ASX Top 5

A High-Growth Investment Strategy for ASX 100 Companies

May 2021

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IMPORTANT INFORMATION

The purpose of this Whitepaper is to outline the thought process, strategy design, and testing methodology used to develop the ASX Top 5 investment strategy.

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Staff Trading Disclosure

Market Index staff follow the ASX Top 5 strategy and might hold positions in all companies recommended by the strategy.

Back-testing Disclaimer

Back-testing software was used to test the investment hypotheses and strategy. Simulated results are calculated in perfect conditions without slippage and real-life issues like liquidity, taxation, and human error.

While we've done our best to ensure historical trade accuracy by using industry leading data and software, there could be errors.

Performance Disclaimer

Past performance is not indicative of future performance.

Risk Warning

Market Index can't stress enough; investing is risky and can result in loss of capital.

PREFACE

The “momentum effect” of Australian equites is well documented.

Considerable research has been published by university professors, investment banks, and technical analysts, supporting momentum-based strategies as an effective way to consistently outperform the Australian stock market.

Professor Bruce Vanstone from Bond University is possibly the most widely published Australian academic on the subject. He concludes that momentum “is both present and obtainable, and has been a persistent feature of the S&P/ASX 100 since its inception, including throughout the global financial crisis.”

Oliver Gordon conducted a thorough analysis of Australian Securities Exchange (ASX) rotational momentum strategies, and his conclusion was clear; a S&P/ASX 100 momentum strategy can significantly and consistently outperform the benchmark index.

Morgan Stanley found price momentum provided the best returns in the Australian market from 2010 to 2016, beating 15 other investment styles including Return-on-Equity, Free Cash-Flow yield, and Earnings Revisions.

Platypus Asset Management found a 12-month Rate-of-Change (ROC) momentum portfolio consisting of the top 25% of stocks in the S&P/ASX 300, outperformed the benchmark index by 10.60% p.a. from 1992 to 2018.

Armed with an abundance of research, and the fact that momentum strategies can be accurately tested with no discretionary bias, Market Index set out to create a robust and profitable momentum strategy for the Australian equities market.

> *“Humans are not hard-wired to rationally weigh risk and reward. We are still better suited to run when we see a sabre-toothed tiger than to consider potential returns of intangible assets”*
>
> **Warren Buffett**

ABOUT THE ASX TOP 5

The ASX Top 5 is a medium-term momentum strategy applied to ASX 100 companies.

Its primary objective is to locate large-cap stocks rising in controlled uptrends. Volatility is avoided; predictable and steady uptrends are preferred.

The strategy doesn't attempt to pick the next "winner". It generates long-term profits through a mathematical edge that's been stress-tested through 20-years of market conditions. It's 100% data-driven, objective, and remarkably simple.

After the market closes on the last trading day of the month, Market Index ranks all ASX 100 companies from best to worst according to the ASX Top 5 algorithm. The following day, the top 5 companies are bought and held for the entire month. There's no intra-month stop-loss or rebalances.

The process is repeated every month.

Market Index ranks all ASX 100 companies according to the ASX Top 5 algorithm, the companies that drop out of the top 5 are sold, and the companies that enter the top 5 are bought. If fewer than 5 companies pass the system's strict ranking filter (e.g. during a bear market) then the portfolio moves partially or completely to cash.

The portfolio is aggressive, with Annual Volatility approximately 40% above the S&P/ASX 100 Accumulation Index.

On average, there are 1-2 portfolio changes per month and a trade duration of 57 trading days.

Since 2001, the strategy has generated a Compounded Annual Return (CAR) of 27.30% p.a. with a Maximum Open Drawdown (capital loss) of -30.08% in January 2008.

** All statistics from January 2001 to March 2021*

To access the ASX Top 5 strategy, please click here

Part 1
GOALS, PREPARATION, AND DESIGN PROCESS.

The primary objective for developing the ASX Top 5 was to create an equity strategy that significantly outperformed the S&P/ASX 200 Accumulation Index on a risk-adjusted basis.

The following goals were established to define success:

1. 20%+ p.a. return
2. Maximum Drawdown (MaxDD) of 30%
3. Low maintenance (time required)
4. Automated entry and exit criteria
5. Invest in large-capitalisation companies only

The reasons behind each goal are as follows:

20%+ p.a. return

Active investing requires on-going time commitments, mental energy, financial risk, and triggers Capital Gains Tax (CGT) obligations. An investor should be compensated for these risks and inconveniences.

Maximum Drawdown (MaxDD) of 30%

Most trading systems aim for a MaxDD of about 20% with the belief that investors begin to question their system's robustness when losses near this level. Market Index decided that a MaxDD greater than 20% was acceptable, and likely needed, to meet the 20%+ p.a. return goal from large-cap equities.

Low maintenance (time required)

A monthly timeframe for rebalances was decided on prior to creating the strategy. Daily and weekly systems require too much maintenance time, and from experience in unrelated system testing, quarterly rebalances are too far apart.

Automated entry and exit criteria

A system with automated entry and exit criteria is easily tested and leaves no room for ambiguity. There's no discretionary input, bias, or incorrect interpretations.

Invest in large-capitalisation companies only

The decision to only invest in ASX Top 100 companies was decided on prior to creating the strategy. Large capitalisation companies have wider analyst coverage and typically experience less volatility than small-cap companies. There's fewer surprises, outliers, and liquidity is higher

PREPARATION

Market Index used industry-leading data and software.

Computer

- Windows 10 Pro, AMD Ryzen 9 3900X, G. Skill 32GB (2x16GB) DDR4 Trident Z 3000MHz and Samsung 970 Pro Series 512GB M.2 NVMe SSD.

Back-testing Software

- Amibroker Pro

Data Source

- Norgate Data with fully-adjusted historical data. Index constituents were survivorship bias-free. All performance metrics accounted for Corporate Actions, Special Dividends and Ordinary Dividends.

DESIGN PROCESS

Market Index designed the ASX Top 5 strategy in late 2019.

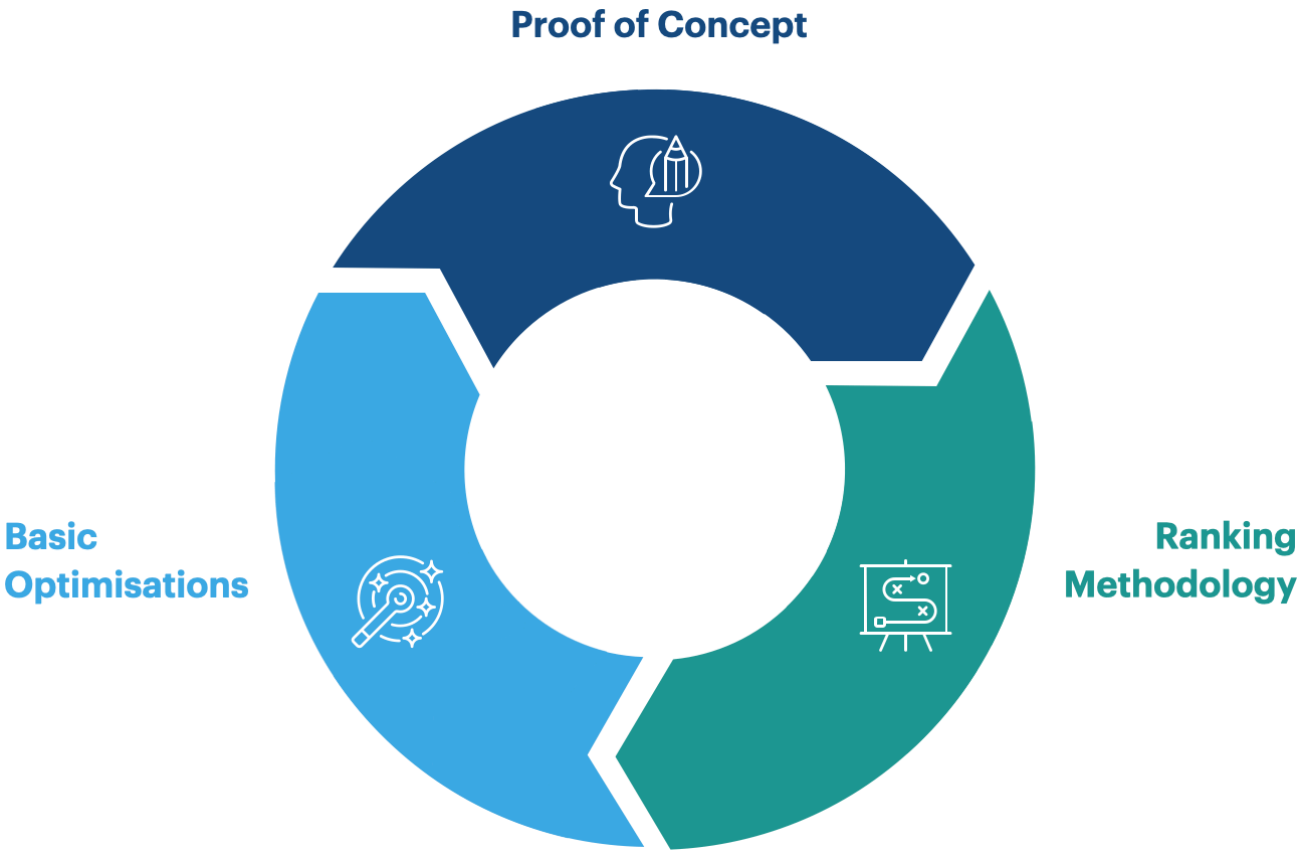
The process involved three stages:

