

This paper discusses the implications that behavioural finance theory has for the delivery of financial advice to New Zealand investors. It proposes that the integration of behavioural finance theory with traditional finance theory results in a more meaningful portfolio and, ultimately, a better outcome for investors.

The second part of this paper, to be published shortly, will focus on the investment management processes which we believe need to be applied coincidental with this behavioural approach.

PART 1: TRADITIONAL INVESTMENT THEORY AND THE INDIVIDUAL

Harry Markowitz's breakthrough work of 1952 culminated in Modern Portfolio Theory, which recognises the value of proper diversification and efficient portfolio construction. It has never been wholly superseded and still anchors the investment approaches of most investment managers and financial advisers today.

Despite the logic of Markowitz's proposition, most individual investors continue to turn their back on the research driven approach and instead invest based on their intuition and inherited wisdom. Whether they realise it or not, this approach generally leads investors toward overly conservative or overly risky investment strategies, both of which have the potential to disappoint in terms of achieving financial goals.

Even with the assistance of an adviser and having given attention to objectives and risk, investors still feel periodically overwhelmed by the magnitude of negative market events. Consequently, they tend to take evasive action that is often revealed to be both unnecessary and harmful to their financial position. In doing so, investors contradict Modern Portfolio Theory which recognises that financial markets will fluctuate but assumes that investors will remain invested in a disciplined manner over the long term.

Defining moments like these, where negative short term investment experiences catalyse an instinctive reaction, highlight the single biggest obstacle to successful investment by individuals. That is, human (read irrational) behaviour. It is important to note that the literal meaning of irrational is (to act) without fully reasoning the issue, rather than the more colloquial use of the term.

All investors are to a greater or lesser degree risk averse. They prefer less risk to more. But there are different ways of measuring risk. Modern Portfolio Theory (which from hereon we will refer to as traditional portfolio theory) measures risk by the degree to which a portfolio fluctuates both upward and downward. Observing individual investor behaviour however suggests what matters to investors is not variability in returns but simply avoiding the unpleasant experience of loss.

When an investor experiences a decline in their personal wealth of over one third, as has occurred twice this decade in share markets, it is enormously difficult to rationalise the matter as "normal volatility" and hold faith in the ability of their portfolio to deliver on their long term financial goals.

The core problem is that traditional portfolio theory and its statistical language holds little meaning for individual investors. Their perception of risk is not measured in statistical terms but by emotions which are overlooked by a strictly rational, institutional approach to investing.

While academically defensible, the biggest shortcoming to traditional portfolio theory is the underlying assumption that the market and therefore investors act in a rational, rather than human, manner when making investment decisions.

Institutions are (theoretically) clinical, disciplined and objective in managing investments. They match assets to specific future liabilities and stay the course. They are more likely to be unwilling to alter a predetermined course of investment action in response to fluctuating investment markets. Hence transferring an investment process, practised by institutions that do not think or behave as individuals, to individual investors is problematic.

Humans, unlike institutions, are subject to all the behavioural biases inherent in the human psyche. Ignoring these natural behavioural biases is financially perilous, for individuals and their advisers.

Understanding how individuals perceive risk is critical, and the key aim of this paper is to provide a broad framework for incorporating human behaviour into the management of investment portfolios for individual investors.

PART 2: BLACK SWANS AND THE IMPLICATIONS OF BEHAVIOURAL FINANCE

The impact of major negative investment experiences has, over the last two to three decades, led investment academics to re-evaluate the traditional portfolio approach, particularly as it applies to individuals. This field of study, known as behavioural finance, analyses the thought processes and decision making of individual investors. Behavioural finance reached a milestone in 2002 when Professor Daniel Kahneman of Princeton University was awarded a Nobel Prize in Economics for research that challenged traditional portfolio theory.

At the risk of over-simplification, behavioural finance theory demonstrates that we cannot expect individual investors to make the same rational decisions as institutional investors. In fact, there is strong evidence to suggest that even institutional investors make irrational investment decisions.

If this was not the case, statistical aberrations such as major market bubbles and crashes, which are simply the collective result of multiple individual decisions, would not happen. Traditionally economists have used statistical measures, based on normal distributions and standard deviations, to understand and explain market behaviour and volatility as a whole and in a mathematically expedient sense. They have, however, tended to ignore the “black swan” effect which refers to real but difficult to predict statistical abnormalities. As the famed mathematician Mandelbrot (1983) said:

“Even though economics is a very old subject, it has not truly come to grips with the main difficulty, which is the inordinate practical importance of a few extreme events.”

