



Welcome to my second annual letter. This month marks 7 years since the inception of the GCAF Program. As always, the purpose of this letter is twofold: to provide you with information on new developments at Tomas Capital and discuss the road forward; and to share with you my continued thinking about risk, markets and more. I trust that you will find each letter to be informative, thought provoking and entertaining, and welcome any and all feedback.

News Corner

GCAF | USD

Tomas Capital continues to offer managed accounts to clients who qualify as QEP (Regulation 4.7 of the US Commodity Exchange Act) directed by the GCAF Program as a United States registered Commodity Trading Advisor (NFA ID 501235). We suggest a minimum size of \$1,500,000 USD or equivalent in a currency of your choosing.

GCAF | AUD

Our flagship Australian fund continues to be directed by the GCAF Program, with an uninterrupted track record since July 2011. Tomas Capital is an Australian Authorised Financial Services Representative (AFS Rep 1232823) and offers the fund to “Wholesale Clients” as defined by section 761G of the Corporations Act. The fund is managed by our subsidiary, Tomas Capital Australia, and is closed to US investors.

Hobereau Investments

Tomas Technology Pty Ltd, the majority shareholder of Tomas Capital (and 100% owned by me), is in the process of purchasing Hobereau Investments Pty Ltd. Hobereau Investments holds the AFSL (244539) that Tomas Capital is a representative for. I will be instated as a Co-Responsible Manager for Hobereau Investments’ AFSL and in time will take over as the sole Responsible Manager. This allows GCAF | AUD to continue to operate within the same legal structure that it has since inception. Hobereau Investments will maintain the same policy of not charging administrative or custodial fees to GCAF | AUD and any costs it incurs will be absorbed by Tomas Capital.

New Website

www.adamtomas.com

I’d like to take this opportunity to announce my new personal website, which is best described as a blog. Whilst it is a separate website and intended to not be marketing material for Tomas Capital, I will be using some of the concepts and ideas that I flesh out in these annual letters to seed some blog entries. The predominant intention of the website is to provide myself with an avenue to explore and



develop conjectures about a range of subjects and their intersections. This will no doubt include, trading and financial risk, but will extend to thoughts on epistemology, computer science, psychology and more. Lastly, the website will act as a repository for my past and future ventures, where I can keep a record of all my failures; and hopefully a few successes. If you have received this letter as a member of the Tomas Capital mailing list, then you are already included on the mailing list that notifies you each time I publish a blog entry. If not, it is self-explanatory to subscribe when you access the new website.

Philosophy Corner

I look forward to writing something for this section every year (well twice now anyway). This past year or so I have spent time thinking about epistemology whilst absorbing the profound thinking of David Deutsch. I first listened to his interviews with Sam Harris (on his podcast) and was then compelled to pick-up *The Beginning of Infinity* and later *The Fabric of Reality*. Incidentally, both books were already on my bookshelf but I had left them aside for the past few years, which is something I now regret. I have now commenced my journey through the works of Karl Popper; David's prime inspiration (and also that of Taleb). In this section I will explore some of the insights I have had as they apply to markets, trading systems and risk; and I will also touch fleetingly on some areas outside the mandate of this letter. Should I mistakenly make claim to any insights that should be duly credited to Popper, then at the outset assume that I have (and will) credit him.

Induction is not a thing

Simply defined, induction is any attempt to generalise from the observation of particulars. Inductive inference is the foundation of empiricism and despite logical inconsistency, we observe the practice in many fields, sometimes mistakenly and often without regard. The logical inconsistency of induction is usually labelled "the problem of induction" and a recognition of it can be traced back to ancient and modern thinkers alike. Unlike deductive inference, the conclusion of an inductive inference cannot be guaranteed.¹ Bertrand Russell describes induction's problem in *The Problems of Philosophy*:

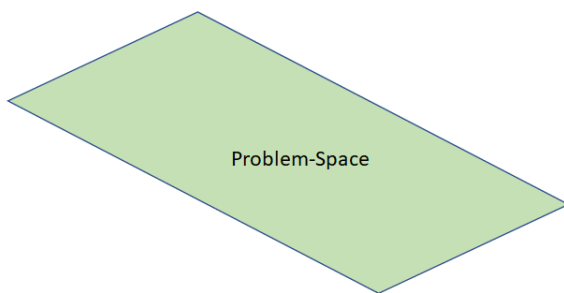
"Domestic animals expect food when they see the person who usually feeds them. We know that all these rather crude expectations of uniformity are liable to be misleading. The man who has fed the chicken every day throughout its life at last wrings its neck instead, showing that more refined views as to the uniformity of nature would have been useful to the chicken."

¹ A deductive inference applies the process in reverse and derives a conclusion from one or more general premises; such a conclusion will be logically certain when the premises are true.

The story has also been presented as a turkey who is fed everyday, and induces that this is likely to continue, until being mistaken on Thanksgiving Day. To which Taleb repeatedly quips “don’t be a turkey.” Popper’s insight is that there is no problem of induction, it simply is not a thing and is no way to derive knowledge about the world; when we fall for the seduction of induction we fool ourselves, much like the turkey. With the aid of this assertion I aim to build a visual epistemological model, from which I can discuss how knowledge is created and how this applies to markets, trading systems and risk. My model is inherently Deutsch-ian and is to be credited as such.

