89799	0.99505	0.94973
Min Monthly Return	-45	-40	-40	-40	-45	-40
Max Monthly Return	15	15	15	14	15	18
% Up Months	45	56	51	55	45	55
% Down Months	55	44	49	45	55	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

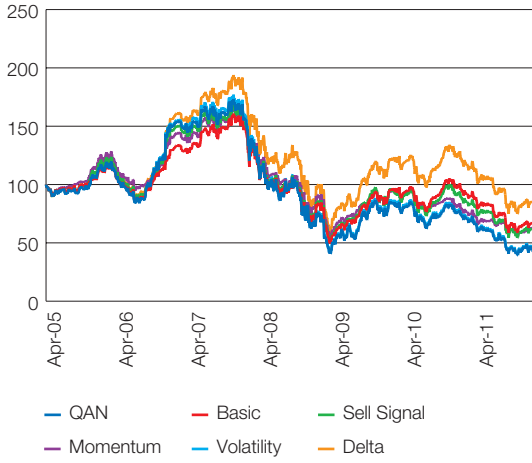
	QAN	Periodic
Annualised Return*	0.02	2.66
Annualised Standard Deviation	24.76	20.95
Sharpe Ratio	-0.22	-0.13
Maximum Drawdown	-44.42	-31.39
Correlation with Stock	1	0.96252
Min Monthly Return	-16	-15
Max Monthly Return	14	9
% Up Months	52	55
% Down Months	48	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

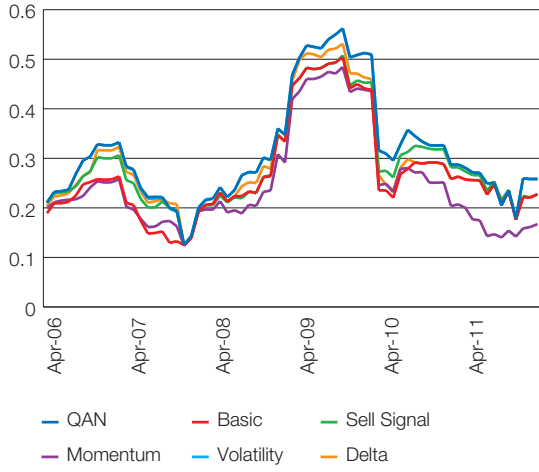
	QAN	Ex-Div
Annualised Return*	-23.80	10.72
Annualised Standard Deviation	46.21	35.36
Sharpe Ratio	-0.63	-0.52
Maximum Drawdown	-11.14	-8.95
Correlation with Stock	1	0.95838
Min Monthly Return	-30	-23
Max Monthly Return	20	11
% Up Months	57	57
% Down Months	-30	-23

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

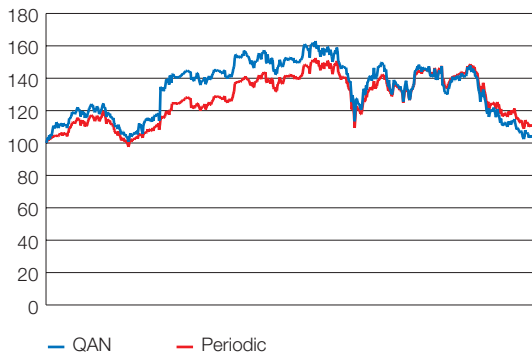
Growth of \$100
April 2005 to December 2011



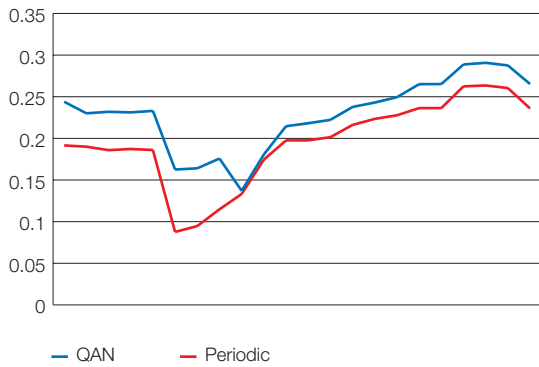
Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



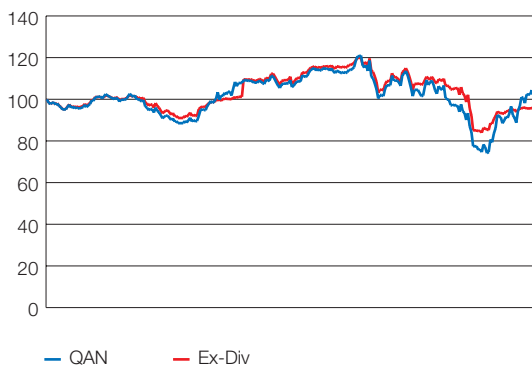
Growth of \$100
April 2005 to December 2011



Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



Growth of \$100
April 2005 to December 2011



Conclusion
Very good excess returns from constantly selling calls. Buy-writes constructed after buy signals gives good excess returns. Excellent excess returns from rolling of call options dependent upon benchmark delta and execution of the ex-dividend strategy.

QBE – Sample Period April 2005 to December 2011

Performance Measures

	QBE	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-1.98	0.28	0.28	4.37	-0.77	6.28
Annualised Standard Deviation	26.89	22.38	24.76	22.57	26.04	24.59
Sharpe Ratio	-0.28	-0.32	-0.29	-0.13	-0.31	-0.05
Maximum Drawdown	-11.43	-6.44	-11.43	-9.07	-11.43	-14.65
Correlation with Stock	1	0.97326	0.97914	0.93568	0.99992	0.98641
Min Monthly Return	-23	-22	-23	-22	-23	-22
Max Monthly Return	16	12	15	14	16	14
% Up Months	46	50	48	53	48	50
% Down Months	54	50	53	48	53	50

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

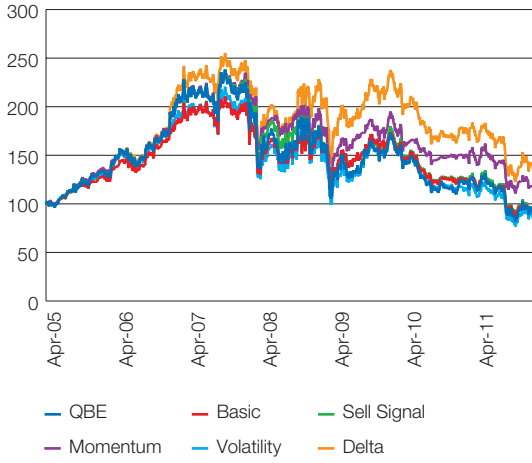
	QBE	Periodic
Annualised Return*	-0.28	-0.70
Annualised Standard Deviation	23.30	18.61
Sharpe Ratio	-0.25	-0.34
Maximum Drawdown	-73.40	-62.58
Correlation with Stock	1	0.97339
Min Monthly Return	-18	-17
Max Monthly Return	12	7
% Up Months	49	55
% Down Months	51	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

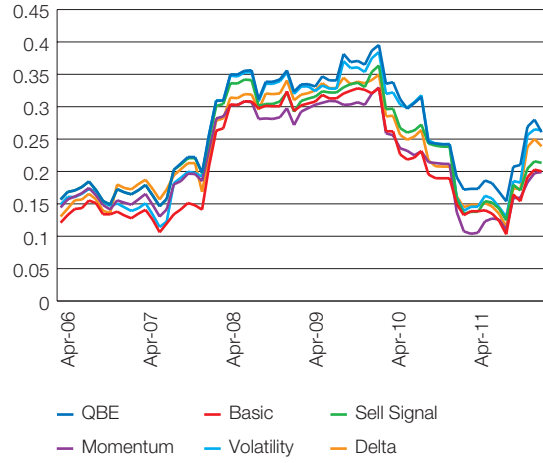
	QBE	Ex-Div
Annualised Return*	59.62	-15.00
Annualised Standard Deviation	23.75	12.14
Sharpe Ratio	2.28	3.23
Maximum Drawdown	-22.55	-14.32
Correlation with Stock	1	0.84096
Min Monthly Return	-4	-2
Max Monthly Return	20	13
% Up Months	89	89
% Down Months	11	11

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

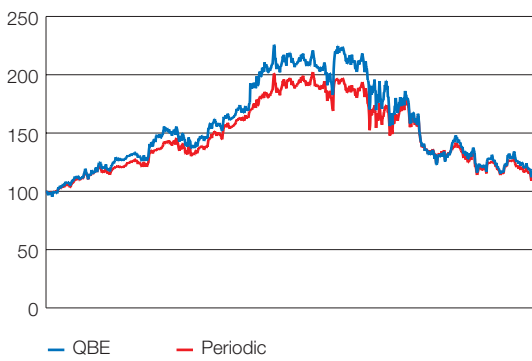
*Growth of \$100
April 2005 to December 2011*



