

# Russell Investments Communiqué

Our perspective on current and emerging investment issues

## The blockchain revolution

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## Russell Investments' Communiqué

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# The blockchain revolution

Ronal Prasad, Investment Analyst, NZ

Blockchain's ability to prove ownership of an asset through its immutable distributed ledgers has many uses in financial services.

Blockchain technology has gained a lot of attention in financial markets since the global financial crisis. According to a survey conducted by Bain & Company, 80% of executives at financial institutions believe blockchain will transform markets and expect their firms to adopt by 2020.

To understand blockchain, it is important to distinguish it from Bitcoin – the two are often mistakenly used interchangeably. The difference can be explained using an analogy – blockchain is to Bitcoin what a combustion engine is to a car. While the combustion engine became mainstream through its use in cars, the technology also transformed other industries such as manufacturing and agriculture. Similarly, blockchain is what's under the hood of Bitcoin – it gives Bitcoin the power to facilitate secure financial transactions. Much like the combustion engine, blockchain is not limited to digital currencies and can be applied to a wide range of services such as supply chain management, legal contracts and rights to property.

In this article, we first explain conceptually how blockchain works using a payments system example. The second part of the article focuses on how blockchain is currently being pursued in one aspect of financial services - securities trading.

## TRADITIONAL PAYMENTS SYSTEM - CENTRALISED

In a traditional payments system, if John wants to transfer funds to Mary, the transaction would typically go through a financial intermediary – in most cases a bank.

Figure 1 – Traditional payments system



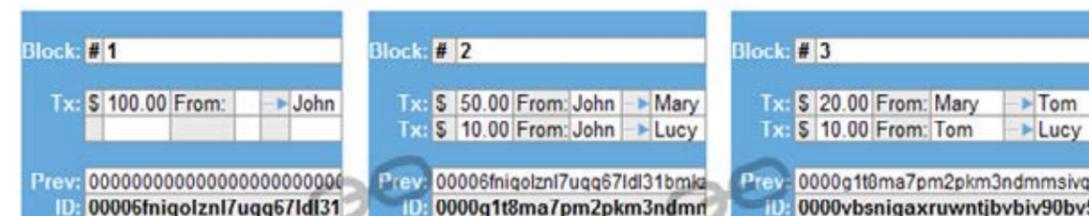
Figure 1 illustrates the flow of information in a traditional payments system. Firstly, John notifies the bank to transfer funds to Mary. Next, the bank checks if John has enough money for the transfer. The bank can verify the balance because it stores all of John's transaction records (i.e., the ledger). Once the balance is confirmed, the bank transfers funds to Mary. The settlement date of the transaction varies, with some international transfers taking a couple of days to complete. The bank is incentivised to facilitate the transaction because it earns a fee for intermediation. As depicted in figure 1, the bank holds the ledger, the bank verifies ownership of funds and executes all transactions. This is a centralised payments system.

## HOW BLOCKCHAIN IS USED IN PAYMENTS - DECENTRALISED

In contrast, a blockchain payments system transfer funds without the reliance on a financial intermediary. Furthermore, blockchain settles transactions faster and more cheaply than the traditional system. Blockchain technology is based on the concept of a decentralised distributed ledger, which is available to each participant in the network. To understand how blockchain works conceptually, let's assume there are four participants in a public network transacting amongst themselves.<sup>1</sup>

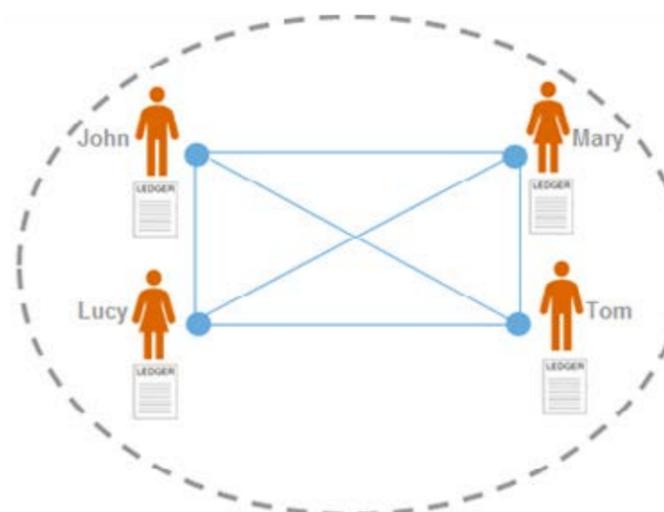
Figure 2 illustrates how transactions are stored and appended in the blockchain ledger. At the inception of the network, block #1 shows that John has \$100. Each subsequent block lists the transactions made in the network. For example, block #2 shows that John transferred \$50 to Mary and \$10 to Lucy. Block #3 records further transactions. As shown in Figure 2, each list of transactions is linked to previous transactions all the way back to the first transaction. Note that the storage of data in the blockchain is not limited to financial transactions and can also include changes in ownership of assets such as shares of a company or property.