I start with something I call the problem-space: a phenomenon that requires explanation. Let’s visualise the problem-space in Figure 1.

Figure 1 The Problem-Space

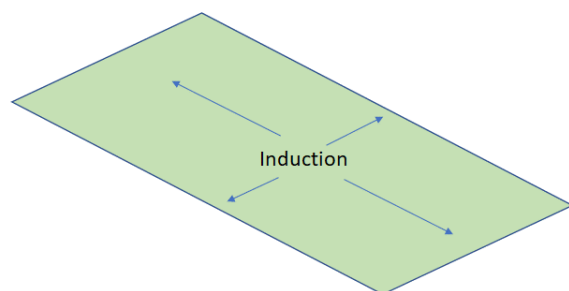


The problem-space views phenomena requiring explanation as an abstract two-dimensional plane, allowing a more general definition of induction to be implied: Whenever we use the problem-space itself to generate explanations about the problem-space, we are engaging in induction and fooling ourselves. This is depicted in Figure 2.

Consider the problem-space as a representation of the earth and let’s assume that we can observe a thoughtless pirate sailing the seas of the problem-space. One day our pirate decides to sail in one

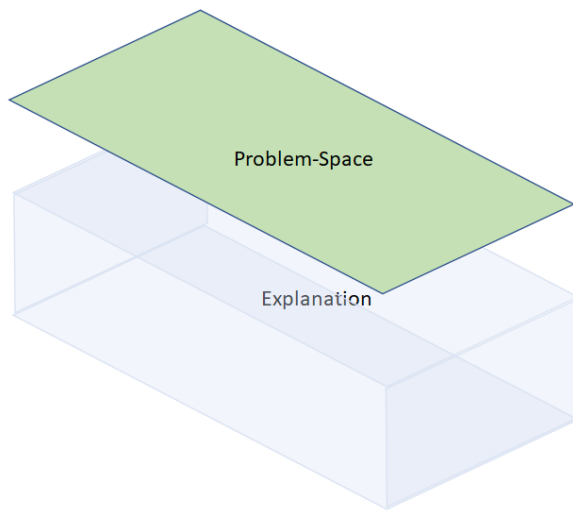
direction and finds himself arriving back at his starting point. He makes several more observations by sailing off in different directions and always finding himself back at his starting point. From these observations, the pirate, being thoughtless², concludes that he will always return to his starting point if he travels in one direction for long enough, he cannot fall off the edge. Notice that our pirate has not provided an explanation of the problem-space, he has simply induced from his observations. He cannot rely upon this knowledge and no number of

Figure 2 Induction



² We could also characterise him as intellectual yet idiot.

Figure 3 The Problem-Space With Underlying Explanation



explain, then all valid explanations must reside in another dimension.³ This conclusion is depicted in Figure 3.

observations can give him confidence that one day he will not indeed fall off the edge. If our pirate wants an actual explanation of the problem-space, what is he to do? Simply put, he must stop being thoughtless. An explanation requires that he make a creative leap. In this instance, our pirate could conjecture that the problem-space, earth, is situated on the surface of a spherical object. Notice that the explanation resides in another dimension. Our pirate's problem-space is two-dimensional and its explanation resides in the 3rd dimension. This is no mistake. It follows that if induction is not to be relied upon and induction can be generalised to all attempts at knowledge that use the very problem-space they attempt to

Technically speaking, our pirate has not reasoned deductively. We could roll back our discussion of his thought process and allow for him to make one or several conjectures about his predicament *before* he sets sail: Now he has made a deductive inference; the observation that he seems to always return to his starting point when traveling in one direction is a logical consequence of his general premise that the earth is a sphere. In reality, I don't think it is important exactly where the inspiration for his conjecture comes from, the important point to understand is that the source of all knowledge is necessarily conjectural, and moreover, as Popper would assert; it is theory-laden. As a consequence, our pirate can now make further inferences about the problem-space and expect them to be confirmed should his theory of a spherical earth be the correct one. For example, our pirate should observe that the distances covered on each of his voyages around the sphere be equivalent. Were he to observe a voyage of a differing distance, our pirate would be forced to conclude that his spherical earth theory is incorrect and he would be forced back to his conjectural drawing board.

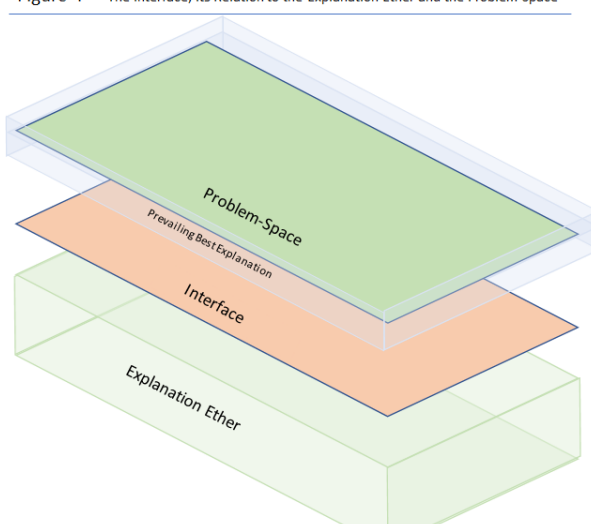
The fact that our pirate's theory must be revised or improved, or outright rejected in the face of contrary observations means that he can never be secure that his theory is the one true explanation of the problem-space. This circumstance has been coined *fallibilism*, the notion that no knowledge or