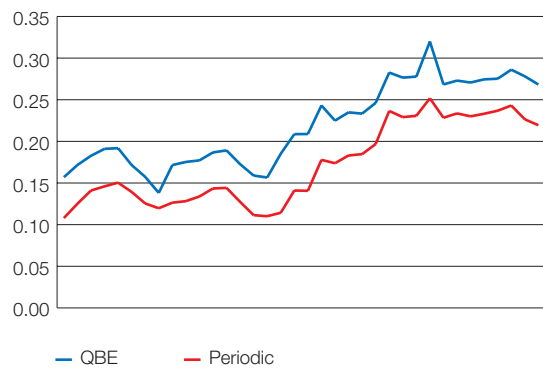
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



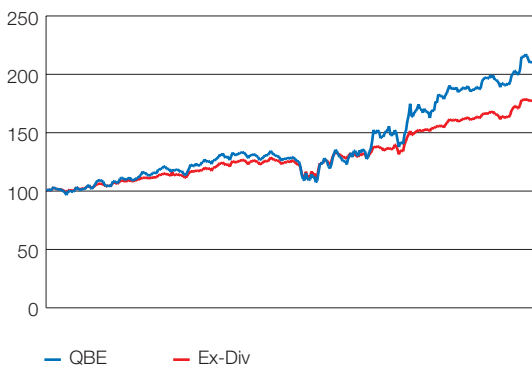
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Best results from constantly selling calls dependent upon their moneyness. Constructing buy-writes after buy signals also generate some excess returns. Very good excess returns from rolling of call options based on benchmark delta.

RIO – Sample Period April 2005 to December 2011

Performance Measures

	RIO	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	5.73	-1.46	-1.46	2.34	2.14	5.13
Annualised Standard Deviation	37.47	29.68	35.37	30.65	36.34	32.42
Sharpe Ratio	0.01	-0.04	-0.03	0.09	0.07	0.17
Maximum Drawdown	-31.99	-10.81	-31.99	-14.24	-31.99	-26.87
Correlation with Stock	1	0.96592	0.97679	0.94244	0.98885	0.98632
Min Monthly Return	-51	-46	-46	-43	-51	-46
Max Monthly Return	28	14	28	14	28	24
% Up Months	54	61	54	58	54	60
% Down Months	46	39	46	43	46	40

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

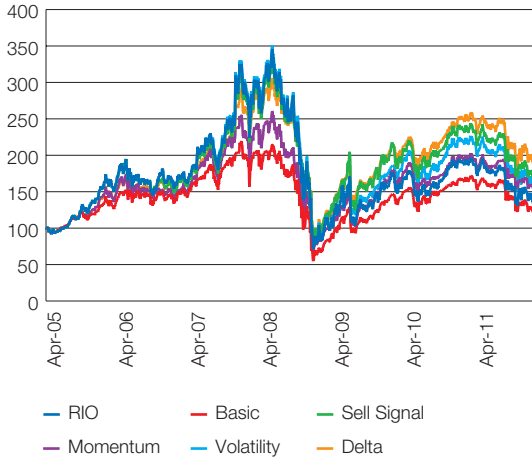
	RIO	Periodic
Annualised Return*	25.95	-8.73
Annualised Standard Deviation	31.07	19.87
Sharpe Ratio	0.66	0.59
Maximum Drawdown	-38.78	-37.45
Correlation with Stock	1	0.91585
Min Monthly Return	-17	-15
Max Monthly Return	26	10
% Up Months	60	67
% Down Months	40	33

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

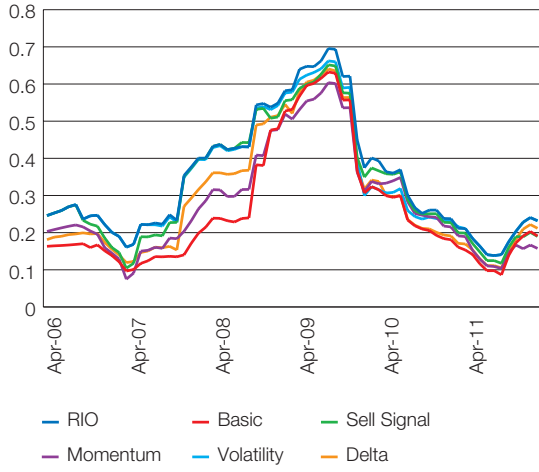
	RIO	Ex-Div
Annualised Return*	55.30	-15.52
Annualised Standard Deviation	29.41	17.26
Sharpe Ratio	1.70	1.99
Maximum Drawdown	-20.15	-14.72
Correlation with Stock	1	0.96616
Min Monthly Return	-10	-7
Max Monthly Return	22	14
% Up Months	75	88
% Down Months	25	13

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

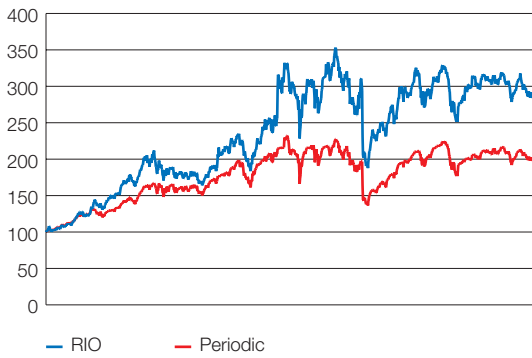
*Growth of \$100
April 2005 to December 2011*



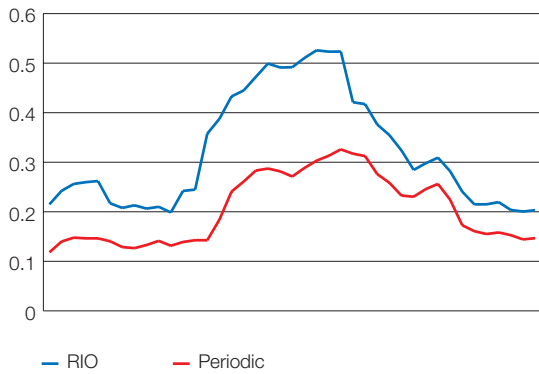
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



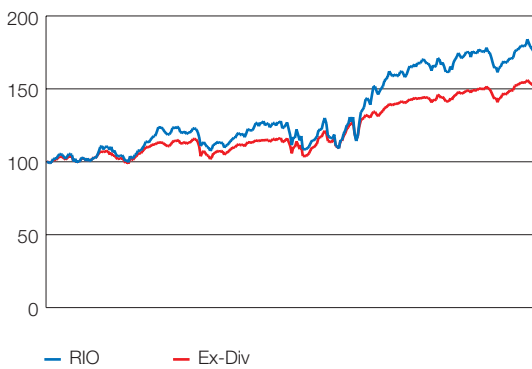
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Constantly selling calls according to their moneyness gives good excess returns. Very good excess returns also generated from rolling of call options based on benchmark delta.

STO – Sample Period April 2005 to December 2011

Performance Measures

	STO	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	4.36	4.73	4.73	3.41	0.12	9.86
Annualised Standard Deviation	30.80	24.18	29.35	24.41	30.78	26.77
Sharpe Ratio	-0.03	0.15	0.12	0.10	-0.03	0.33
Maximum Drawdown	-32.66	-9.75	-26.40	-12.75	-32.66	-15.04
Correlation with Stock	1	0.95754	0.98825	0.96286	0.99342	0.97933
Min Monthly Return	-35	-32	-35	-32	-35	-32
Max Monthly Return	28	18	28	16	28	18
% Up Months	48	55	51	61	49	56
% Down Months	53	45	49	39	51	44

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

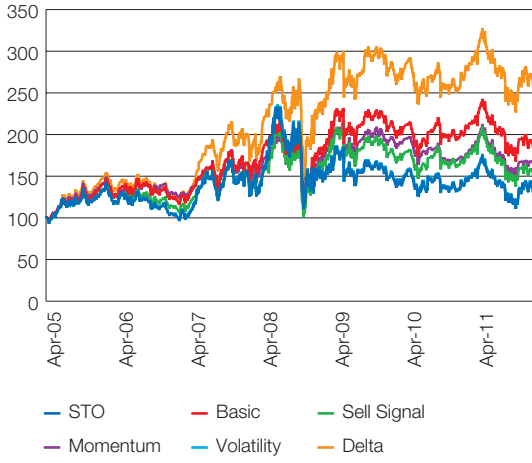
	STO	Periodic
Annualised Return*	-12.26	4.77
Annualised Standard Deviation	34.76	26.41
Sharpe Ratio	-0.51	-0.49
Maximum Drawdown	-77.38	-62.59
Correlation with Stock	1	0.95107
Min Monthly Return	-36	-31
Max Monthly Return	25	10
% Up Months	44	59
% Down Months	56	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