1. **Proof of Concept (POC)** – To establish whether a momentum strategy had potential to meet our goals, we tested the effectiveness of a generic momentum strategy on a 20-stock portfolio of ASX 200 companies. The outcome was remarkably profitable, so development of the ASX Top 5 continued.

2. **Ranking Methodology** – To ovoid over-optimisation, we created our custom momentum indicator (used to rank all ASX 100 companies each month) and set its parameters from the results of the POC's 20-stock portfolio of ASX 200 companies.

3. **Basic Optimisations** – Three optimisation were required:
    a. Establish the optimal portfolio size
    b. Define the cash management strategy
    c. Short-term trend confirmation

Data from 2001 to 2015 was used for all steps above.



Part 2
PROOF OF CONCEPT

A Proof of Concept (POC) is the demonstration in principle that a theory or concept has practical potential. The hypothesis we tested was:

> *An actively managed momentum portfolio of large-capitalisation Australian Securities Exchange (ASX) equities can consistently outperform the S&P/ASX 200 Accumulation Index over a randomly selected 5-year period.*

PROOF OF CONCEPT STRATEGY

For the test, we created a simple rotational system based on 1-year Rate of Change (ROC):

1. Rank all ASX 200 companies by 1-year ROC
2. Buy the 20 companies with the highest 1-year ROC
3. At the close on the last trading day of the month, sell all 20 companies, re-rank all ASX 200 companies by 1-year ROC, then buy the 20 companies with the highest 1-year ROC.
4. Repeat **Step 3** every month

Rules for the system:

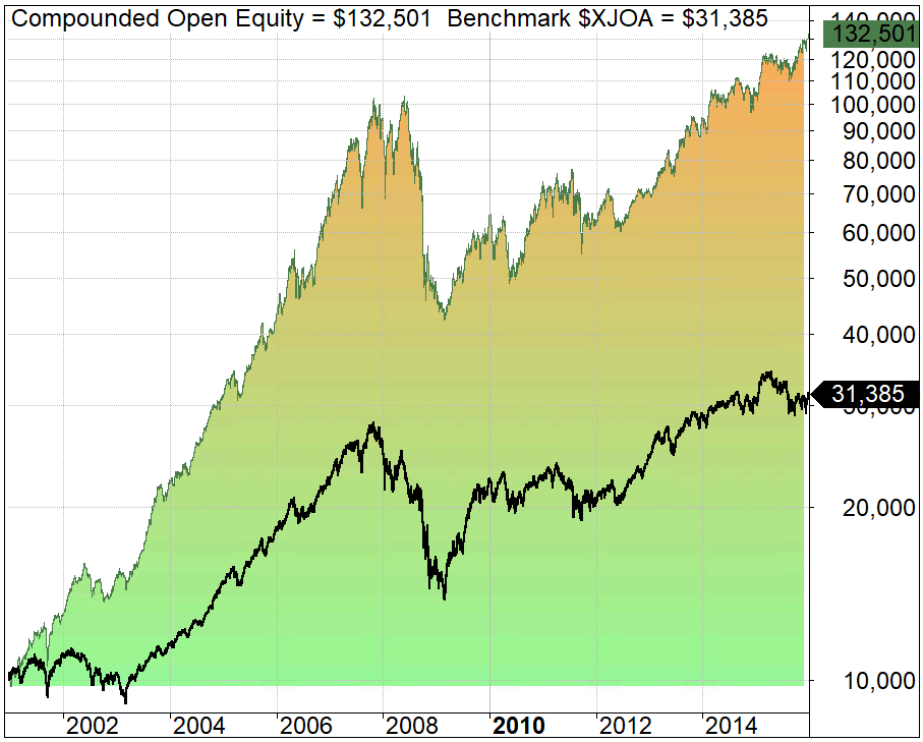
- 1-year ROC was classified as 252 trading days
- Dividends reinvested
- Transaction costs excluded
- Fractional shares allowed to ensure 100% investment
- Historical ASX 200 constituents were "as traded on the day" and included delisted stocks to remove survivorship bias

Results for the 15-year period from 2001 to 2015:

	Top 20 Portfolio	S&P/ASX 200 Accumulation
Compounded Annual Return	18.78%	7.92%
Annual Sharpe Ratio	0.3	0.4
Annual Volatility	19.51%	14.26%
Maximum Drawdown	-59.23%	-50.58%
Median Drawdown	-6.61%	-6.06%
Longest Drawdown	69.0 months	70.3 months

The hypothesis was confirmed.

With an outperformance of 10.86% p.a. from a generic momentum indicator on a large portfolio, it can be concluded that an ASX momentum strategy is likely to produce risk-adjusted returns far superior to any major ASX index.



The extraordinary result from such a simple strategy was surprising. The 1-year percentage return is a common indicator that Market Index features prominently on almost every page.

Although the Top 20 Portfolio's annual returns were more than double the benchmark index, it came at a cost - significantly higher volatility.

MODIFYING THE MOMENTUM INDICATOR

An investment strategy powered by the 1-year ROC indicator is likely to produce erratic results in small portfolios. The indicator is dependent on one data point that's 12-months old and provides no indication on the quality of a company's trend.

The two companies on the following chart have identical 1-year ROC values, but very different price trends.

- Company A's share price (left) is volatile and unpredictable, the exact opposite of what trend following strategies seek.
- Company B's share price (right) is relatively stable, controlled, and consistent. It's these trends we aim to locate and exploit.

A superior momentum indicator for the ASX Top 5 was therefore required.

The momentum indicator needed to accurately and programmatically determine both trend velocity and trend quality, then apply a score to each company. This score would then be used to rank all ASX 100 companies on the last day of every month.

The Guppy Multiple Moving Averages (GMMA) are excellent at determining trend quality, but the indicator requires visual interpretation of the indicator. We also tested a range of well-known indicators over multiple timeframes:

- Rate-of-Change (ROC) based on Price, Weighted Price and Linear Regression
- Hull Moving Average (HMA)
- Moving Average Convergence Divergence (MACD)
- Linear Regression Slope (Clenow)

While most generated stable and profitable results, none performed at a level deemed adequate to meet our goals.