Figure 2 – Blockchain ledger



In contrast to the traditional payments system where the bank is the only one holding the ledger, the blockchain ledger is distributed to all participants in the network. Everyone can see the history of transactions and, more importantly, anyone can decide whether a transaction is valid.

Figure 3 – Decentralised distributed ledger



<sup>1</sup> Note that the example overlooks some details of the blockchain technology such as anonymity and accessibility and the focus of the example is on the underlying framework of blockchain.

For example, let's say Mary wants to transfer \$30 to Tom. First, Mary broadcasts the transaction to the network. As in the banking system, it must be proved that Mary has \$30 to spend. Since all other participants have a copy of the ledger (Figure 3), they can calculate Mary's balance. From the open ledger (Figure 2), everyone knows that Mary has \$30 (\$50-\$20) to spend. The participant verifying the transaction broadcasts Mary's balance to the rest of the network. If most of the participants in the network agree that the transaction is valid — that is, Mary's balance matches their copy of the blockchain's history — then the new transaction will be approved, and a new block created and linked to all previous transactions. In blockchain, as in traditional systems, participants are incentivised to verify transactions because they earn a fee for the service.

The ledger is synchronised across the network every time a new transaction is validated. The ability to prove ownership of an asset — in this case money — is one of blockchain's core capabilities. Furthermore, in the example, the fact that a participant is transacting with the entire network and not just through one financial intermediary significantly reduces the risk of counterparty default.

So how does blockchain ensure that no participant in the network can manipulate the data to his or her benefit? To secure the system, blockchain uses a mathematical function to ensure any manipulated data is not accepted by the network. The function essentially generates a block ID that is unique to **all** the data in that block. It is worth emphasising "all" because even a single change in data in the block, even adding a punctuation mark, will generate an entirely different ID. For example, if Tom alters his copy of the ledger, his block IDs will not match the rest of the network invalidating his subsequent transactions. The unique block IDs and chaining of blocks (Figure 2) ensures any altering of data by one participant is noticeable to the rest of the network. You can think of blockchain as an append-only system, where there is a single source of truth and proof of ownership can always be traced back to its inception.

#### APPLICATION OF THE BLOCKCHAIN IN SECURITIES TRADING

Blockchain's ability to prove ownership of an asset through its immutable distributed ledgers has many uses in financial services. For example, the financial crisis revealed that it is not always possible to identify the correct present owner of a security. Furthermore, securities trading often requires the use of brokers, exchanges, clearing houses and custodians. In the current system, trades are often verified by a central clearing house that maintains its own central ledger. The involvement of so many intermediaries creates a drag on efficiency and increases the cost of facilitating transactions. Today, it may take up to two days to transfer the ownership of an asset.

Blockchain has the potential to streamline this process by tracking ownership of securities and distributing the ledger to many users in the network — as it was in the payments system example. While the payments system example was in a public network, banks and market operators can build private networks where each user in the network has varying degrees of autonomy when it comes to updating and maintaining the ledger.

Many of the world's exchanges are already exploring blockchain solutions to make the trade settlement process efficient by reducing the replication and verification of information by multiple parties, hence reducing settlement time. Table 1 describes the blockchain developments currently being pursued by different organisations (including disruptors) in securities trading.

**Table 1 – Securities trading and settlement<sup>2</sup>**

COMPANY	DESCRIPTION
<b>Exchanges</b>	
NASDAQ	The exchange is trialling private securities trading using a blockchain platform. Private companies in this platform can track their shares outstanding, ownership structure and sell private securities without the need for paper stock certificates, while significantly reducing settlement time.
ASX	The exchange is developing a blockchain technology prototype for the replacement of the system that underpins the post-trade processes of Australia's cash equity market. The new system will have the ability to settle more quickly.
LSE	The London Stock Exchange built a blockchain-based platform to digitally issue private shares of small and medium enterprises in Italy. The platform seeks to make it easier to track and exchange shareholder information of private companies enabling greater shareholding flexibility and liquidity.
<b>Disruptors</b>	
t0 (t-zero)	Financial technology company t0 specialises in the use of its blockchain technology-based platform in the issuance of a registered security. Trades executed through the t0 platform settle on trade date.
Symbiont	Symbiont uses blockchain technology allowing institutions and investors to issue, manage, trade, clear, settle and transfer a range of financial instruments including corporate debt, syndicated loans, securitised instruments and private equity.

