



Plotinus Asset Management

MANAGING THE RETURN OF VOLATILITY

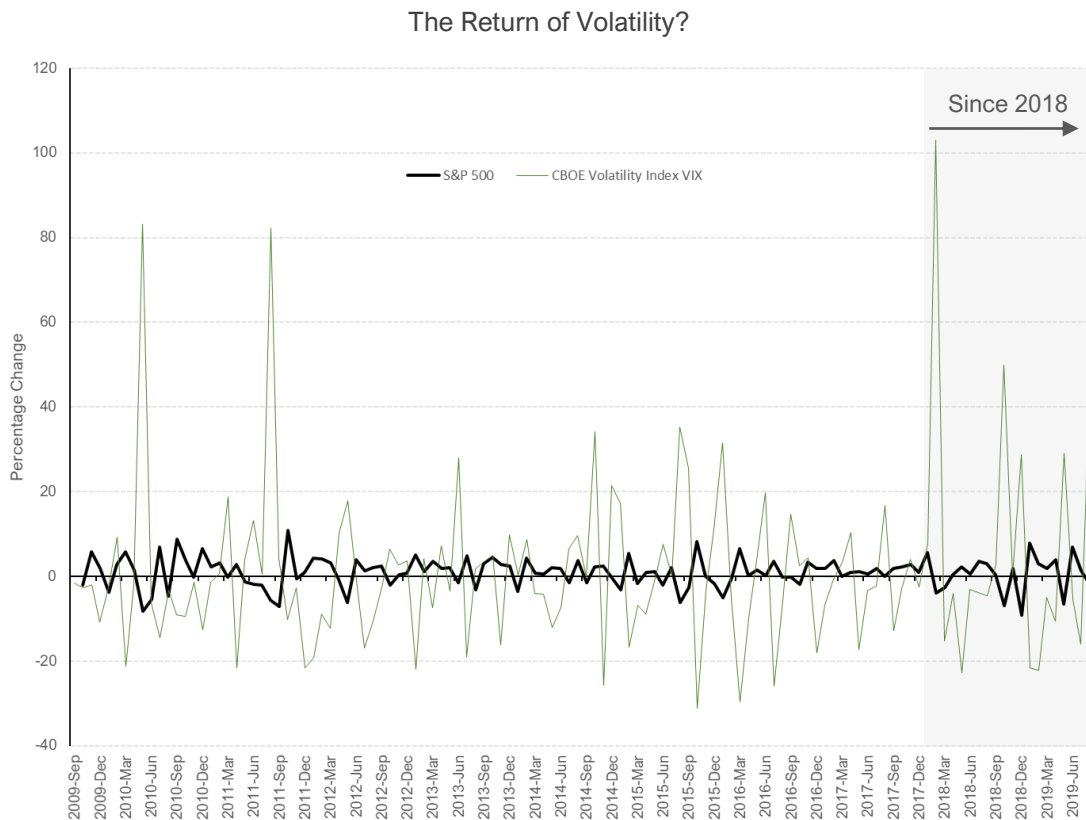
Using Artificial Intelligence with Derived Data to
Enhance and Protect Passive US Equity Investment

Plotinus Asset Management

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A Return to Volatility?

The chart below illustrates the monthly percentage change of both volatility as expressed by the CBOE Volatility Index VIX and the S&P in the last 10 years. Notice the recent return of volatility in a manner not seen since the gradual subsidence of the fear that the 2008 crisis had truly been left behind.



Source: Federal Reserve Bank of St. Louis.

Helping to Navigate Uncharted Waters

The longest US equities bull market in history has interestingly not made stocks any more favorable with investors. Capital inflows over the same period only accounted for an incremental increase of 3.3%¹. However, the US equities market has experienced a paradigm shift in how it is being invested in the course of that period. The change from active to passive investment, the watershed moment of parity between both being reached in April 2019.

In a different field entirely, during the same 10-year period, AI-based technology has transitioned from being mostly aspirational, to being a formative part of the next threshold moment in the technological revolution.

In this paper we will examine how these two seemingly unrelated changes cross paths and how as there is growing anticipation of the potential for a post bull-market cycle, these two factors are both highly complementary in how they can be brought together to address investor concerns emerging from the new paradigm.

Protecting Your Passive US Equities Investment

Enhancement and Protection

There remains a very strong argument for the roll of a passive US equities component in a portfolio – an opinion which is reflected by the cash inflows into this approach. So how can one, taking into consideration all of the issues outlined which potentially endanger such a passive investment, best protect that investment? It is likely that a core S&P500 index passive investment forms part of a well-structured and balanced portfolio so the ideal solution would be to maintain the essence of this passive investment whilst improving its risk adjusted returns. How is this best approached when the investor has already determined a preference for the passive style of investment over the traditional actively managed fund?

This is where “in our opinion” something new and complimentary is required, something that provides a non-traditional, actively-managed element that can act as an overlay to the passive investment. Passive investment has become dominant in tandem with a gradual increased trust in technology. It follows that a new alternative to the traditional active management should have its roots in technological development and advancement.

Using Artificial Intelligence

Experience informs our view that AI is best utilized in specific situations. The superior identification capabilities it can offer are, in our opinion, best tapped when one can use it to simplify the complex. Machines have a lot to learn from the behavior of the natural world. This world is one of organic redundancy and ‘tear-and-repair’ that helps to deal with and gradually eliminate vulnerabilities. We adopt a scientifically-skeptical attitude and process to de-complexify and to clearly identify the problems we wish technology to assist in solving.

In our work, we utilize what we term “Nimble AI”. Our angle may be the anthesis of the Big Data approach. Instead of choosing data *ad infinitum*, we opt for a smaller, defined set of data. We adopt a “many views” approach to that data, treating the data from different contexts, each with its own interpretation. In effect what we seek to do is to generate proprietary derived data that is then mined using an AI-based quantitative analytics system, which seeks to separate statistically significant tradeable signals from noise to determine when to act as part of a five-stage investment process.

The tendency for passive-investment approaches to distill themselves into products itself means that these strategies require benchmark anchoring. In other words, there has to be an object (i.e., index) to be followed. It should be remembered that this is an all-in approach. You are tracking said benchmark for better or worse.