So, Market Index used the POC phase to create a custom Momentum Indicator that combined both trend velocity and trend quality. To avoid over-optimisation, the indicators parameters were set using the results of a generic 20-stock portfolio of ASX 200 companies with data from 2001 to 2015.

The final formula is proprietary to the ASX Top 5 strategy and not for public disclosure.

Part 3
BASIC OPTIMISATION

After validating the POC and creating our momentum indicator, we optimised the system for optimal risk-adjusted returns. While the returns were surprisingly profitable, the system was too volatile and the MaxDD of -59.23% that lasted 69.0 months was unacceptable.

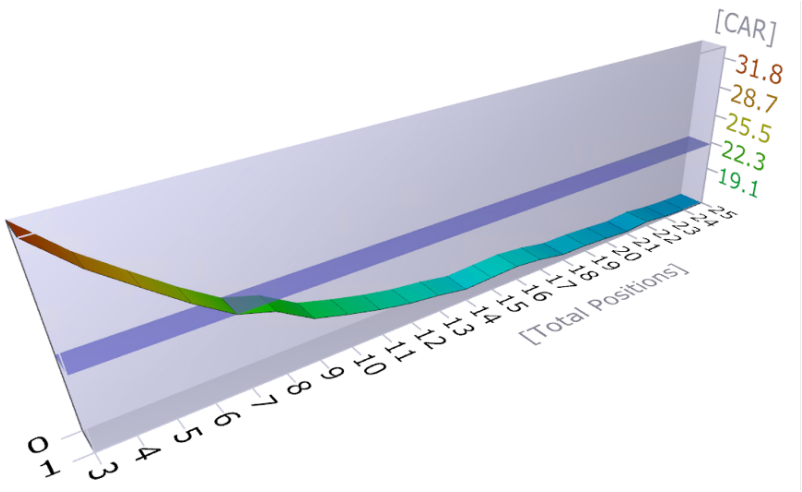
We continued using the 2001 to 2015 test period, but switched the pool of stocks to ASX 100 companies, and replaced the 1-year ROC with our custom Momentum Indicator.

To prevent curve-fitting, only three basic, logical, and necessary changes were incorporated to improve risk-adjusted returns:

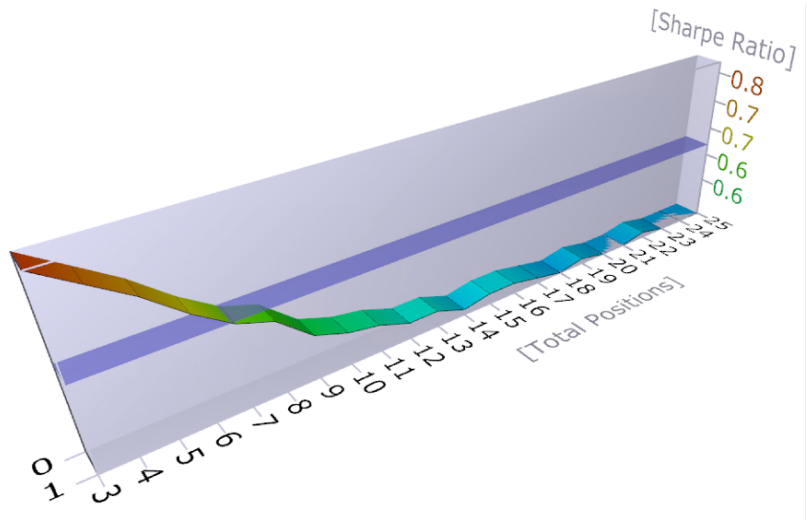
1. Portfolio Size
2. Minimum Momentum Cut-Off
3. Trend Confirmation

PORTFOLIO SIZE

To determine the optimal portfolio size, we ran our Momentum Indicator over portfolio sizes ranging from 3 to 25 companies.



For **Compounded Annual Return (CAR)**, performance dropped as the portfolio size increased, before plateauing at around 12 companies. To achieve 20%+ annual returns, a small portfolio would be required.



The **Sharpe Ratio**, a measure of risk-adjusted return, provided almost identical results. Smaller portfolios generated higher risk-adjusted returns, before plateauing at around 12 companies.

Other benchmarks including CAR/MDD, Volatility and Standard Deviation were reviewed between portfolio sizes. After analysis, Market Index decided that a 5-stock portfolio provided the optimal risk-adjusted returns.

NOTE:

*After determining that a **5-stock portfolio** provided the best risk-adjusted returns, the code was modified so companies that remained in the top 5 from one month to another weren't sold on the last day of the month and bought back at 20%. Instead, the position would remain open from one month to another. This significantly reduces brokerage, maintenance time, and allows the winners to compound.*

*A **1-day buy delay** was also set. While the scan would continue to run at the close on the last day of the month, the buy and sell transactions won't occur until the open on the 1st trading day of the month.*

***Fractional shares** were no longer allowed.*

MINIMUM MOMENTUM CUT-OFF

To avoid buying stocks going down, we set a minimum momentum score that companies were required to meet before being considered for inclusion in the portfolio.

Raising the cut-off value makes it harder for companies to enter the portfolio, thereby reducing the number of stocks in the portfolio and increasing cash holdings. Lowering the cut-off does the opposite.

Setting a minimum momentum cut-off also prevents the portfolio from holding companies during poor market conditions by increasing cash holdings during bear markets.

Market Index aimed for a 15% cash holding and the minimum cut-off score was adjusted to get exposure to this level.

	BEFORE a minimum momentum cut-off	AFTER a minimum momentum cut-off
Compounded Annual Return	30.16%	29.48%
Annual Sharpe Ratio	1.2	1.3
Annual Volatility	23.44%	21.28%
Maximum Drawdown	-59.36%	-44.22%
Median Drawdown	-5.06%	-5.15%
Longest Drawdown	29.6 months	29.3 months

While incorporating a cut-off reduced the portfolio's returns slightly, the maximum drawdown was significantly reduced.

TREND CONFIRMATION

In monthly strategies, short-term price movements are often ignored because long-term trends need "breathing room" to avoid whipsawing the investor in-and-out of trades.

Unfortunately, this leaves monthly strategies vulnerable to purchasing companies with strong long-term momentum that are currently in a trend reversal, or have already reversed.

For example, Afterpay Ltd (APT) hit a low of $8.01 on 23 March 2020 before hitting a high of $160.05 on 11 February 2021.

That's a 1,900% increase in 11 months.

Even after falling 35% by late March 2021, APT's medium and long-term trend remained exceptionally strong with a 1-year ROC of 400%.