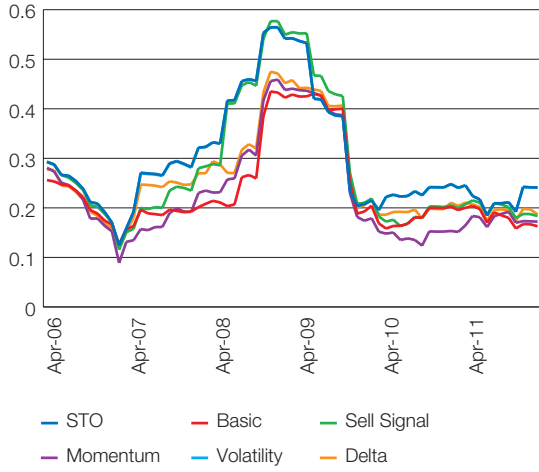
	STO	Ex-Div
Annualised Return*	30.62	-16.40
Annualised Standard Deviation	45.79	31.06
Sharpe Ratio	0.55	0.28
Maximum Drawdown	-26.98	-11.34
Correlation with Stock	1	0.963
Min Monthly Return	-40	-33
Max Monthly Return	24	12
% Up Months	75	75
% Down Months	25	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

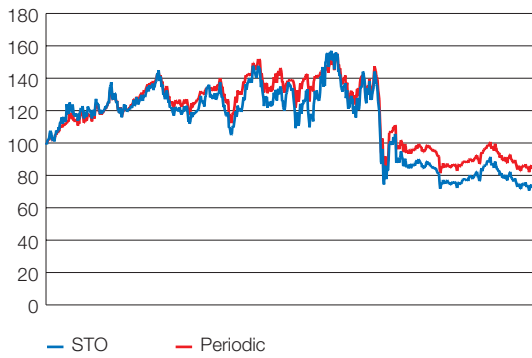
*Growth of \$100
April 2005 to December 2011*



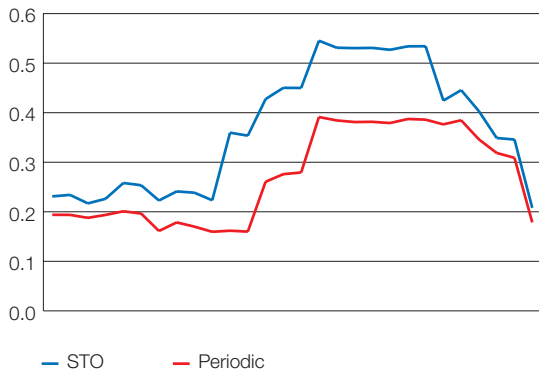
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



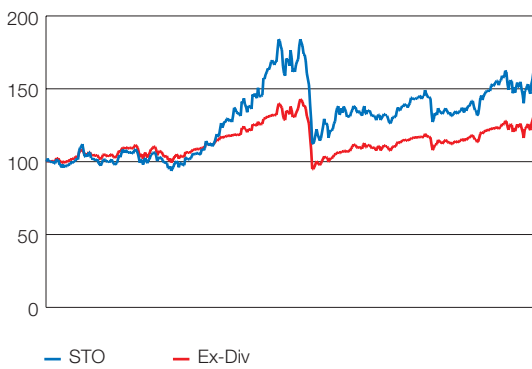
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constantly sold calls and selling calls after sell signals. Buy-writes constructed after buy signals only also gives good excess returns. Excellent excess returns from rolling of call options based on benchmark delta.

SUN – Sample Period April 2005 to December 2011

Performance Measures

	SUN	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-13.00	7.62	7.62	8.26	0.77	7.89
Annualised Standard Deviation	25.02	22.14	22.43	19.63	24.91	22.68
Sharpe Ratio	-0.74	-0.49	-0.48	-0.52	-0.71	-0.46
Maximum Drawdown	-8.28	-6.97	-7.95	-5.03	-8.28	-6.57
Correlation with Stock	1	0.92361	0.96523	0.9109	0.99998	0.95206
Min Monthly Return	-35	-33	-33	-29	-35	-33
Max Monthly Return	13	12	13	12	13	12
% Up Months	13	12	13	12	13	12
% Down Months	58	41	48	43	55	43

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

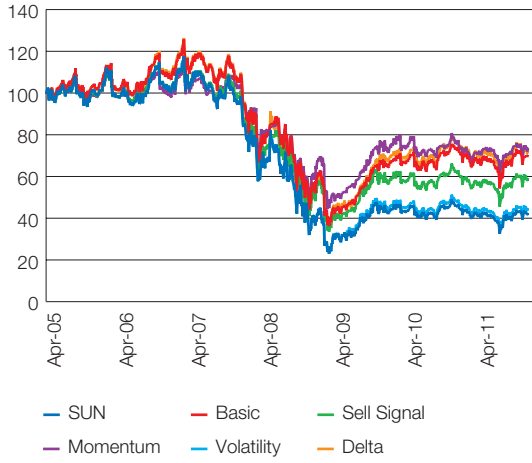
	SUN	Periodic
Annualised Return*	-5.09	6.78
Annualised Standard Deviation	18.16	17.54
Sharpe Ratio	-0.58	-0.21
Maximum Drawdown	-28.06	-23.47
Correlation with Stock	1	0.98925
Min Monthly Return	-12	-12
Max Monthly Return	10	8
% Up Months	45	61
% Down Months	55	39

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

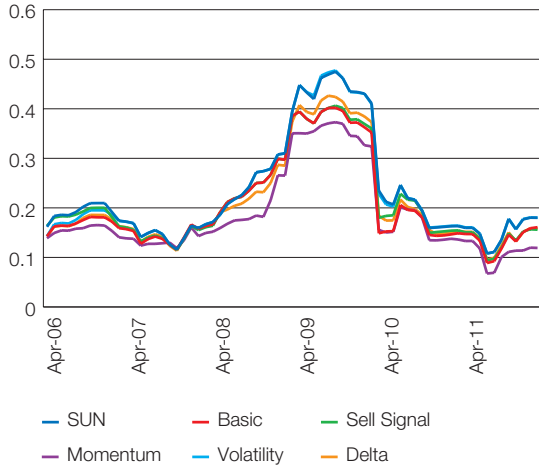
	SUN	Ex-Div
Annualised Return*	33.95	-2.60
Annualised Standard Deviation	34.53	23.61
Sharpe Ratio	0.83	1.10
Maximum Drawdown	-19.41	-14.15
Correlation with Stock	1	0.98659
Min Monthly Return	-18	-9
Max Monthly Return	24	17
% Up Months	55	55
% Down Months	45	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

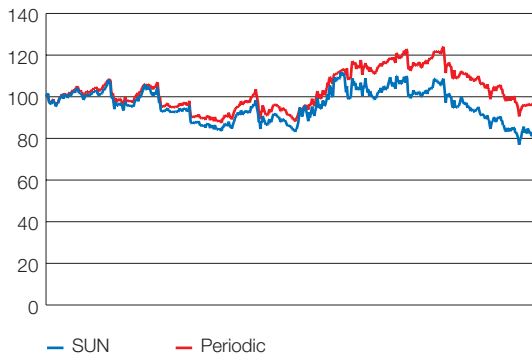
*Growth of \$100
April 2005 to December 2011*



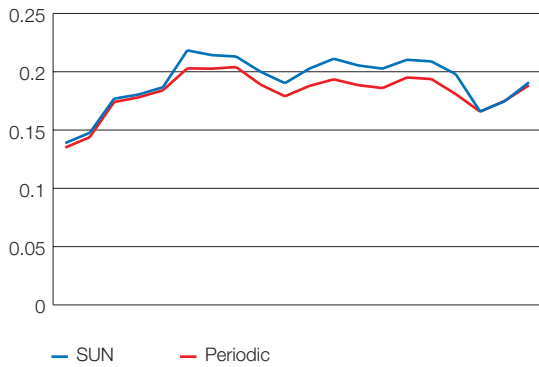
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



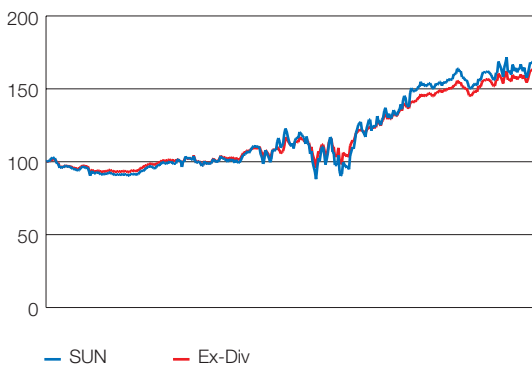
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Very good excess returns from constantly selling calls, improved by executing this dependent upon moneyness of the calls.