Given the inherent unpredictability of financial markets, the behavioural traits of investors need to be better appreciated by investment practitioners if we are to guide investors to better outcomes than they have tended to achieve to date.

The key behavioural traits which we believe warrant consideration and incorporation in the investment strategies and portfolio construction for individuals are discussed as follows:

LOSS AVERSION

Humans are, by nature, afraid of losses and this aversion is much greater than one might initially imagine. Research shows that losses of a given magnitude create more pain for investors than the pleasure derived from gains of the same magnitude – by a factor of around 2.5 times.

Mental shortcuts driven by loss aversion regularly undermine the ability of investors to retain a rational focus to their decisions.

Amos Tversky, a behavioural theorist who worked with Kahneman, bluntly explains this loss aversion trait as, “What people most hate is losing, even more than they hate uncertainty”.

TEMPORAL DISCOUNTING

Temporal discounting is the tendency for humans to favour their current over their future welfare. Being highly sensitive to their current welfare means that people will tend to make choices where the impact is immediately gratifying over those which are in their long term best interests. This is why, virtually in the blink of an eye, individuals will acquire a new \$5,000 flat screen TV yet defer beginning to save for their retirement in 20 years time.

DECISION FRAMING

Decision framing demonstrates that when making decisions, the way in which a situation or an event is framed can affect the decision we make. Consider, for example, a simple proposition framed in two different ways. A rule of thumb says the sharemarket will make a loss one year in four, compared with saying that in three out of four years the sharemarket will make a profit. Both propositions are logically identical but research shows that more people will be willing to act on the second proposition which is framed more positively.

MENTAL FILTERING AND BELIEF PERSEVERANCE

Mental filtering refers to cognitive biases that result in self-deception in order to increase one’s sense of comfort or certainty. This occurs by selectively favouring certain

information over other information to create a sense of well-being despite it being an illusion. It is reflected in the tendency of investors to give greater credence to information that supports their prevailing opinion while downplaying those views that contradict their view. This subversive trait prevents investors from taking an objective view of all the available information when making decisions.

OVER-CONFIDENCE AND HINDSIGHT BIAS

Over-confidence bias shows that investors tend to have an unjustified belief in their ability to predict the future performance of an investment. Tests have shown that people tend to over-rate their capabilities compared with an objective view. For example, 80% of surveyed people rate themselves as above average drivers, a statistical impossibility.

This trait is also demonstrated by those who are aggressive investors in the apparently benign conditions of a bull market yet quickly become the most timid investors following a market downturn. Over-confidence is reinforced by another psychological trait known as hindsight bias whereby investors believe they had correctly predicted an event when in fact they had only considered it a possibility. This self deception is often verifiable by the tendency to blame someone else, such as an adviser, for not having acted on what, only in hindsight, is seemingly obvious.

MENTAL ACCOUNTING

Traditional approaches to risk profiling assume investors hold a single attitude toward financial risk. This risk profile is often used to construct a single ideal (or “efficient”) portfolio, with a defined return and risk target, for each investor.

Behavioural theory shows, however, that investors exhibit more than one risk attitude, associating different risk levels with different types of goals.

It is intuitive that the risk attitude an investor would take toward investing for aspirational goals may be considerably more courageous than the attitude they would adopt toward their essential income needs. For example, an investor may be willing to bet long odds with a smaller portion of their savings for a discretionary item like international travel (the downside of not achieving that

goal being minimal). By contrast, a willingness to do the same with a larger part of their savings for essential living needs or a required medical operation would be highly unlikely.

In this regard Meir Statman, a behavioural finance theorist, observes that:

“We tend to compartmentalise the assets we need for downside protection from those we use for upside potential.”

This idea of compartmentalising needs and goals is a form of mental accounting which has its roots in the old practice of “money jars” to ensure food and essential costs were provided for separately and before discretionary items such as holiday savings or a night at the movies.

This partly explains why the traditional portfolio approach, which recommends one large portfolio with one overall level of risk, is extremely difficult for investors to comfortably reconcile with their multiple and diverse investment goals.