³ When we view the problem of gravity and its effects playing out on a problem-space, the Newtonian explanation, comprised of a mathematical law describing the interactions of bodies on the problem-space, but with no clear explanation defining gravity; is a form of induction. Einstein's general relativity, which attributes gravity to distortions in 4-dimensional spacetime is an explanation which obviously resides in another dimension to the problem-space.

belief can be justified; it forms the foundation of Popper's epistemology and our best understanding of how to think about the foundations and growth of knowledge. Popper's demarcation of scientific knowledge employs the criterion of falsifiability: A theory will delineate as scientific under the condition that it can infer at least one set of observations or conditions that will render the theory incorrect. Accordingly, the foundation for our knowledge is its inherent ability to be proven wrong. An explanation that cannot possibly be proven wrong is a bad explanation and an explanation that is both tightly coupled to its problem-space and includes clear configurations that can prove it wrong is a good explanation that will continuously be subject to revision, improvement or outright rejection in the face of the problem-space and any competing alternate explanations. A better explanation, according to Deutsch, will also have reach: the ability to generalise to a larger problem-space.

Popper's insight is a guiding light toward not only a foundation for our knowledge, but a foundation for how to deal with complexity in general. Indeed, nature has discovered the insight and implemented structures that embrace it on numerous occasions; and all long-standing human institutions exploit the insight similarly. Falsification underpins the key object within my visual epistemological model; something I call the interface: an interface is any structure, institution, methodology or system that generates new explanations, attempts to falsify them against a given problem-space, retains the best explanation with the most reach and continuously attempts to overthrow it with a better explanation. The interface is a bridge between the ether of all potential explanations and the problem-space(s) requiring explanation. Figure 4 depicts the interface. We can see that the interface sits between the explanation ether and engages with the problem-space via the generation of, and continued attempts to falsify, its best prevailing explanation. The interface also attempts to overthrow its best prevailing explanation by reaching into the explanation ether to generate new conjectures.

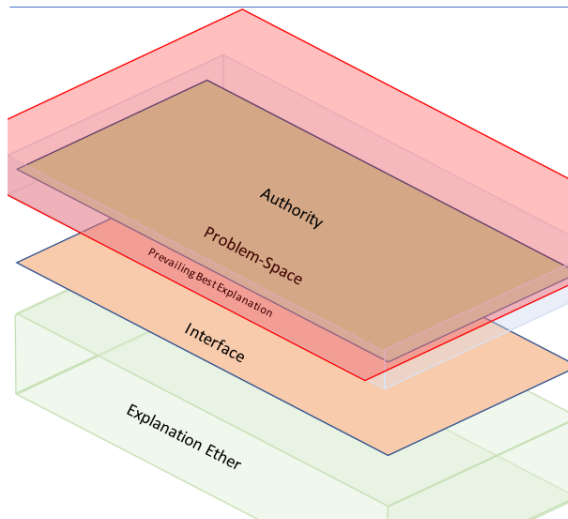
Figure 4 The Interface; Its Relation to the Explanation Ether and the Problem-Space



To complete the visual epistemological model, we need to account for the presence of justificationism. All forms of justification make an appeal to the source of knowledge as some kind of proof that such knowledge is true and accurate. Let's contrast this with fallibilism; which makes no claim to source, but merely supposes that all knowledge is subject to criticism and is replaceable in the face improved knowledge. It is important to note here that whilst there are many examples of natural phenomena that embrace fallibilism, justificationism can only make sense as an attempted human endeavour. The traditions, institutions, methodologies or systems that embrace justification are necessarily stagnant and authoritarian, which means they do not seek to create new knowledge; in fact, they are designed to promote or even enforce existing knowledge, sometimes in the face of contrary evidence. Figure 5

depicts this situation, with an authority sitting over the problem-space. Notice that the authority does not provide an explanation; it does not deal in explanations, only justifications.

Figure 5 The Visual Epistemological Model (including the spectre of authority)



Some human institutions provide the illusion of being an interface, but they are acting as an authority. The distinction emerges when an institution attempts to promote or enforce supposed knowledge despite contrary observations gathered from the problem-space; when an institution rejects fallibilism and falsification it becomes an authority. Given their inherent nature to reject change, authorities impede knowledge creation and human progress.

The Interface

Interfaces are ubiquitous in nature and human affairs alike.