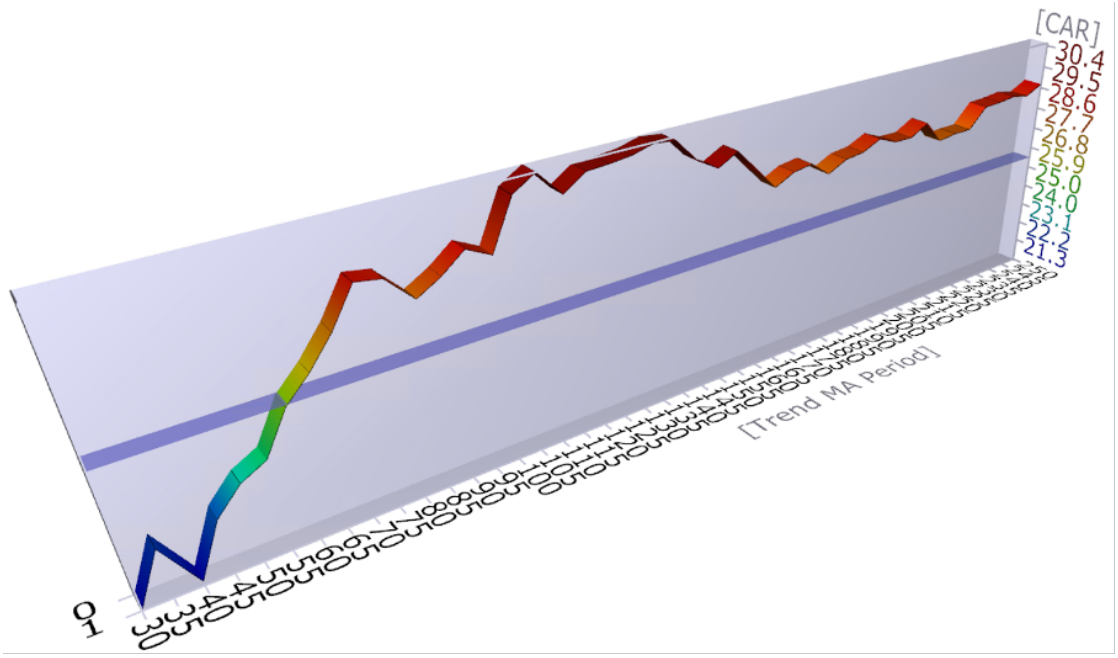
Confirmation of the short-term trend was therefore needed to avoid buying companies with strong long-term momentum when the uptrend had clearly reversed or weakened.

The most popular trend following indicator is the moving average. Market Index decided to implement the moving average without testing any other indicator due to its simplicity and effectiveness.

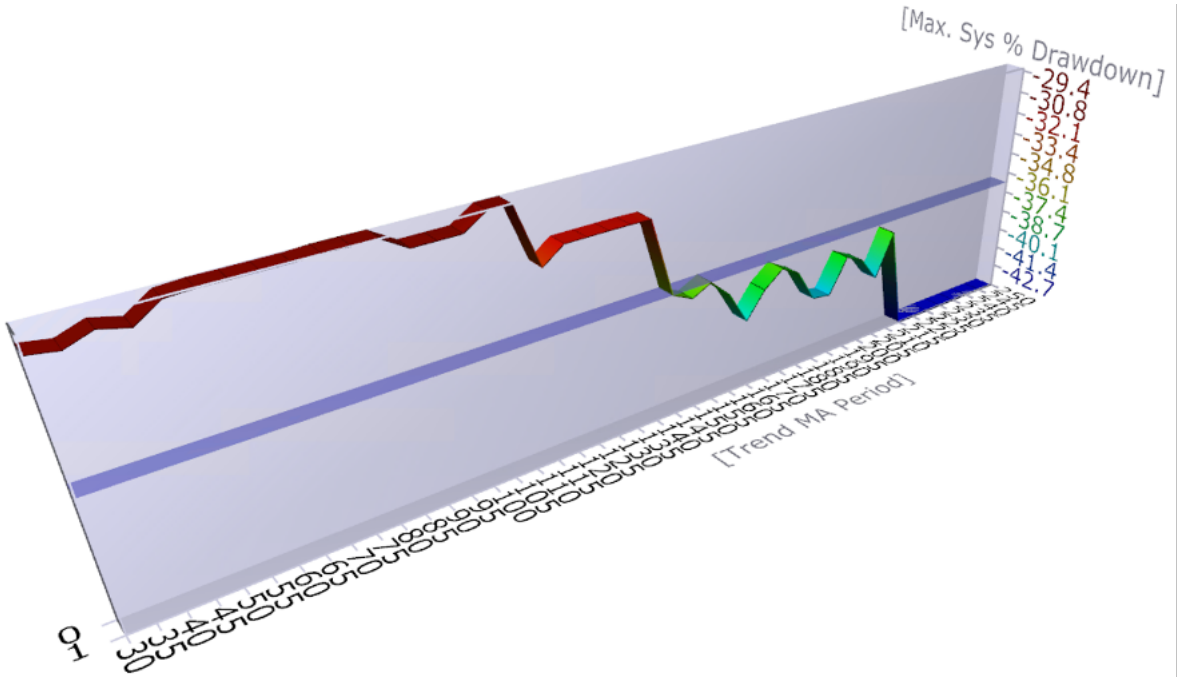
We ran the ASX Top 5 strategy through a filter (monthly closing price is above a rising moving average) using values ranging from 30-days to 250-days.

Two observations were immediately clear:

Observation 1: Longer timeframes generated higher annual returns



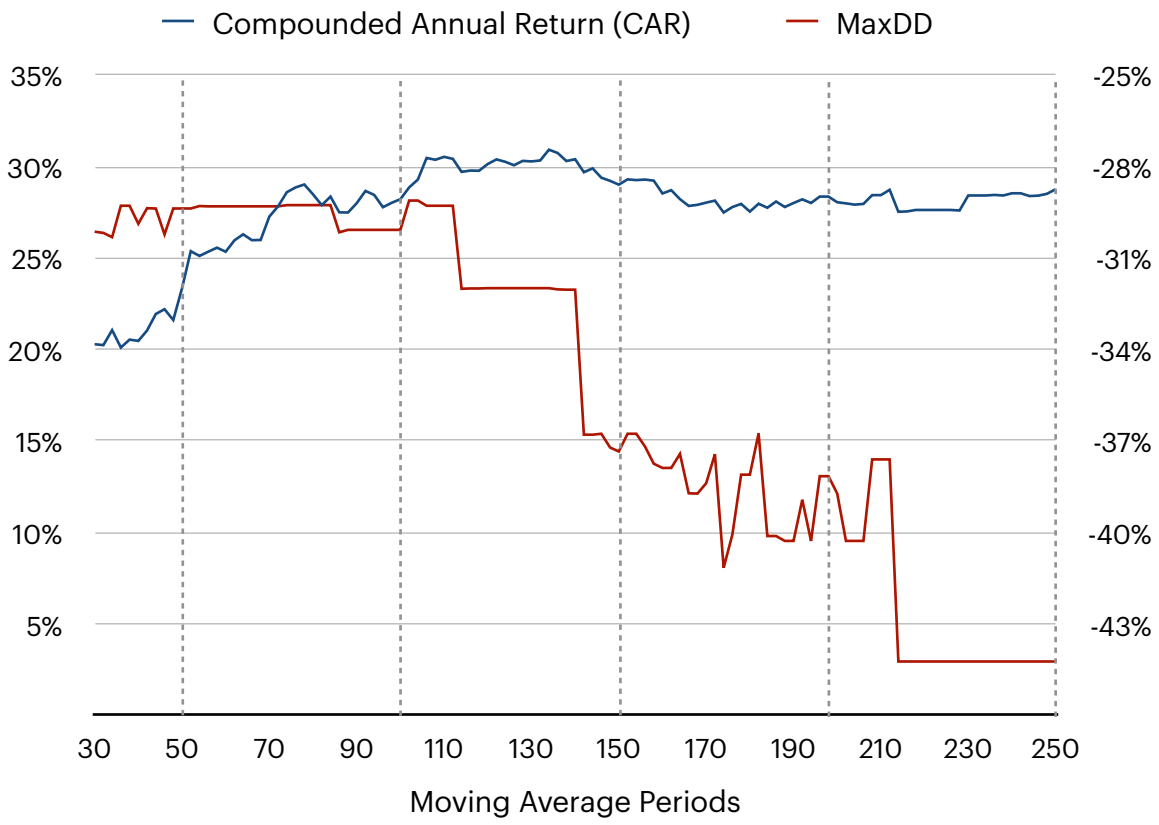
Observation 2: Shorter timeframes reduced Max DD



A range of metrics other than CAR and MaxDD were analysed. To avoid over-optimisation, we selected our moving average from one of the 5 most common timeframes.

Moving Average	CAR	MaxDD
50-day	23.34%	-29.38%
100-day	**28.21%**	**-30.08%**
150-day	29.00%	-37.34%
200-day	28.04%	-38.72%
250-day	28.75%	-44.22%

Market Index settled on the 100-day moving average.