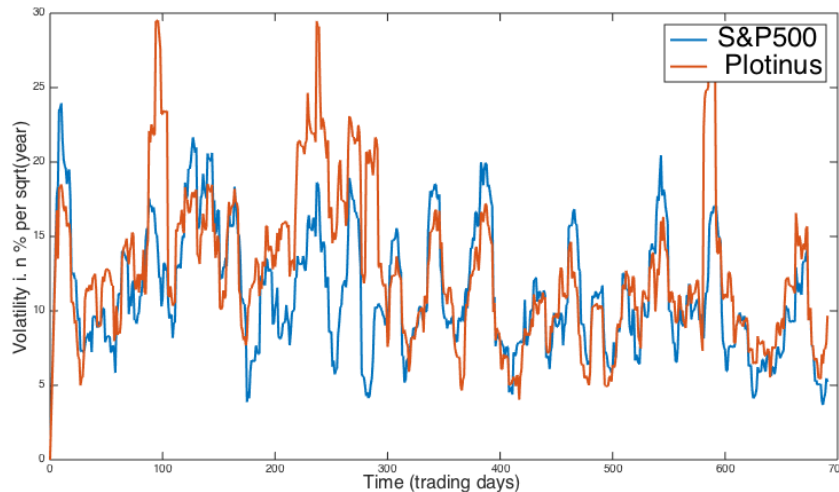
Passive-investment vehicles have an integrity due to the absence of choice. This feature can lead to an absence of connections to fundamentals. Yet, these same instruments are also highly-suited to be analyzed in a mathematical, technical manner.

We can isolate key data to be interpreted in our approach using a unique analytic process to search for a metric which we have termed “Informational Dissonance”. The concept relates to derived-data data mining from digitalized information, enabling a new analysis of rational systems. “Informational Dissonance” can be used to provide additional tradeable information from financial data. It can measure how some financial data can deviate from reality whilst remaining internally coherent. There is a trading opportunity when this internal coherence is assumed erroneously to be the same as correctness. Having this analytic strength gives us a trading edge.

Consider, for example, the S&P 500 index, a favorite among passive vehicles. The S&P 500 is both an amalgam of information and an interpretation. From a passive-investment perspective, it is a factual object. This type of combination of factors means that it is possible to garner different views and measure when such dissonance occurs. This information then forms part of a five-stage investment process that helps determine when to trade.

The chart illustrates one such (Plotinus) view in comparison with the index itself. By way of straightforward example, the extreme dissonance seen in trading days 100, 250, 800, contributed to the factors informing us to exit selected positions.

An Illustration of Informational Dissonance



Source: Plotinus Asset Management, LLC.

Deploying an Artificial-Intelligence Strategy

The Plotinus 2π Index Hunter Strategy

The Plotinus 2π is a managed futures investment in the S&P 500 Index that seeks to deliver market-like returns with below market volatility. The Plotinus strategy is designed to be used as an overlay in conjunction with an investor's core passive or active S&P 500 exposure, offering the potential to achieve a better risk-adjusted total return to this core equity market holding. Plotinus employs its proprietary model to generate derived data from the price of E-mini S&P 500 futures contracts (ticker: ES) and from that produce what it believes are better or more informed signals on which to trade.

The Plotinus 2π provides the new form of active management which works hand in glove with a core S&P 500 Index passive investment.

The Plotinus strategy is semi-correlated to the S&P 500 Index; it offers a different pattern of returns on a daily basis. The strategy has to date, since its June 1, 2018 inception, demonstrated having a lower volatility than the S&P 500 Index. Also, the strategy provides the potential to, at times, act as a hedge against an investor's core US equities exposure. Used in conjunction with a passive S&P 500 Index exposure, the Plotinus strategy offers the potential to provide a more effective total return for an allocation to this core equity market holding.

This approach responds to the dangers and issues previously discussed in relation to a passive US equity investment when used as an overlay on such an investment.

ABOUT OUR FIRM

Plotinus Asset Management serves qualified investors with financial approaches that exploit artificial intelligence. Our roots can be traced to the development of 'trading signals' as an asset-allocation overlay. We have evolved into a regulated portfolio manager with an array of institutional capabilities for US dollar-based investors.

Our website at www.plotinus.ai offers essential information about our firm, including commonly-asked questions about our activities. We also provide a sign-up form for our regular newsletter, focusing on general trends in the artificial-intelligence community. Institutional names can use the message portal to schedule a conversation with our founder about how we apply new-era technologies.

Demystifying Artificial Intelligence by Promoting Understanding

Like all innovations AI has been met with a certain skepticism. Its use in the asset-management discipline has already had early illustration of what not to do.¹

Thus, it is important to move away from the black-box mentality and create a comfort around AI in investing by promoting understanding.

This may perhaps be best done by a discussion on both concept and practice. AI is just as understandable and tangible as any other investment approach.

An Evolution

To a degree there is a blurry line between quantitative, machine learning, and artificial intelligence methods. It should be remembered though that there are many who can recall when a quant was not a quant, but an analyst or a researcher. With time comes evidence and comfort around an idea that once was new. Innovators with something new tend to last and benefit substantially through the transition from novel to orthodox. Innovators have a responsibility to educate and provide an explanation of the new.

It is best to begin by discussing AI at a conceptual level. To remove its sci-fi sheen and take it out of *the humans versus the machines* scenario. In our opinion, it is an unnecessary distraction to get into this comparison, the complexity of the human mind is not being replicated by artificial intelligence and that does not begin to touch off the complexity of the human being, of which the mind is but a part.

AI is, as its name suggests, artificial. Behind the process is a determination of the parameters of the artificial. This is key, as it is from this determination, regardless of how evolving, learning, autonomous the process is, that structures how it is going to be, evolve, learn etc. both from within and without of this original field of reference.

Humans are prone to frame, box in, to model, to reduce the field of vision in attempt to get the ideal. It is, however, humanly impossible to curtail our humanness and all the complexity that that brings with it. Machines, on the other hand, have the advantage that they do not carry this baggage and thus their use can simply generate something different. Perhaps that is where any comparison should cease. It is not better, or worse, or magic. It is just different.

The identification of when and where it is advantageous to use AI is the key to exploiting the benefits that AI can bring. Although there is much debate about the suitability of the use of AI in financial markets, we are of the opinion that it is ripe ground for exploitation. The market of itself is an artificial human construct; it is a less than perfect product of rules and strictures meeting human complexity. This circumstance is an opening which, if expectations are sufficiently curtailed, AI can be used (by humans) to identify and take opportunities for profit (a strictly human notion). The thing is to get to know the environment. The market is a fluid system and therefore it is constantly being renewed, developed, re-invented something that has itself evolved over time. AI should be considered as part of this evolution and not something to be feared.