Considering natural phenomena, the process of evolution by natural selection is an ideal example. Within the model, the problem-space represents a competitive environment, the interface is natural selection, the best prevailing explanation is a current species, adaptation or gene and the explanation ether is the set of all possible species, adaptations or genes. Recall the basics of natural selection: An organism is generated with a given phenotype and engages with the competitive environment, if the organism survives and reproduces then it will pass on its genotype to its offspring; random genetic mutations occur during reproduction, allowing alternate solutions to be tested within the competitive environment; the reproductive success of the population of organisms will tend to improve over time within a static competitive environment. This process is easily rephrased in terms of the visual epistemological model: An explanation is generated by the interface and presented to the problem-space, should the explanation survive scrutiny on the problem-space then the interface generates another of the same; with random changes to some of its details, allowing variations of the explanation to be tested against the problem-space, the interface continuously improves its explanation of the problem-space so long as the problem-space remains static.

All viable human institutions have interface-like qualities. Common law changes and discovers new and better explanations for legal concepts such as justice and equity, functioning democracies arrive



at better explanations for how to organise (or facilitate the organisation of) large collections of humans, and not least of all, markets create better explanations for making decisions and distributing resources, risk and capital to efficient uses. For the sake of brevity, Table 1 outlines applications of the model to various areas of knowledge, contrasting interface solutions with inductive and authoritative pseudo-solutions. The table is by no means exhaustive; we can, however, observe that interface solutions are necessarily dynamic and always seek to improve or reject existing explanations, inductive pseudo-solutions are often dynamic but the dynamism's ability to generate new explanations is illusory, authoritarian pseudo-solutions are always static but sometimes utilise induction in their endeavour to enforce dogmatism.

Table 1 Applications of the Visual Epistemological Model

Area of Knowledge	Induction Pseudo-Solution	Interface Solution	Authoritarian Pseudo-Solution
Science	All science that does not seek explanation, but mere regularities	The scientific method as championed by Popper	Scientific knowledge not regarded as pseudo after being falsified
Statistics	Blind statistics (this includes Big Data)	Statistics used to falsify theory-laden conjectures	Doctored and misrepresented data
Speciation	Lamarckism	Evolution by natural selection	Intelligent design
Entrepreneurism	Lean start-up (does not invent new things, merely induces from existing explanations)	Start-ups founded on an invention or specific conjecture	Government backed projects
Resource allocation and risk management	Government regulations (on free enterprise and markets) used to prevent undesirable (to those in positions of authority) outcomes that have previously occurred	Free enterprise and markets	Central planning
Markets	Price limits and pegs, the market for Bitcoin (Bitcoin is not a thing, the price is a reflection of the existence of the market itself; this is induction.)	All free markets (that can have an explanation; i.e. an observable asset or metric)	Fixed exchange rates and similar
Investment methodologies	Trading and investment strategies that only rely on statistics for explanation	Trading and investment strategies founded on underlying explanations	Government retirement pension plans (the receiver had no control of how their lifetime tax payments were invested for their retirement)
Online information retrieval and manipulation	Search engines (do not create new knowledge)	Discovery engines (one that works has yet to be invented. A viable discovery engine creates new knowledge.)	Directory listings
Artificial Intelligence	All current attempts (use blind search or neural network structures and related without starting from a theory of what intelligence is)	Requires first an answer to the questions: What is intelligence? What is consciousness?	Purposely staged (some current and past attempts at AI; i.e. Deep Blue accessed a large endgame database)
Tests for artificial consciousness	Turing test (does not require understanding; is a test of regularities)	Requires first an answer to the questions: What is intelligence? What is consciousness?	Declared by an authority
Psychotherapy	Cognitive Behavioural Therapy	Gestalt Therapy and other forms of therapy that focus on process and accessing feelings that arise from the unconscious mind	Threat of involuntary commitment
Personal Motivation	Goal setting	System building	By instruction from another
Modes of thinking	Rules of thumb, common sense	Creative thought	Ideological recital
Human interaction	Small talk, mindless socialising. (This was identified by Heidegger as being lost in the publicness of 'they'.)	Open debate (without straw-manning or ad hominem attacks)	Any human interactions coloured by a need to lie; due to fear of action by an authority. (i.e. socialising within a communist regime)
Morality	Agreed through thoughtless virtue signalling (and a need to be one of the group)	Arrived at through thought and public debate	Enforced by creed or doctrine
Law	Common law (when practiced in a kangaroo court)	Common law	Statute law (not arrived at through a democratic process and subject to continued criticism)
Legal Evidence	Circumstantial evidence.	Motive; not falsified by forensic evidence.	Coerced confession.
Music	Most pop music	Jazz (is a generator of new musical genres)	National anthems and other State / institutional created music
Art	Blind copying or extrapolation of existing art	A focus on process (for combining existing art in innovate ways)	Commissioned and ordered by an authority
Fragility	Fragile	Antifragile	Fragile



Markets and (Trend Following) Trading Systems as Interface Solutions

Let's look deeper into the notion of a market as an interface solution to problem solving for resource allocation and risk management. The problem-spaces that markets interface with are dynamic and the explanations generated are contained within changes to the market price: the prevailing explanation of the value of the asset or metric is reflected by the prevailing price. Due to the dynamism of the problem-space (the changing conditions for resources and risk) the prevailing explanation generated by the market is also dynamic. Participants within a market can only do one of two things; they can buy or they can sell. The collective actions of the participants reflect differing opinions about the relevance of different explanations (from the ether) on the value of the asset or metric represented by the market. The current market price reflects the collective explanation(s) that the market deems to currently be the best.