DEALING WITH BEING HUMAN

Fortunately we are not condemned to our evolutionary programming, nor do we need to rewire our brains, to become better investors. We simply need to understand the nature of the problem better and develop an approach that limits the investment impacts caused by our emotive decision making. Or, framed positively, an approach which supports our “humanness”.

The behavioural traits discussed above, while instinctively recognisable to many of us, have not been at the front of mind of those in the investment industry. We observe that it is the integration of investor behaviours into the processes of advising and managing money for individuals that is becoming the truly “modern” form of portfolio theory.

PART 3: LINKING BEHAVIOURAL FINANCE TO INVESTORS' NEEDS

If we accept that behavioural issues need to be taken account of in developing investment strategies for individuals, what practically does this mean for investment advice?

The answer to this question lies in the importance of helping investors to avoid being self-prescriptive or jumping to conclusions about which investment is best for them. Instead, we must first focus them intensely on identifying, describing, defining and quantifying their needs, preferences, goals and fears.

The importance of properly defining investor needs cannot be over-emphasised. Each investor comes with unique situations that are frequently more complex than is immediately apparent.

A useful way to depict the investment portfolio from a behavioural point of view was developed by Meir Statman (1999) by taking a hierarchical view of the needs, much like Maslow had done over 50 years prior. Statman proposes a behavioural portfolio with a pyramidal structure whereby essential needs form the base, through to upper layers which correspond to discretionary needs, and ultimately aspirational needs which form the apex.

This separation of needs echoes the age-old money jar concept discussed earlier but is given more practical application by considering the timeframe for each need and the correspondingly relevant investment assets. For example, low risk investments such as bank deposits provide for essential and immediate needs, while distant and/or discretionary needs may be met from higher risk assets such as corporate debt, property, shares, currencies and commodities.

From the perspective of the investor, beginning to see their assets allocated against a list of their needs, rather than one engineered around an ambiguous risk profile and strategic asset allocation, creates a better chance of acceptance, connection and, hopefully, discipline.

In addition, rather than forcing an individual investor to "become rational", an investment framework built and managed in this manner will accommodate their humanness.

Using the hierarchical view, investors' needs can be classified into four categories, broadly characterised as follows:

1. Cash – to provide for **known spending needs** in the very near term.
2. Income – to provide for **anticipated spending needs** in the medium term.
3. Maintaining Capital – to provide for their future spending needs by **protecting their retirement capital** from the corrosive effects of inflation.
4. Growth – to **grow their retirement capital** in order to provide for future spending needs.

As their descriptions imply, each category aims to meet quite different investor needs. Similarly, the amount each investor will define is necessary to meet each of the needs will vary considerably, depending on their age, stage and aspirations.

By firstly describing their needs, the investor begins with a greater understanding of the purpose each portfolio serves. The approach then matches investments appropriately to goals and avoids taking excessive or unnecessary risks.

This framework provides greater meaning for an investor as it redefines reward and risk in terms that intuitively make sense to them. Each investor's portfolio and their risk profile becomes a function of their needs. They define their own portfolio composition, rather than having it imposed upon them. Ultimately, each investor will judge performance not against abstract investment benchmarks but against the achievement of their real life needs, their well-being and the usefulness of their portfolio in achieving their goals over time.

Organising investors' lifestyle needs (and wants) into a series of separate investment portfolios, rather than a single portfolio, accommodates many of the key tenets of behavioural finance.

It enables investors to compartmentalise the risks being taken with their retirement capital, providing them with greater visibility and comfort as to how their unique and various needs will likely be met.

Critically, it also allows them to better contextualise the variability in the growth oriented components of their portfolio, encouraging investment discipline, and thereby providing the opportunity for better investment return outcomes.

PART 4: BUILDING A NEEDS-BASED INVESTMENT PORTFOLIO

As we have set out, a behavioural or needs-based approach to investment advice focuses firstly on identifying and describing an investor's needs. The next step is to quantify the amount and timing of those needs. Once defined, investment portfolios can then be specifically designed to reliably meet each of those objectives.

In turning to the construction of a needs based investment portfolio, it is helpful to first understand the investment characteristics of each need category.