Getting things in perspective

It is important to avoid being awestruck with the wonders and wondrous potential of technology, to not be fooled by the prospect of data or analysis or processing *ad infinitum*, assisted by AI. Financial technology in particular has had a tendency to bamboozle rather than to explain, Creating the black-box culture where the financial 'rocket science' of the quant was too difficult to explain. A better approach would have been to take a page out of the book of the Nobel Prize winning physicist Richard Feynman and be able to explain with clarity 'rocket science' to the uninitiated.

Seeking Simplicity

The reduction of expectations is vital to best exploit AI in finance. When building the machine, it is vital to keep its level of 'intelligence' in perspective. Its worst enemy is over-complexity. There is no quick or straight-forward, repeatable, easy find in financial markets. Opportunity of that nature has to be crafted. Considering the material at-hand is financial data and that complexity will tend to spiral from it with the greatest of ease, we chose to embrace this with an approach that we refer to as "Nimble AI"—this is a task-based, using limited input data. In our case we use a proprietary model to generate derived data from the initial limited input data, we use multiple layers of derived data. The system is built organically, with tear-and-repair and natural redundancy in mind. The point is not to over-reach and trip into the pitfalls of over complication and over optimization. We want to get comfortable with the non-optimized to understand the system's limits and failings.

As already noted, complexity will cascade from financial-market analysis, the job of those deploying AI is to get to the simple, the really simple. The extraction of meaning from data is one thing, the meaning of the meaning is quite another. This is where the executable is determined, it is here all the action takes place. One has to have a machine that is confident enough to draw conclusions. For our system we use a five-stage investment process, using multiple layers of derived data – analyzed from different perspectives – to verify that there is a statistically verifiable tradeable signal.

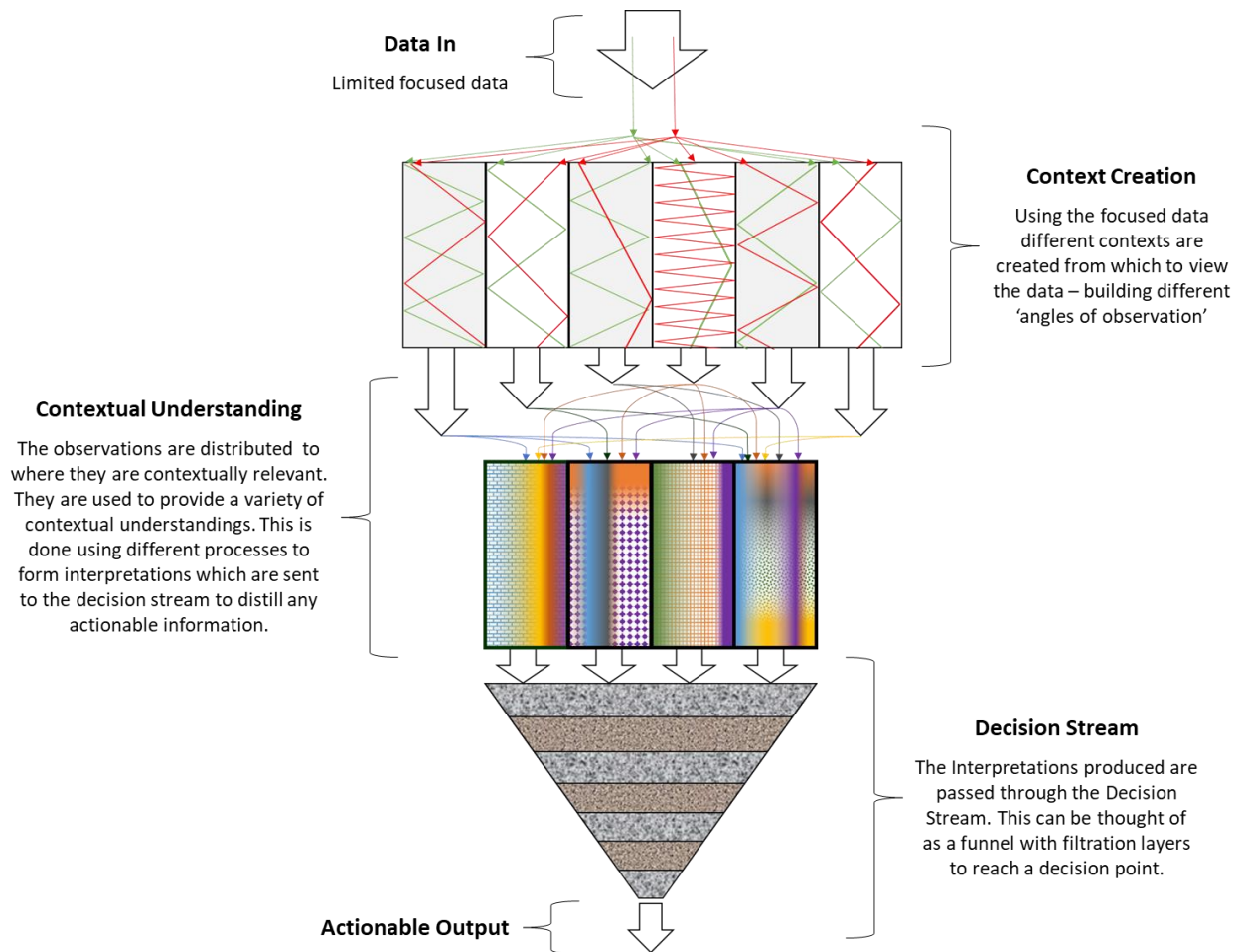
The best starting point for an AI based system, in true Socratic style, is to recognize its own ignorance. Rather than being tempted toward infinity in data terms like Icarus toward the sun, the aim should be to maintain Daedalian discipline and define in strict terms what is relevant to distill the complex to produce something simple and actionable. Things go wrong, so understanding error and being able to discern the how and why of error is much more important than something that is blazingly correct until it is not and one does not know why and cannot explain why change has occurred.

Contextual Understanding

The increased ability to process, allows for the creation of different contexts (or perspectives) from which to understand the information as presented.

This process of obtaining different contextual understandings of information has been of philosophical concern since the ancients, take Plato's *Allegory of the Cave*, in the Republic² for example. This can be thought of as the need to question: to not simply take things at face value in the pursuit of a more complete or better understanding. In our opinion, financial data, if approached correctly, lends itself well to questioning and the seeking of different contextual understandings.

Simplified Illustration of “Nimble AI”



Source: Plotinus Asset Management, LLC.

The following is a basic example used for the purposes of illustrating the evolution of understanding from restricted data by developing contextual understanding.