A trading system is an interface that seeks explanations about the market interface; treating the market interface as a problem-space. A trading system that operates on a single market attempts to generate (effectively) the same explanations about the market's problem-space as the market itself. Market frictions, however, complicate the situation and require a profitable trading system to *anticipate* new price movements generated by the market; the system must explain the market itself before the market does. The unlikely coincidence that a trading system be able to do this suggests that all apparently viable single market trading systems (exposed to market frictions) are likely have an inductive foundation and their profitability is therefore illusory.⁴ A trading system that operates over a basket of markets seeks an explanation about the problem-space for markets in general. This is an entirely different problem-space to the individual problem-spaces explained by individual markets and as such it is not clear that one is required to anticipate: Multi-market trading systems can conceivably have an explanatory foundation.

In all cases, a trading system that exits losing trades with stoploss orders (or at least reverses positions from long to short or vice versa) is consistent with Popperian falsification: the observation that the prevailing price is either correct or moving in the prevailing direction is correct until proven otherwise, through an exit (or reversal).⁵ Multi-market trading systems are a meta-explanation of the generalised problem-space for all markets and are therefore an interface that continuously attempts to falsify the meta-explanation: an ultimate failure to profit being the meta-explanation's ultimate falsification. Attempt at ultimate falsification is, however, an induction itself and therefore unobservable. The trader continually faces the conundrum that ultimate falsification will never be achieved and other

⁴ Unless of course one is to believe that continued *anticipation* of market prices be a viable strategy in the face of competition: recall the antifragile market hypothesis: there is a dichotomy in the source of edges (the willingness dichotomy) where those founded on superior intellect are fragile to degradation and those founded on psychological fortitude tend towards antifragility.

⁵ The conjecture that such a trading system employs Popperian falsification in the face of market price phenomena is only strengthened if that system is of the trend following class.



decisions the trader has made introduce additional complication (such as capitalisation and choice of risk exposure). But, the fact that a meta-explanation exists opens the door to higher logical assessment of the meta-explanation's continued viability and as such the trader can (through thought, conjecture and criticism) reject and discontinue a system that he / she determines is no longer a viable meta-explanation.

The profitability of trend following trading systems hinges on the notion that market prices move in trends often enough over the long run. Trend followers often advertise that they do not predict price movements but merely react. This is not entirely correct: A trend following system does indeed only react to the price movement in a single market, however, the system itself predicts that price trends are a natural feature of all markets. Trend followers also promote the viability of their strategy by reaching into the past and illustrating the profitability of simple trend following models over long periods of market history: this is unmistakable induction. It is unlikely that a trader, who backtests a system that lost money over some arbitrarily long time period, will indeed select that system for application; however, this condition cannot ever be an ultimate falsification. To be regarded as a genuine interface solution, a multi-market trend following system must reflect a viable meta-explanation. According to the antifragile market hypothesis, this meta-explanation must also demand psychological fortitude from the trader. Thus, in general, the meta-explanation for the efficacy of the system will be the psychological fortitude required to follow the system itself. On first sight this appears to be another induction, but this is not the case; it is a constraint on the number of viable generalised market problem-spaces that may be considered for meta-explanation by trading systems.

Strategy Corner

As I always acknowledge, the core trading logic that underpins the GCAF Program continues to not be altered and I expect this to continue. Last annual letter I discussed some improvements to the risk management algorithms that wrap around the core logic and I also indicated that I was researching a total exclusion of volatility instruments from the universe of tradeable futures contracts.

Equity volatility futures

Soon after the release of last years annual letter, I arrived at the decision to indeed exclude all volatility instruments. There was no data on which to rule them out as volatility instruments were not around during the last major gapping incident, namely 1987. It did become apparent to me, however, that had these instruments been around in 1987 then they would certainly have gapped upwards by a magnitude of possibly 3 to 5 times. A short position in one of these instruments has the type of risk exposure (fragile or short gamma) that is contrary to the purpose of the GCAF Program; which is to compound over the long run through antifragile trading. The risk could have been managed through the use of options on relevant equity indices or on the volatility instruments themselves, however this



is also contrary to the purpose of the GCAF Program as the non-linearity of the exposure demands a large spend on the hedge: this practice would be best characterised as an attempt to exploit an intellectual edge: shorting equity volatility futures and hedging them with equity or equity volatility options is both a joint claim on the efficacy of the trend following model used to signal the short and any systematic (mis)pricing of the relevant options; the larger the outlay for risk hedging the greater the claim that these specific options be mispriced.

Bitcoin futures

The Chicago Board Options Exchange (CBOE) commenced trading bitcoin futures on December 10. GCAF | AUD was one of the first buyers of the contract. I usually have a rule that a market cannot be entered into the universe of tradeable futures contracts until it has been trading for at least a year – this gives the program time to establish a good baseline for generating signals and provides the market with an opportunity to prove its viability. In this instance, it seemed apparent that, with all of the hype, liquidity would not be an issue. Moreover, bitcoin had been trading for many years in the spot market, so I was able to gather spot market data to be fed into the GCAF database and form part of the timeseries used for signal generation. As should be expected, the GCAF Program signalled a buy on the open of the futures contract to take advantage of the upward price trend that had started some time before within the spot market. This trade was eventually closed out at a loss and no further trades have been signalled in bitcoin futures.