TAH – Sample Period April 2005 to December 2011

Performance Measures

	TAH	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-26.16	4.52	4.52	8.41	0.46	5.48
Annualised Standard Deviation	30.09	28.55	28.83	27.48	29.99	28.83
Sharpe Ratio	-1.05	-0.95	-0.94	-0.84	-1.04	-0.91
Maximum Drawdown	-4.59	-3.53	-3.66	-3.69	-4.59	-4.68
Correlation with Stock	1	0.97189	0.97427	0.90642	0.9984	0.9793
Min Monthly Return	-86	-88	-88	-88	-86	-88
Max Monthly Return	14	11	11	10	14	10
% Up Months	40	45	45	53	41	45
% Down Months	60	55	55	48	59	55

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

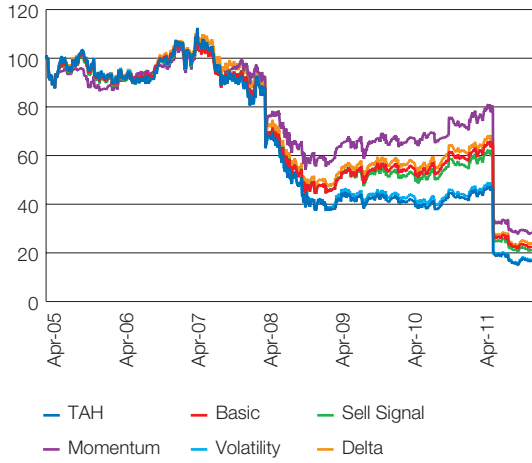
	TAH	Periodic
Annualised Return*	-6.76	2.60
Annualised Standard Deviation	16.78	15.01
Sharpe Ratio	-0.73	-0.64
Maximum Drawdown	-30.23	-23.82
Correlation with Stock	1	0.98543
Min Monthly Return	-10	-10
Max Monthly Return	10	6
% Up Months	37	41
% Down Months	63	59

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

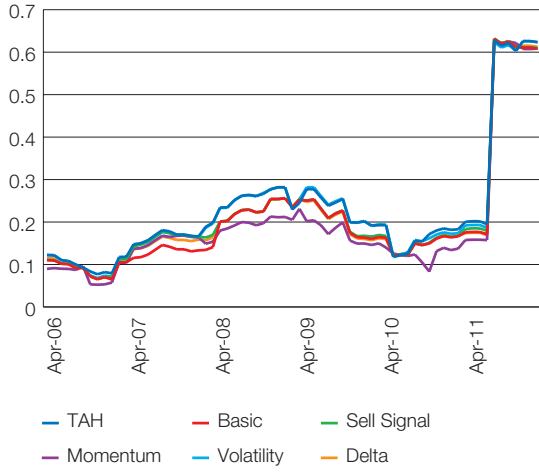
	TAH	Ex-Div
Annualised Return*	26.80	8.34
Annualised Standard Deviation	11.01	9.97
Sharpe Ratio	1.94	2.98
Maximum Drawdown	-8.33	-7.60
Correlation with Stock	1	0.93496
Min Monthly Return	-5	-5
Max Monthly Return	8	7
% Up Months	83	92
% Down Months	17	8

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

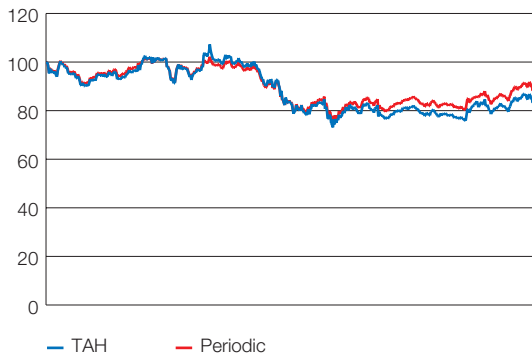
*Growth of \$100
April 2005 to December 2011*



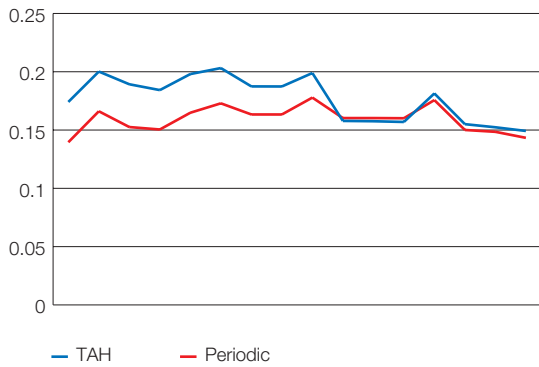
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



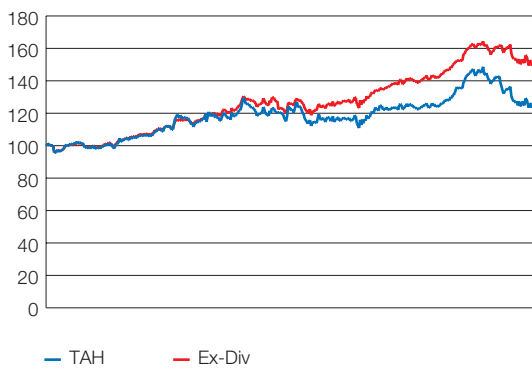
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constantly selling calls, especially when dependent upon moneyness of the options. Buy-writes executed after buy signals give some excess returns. Very good excess returns from buying stock and selling call before ex-dividend day.

TLS – Sample Period April 2005 to December 2011

Performance Measures

	TLS	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-5.74	3.26	3.26	4.14	0.00	5.28
Annualised Standard Deviation	19.28	17.42	17.89	16.17	19.28	18.12
Sharpe Ratio	-0.58	-0.45	-0.44	-0.43	-0.58	-0.33
Maximum Drawdown	-3.72	-3.87	-4.07	-4.78	-3.72	-3.87
Correlation with Stock	1	0.98887	0.98989	0.96483	0.99938	0.99127
Min Monthly Return	-16	-16	-16	-16	-16	-16
Max Monthly Return	12	9	9	9	12	10
% Up Months	55	58	59	66	55	59
% Down Months	45	43	41	34	45	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

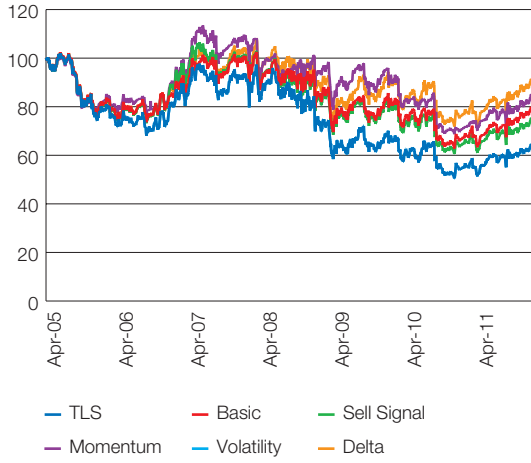
	TLS	Periodic
Annualised Return*	-9.98	2.57
Annualised Standard Deviation	19.02	17.80
Sharpe Ratio	-0.81	-0.72
Maximum Drawdown	-60.18	-52.89
Correlation with Stock	1	0.98357
Min Monthly Return	-16	-15
Max Monthly Return	9	6
% Up Months	52	55
% Down Months	48	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

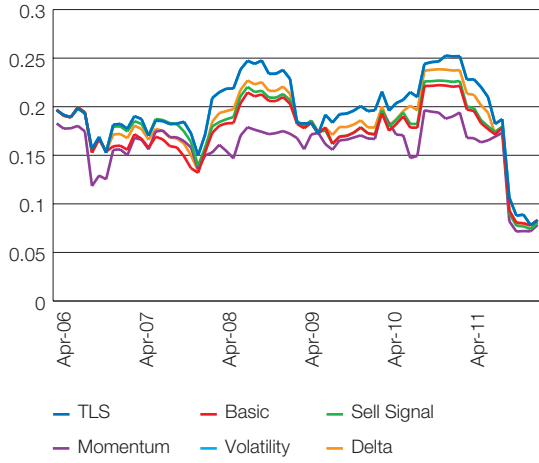
	TLS	Ex-Div
Annualised Return*	17.73	4.08
Annualised Standard Deviation	14.43	11.01
Sharpe Ratio	0.85	1.49
Maximum Drawdown	-10.61	-8.08
Correlation with Stock	1	0.92317
Min Monthly Return	-5	-4
Max Monthly Return	10	8
% Up Months	67	75
% Down Months	33	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