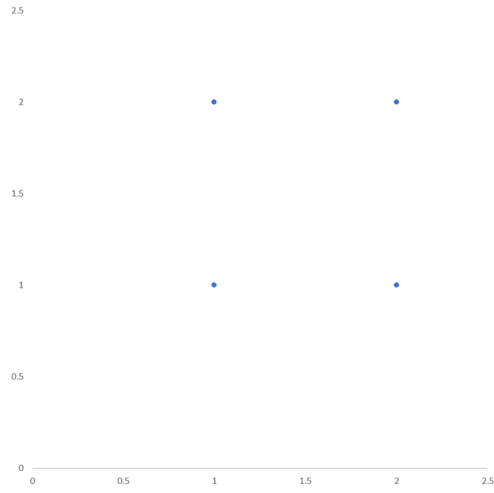


Fig 1

4 data points (x, y) co-ordinates

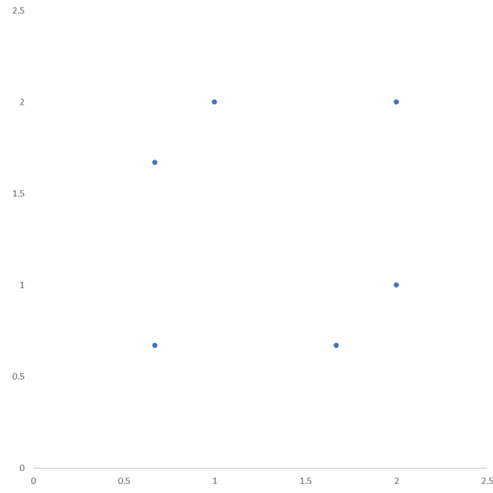


Fig 2

6 data points (x, y) co-ordinates

It begins with 4 data points presented as two dimensional (x, y) coordinates, with two further data inputs each of 2 more points. Thus giving 4, 6, and 8 data points (Fig 1 -3).

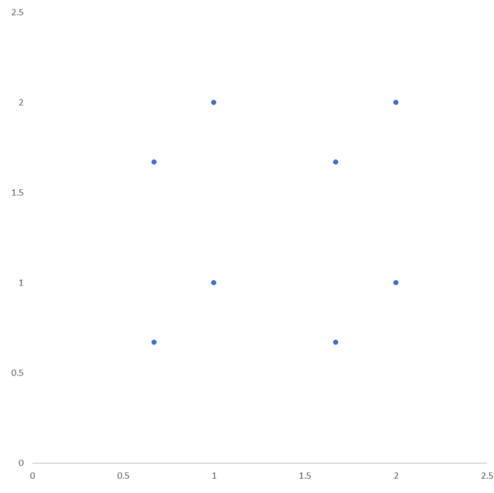


Fig 3

8 data points (x, y) co-ordinates

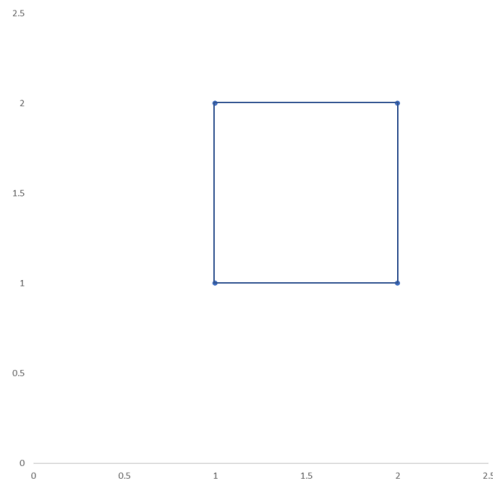


Fig 4

Geometric depiction of Fig 1

The data, treated as three sets, are then each given a geometric representation, or rather an interpretation. This illustrates the use of determinants, in this case geometry. (Fig 4-7)

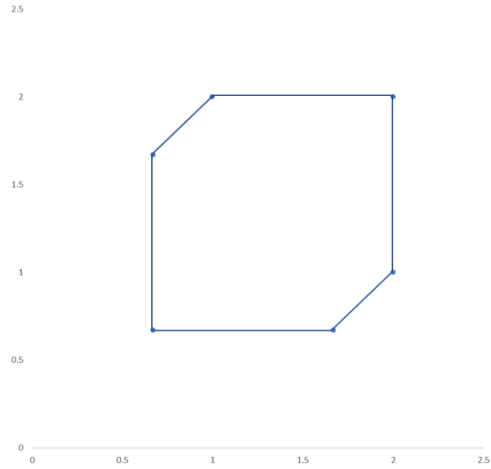


Fig 5

Geometric depiction of Fig 2

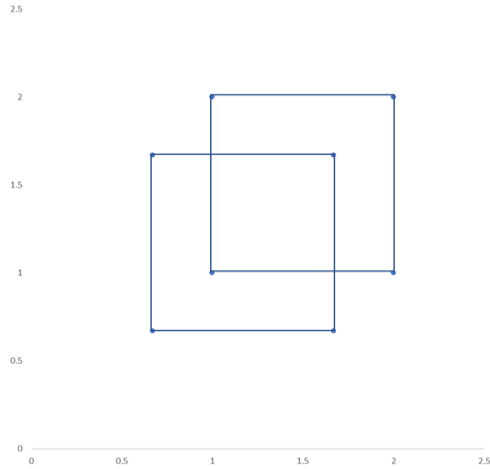


Fig 6

One interpretation of a Geometric depiction of Fig 3

The choice of determinants is a defining feature as it will influence the manner in which the information will be perceived at a given point, which will in turn have further influence at future stages. It is also worth noting that an interpretation is open to query. Determining geometry, for instance, does not prevent “many views” from occurring and one interpretation (Fig 6) is open to reinterpretation (Fig 7).