I have since made the decision to skip any short positions that the GCAF Program signals in bitcoin futures. As indicated in the table in the philosophy section, I regard bitcoin as a form of induction and I expect that it and all cryptocurrencies (that do not incorporate some type of tangible backing) are doomed to failure. Given this, you might expect that I would welcome short positions, however the inductive nature of bitcoin means that its path to zero has the potential to be very rocky and the risk is too great for any potential reward. My specific concern is the potential for an upward price gap over the weekend as the spot market continues to trade whilst the futures are closed. The inductive nature of bitcoin means that such a gap could conceivably be of many magnitudes higher than in a regular market as there is no tangible explanation to arrest the insanity of the crowd. This decision to exclude short bitcoin futures positions has had me thinking about re-introducing volatility instruments to the universe of tradeable contracts on a long-only basis – I leave this for further consideration during the coming year.

February 2018

The movements of global markets in February of this year present me with a good opportunity to examine the mechanics of the GCAF Program and to illustrate where I think it differs from other classic trend following programs. For the sake of clarity, I will first revisit the core conceptual features employed to both manage risk and build up positions within the program.



Virtually all risk within the GCAF Program is managed on an individual trade basis. When the Program signals a new long or short position, a measure of prevailing price volatility and liquidity conditions is used to size the new position appropriately. This, combined with the long timeframe in which the program operates, allows the Program to avoid the arbitrariness of asset class limits, ignore the complexity of inter-market correlations and to acknowledge the illusory nature of diversification. Recall, the Program does not pyramid individual positions, however the relaxed constraint of asset class limits effectively allows the Program to pyramid across markets as they become correlated with one another. This effect tends to increase the skew (and the kurtosis, somewhat) of the GCAF Program's return distribution and opens the potential for the Program to make larger profits when global markets are all experiencing trending price behaviour. I suspect that there may be an edge in this over time as other trend followers tend to employ asset class limits and similar; and the impact this has on the GCAF Program's return distribution helps to protect the edge as it increases the psychological fortitude required for one to stick with the Program.

Table 2 provides a summary of what occurred within the Program against key market movements over the course of February.

The program entered the month with a reasonable amount of risk on the book and had already, over subsequent months (and most of 2017), pyramided many positions within and across asset classes and different underlying currencies. Usually the total risk (to stoploss) figure is comparable to the margin to equity figure, however over 2017 and into 2018 these figures had separated from one another due to the low volatility environment we were experiencing (more on this in the Options Corner). The broad theme that the GCAF Program was capturing as we entered February was long equity indices, short the USD, short bonds and interest rate instruments (i.e. long interest rates) and long energy products. We can see from the Key Market Movements section of the table that all of these positions, except for the short bonds and rates instruments, went against us in the first half of February. Other currencies and grains went against us in the second half of February. On a whole, we tended to exit at or near our anticipated stoploss levels, so the February unwinding of existing positions, although unfortunate, was very much in-line with expectations for how the Program will trade from time to time.

I find it helpful to think of the mechanics of the GCAF Program similarly to how a card counter at a Blackjack table assesses and bets on the count. Ed Thorpe was the pioneer of winning at Blackjack through card counting and published his system in the book 'Beat the Dealer.' Whilst Ed came up with a system to assign numbers to cards as the dealer deals out the deck, his key insight was that he could gain an edge over the casino simply by varying his bet size. When the count is high, a player has a greater probability of good hands in subsequent rounds as there are many royal and ace cards left in the deck; at this point it pays for the player to increase his bet size significantly. As a card counter at the global table, the GCAF Program loads up on more positions when the count is high. But, when is the count high? The count is high precisely as more markets within the Program's observable universe begin trending and the Program initiates positions; these conditions reveal a higher probability that



something globally significant is occurring and that each position is the result a common underlying driver. Since inception, we have witnessed several situations where the GCAF Program has accumulated positions and acknowledged a high count (I will refer to this as a campaign). Most campaigns failed to materialise in significant trends, but this is not the complete story; the frequency of success must also be judged in relation to the return extracted from a successful campaign and the typical losses incurred when the campaign fails.