Part 4
HISTORICAL RETURNS

The ASX Top 5 has been stress-tested through 20 years of market conditions, and the long-term returns are superior to all strategies we've tested on a risk-adjusted basis.

It's worth noting that the strategy was created in 2019 using data from 2001 to 2015, and 2020 was its best year on record.

Market Index followed the walk-forward testing protocol on out-of-sample data to avoid over-optimisation. The following table outlines the time periods their percentage returns:

2001 to 2015															2016 to 2019				2020
In-sample test period															Out-of-sample				Live
34.2	24.0	12.1	51.6	47.0	50.6	36.1	-3.6	40.8	36.3	0.9	20.1	44.2	14.1	32.7	41.7	5.0	1.1	37.7	65.4

The ASX Top 5 system has four inputs:

1. Momentum Indicator
2. Portfolio Size
3. Minimum Momentum Cut-Off
4. Trend Confirmation

The **Momentum Indicator** and its parameters were created using a 20-stock portfolio of ASX 200 companies with data from the in-sample test period.

The **Portfolio Size** was determined from analysing the performance of the Momentum Indicator over ASX 100 companies with data from the in-sample test period.

The **Minimum Momentum Cut-Off** was set using a 5-stock portfolio of ASX 100 companies with data from the in-sample test period.

The **Trend Confirmation** moving average was selected by analysing the performance of the five most common moving average timeframes applied to a 5-stock portfolio of ASX 100 companies with data from the in-sample test period.

	In-Sample	Out-of-Sample
	2001 to 2015	2016 to 2020
Compounded Annual Return	28.21%	28.18%
Exposure	83.42%	91.99%
Risk-Adjusted CAR	33.82%	30.64%
Average Hold Time	56.23 trading days	57.54 trading days
Win Percentage	58%	58%
Average Win	17.66%	19.61%
Average Loss	-6.11%	-8.05%
Max Trade Drawdown	-40.97%	-36.45%
Max System Drawdown	-30.08%	-24.60%
Median Drawdown	-4.68%	-5.24%
Annual Sharpe Ratio	1.7	1.2
Annual Standard Deviation	16.93	24.37
Annual Volatility	19.50%	20.53%

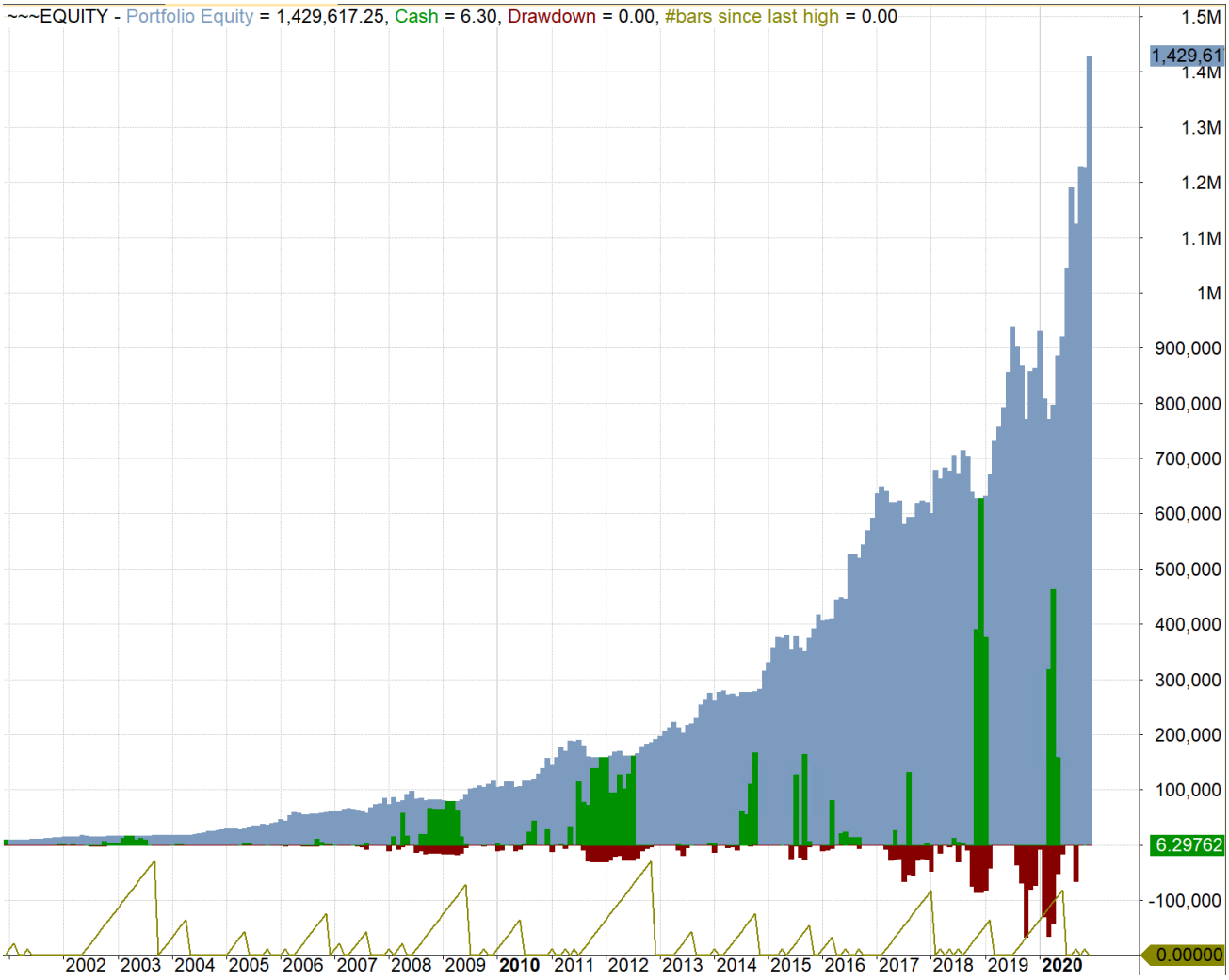
The system's performance was similar between the in-sample and out-of-sample periods, so we can be confident the results aren't due to curve-fitting or over-optimisation.

CAR, Average Hold Time, Win Percentage and Average Win & Loss are almost identical. This suggests the system is robust and consistent.

The primary differences were in the volatility metrics: Sharpe Ratio, Standard Deviation and Volatility. These differences were to be expected due to the shorter timeframe (15 years vs 5 years) and the severity of the Covid Crash during the 5-year test period.

EQUITY CURVE

The following image shows the ASX Top 5's equity curve (blue), cash holdings (green), drawdowns (red), and drawdown duration line (light green).



The portfolio has only held 100% cash on a handful of occasions: 2003, 2009, 2011, 2012 and 2018.