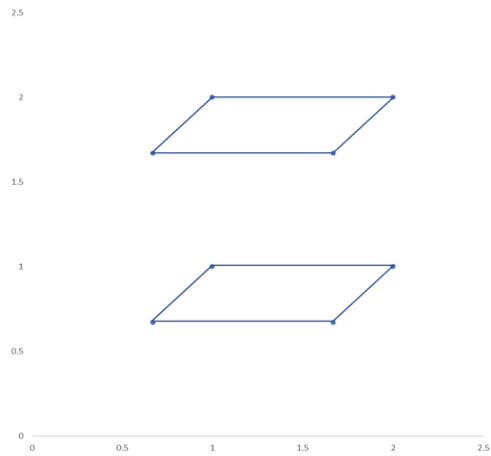


Fig7

A different interpretation of a Geometric depiction of Fig 3

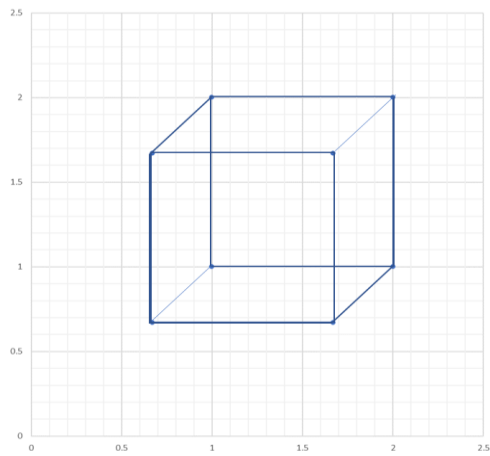


Fig 8

Combining the interpretations (Fig 6 & Fig 7)

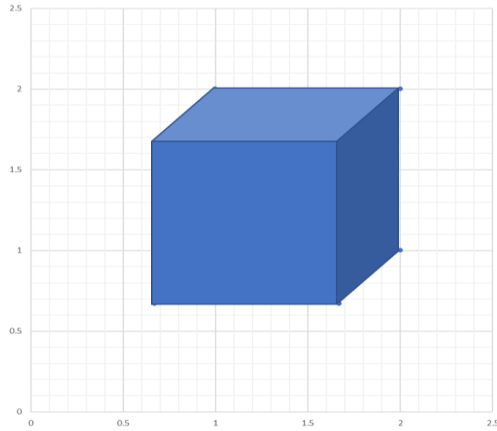


Fig 9

*Adding Color to the Interpretation
(Fig 8)*

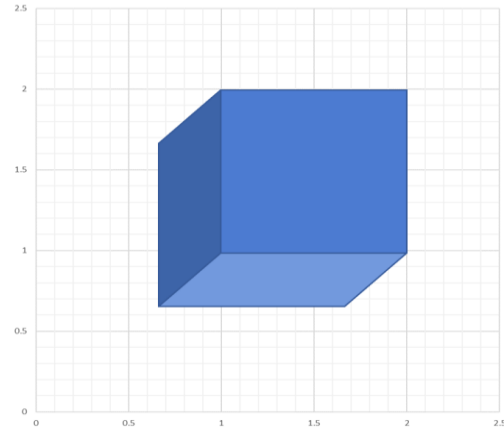


Fig 10

*An alternate view of the
interpretation (Fig 8)*

At the stage, where interpretations can be combined and layered (Fig 8) to extract possible understandings, like the cube (Fig 9), it is important to recognize that this is only one conclusion from a given standpoint. An alternative standpoint can produce a different view, thus a differing conclusion (Fig 10). This is where decision streams are important in helping recognize the relevant standpoint based on the aims and objectives of the particular stream.

You can see from this process that although the data to be observed in each case remains two-dimensional coordinates, other useful information exists. That information can be extracted by creating a different context from which to view the data. In doing so, we are creating different angles of observation, enabling other questions to be asked.

Contextual Dimensionality

The above example is a basic illustration which parallels the methodology behind the AI process we use. It seeks to garner understanding as a result of developing different perspectives, from which to ask the questions and observe the result and so on. The questions themselves stem from the analysis of the data. Hence, you can see how this process can become subject to a further analysis, leading to further questions, leading to a distillation in order to extract quality, i.e. relevant information. This could be described as a thought process.

This information is put into decision streams which draw out the meaning of the information and how it should be executed upon. A decision stream seeks different outcomes searching for information using different sets of contexts on which to base those decisions.

Another characteristic of “Nimble AI” is its ability to be adaptive. By not overburdening it and limiting the field of operation means that it has an agility to respond to changes within the field. We build things to enable heuristic decision making, an approach that is more responsive to changes in circumstances.

Similar to the *Allegory of the Cave* there is a distinction to be drawn between the knowledge obtained from different angles of observation. New angles of observation provide further depth of knowledge, but also insight, the ability to distinguish between the quality of that knowledge. It also illustrates intelligibility,

the ability to discern knowledge by inference from what one has previously observed without direct observation.

As the example shows, the appreciation that there may be a rotational relationship between the data evolves from what initially was, in data terms, points with two-dimensional coordinates. This appreciation then offers insight into what information the data may contain and thus provides a way of examining it. We may be simply looking at a two-dimensional hexagon, but not necessarily. By conjecture, for example, the addition of different coloration to certain areas of the data suddenly gives the instant visual recognition of the presence of a cube. This does not mean there is in actuality a three-dimensional representation (as it remains exclusively two-dimensional data), but it provides the depth of understanding which can help us extract potentially useful meaning.

So too, with our “Nimble AI” approach with its emphasis in seeking to identify context, we dig for deeper understanding, whilst remaining light on initial data (the derived data data mining process). We aim for more comprehension of error. Thus, if correctly harnessed, financial data, when restricted to, for example the field of technical analysis, can yield different understandings when AI is deployed, than when using previously-established methods of analysis.

Understanding the Context of Passive Investment

Passive investment – An act of investment

The term passive investment is perhaps an unfortunate misnomer that masks some of the inherent assumptions that accompany this style of investment. In reality, there is no such thing as passive investment, since there is an act involved in every kind of investment. The process is quite simply investment decision followed by investment action. In a way passive investment is no different than stock picking. With stock picking timing is imperative. The same is true for passive investment if one considers that one is only ever going to make one pick to buy and then hold thereafter.