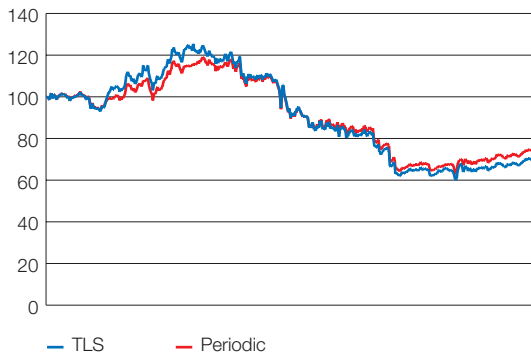
*Growth of \$100
April 2005 to December 2011*



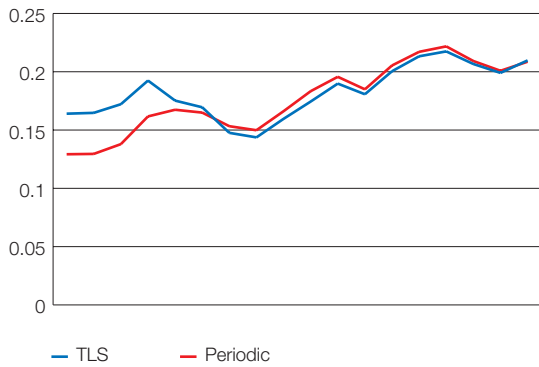
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



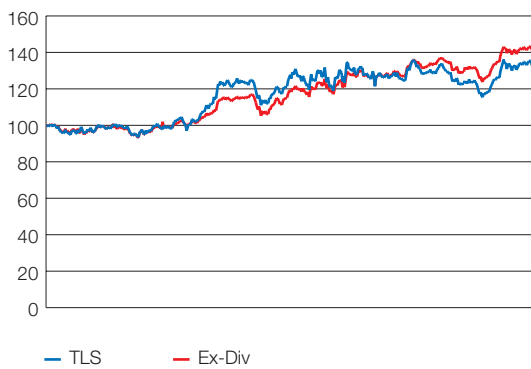
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Some excess returns from constantly sold calls; better when this strategy is executed based on the moneyness of the options. Buy-writes constructed after buy signals give some excess returns. Very good excess returns obtained from rolling of call options when option is above its benchmark delta. Execution of ex-dividend strategy provides some excess returns.

TOL – Sample Period April 2005 to December 2011

Performance Measures

	TOL	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-16.04	2.23	2.23	6.11	0.14	6.46
Annualised Standard Deviation	34.31	29.94	31.54	29.00	34.31	32.24
Sharpe Ratio	-0.63	-0.64	-0.61	-0.53	-0.62	-0.47
Maximum Drawdown	-14.67	-7.62	-14.67	-7.59	-14.67	-10.01
Correlation with Stock	1	0.97505	0.97929	0.90923	1	0.99025
Min Monthly Return	-47	-47	-47	-47	-47	-47
Max Monthly Return	18	13	16	14	18	20
% Up Months	49	54	53	58	49	53
% Down Months	51	46	48	43	51	48

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

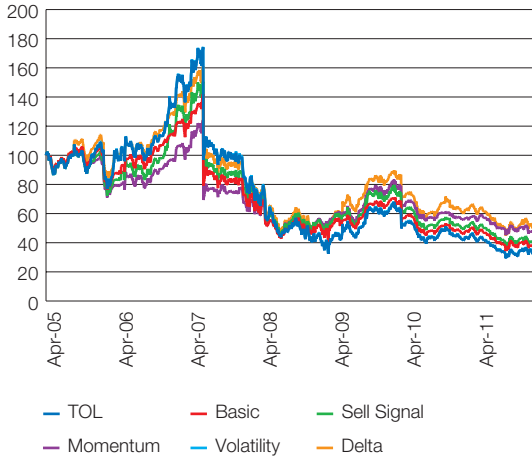
	TOL	Periodic
Annualised Return*	8.35	-2.92
Annualised Standard Deviation	28.43	24.28
Sharpe Ratio	0.10	0.00
Maximum Drawdown	-39.56	-33.87
Correlation with Stock	1	0.97389
Min Monthly Return	-26	-25
Max Monthly Return	835	543
% Up Months	59	63
% Down Months	41	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

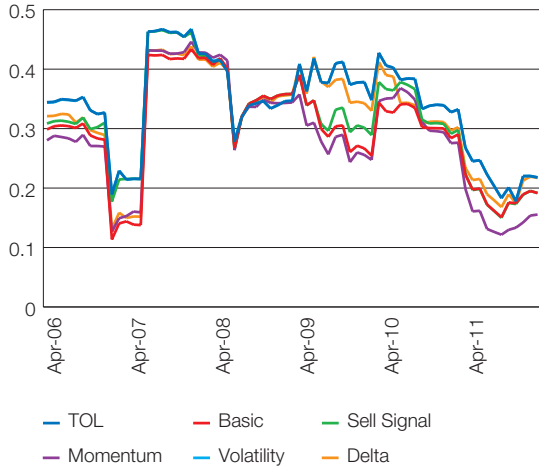
	TOL	Ex-Div
Annualised Return*	0.06	10.87
Annualised Standard Deviation	31.57	26.07
Sharpe Ratio	-0.17	0.21
Maximum Drawdown	-18.53	-14.65
Correlation with Stock	1	0.86877
Min Monthly Return	-24	-17
Max Monthly Return	17	14
% Up Months	46	54
% Down Months	54	46

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

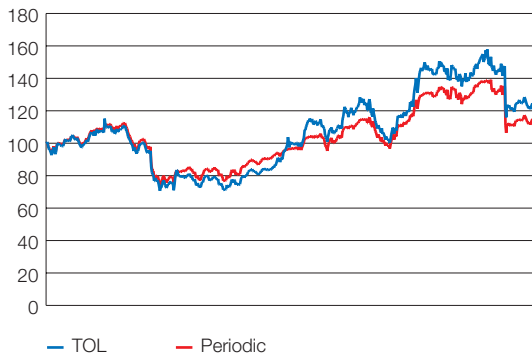
*Growth of \$100
April 2005 to December 2011*



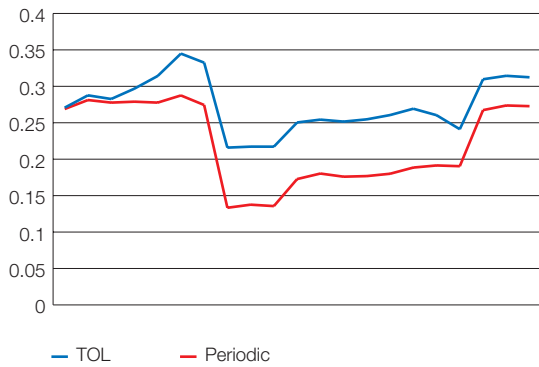
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



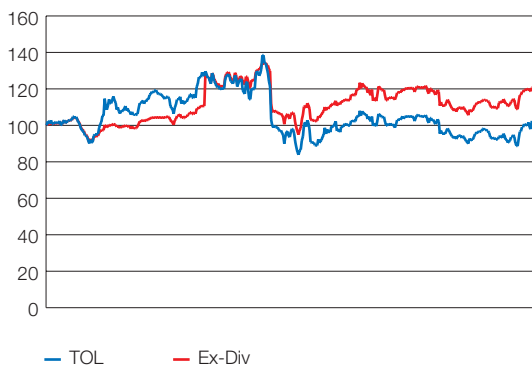
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Constantly selling ATM or OTM calls based on their respective moneyness provides good excess returns. Excess returns also obtained from rolling of call options based on option delta. Very good excess returns from execution of the ex-dividend strategy.