Table 2 GCAF | AUD during February 2018

Key Market Movements	1st February 2018	15th February 2018	1st March 2018
USD Index Price (March 2018 futures)	88.95	90.45	90.65
USD Index Cumulative Change	0.00%	1.68%	1.91%
Brent Crude Price (April 2018 futures)	\$68.89	\$61.76	\$63.12
Brent Crude Cumulative Change	0.00%	-10.35%	-8.38%
S&P 500 Price (March 2018 futures)	2825.80	2531.00	2682.00
S&P 500 Cumulative Change	0.00%	-10.43%	-5.09%
US 30-Year Treasury Bond (March 2018 futures)	147.81	143.13	142.44
US 30-Year Treasury Bond Cumulative Change	0.00%	-3.17%	-3.64%
GCAF AUD - Movements			
Monthly Performance	0.00%	-13.78%	-20.98%
Margin to Equity	43.10%	20.21%	20.66%
Margin to Equity Cumulative Change	0.00%	-53.11%	-52.06%
Total Risk (to stoploss)	28.67%	17.13%	13.18%
Total Risk Cumulative Change	0.00%	-11.55%	-15.50%
GCAF AUD - Asset Class Risk Breakdown			
Cryptocurrency	0.00%	0.00%	0.00%
Currency	8.25%	6.00%	3.32%
Dairy	-0.30%	-0.38%	0.00%
Energy	2.54%	0.00%	0.00%
Equity Index	7.16%	0.00%	-0.81%
Grain	-2.26%	-2.54%	-0.24%
Interest Rate - Long-Term	-3.21%	-4.47%	-3.22%
Interest Rate - Mid-Term	-1.04%	-0.99%	-0.80%
Interest Rate - Short-Term	-0.06%	-0.08%	-0.06%
Meat	0.00%	0.00%	0.00%
Metal	0.56%	0.00%	0.00%
Soft Commodity	-1.66%	-1.12%	-1.65%
GCAF AUD - Currency Risk Breakdown			
AUD	0.16%	0.00%	0.00%
CAD	1.06%	0.03%	-0.38%
CHF	-0.37%	0.88%	0.38%
EUR	1.34%	3.39%	1.83%
GBP	2.46%	1.23%	0.15%
HKD	-0.72%	0.00%	0.00%
JPY	-1.32%	0.00%	0.00%
KRW	0.05%	0.53%	0.42%
MXN	0.00%	0.00%	0.81%
NOK	0.81%	0.00%	0.00%
NZD	0.76%	0.79%	0.32%
RUR	0.52%	0.00%	0.61%
SEK	0.72%	0.48%	0.00%
USD	-9.22%	0.62%	1.87%
ZAR	0.88%	0.96%	0.64%

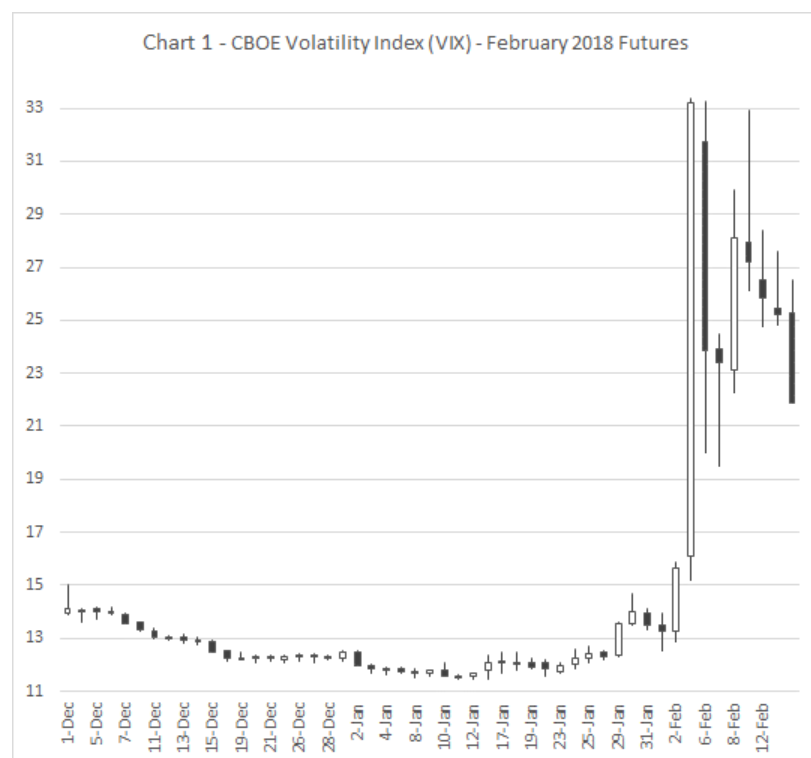
Notes: 1. Prices for the Key Market Movements: 1st February 2018 = the close price on 31 January 2018, 15th February 2018 = the highest (lowest) price achieved between 1st February and 14th February for USD (Brent Crude, S&P 500, US 30-Year), 1st March 2018 = the highest (lowest) price achieved between 15th February and 28th February for USD (Brent Crude, S&P 500, US 30-Year). 2. All Margin to Equity figures are % of Assets Under Management as at 1st February 2018. 3. All Total Risk (to stoploss) figures are as a % of Assets Under Management at 1st February 2018. 4. To stoploss means the % of Assets Under Management that would be lost if a market were to go against a position and the position be exited at the anticipated stoploss price. 5. Asset Class Risk Breakdown is the Total Risk (to stoploss) broken down by asset class. 6. Asset Classes in bold are those represented by a market in the Key Market Movements section. 7a. Currency Risk Breakdown is the Total Risk (to stoploss) broken down by the underlying currency of each futures contract. 7b. Currency futures are double counted as they take a direct currency exposure in addition to the underlying contract currency exposure; i.e. a long position in Australian Dollar futures is long AUD and short USD. 8. Currencies in bold are those represented by a market in the Key Market Movements section.