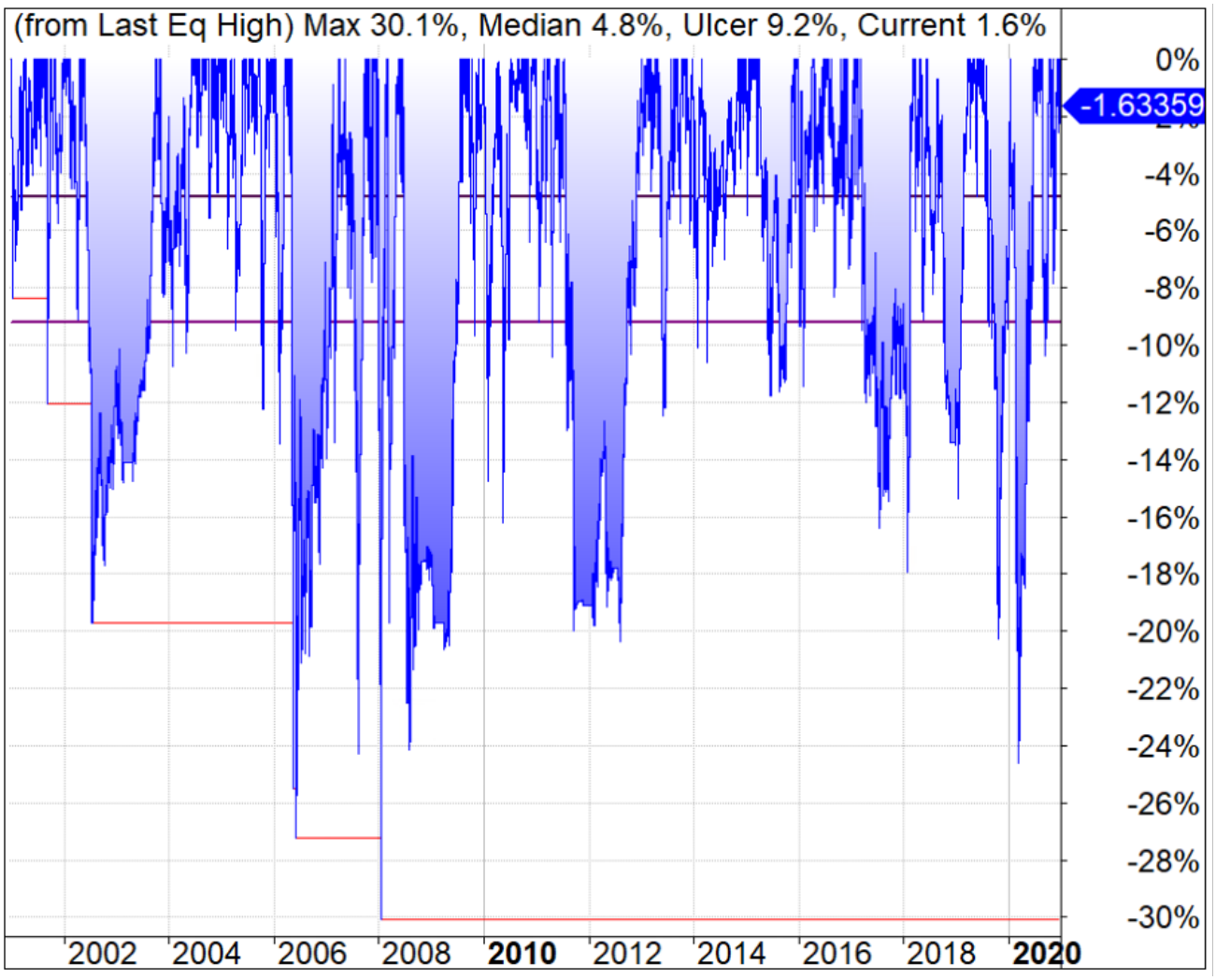
The largest drawdowns often coincide with periods of cash holding, suggesting the system moves to cash a little late during market downturns. Being a monthly strategy, this is expected, and likely unavoidable without incorporating an index filter triggered by a leading indicator.

The two longest drawdowns followed extended periods of 100% cash. This is expected as the portfolio cannot increase in value when holding cash.

DRAWDOWNS

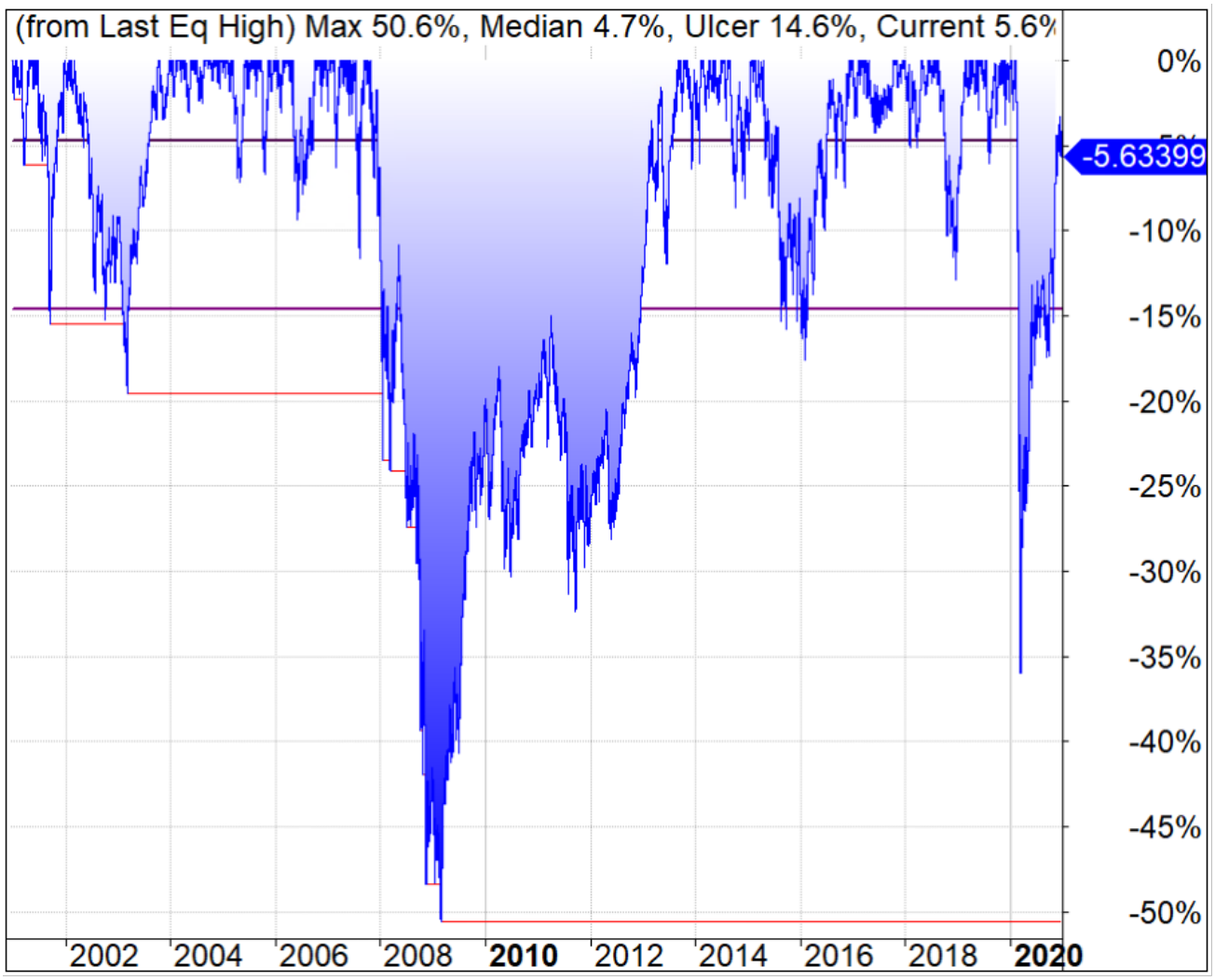
A drawdown is the peak-to-trough drop in a portfolio's total value (i.e. open positions plus cash holding). If your portfolio's total value hit a high of $56,000 then fell to $47,600, then your drawdown would be -15.0%.

The ASX Top 5 exhibits higher volatility than the S&P/ASX 200 Accumulation Index, and this is easily seen when comparing the drawdown charts between the ASX Top 5 and the index.



The **ASX Top 5 (above)** has regular and sharp drawdowns of moderate intensity. Drawdowns regularly cross -15.0% and typically recover as fast as they occur. This is not unusual for a high-growth strategy.

The **S&P/ASX 200 Accumulation Index (below)** has fewer large drawdowns, but when they occur, they're larger and extend for longer periods.



It's therefore important for anyone following the ASX Top 5 strategy to understand that drawdowns of -15% are common, and arguably needed, to generate the returns the strategy produces.