The **Cash** need category refers to the requirement to have funds set aside at all times in a highly stable and liquid form to meet day-to-day and month-to-month expenses. Additionally, unexpected or contingent expenses and any other identified but irregular expenditure scheduled in the near term (say, within 24 months) would be included in this category. Investments utilised to build a portfolio to fulfil this need would be characterised by safety first and foremost – fully capital stable, immediately accessible and interest-bearing and would include on-call or short term deposits, cash management accounts, money market funds or the like.

The second category of **Income** needs provides for the investor's requirements for income and known expenditures in the medium term. The definition of medium term will vary for each investor but will broadly fall into a two to five year horizon. This investing horizon brings a broader range of income producing assets, beyond just cash, into consideration including government bonds, high grade corporate bonds, mortgage securities and inflation linked bonds, all of which should produce competitive returns with a low likelihood of capital loss over the investment timeframe.

The **Maintaining Capital** category is defined as the need to ensure investors' retirement capital is at least maintained in real (ie. after inflation) terms - to provide for longer term spending requirements which are not yet specifically defined. The more distant nature of the objective enables investments to be held that may exhibit more variability in the short term but in return offer a higher expected return. Investments would include longer dated and/or higher yielding bonds, dividend yielding shares, income producing property and certain absolute return strategies.

In terms of behavioural characteristics this category will provide some capital growth but with insulation against investors' aversion to significant losses.

The final category of **Growth** needs represents an investor's desire to see their retirement capital appreciate in value in a tax efficient manner. This is to meet distant, but no less important, income needs and lifestyle aspirations. The assets in this category provide the engine of growth to each investor's portfolio and, correspondingly will be more variable in value but should provide the highest return over the longer term. In addition to all of the investing universes of the other categories the Growth portfolio may also include shares, real estate, commodities and currencies.

This category will tend to form the majority of the portfolio for investors who are accumulating wealth in preparation for retirement. For investors near or in retirement, a smaller portion of their portfolio will likely still be held in this category and be used to grow their long term spending capability.

While we have been somewhat dismissive of traditional portfolio theory as a basis for building an individual's investment portfolio, it is important to note that the key tenets of that theory remain critically valid. That is, proper diversification is imperative to mitigate risk and the need to develop an optimal (intuitively, if not mathematically) diversified portfolio for each need category is paramount. The importance of proper diversification applies to each need portfolio, even Cash.

This needs-based approach to portfolio construction gives rise to an almost endless number of portfolio permutations. For example, a working mid-career couple will have few income needs not met by their current employment while, by contrast, a retired investor will be heavily reliant on their investment portfolio to produce regular and reliable income to supplement their Government Super.

Each investor's resultant portfolio therefore becomes a direct derivation of their unique needs, and evolves over time as their adviser works with them to match their changing circumstances with the cyclical fortunes of investment markets.

Perhaps most importantly, this framework, which overlays human behaviour onto traditional investment theory, provides the basis for a conversation in which the investor is an active participant and in which they play, albeit initially unknowingly, the key role in the design of their investment portfolio.

DISCLAIMER: THIS DOCUMENT HAS BEEN PROVIDED FOR INFORMATION PURPOSES ONLY. THE CONTENT OF THIS DOCUMENT IS NOT INTENDED AS A SUBSTITUTE FOR SPECIFIC PROFESSIONAL ADVICE ON INVESTMENTS, FINANCIAL PLANNING OR ANY OTHER MATTER.

THE VIEWS EXPRESSED IN THIS DOCUMENT ARE THOSE OF NEW ZEALAND FUNDS MANAGEMENT LIMITED AS AT THE DATE OF THIS DOCUMENT AND ARE BASED ON INFORMATION AND SOURCES BELIEVED BUT NOT WARRANTED TO BE CORRECT. WHILE THE INFORMATION PROVIDED IN THIS DOCUMENT IS STATED ACCURATELY TO THE BEST OF OUR KNOWLEDGE AND BELIEF, NEW ZEALAND FUNDS MANAGEMENT LIMITED, ITS DIRECTORS, EMPLOYEES AND RELATED PARTIES ACCEPT NO LIABILITY OR RESPONSIBILITY FOR ANY LOSS, DAMAGE, CLAIM OR EXPENSE SUFFERED OR INCURRED BY ANY PARTY AS A RESULT OF RELIANCE ON THE INFORMATION PROVIDED AND OPINIONS EXPRESSED IN THIS DOCUMENT, EXCEPT AS REQUIRED BY LAW.