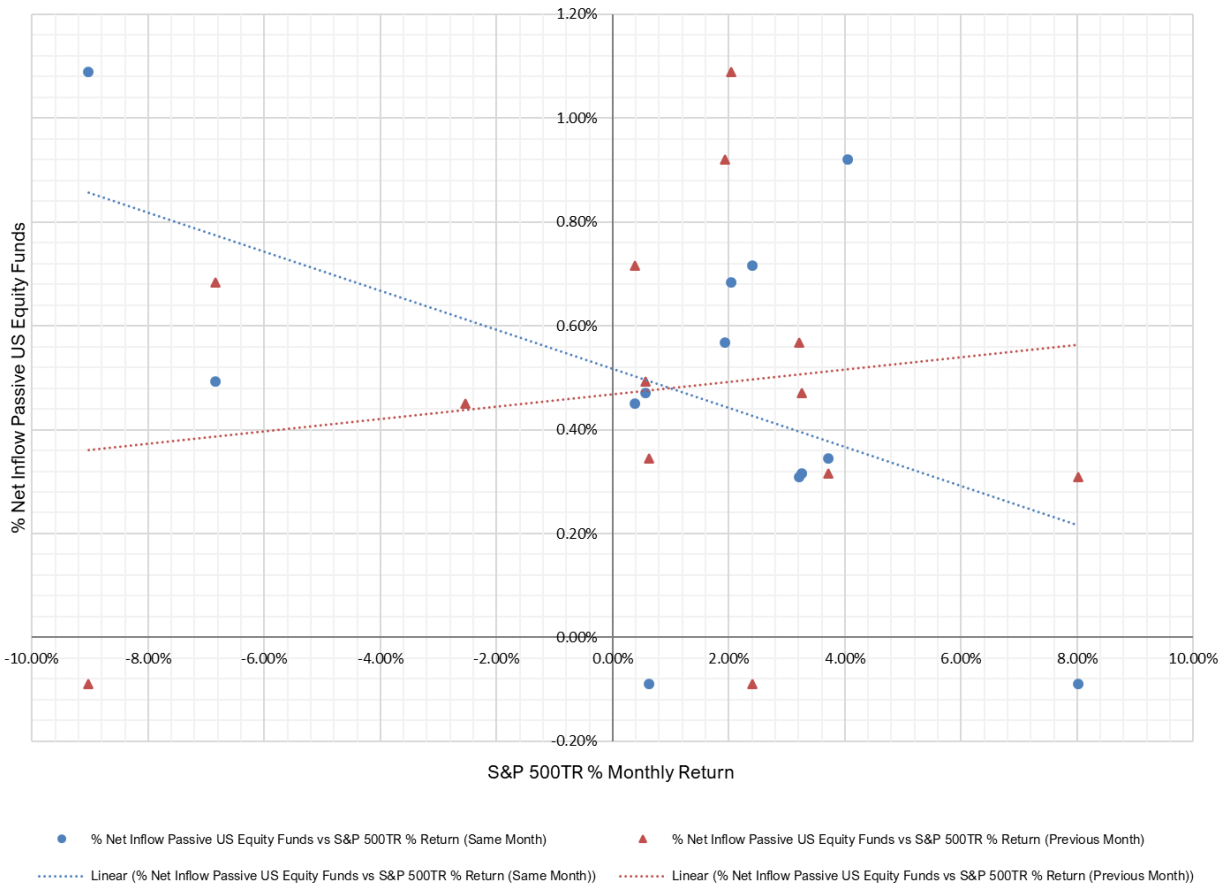
Herd investing – Herd Mentality?

The point that there is an act involved in every investment is so glaringly obvious it seems barely worth mentioning and yet the nature of passive investment is such that it obscures it. Investing for instance in a benchmark index like the S&P500 means investing in the broad sweep of the market as a whole, one is not trying to outsmart the market – the benefit of passivity by investing in this manner is that one can never be underperforming – as measured by the market. Also given that more than 50% of US equity investment currently occurs in this manner, the majority of investors share a similar opinion on its validity which offers considerable reassurance.

This is correct but only in the context of the market as a whole and passive investment taken as a whole. An index investment will never be underperforming the index, but the individual investor is not the index. They are invested in the passive vehicle since they actively made the decision to do so. This is an individual, not a collective context. Index investing, as understood generically, is a collective aggregate at many levels, but this does not eliminate the only relevant context to an investor which is their individual context.

Take, for example, an investor who became a passive investor in the S&P500 in April 2009, versus an investor making a similar investment in October 2018 or an investor who joined in at the beginning of January 2019. They are all completely different investment contexts with completely different experiences of the 'same' passive investment. In reality, there is no collective investment context. Passive investment should be treated carefully to avoid misleading oneself with an assumed herd-think.

12 month - % Net Inflows Passive US Equity Funds vs S&P 500TR % Return
(Same Month and Previous Month)



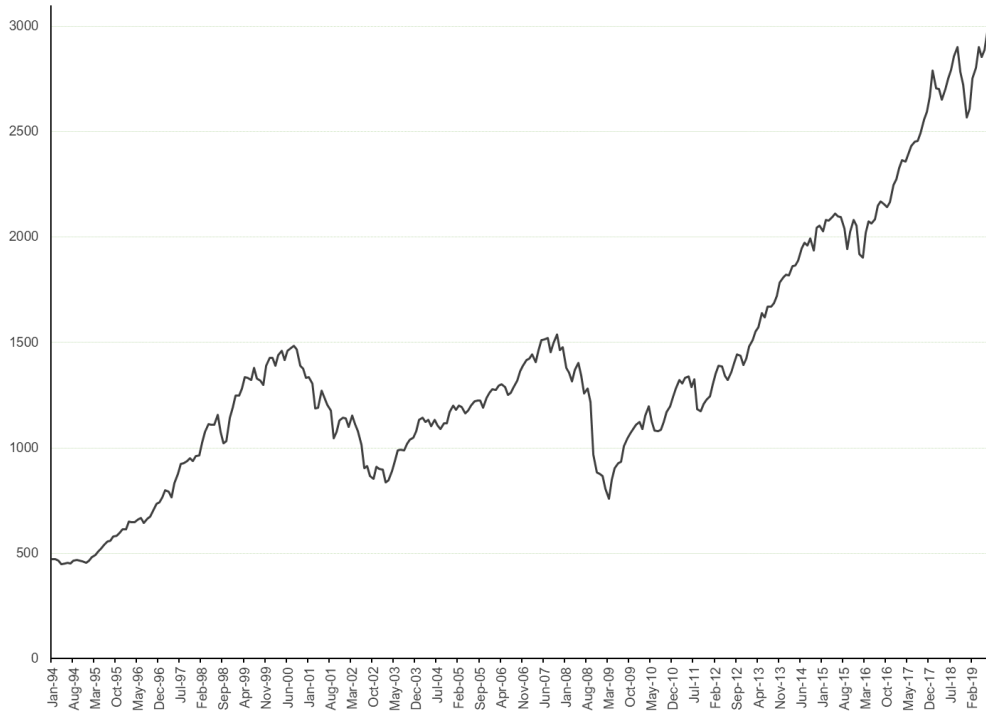
Source: Plotinus Asset Management, LLC.

The danger of this is perhaps best illustrated by the chart above showing there to be little or no connection between monthly market returns and monthly inflows into of capital into passive US equity funds. Even when seeking a lagged effect, monthly inflows show only a mild relationship to the previous S&P 500TR previous month's return. If not fueled by returns, then the concern must be, that the explosion in growth of the passive US equity inflows is fueled by itself.