WBC – Sample Period April 2005 to December 2011

Performance Measures

	WBC	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	0.68	1.39	1.39	0.70	-0.57	3.14
Annualised Standard Deviation	22.28	19.19	20.32	18.03	21.41	20.24
Sharpe Ratio	-0.21	-0.18	-0.17	-0.22	-0.25	-0.08
Maximum Drawdown	-7.16	-5.80	-7.16	-6.45	-7.16	-7.91
Correlation with Stock	1	0.97183	0.97772	0.94102	0.99995	0.98668
Min Monthly Return	-17	-16	-17	-16	-17	-16
Max Monthly Return	68	207	207	138	11	382
% Up Months	58	59	59	58	58	58
% Down Months	43	41	41	43	43	43

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

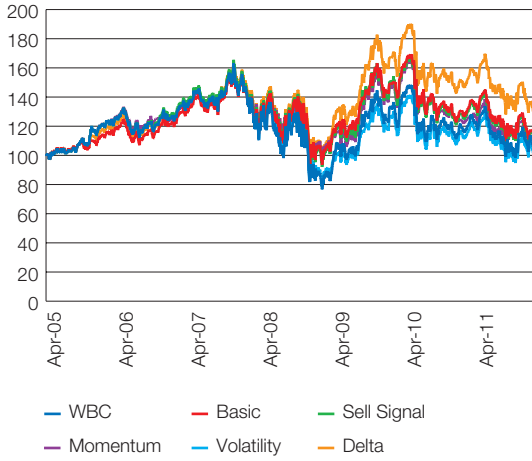
	WBC	Periodic
Annualised Return*	-3.25	0.31
Annualised Standard Deviation	21.14	18.95
Sharpe Ratio	-0.41	-0.44
Maximum Drawdown	-43.08	-38.18
Correlation with Stock	1	0.98702
Min Monthly Return	-18	-18
Max Monthly Return	10	7
% Up Months	52	57
% Down Months	48	43

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

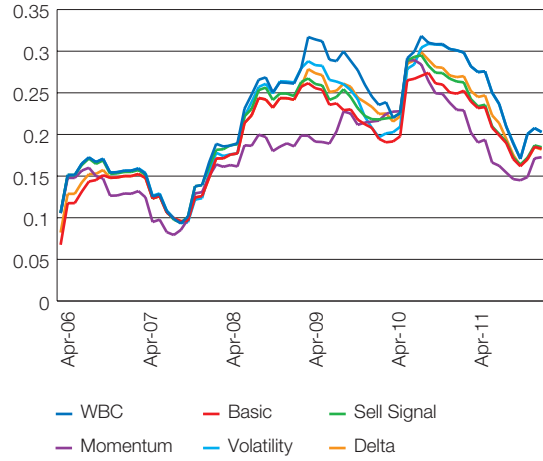
	WBC	Ex-Div
Annualised Return*	-41.47	18.63
Annualised Standard Deviation	31.13	32.01
Sharpe Ratio	-1.51	-0.88
Maximum Drawdown	-2.60	-3.21
Correlation with Stock	1	0.98862
Min Monthly Return	-26	-22
Max Monthly Return	13	18
% Up Months	30	40
% Down Months	70	60

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

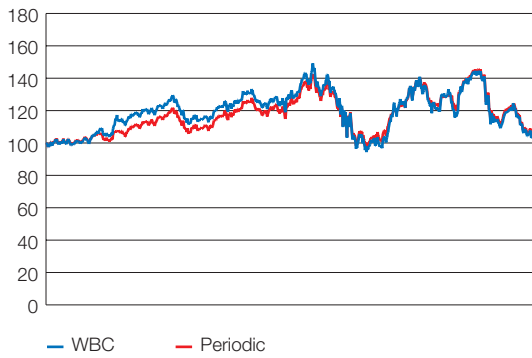
*Growth of \$100
April 2005 to December 2011*



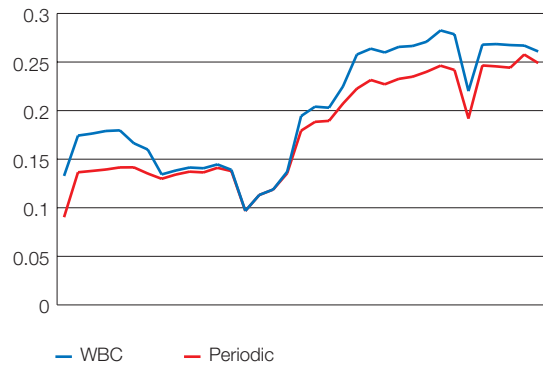
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



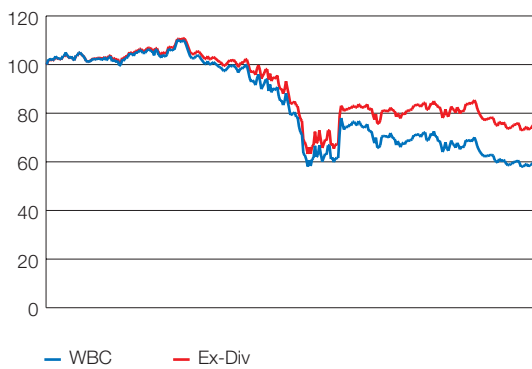
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
 Excess returns generated from constantly selling calls. Buy-writes executed after buy signals also gives some excess returns. Good excess returns from rolling of call options based on option delta. Excellent excess returns earned from buying stock and selling of call before the ex-dividend day.

WDC – Sample Period April 2005 to December 2011

Performance Measures

	WDC	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-10.62	7.86	7.86	10.26	1.59	9.10
Annualised Standard Deviation	19.88	17.14	17.81	15.02	19.30	17.62
Sharpe Ratio	-0.81	-0.48	-0.46	-0.39	-0.75	-0.39
Maximum Drawdown	-7.92	-7.25	-7.92	-6.53	-7.92	-7.25
Correlation with Stock	1	0.96968	0.97814	0.92617	0.99029	0.984
Min Monthly Return	-24	-23	-23	-20	-24	-23
Max Monthly Return	11	9	9	9	11	9
% Up Months	46	54	51	59	48	54
% Down Months	54	46	49	41	53	46

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

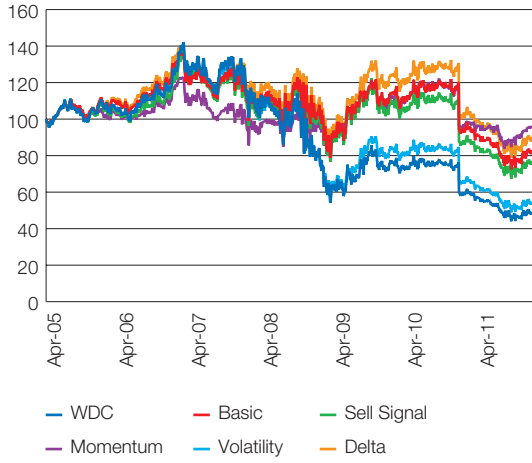
	WDC	Periodic
Annualised Return*	-0.98	2.31
Annualised Standard Deviation	15.71	13.53
Sharpe Ratio	-0.41	-0.30
Maximum Drawdown	-23.14	-17.57
Correlation with Stock	1	0.96671
Min Monthly Return	-12	-12
Max Monthly Return	8	7
% Up Months	44	58
% Down Months	56	42

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

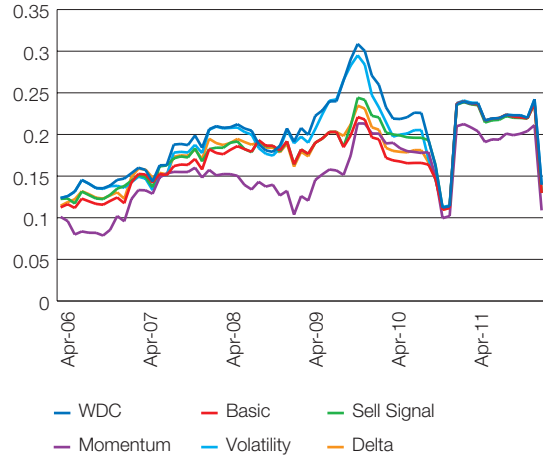
	WDC	Ex-Div
Annualised Return*	7.23	7.61
Annualised Standard Deviation	20.27	15.66
Sharpe Ratio	0.09	0.60
Maximum Drawdown	-11.08	-9.98
Correlation with Stock	1	0.95159
Min Monthly Return	-13	-7
Max Monthly Return	14	10
% Up Months	54	62
% Down Months	46	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

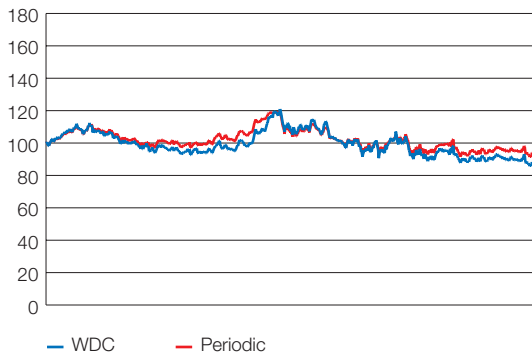
*Growth of \$100
April 2005 to December 2011*