MONTHLY RETURNS

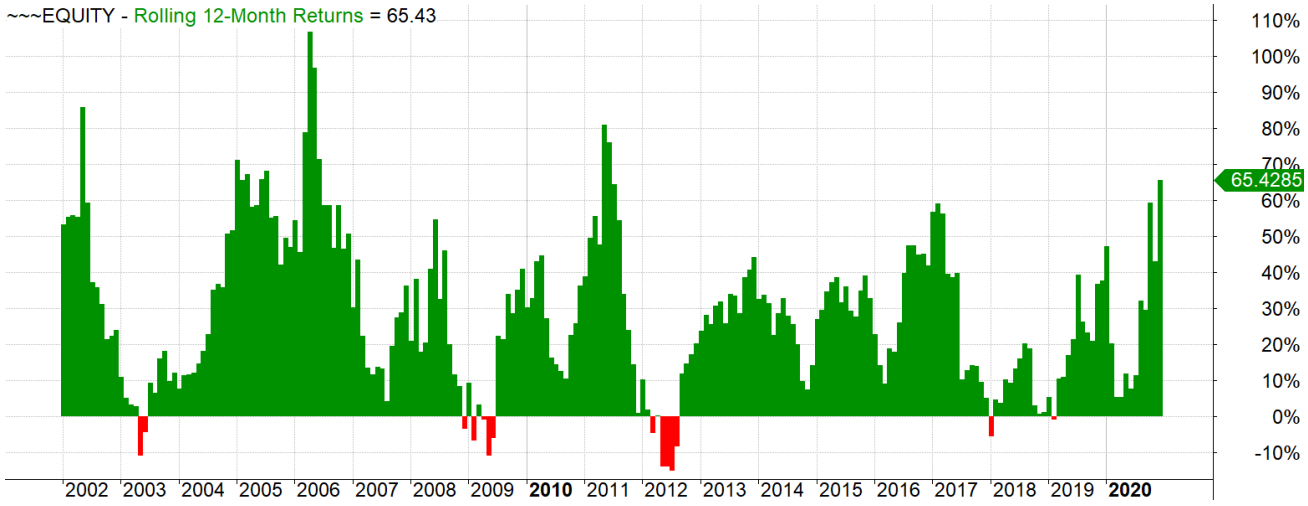
January has historically been the worst performing month.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yr%
2001	-3.8%	2.8%	1.5%	0.7%	-2.0%	10.1%	3.3%	4.1%	1.4%	10.0%	1.8%	0.9%	**34.2%**
2002	10.1%	3.9%	1.8%	0.4%	17.2%	-5.5%	-11.1%	3.1%	-2.0%	1.8%	2.4%	2.2%	**24.0%**
2003	-1.6%	-1.6%	0.0%	0.0%	1.5%	1.6%	1.6%	0.5%	6.9%	3.5%	-4.9%	4.6%	**12.1%**
2004	-5.6%	2.0%	0.1%	0.4%	4.0%	4.6%	5.6%	10.5%	8.2%	2.8%	5.5%	5.2%	**51.6%**
2005	6.6%	-1.4%	1.1%	-5.1%	4.4%	9.3%	7.1%	1.9%	8.5%	-6.1%	11.0%	3.5%	**47.0%**
2006	12.0%	-7.1%	24.2%	9.7%	-0.7%	-4.8%	-0.9%	2.0%	0.4%	1.4%	2.5%	6.5%	**50.6%**
2007	-3.1%	2.3%	5.8%	1.8%	-2.3%	-3.0%	-1.2%	-6.3%	15.2%	8.2%	3.5%	12.6%	**36.1%**
2008	-14.0%	16.9%	-9.7%	4.0%	14.4%	6.3%	-15.3%	3.3%	-5.5%	0.7%	0.6%	0.1%	**-3.6%**
2009	-2.6%	-0.1%	0.0%	-0.3%	2.7%	12.2%	10.4%	2.5%	4.3%	-3.2%	5.6%	4.4%	**40.8%**
2010	-9.9%	1.7%	7.7%	1.0%	-9.6%	2.4%	8.6%	0.8%	2.4%	7.4%	8.3%	13.2%	**36.3%**
2011	-8.3%	9.7%	12.0%	-4.1%	10.7%	-0.3%	1.3%	-5.2%	-11.2%	-0.5%	-0.1%	0.0%	**0.9%**
2012	0.0%	1.4%	4.8%	0.7%	-5.0%	-0.4%	0.1%	2.3%	8.4%	2.0%	2.0%	2.5%	**20.1%**
2013	2.9%	5.1%	2.7%	5.0%	-4.3%	-4.9%	6.7%	1.8%	4.4%	10.1%	3.5%	5.1%	**44.2%**
2014	-5.4%	5.9%	1.1%	-2.2%	0.4%	-1.8%	2.9%	-0.1%	-0.2%	0.7%	1.3%	11.6%	**14.1%**
2015	5.3%	7.9%	5.1%	-0.4%	1.6%	-6.7%	6.3%	-5.1%	-1.5%	6.5%	4.5%	6.4%	**32.7%**
2016	-2.7%	0.3%	0.6%	8.5%	0.8%	-0.4%	18.1%	0.0%	-1.4%	4.6%	4.6%	4.0%	**41.7%**
2017	7.6%	1.9%	-1.3%	-3.1%	0.1%	0.4%	-6.8%	2.2%	-0.2%	4.5%	0.6%	-0.4%	**5.0%**
2018	-3.4%	13.0%	-2.2%	2.9%	-0.7%	4.1%	-4.5%	6.1%	-1.4%	-9.4%	-1.7%	0.0%	**1.1%**
2019	0.7%	6.3%	9.0%	3.4%	4.6%	8.0%	9.7%	-4.0%	-3.7%	-11.2%	11.2%	0.7%	**37.7%**
2020	7.7%	-13.2%	-4.4%	3.2%	11.2%	3.9%	13.4%	14.0%	-5.6%	9.3%	-0.1%	16.5%	**65.4%**
Avg	**-0.4%**	**2.9%**	**3.0%**	**1.3%**	**2.5%**	**1.8%**	**2.8%**	**1.7%**	**1.4%**	**2.2%**	**3.1%**	**5.0%**	

MINIMUM INVESTMENT TIMEFRAME

A minimum investment timeframe of about 3 years is required to reduce the likelihood of negative returns. Any shorter and there's a higher risk of entering at a market high and not generating a positive return.

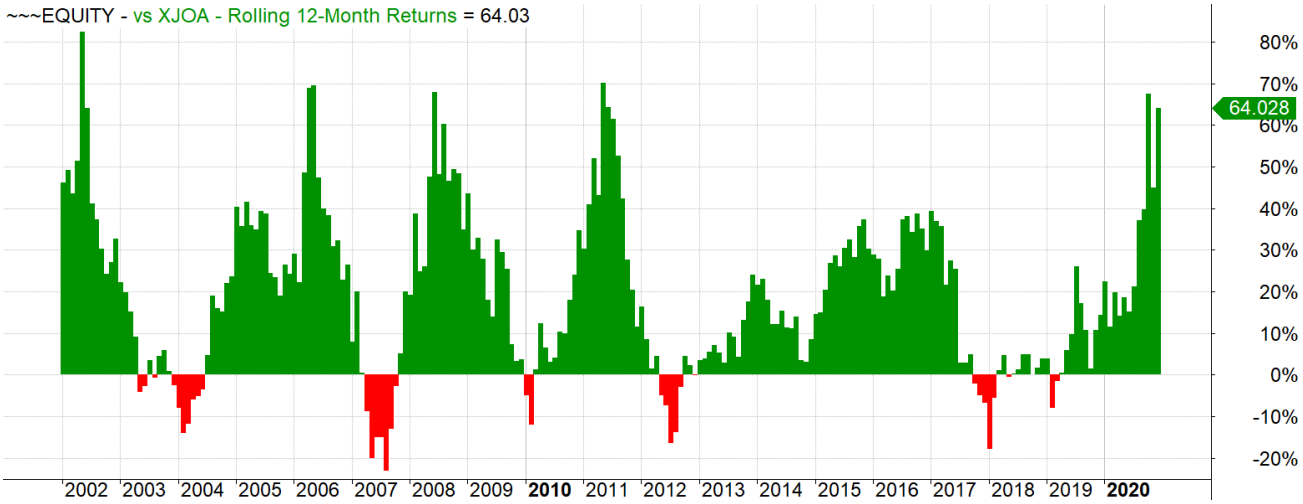
The following chart shows the rolling 12-month returns of the strategy (i.e. the return of a new portfolio after 12-months following the strategy).