Three such campaigns are observable within the GCAF | AUD track record since inception in July 2011.⁶ The first such campaign was a success, commencing around April 2014, peaking around March 2015 and finishing around June 2015. GCAF | AUD generated just under 160% at the peak and just under 110% by June 2015 when many of the profitable positions had been closed out. The second such campaign was a failure, commencing around November 2015, peaking February 2016 and finishing around May 2016. GCAF | AUD generated just under 20% at the peak and gave all of that back plus a further 12% as most of the positions were exited by May 2016. The most recent campaign, whilst drawn out, was also a failure; commencing around February 2017, peaking January 2018 and completing with most positions unwound by March 2018. GCAF | AUD generated just under 15% at the peak and gave all of that back plus a further 13% as all positions were closed out by March 2018. So, out 3 situations in which the GCAF Program determined that the count was high, 2 failed with overall losses of under 15% and one was successful generating over 100% once all positions had been unwound. Future profits generated by the program will largely be contingent on the emergence of another successful campaign; and a hit rate of 1 out of 5 would be acceptable if past profit / loss numbers are to provide us with any information. I remind you here that PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

Options Corner

I touched on the low volatility environment of 2017 and early 2018 in the prior section. Indeed, it was



the commencement of this environment that inspired my initial Eureka moment of how to combine a deep OTM option buying strategy with the primary long-term trend following strategy adopted by the GCAF Program. This environment also led me to reconsider the inclusion of equity volatility futures in the universe of monitored contracts. In February 2018 we witnessed an event in global volatility futures similar (albeit smaller) to what concerned me in early 2017. The path of VIX Futures from late 2017 through to February 2018 is depicted in Chart 1. The index exploded on

⁶ Another (failed) campaign occurred July 2011 to October 2011, however this campaign is not readily observable as GCAF | AUD was not sufficiently funded to take on all of the positions signalled.



Monday February 5 and closed over 100% higher than where it closed on the preceding Friday. This kind of move has the potential to gap through stoploss orders and catch, what is supposed to be a long-term, system off guard. In this instance, simulations indicate that the GCAF Program would have exited relatively unscathed, however I think this illustrates the potential danger. As mentioned earlier, a 1987 type event would have been many magnitudes higher; the S&P 500 was only down a maximum of just over 10% in the first half of February (October 1987 was a single day decline reaching over 20% in the negative).

Chart 1 also illustrates the low volatility environment that preceded the February event. These conditions were not isolated to equity indices and the general level of leverage undertaken by the GCAF Program was elevated as a result (this is evident on the monthly average margin-to-equity chart that is produced for the websites and each monthly performance report). Recall that the GCAF Program sizes individual trades in relation to prevailing volatility and so a relatively large position will be adopted when prevailing volatility is relatively low. This is optimal for individual positions, however when all positions held are relatively large due to low global volatility, the overall leverage for all trades may become unacceptable and, as discussed in last years annual letter, expose the Program to an unnecessary level of global gap risk: the risk that several global markets gap against the Program, skipping through several stoploss prices. Given this, GCAF | AUD entered February 2018 with global gap risk hedging in the form of short dated out of the money put options on equity indices, call options on bond futures and call options on the USD.

For a short period of time in February, all of the options held in GCAF | AUD for global gap risk protection were marked to market at an open profit equivalent to approximately 7% of AUM.⁷ All of these options eventually expired worthless, as the GCAF Program currently attempts to apply the same trend-following rules to options as it does futures. Specifically, the options are purchased to protect against gap risk; if losses are incurred as a result of a gapping through stoplosses then any profits from options held are used to control the losses; if positions are exited appropriately at correct or near expected stoplosses then the options become opportunities for profit and the Program seeks to trend-follow them using the same core logic that is used for futures contracts. It should be emphasised here that the option buying program is not an attempt to control drawdowns or reduce the volatility of the GCAF Program; it is to neutralise the Program from outlier events (events of a nature that are yet to have transpired since the commencement of global futures markets). In doing this, I seek to trade in options that have the potential, over the long run, to be systematically underpriced: consistent with the antifragile market hypothesis, I would expect this underpricing to eventuate with a skewed distribution of returns that is best captured by a long-term trend following system.

⁷ These are options that had been purchased 1-3 weeks earlier for a fraction of 1%.



The Year Forward

I rebuilt the core code that underpins the GCAF Program over the last financial year. This was for two reasons; the first was to readily apply the GCAF Program to multiple vehicles, being new funds and / or managed accounts, the second was to allow for the addition of the option purchasing system, which I am calling the Global Options Trading System (GOTS). Tomas Capital maintains a large database of daily data for global futures contracts going back to the 1920's. I am currently working towards expanding the database to include data for a collection of options contracts on equity indices, interest rate products and currencies. After completing this, I will be building a model to research and improve the efficiency of the gap risk hedge built up by GOTS, followed by a rebuild of all the execution code employed by the GCAF Program and development of execution code for implementing GOTS. I envisage that a full completion of this work will occupy me over the next 1-2 years.

I hope that you have found the information and discussion within this letter to be informative and entertaining and thank you for your time.

Thanks,

Adam Tomas.



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GCAF | USD – UNITED STATES COMMODITY AND FUTURES TRADING COMMISSION

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