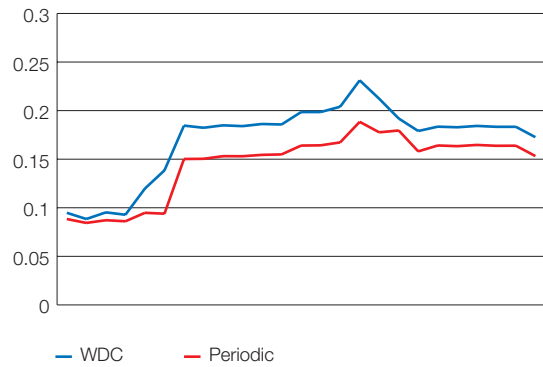
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



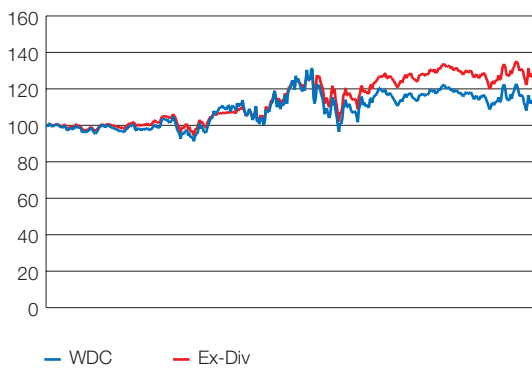
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Very good excess returns from constantly sold calls; better when dependent upon moneyness of the options. Buy-writes constructed after buy signals give some excess returns. Excellent excess returns from rolling of call options based on option delta. Ex-dividend strategy provides good excess returns.

WES – Sample Period April 2005 to December 2011

Performance Measures

	WES	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	-2.66	2.54	2.54	4.68	-0.53	5.98
Annualised Standard Deviation	26.32	20.78	23.46	19.96	25.47	22.29
Sharpe Ratio	-0.31	-0.27	-0.24	-0.17	-0.34	-0.09
Maximum Drawdown	-13.90	-5.86	-13.57	-8.67	-13.90	-10.11
Correlation with Stock	1	0.95168	0.95936	0.87022	0.99317	0.96372
Min Monthly Return	-28	-26	-26	-23	-28	-26
Max Monthly Return	19	12	19	13	19	15
% Up Months	51	59	58	59	53	59
% Down Months	49	41	43	41	48	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	WES	Periodic
Annualised Return*	3.62	-2.97
Annualised Standard Deviation	23.62	17.57
Sharpe Ratio	-0.08	-0.27
Maximum Drawdown	-24.04	-26.94
Correlation with Stock	1	0.92425
Min Monthly Return	-14	-13
Max Monthly Return	18	8
% Up Months	53	53
% Down Months	48	48

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

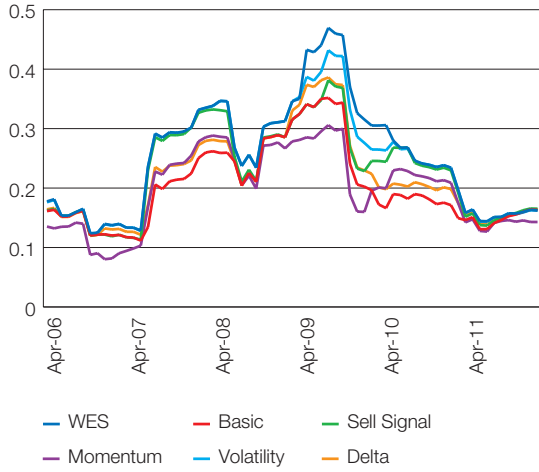
	WES	Ex-Div
Annualised Return*	5.78	8.86
Annualised Standard Deviation	22.33	17.48
Sharpe Ratio	0.02	0.53
Maximum Drawdown	-6.53	-6.11
Correlation with Stock	1	0.98537
Min Monthly Return	-20	-16
Max Monthly Return	10	9
% Up Months	58	75
% Down Months	42	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

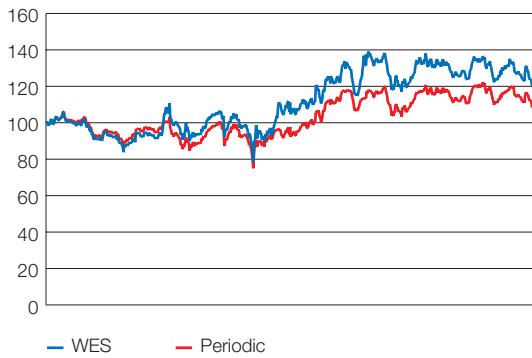
Growth of \$100
April 2005 to December 2011



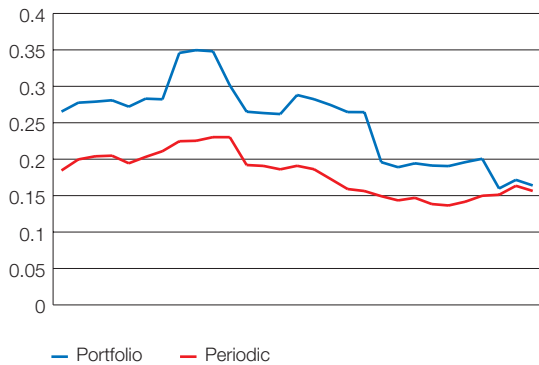
Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



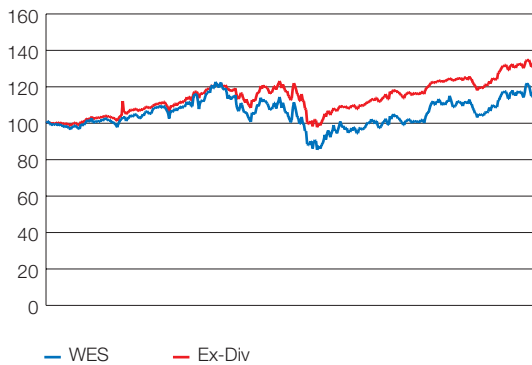
Growth of \$100
April 2005 to December 2011



Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011



Growth of \$100
April 2005 to December 2011



Conclusion

Best results from constantly sold calls according to moneyness of the options. Excess returns also gained from constantly selling calls, or selling calls after a sell signal. Buying the stock and selling the call based on a buy signal generates excess returns. Very good excess returns from rolling of call options based on option delta. Good excess returns earned from buying stock and selling of call before the ex-dividend day.

WOW – Sample Period April 2005 to December 2011

Performance Measures

	WOW	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	7.74	1.25	1.25	2.94	0.08	2.78
Annualised Standard Deviation	17.43	14.83	16.69	14.69	17.43	15.48
Sharpe Ratio	0.13	0.24	0.21	0.36	0.14	0.33
Maximum Drawdown	-13.81	-8.94	-13.81	-12.00	-13.81	-11.34
Correlation with Stock	1	0.94474	0.96995	0.92108	0.99273	0.97103
Min Monthly Return	-17	-15	-17	-16	-17	-15
Max Monthly Return	14	9	14	12	14	11
% Up Months	51	55	53	59	51	55
% Down Months	49	45	48	41	49	45

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

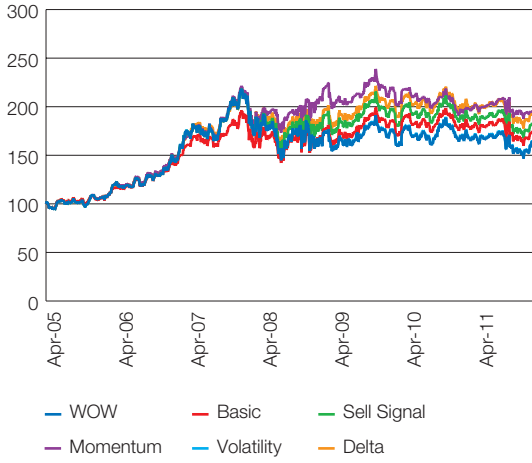
	WOW	Periodic
Annualised Return*	8.05	-1.31
Annualised Standard Deviation	16.79	13.86
Sharpe Ratio	0.16	0.09
Maximum Drawdown	-38.22	-32.19
Correlation with Stock	1	0.97577
Min Monthly Return	-13	-12
Max Monthly Return	11	6
% Up Months	46	46
% Down Months	54	54