Over the 20-year period tested, there was a 6% chance the system produced a negative return over a randomly selected 12-month period.

The chart doesn't account for brokerage or slippage, so the real-life chance of a negative 12-month return could potentially be closer to 10%.

Compared to the S&P/ASX 200 Accumulation Index, the results were less impressive.



Over the 20-year period tested, there was a 14% chance the system underperformed the S&P/ASX 200 Accumulation Index over a randomly selected 12-month period.

The chart doesn't account for brokerage or slippage, so the real-life chance of underperforming the index could potentially be closer to 20%.

SYSTEM RULES

Consistent rules are needed to generate transparent returns.

Market Index decided on:

BUY & SELL PRICE

The open price on the first trading day of the month was used. You can't always sell one company and then use the proceeds to buy another at the opening price. Due to the ASX's staggered opening, you'd need to be selling a company starting with A to F, and buying a company starting with N to Z, but sticking with a predetermined and consistent time is the most transparent way to back-test a strategy.

DIVIDENDS

All dividends are included in the portfolio's returns. Dividends are treated as reinvested on the ex-dividend date. This isn't possible in real-life (the pay date is typically 1-5 weeks later), but that's how the ASX data industry calculates "dividends reinvested". The effect is usually a slight positive bias towards a portfolio's return.

TRANSACTION COSTS

For simplicity, transaction costs are excluded.

TAXATION

Tax is not included. The ATO likes to get paid, but it's difficult to back-test with tax included. Tax brackets range from 0% to 45% plus the Medicare levy.

SLIPPAGE

Slippage is ignored as accurately accounting for slippage is tricky. What is slippage? Slippage is the difference between the intended buy/sell price and the actual buy/sell price. Volatile openings can cause the market to rapidly move away from your intended buy or sell price. Liquidity issues, human errors like typos, Wi-Fi dropouts, hangovers, and general life distractions are common.

CORPORATE ACTIONS

Corporate actions are accounted for in the results. Mergers, takeovers and corporate actions can occur at any time of the month, so intra-month corporate actions used the closing price of the last day traded.

ANNUAL RETURNS

Annual returns were calculated using the last closing price of each year.

Part 5
OPTIMISATIONS TESTED (BUT NOT INCLUDED)

Market Index tested a range of optimisations to determine if any could reliably improve the ASX Top 5's performance or lower its volatility.

The additional testing proved fruitless. No optimisation parameters improved the risk-adjusted returns enough to warrant inclusion in the ASX Top 5 methodology.

Optimisations rigorously tested included:

1. PRICE TARGETS

In general, price targets cut winner short.

A price target of circa 30% to 50% generated superior returns during bear markets, but price targets of all values generated inferior returns during bull markets.

2. STOP-LOSS

Three types of stop-losses were rigorously tested:

- Average True Range (ATR)
- Trailing percent
- Percent drop from buy price

All stop-losses performed poorly due to cutting winners short during intra-month volatility.

3. SECTOR LIMIT

Incorporating a sector limit reduced the portfolio's return with minimal impact on volatility.

4. REBALANCING

Regular rebalancing can reduce volatility and improve compliance with a strategy.

We tested rebalancing the portfolio back to 20% equal weightings on the first day of the month if a single stock in the portfolio exceeded thresholds ranging from 21% to 30%.

No threshold provided a compelling reason to incorporate rebalancing into the ASX Top 5 Portfolio (from a long-term returns perspective). However, we recommend subscribers rebalance their portfolio back to a 20% equal weighting when a single company in the portfolio has a weighting of 25% or more at the close on the last day of the month. This number can be reduced even further for large portfolios where brokerage (with a discount broker) is of little concern.

5. DAY OF THE MONTH

No benefit was observed by changing the rebalance date from the 1st of the month.

6. BLACKOUT PERIODS

A blackout period (the timeframe after a company is sold where it is excluded from being repurchased) from 1 to 5 months was tested.

A 3-month blackout period resulted in significant improvements to both CAR and MaxDD, but the test did not contain enough data points to justify inclusion into the ASX Top 5's stock selection criteria.

7. FUNDAMENTALLY SOUND

Using a pool of stocks comprised of companies considered fundamentally sound by Martin Roth in his book "Top Stocks" or Lincoln Indicators in their list of "Star Stocks" did not improve returns.

8. INDEX FILTER

Multiple index filters were tested, including:

- Selling all positions during market downturns
- Holding current positions but opening no new positions during downturns
- Raising the minimum momentum cut-off during downturns

We tested multiple definitions of a "downturn", including:

- The S&P/ASX 200 Index was below a moving average.
- The S&P/ASX 200 Index moving average crossovers were bearish.

No index filter tested improved the strategy's risk-adjusted returns enough to warrant inclusion into the systems stock selection criteria.

ACKNOWLEDGEMENTS

The following resources influenced the ASX Top 5 in some way:

BOOKS

Secrets for Profiting in Bull and Bear Markets
Stan Weinstein (1988)
A heavy book that's not for the faint-hearted. It does a wonderful job of explaining the concepts behind identifying long-term trends.

Stock Market Stratagem: Loss Control and Portfolio Management Enhancement
Braden Glett (2003)
An easy read that emphasises companies hitting 52-week share price highs shouldn't be feared as overbought; we should embrace them.

Stocks on the Move: Beating the Market with Hedge Fund Momentum Strategies
Andreas F. Clenow (2015)
A book that outlines a strategy for a 5-stock portfolio that locates large-cap stocks in controlled uptrends. Formed the fundamental basis of the ASX Top 5 strategy.

Quantitative Momentum: A Practitioner's Guide to Building a Momentum-Based Stock Selection System
Jack Vogel PhD & Wesley Gray PhD (2016)
A great all-round book for anyone building their own momentum portfolio.

RESEARCH PAPERS

Copyright prevents us from providing the papers, but most can be found online:

- Turn, S. & Pavlov, V. (2003): Momentum in Australian Stock Returns
- Demir, I., Muthuswamy, J. & Walter, T. (2003): Momentum returns in Australian equities: The influences of size, risk, liquidity and return computation
- Drew, M., Veeraraghavan, M. & Ye, M. (2004): Do Momentum Strategies Work? - Australian Evidence
- Vanstone, B., Hahn, T. & Finne, G. (2012): Momentum returns to S&P/ASX 100 constituents
- Da, Z. & Gurun, G. (2012): Frog in the Pan: Continuous Information and Momentum
- Nandha, I., Singh, H. & Silvers, R. (2012): Does Momentum Still Exist in the Australian Stock-Market?

- Tan, Y. & Cheng, F. (2019): Industry- and liquidity-based momentum in Australian equities

PEOPLE

Oliver Gordon – Global Investment Adviser
Oliver's "Proof of Concept" strategy design and evaluation process in Amibroker software greatly assisted the ideation and creation of the ASX Top 5 strategy.

Alan Hull – Investment Adviser
The Hull Moving Average almost secured a spot in the ASX Top 5's momentum indicator.

To access the ASX Top 5 strategy, please click here