Assumptions, assumptions, assumptions

The chart of the S&P500 over the last 25 years sits as an enormous illustration to validate the role of passive investment in it. The low-cost fee structure that passive investment offers makes such investing very attractive.

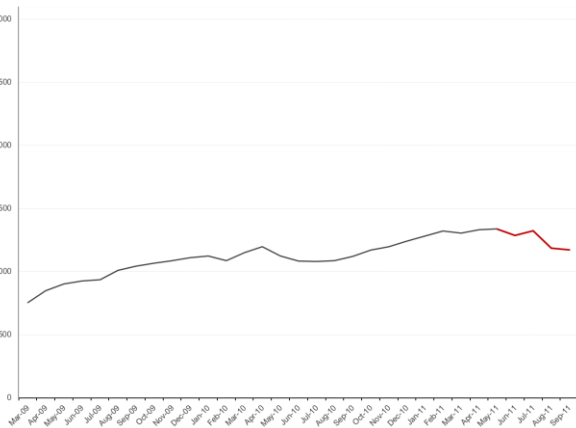
A Highly Attractive Investment – the S&P 500 over the last 25 years



Source: S&P 500 Dow Jones Indices LLC.

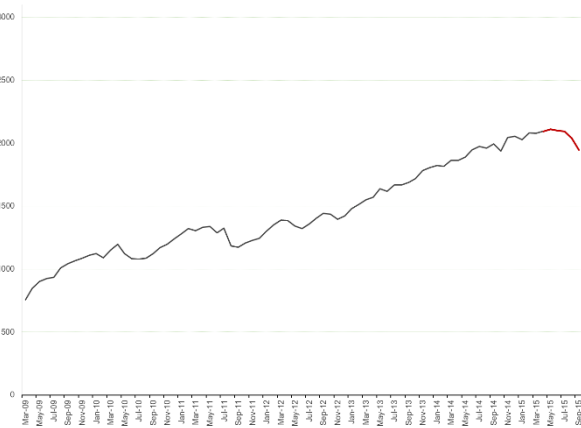
To counter the argument the doomsayer has to have been ‘calling bear’ every year since 2009 and yet the bull has defied the call repeatedly, if you keep calling heads in a coin flip, based on the law of large numbers, at some point in the future you will be correct.

It has to stop...



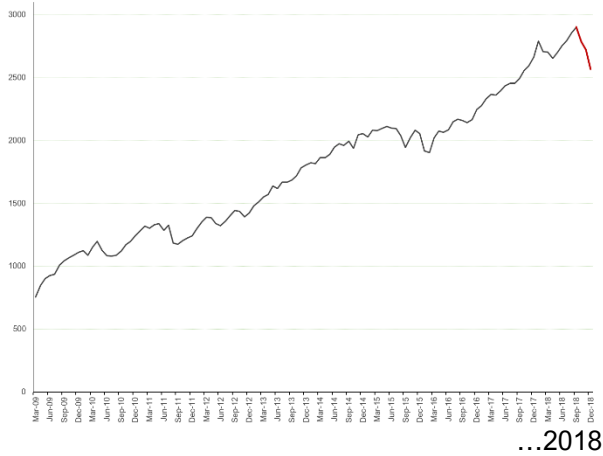
...2011

It has to stop...

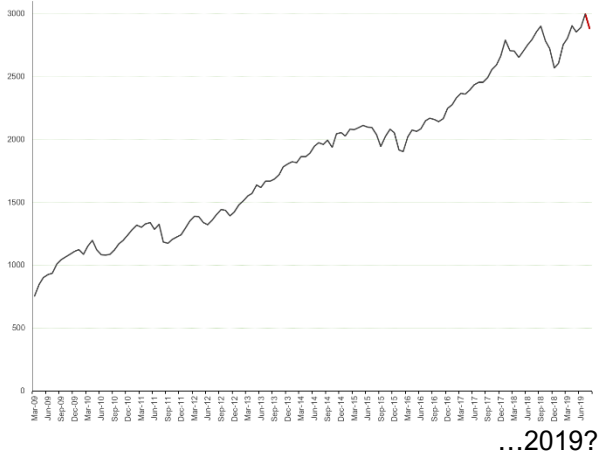


...2015

Look its stopping...



It has to stop...



Source: Plotinus Asset Management, LLC. (Data S&P 500 Dow Jones Indices LLC.)

Our opinion is that the starting point should be an admission of ignorance. We should abandon trying to read the tea leaves of an impending downturn or not, as the case may be and seek a more rational approach that attempts to recognize the changed dynamics that passive investing brings.

What are the deeper issues that the shift to passive investment may bring?

An index is a benchmark for the overall health of a section of the market. It is taken as a shorthand for the health of the real economy. But as that very benchmark itself begins to represent the majority of US equity investment questions have to be asked about its relationship to the real economy. Paradoxically it is necessary to ask whether it is possible to ignore its own impact, if not on the real economy at least on the real economy at a future date in time. Are we looking at a situation where a measure of the health of the real economy—as dictated by activities of real companies with real fundamentals which have real impact on the health of the economy and peoples’ lives—can itself wield a potentially huge impact on the economy it is merely meant to reflect?

The Federal Reserve decision to raise interest rates of December 2018 was presumably made based on a reading of the health of the real economy. The US markets’ plummet in response, was followed perhaps worryingly by a policy reversal by the Federal Reserve in January 2019. The US markets’ anticipated and reciprocated the reversal with the extraordinary gains of January. If the Federal Reserve decision of December was based on an educated analysis of the state of the health of the economy, the question is, how different was the state of health of the economy in January, if the state of the markets was discounted? Other economic data did not appear to reflect the same levels of panic that the markets showed.

There are several things to consider here. Firstly the Federal Reserve could not afford to ignore the market response to its December decision, so rather than being a mere reflection of the economic condition, the markets themselves are a component with such direct implications on economic conditions that they appear to have been the central influencing factor in the January decision, something of ‘the tail

wagging the dog'. Secondly, this episode suggests that the markets' health has become frighteningly sensitive to monetary policy. Thirdly, if looked at in another way, given the assumed long-term hold in the market indices represented by passive investment, the majority of US equity investing is no longer dependent on the survival of the fittest among companies – some to succeed and some to fail. Instead it has become dependent on the overall success of the market – something which is truly too big to fail. Thus, given passive investment's long-term nature, the markets' themselves in a way could be considered to be a proxy for the future economic health of the nation. Think, for instance, of pension monies dependent on it. It is understandable that the Federal Reserve recognized the markets sensitivity and responded to it.