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

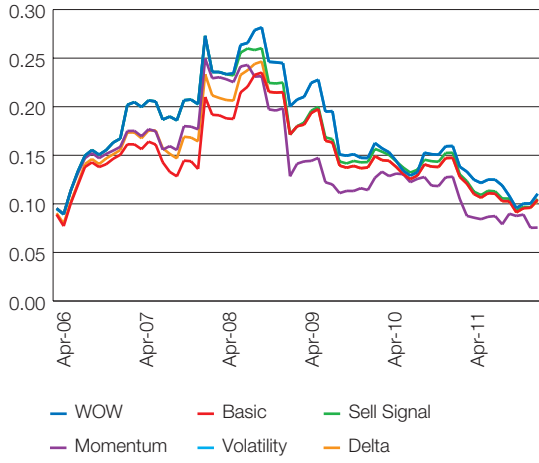
	WOW	Ex-Div
Annualised Return*	20.01	5.72
Annualised Standard Deviation	12.46	11.15
Sharpe Ratio	1.17	1.82
Maximum Drawdown	-9.35	-8.94
Correlation with Stock	1	0.9737
Min Monthly Return	-5	-3
Max Monthly Return	9	9
% Up Months	75	75
% Down Months	25	25

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

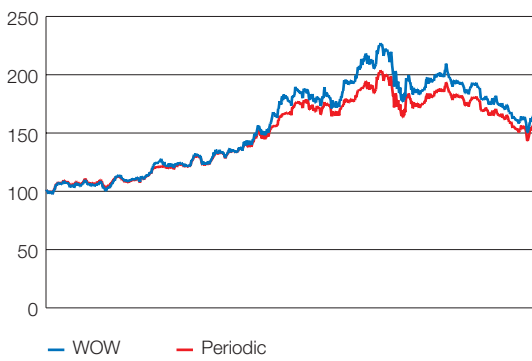
*Growth of \$100
April 2005 to December 2011*



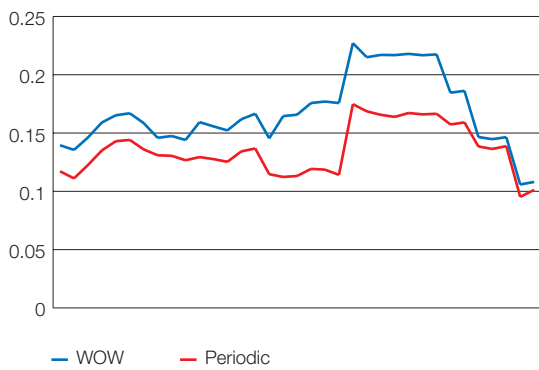
*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



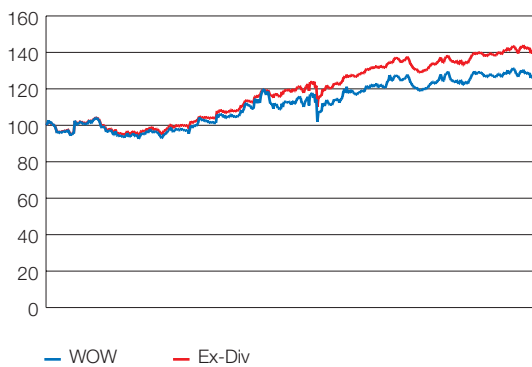
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion
Some excess returns from constantly selling calls; better when this strategy is executed according to the moneyness of the options and rolling of call options based on option delta. Good excess returns earned from executing the ex-dividend strategy.

WPL – Sample Period April 2005 to December 2011

Performance Measures

	WPL	Basic	Sell Signal	Momentum	Volatility	Delta
Annualised Return*	4.20	0.13	0.13	4.70	-0.66	6.24
Annualised Standard Deviation	29.77	23.47	28.07	24.81	29.39	25.96
Sharpe Ratio	-0.04	-0.05	-0.04	0.14	-0.06	0.19
Maximum Drawdown	-18.18	-10.55	-18.18	-14.12	-18.18	-17.95
Correlation with Stock	1	0.98218	0.99281	0.93975	0.99997	0.98535
Min Monthly Return	-23	-21	-23	-22	-23	-21
Max Monthly Return	21	13	21	15	21	17
% Up Months	51	56	53	60	51	59
% Down Months	49	44	48	40	49	41

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

	WPL	Periodic
Annualised Return*	13.56	-3.93
Annualised Standard Deviation	30.72	23.59
Sharpe Ratio	0.26	0.18
Maximum Drawdown	-38.45	-28.69
Correlation with Stock	1	0.95602
Min Monthly Return	-25	-22
Max Monthly Return	16	9
% Up Months	58	62
% Down Months	42	38

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

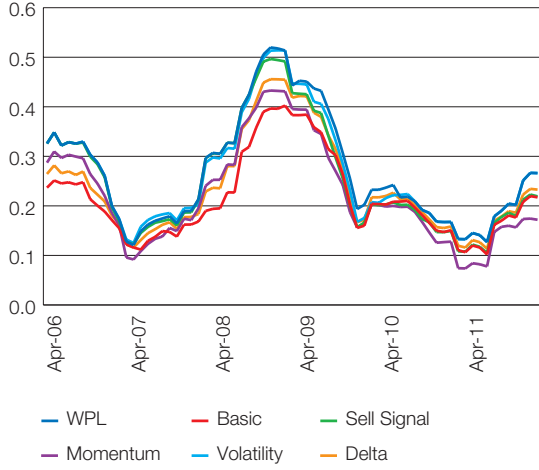
	WPL	Ex-Div
Annualised Return*	33.08	-13.28
Annualised Standard Deviation	45.20	33.63
Sharpe Ratio	0.61	0.43
Maximum Drawdown	-26.45	-11.12
Correlation with Stock	1	0.97555
Min Monthly Return	-46	-38
Max Monthly Return	23	11
% Up Months	82	91
% Down Months	18	9

*The return for the stock is the annualised return; returns for the strategies are the annualised excess returns (difference between strategies and stock returns)

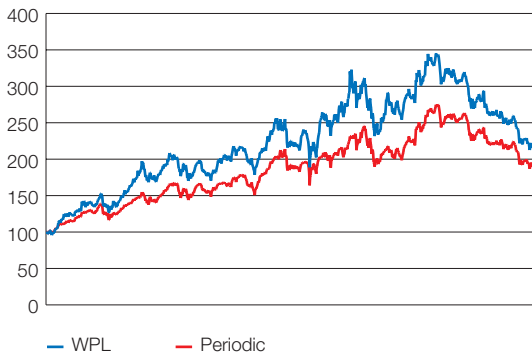
*Growth of \$100
April 2005 to December 2011*



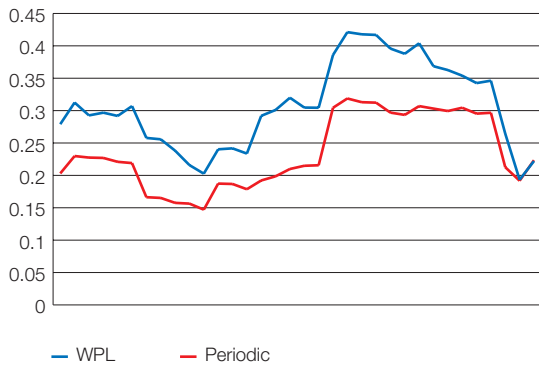
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April 2006 to December 2011*



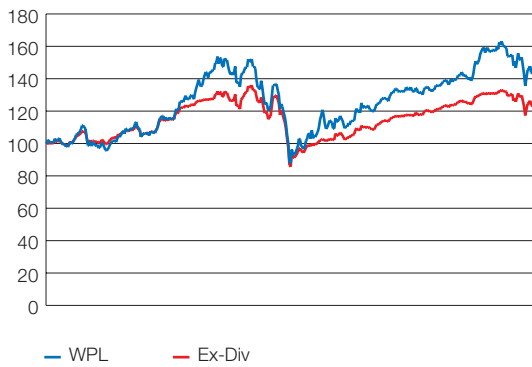
*Growth of \$100
April 2005 to December 2011*



*Rolling 12-Month Annualized Standard Deviation
April 2006 to December 2011*



*Growth of \$100
April 2005 to December 2011*



Conclusion

Good excess returns from constantly selling calls dependent upon moneyness of the options. Little value added from constantly selling calls or executing this after sell signals. Rolling of call options based on option delta gives very good excess returns.

Notes

Notes

Notes

CONTACT DETAILS

AUSTRALIA

David Stocken

Senior Manager, Institutional Sales

+61 2 9227 0934 david.stocken@asx.com.au

ASIA

Andrew Musgrave

Regional Manager, Asia

+61 2 9227 0211 andrew.musgrave@asx.com.au

EUROPE

James Keeley

Regional Manager, Europe

+44 203 009 3375 james.keeley@asx.com.au

NORTH AMERICA

David Ritchie

Regional Manager, North America

+1 312 788 3363 david.ritchie@asx.com.au

Head office ASX Limited
Exchange Centre
20 Bridge Street
Sydney NSW 2000 Australia

Telephone +61 2 9227 0000

www.asx.com.au

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