This reflects the kind of unknowns that can be expected, but not understood without the benefits of hindsight.

Everyone can bail

Unlike active equity investing where a downturn can be a mixed blessing of losses and speculative opportunities in the long passive scenario a downturn is a purely negative event. The what-if scenario that should be considered is what would the impact of an enduring downturn be? How would investors deal with their passive investment in US equities? What shape should a defensive approach take? Given the assumption that the passive is strictly passive, how bad do things have to get and for how long before the individual investor context kicks in and they make the second active decision in a passive investment and bail? On the other hand, an equity index investment is not the same as a failing stock. The index cannot go out of business or become worthless (except in some theoretical mathematical abstraction) so there is a very strong argument for staying the course. This could suggest that a compound effect of passive investment in the equity indices will add a new dimension of uncertainty into the equation in a downturn or a threatened downturn, bringing with it volatility.

Abdication of Responsibility: a hidden danger

The latent issues going on beneath the surface are diverse and many. Take the troubling example of the increased use of passive-investment vehicles by financial advisors as a case in point. Since 2009, inflows into index domestic equity ETFs as subclass of US Equity Passive investments have grown at one-and-a-half-times the speed of their mutual-fund equivalents.³ The share of client's portfolios invested in ETFs by fee-based advisers increased from 10% to 28% from 2011-2017⁴. Apart from the obvious subverting of the lower-fees logic for passive investment that this represents, it illustrates the potential for a deeper problem.

In the world of selecting active managers, the end client has the risk of picking a bad/unlucky manager and in many cases, this is not by direct selection, but is often brokered on their behalf by an intermediary (e.g., the fee-based adviser). The adviser is in competition to hold on to their clients, thus they must take full responsibility for their selection of managers and offer reassurance that due diligence and risk assessment has been performed to justify their selection. This process is by no means painless, but it does however create a market. That market, in turn, serves to separate the wheat from the chaff dynamically through constant competition for limited resources. Again, it is worth recalling that the size of the US equity funds sector only increased by 3.3% in the last 10 years.⁵

The growth in the use of passive vehicles by fee-based advisers begins to remove a layer of oversight that manager-picking enforced. The *Why did you pick this manager?* question becomes obsolete and with it so too culpability/responsibility. This cannot simply be replaced with a *Why did you pick this passive fund?*

Who is Accountable?

The index fund is not responsible for its actions. In fact, there are no actions because it is inactive; it is passive. Furthermore, unlike a manager, it cannot underperform. It may “disappoint,” but since it is the benchmark it is a fact. It is a comparator, not comparable. In the case where an adviser has chosen an index fund to comprise part of a portfolio, it is not their fault if it “disappoints.” The dodgy justification for its use is that it is cheaper and everyone else is doing it. Scale becomes the measure of justification for inclusion and thus the protection against the accusation of the adviser having made a bad decision.

The self-fulfilling nature of the process is that because it is not active, there is no action to be taken, hence the relationship between performance and capital inflow ceases to be relevant. The key is to remain passive and any problems will presumably rectify themselves. Add to this ample historical evidence that reinforces the underlying expectation that an index investment **will** ultimately be profitable and you can contentedly ignore the adage, *“Past performance is not necessarily reflective of future returns”*.

The notion that index investment provides exposure to the diversity of the market has to come under scrutiny when an increasing portion of monies in the US equity space has, by necessity, to be allotted proportionately to an index itself. There is of course a question of both monopolizing for the larger entities, but also the creation of a monolithic structure. This structure is one in which a diminishing amount of active capital is going to impact movement in the market itself. There is also potential for a clash of interests, as the motivational factors for different passive-investment types meet. The impression that passive investment is safer being one of the factors that is helping fuel its growth. Yet what if this is helping contribute to an increasingly unsafe environment where ultimately, problems are always caused by extraneous forces, and where, due to the lack of overt decision making, there is nobody in place to maintain oversight through the fear of being held responsible?

Building a Monolith?

Everyone is aware of the explanation that the shift from active to passive is a straightforward fee-based issue. Put simply, passive investment is more efficient and, as a result, is able to offer a lower cost structure, thus cheaper investment. On the other hand, there is the problem of active-management fee structures incentivizing risk. Things, however, are more nuanced than the one-line explanation. It should be remembered that active management has a natural counterbalance to this risk, particularly in the long term. The scenario forces the active manager to pay high attention to clients’ risk exposure for fear of losing them. While efficiency may be desirable and at points necessary, it should not be confused with long-term endurance or stability. The natural world habituates redundancy and thrives on apparent inefficiency.

With passive investment, on the other hand, it is only worth doing if it can be sufficiently scaled in size to make it efficient. It starts to become detached from risk and is justified entirely by its efficiency, which in the muddle is represented by reduced fees. This reality requires concentration for it to work; the more participants there are, the more participants there will be. The dynamic is further complicated if the broker also is flogging the same products (inefficiently), resulting in more concentration. The marketplace is creating a monolithic structure under the vestige of efficiency.

Trickledown Automation

To have become the mainstay of US equity investing, the passive investment explosion in recent years is intrinsically linked to the growth of and reliance upon technology. The ability to passively replicate benchmark indices and maintain them with cost efficiency has been made possible by the advances in technology that have continuously improved automation. But beyond the practical side of how technology has facilitated this, there is the deeper social impact that technological automation has had on the world around us.

Society has moved from its initial skepticism of the computer to an entirely assumed subtle and unobtrusive reliance on technology and its assessments over and above that of the human interlocutor. So, when viewed from this perspective, completely outside of the investment rationales which have fueled the growth in passive investment over active investment, the transition to an automated form of investment is not much different than the shift from long-hand, human spelling and dictionaries to word-processing with 'autocorrection'.

Similarly, we should be aware that technology is continuously developing and its advance has been towards what in its current form has been termed artificial intelligence. This form of technology has been met unsurprisingly with the same skepticism that the computer was first met with and is following its course as it has developed and improved to gradually become assumed and relied upon, the 'spell checker' of olden days has become 'autocomplete', has become 'preemptive suggestion'.

We are of the opinion that the investment industry, like every other industry, is reflecting the advances in technology. This trend brings with it new uncertainties and challenges which are best dealt with by embracing the advantages that AI-based technology can offer the investor through enhanced asset management capabilities.

We see the return of volatility as a potential factor within the new investment landscape created by the overwhelming shift to passive investment. We would conclude that the most efficient manner of dealing with and managing that volatility – and enhancing and protecting one's passive US equities investments is by overlaying it with AI-based strategies using derived data.

References

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