#### POTENTIAL IMPLICATIONS FOR INVESTORS

Even though it's in its early stages, blockchain has the potential to reduce costs and improve the efficiency of trade settlements. The ability to settle trades intra-day would allow investors to manage transition exposures in their portfolios better and at a lower cost than previously. Furthermore, blockchain developments in the private securities market reduce costs and improve the ability to buy and sell private securities. With more and more companies remaining private, the enhancement in liquidity broadens the universe of securities available to investors. While blockchain is promising, the technology does have a few hurdles to overcome including network adoption, cybersecurity and legal and regulatory compliance. Notwithstanding these hurdles, blockchain is leading a revolution that will change not just the financial services industry, but the way we do business.

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<sup>2</sup> Other exchanges pursuing blockchain solutions include: Japan Exchange Group, Korea Exchange, National Stock Exchange (India), Moscow Exchange, Santiago Exchange and Luxembourg Stock Exchange.



Noah Schiltknecht

## Brace for impact – How to ensure impact investments land smoothly in your portfolio

Noah Schiltknecht, Head of Implemented Consulting, NZ

If I told you that you could make money and change the world for the better, what would you say?

I would assume “Let’s do it!” would be more likely than “No thanks!”. Impact investments - which are made into companies, organisations and funds with the intention of generating social and environmental impact alongside a financial return<sup>1</sup> – seem to deliver on this promise.

So what are we waiting for? Shouldn’t all our money go into impact investments straight away? This sounds like a pretty logical strategy at first glance, at least for those of us who care about others and the future of our planet. However, as investors, we always should ensure that our emotions are not getting in the way of smart decision making.

While the purpose of impact investments is twofold rather than purely financial, we should nevertheless avoid emotional decisions, and use the same rational and sound logic in our analysis of these investments. This is particularly true if you have responsibility for investing other people’s money. You might advise a client, look after the community’s money, or take responsibility for investing your employees’ superannuation savings. And whatever the legal requirements might be, at least morally you owe it to your community, beneficiaries or members to make sure that you approach every investment with due care.

However, impact investments are a relatively new phenomenon, and therefore meaningful performance data and research is scarce. So, where to from here? If you already have a strong investment process and good governance framework, you may want to think about how you can integrate impact investments into your traditional investment decision-making.

This is where our recent research paper “Brace for impact” may come in handy. It discusses how you can categorise impact investments among other, more traditional investments, and suggests methodologies to evaluate and measure impact.

For example, a community organisation may debate whether it should own social housing, lend money to a social housing company or give a simple grant to a microfinance organisation. They all may have similar objectives in terms of impact, but how do you evaluate which approach is the best for the community? The modelling framework developed in the research paper could help you in your evaluation process.

If you are an institutional investor grappling with some of these questions, please feel free to request your copy of the paper by contacting us directly.

We will soon provide further updates on our approach to impact investments on LinkedIn and our website.

<sup>1</sup> <https://thegiin.org/impact-investing/>

## New world disorder

Professor Alan Dupont, Geopolitical expert

Geopolitical expert, Professor Alan Dupont, shares his view on the likely results of the current power struggles between the US, China and Russia and the implications for investors.



Professor Alan Dupont

Investors often question whether geopolitics needs to be on their radar. People ask me: “When was the last time a geopolitical event shook the markets?”. In more certain times, that would have been a fair question. But in my 40 years of observing risk, I have never seen a period of more geopolitical uncertainty than in the last 18 months.

Geopolitical shocks are shaking the very foundations of the established international order: the UK’s surprise Brexit decision, the equally unanticipated election of Donald Trump as the 45th American President, and the widespread rejection of ‘politics as usual’ in the democratic West. These and other disruptive events are ushering in a period of great change that I call the “new world disorder”. Investors must consider this new geopolitical landscape because it has enormous consequences for market stability and investment decision making.

What investors need to understand is:

1. **Are these disruptive trends fleeting, or do they presage a long-term, cyclical shift in geopolitical and economic power?**

To answer this question, we need to take a step back and see our current situation in its historical context. In the 1960s, political theorist George Modelski asserted that geopolitical super cycles occur every 100-120 years. At the end of each super cycle, the dominant state starts to weaken, confronts challengers, its basis fragments and often, the world is plunged into wars and conflict. We can see these cycles in play over the last 500 years. Every century or thereabouts, global leaders have been threatened by emerging challengers, with the resulting conflict eventually coalescing into a new, more stable global system, often under different leadership.

Until recently, our post-1945 world system was founded on *Pax Americana* and underpinned by the US military. In 1990, President George Herbert Bush talked of “...a new world order where the rule of law, not the rule of the jungle, governs the conduct of nations.”

I believe the world order President Bush was describing is unravelling. Western values are being contested by new players: rising, or resurgent, states; and non-state actors, including transnational criminals. We can see evidence of this right across the political spectrum: at one end, in the rise of identity politics, populism and nativism in the developed world; and at the other, in Islamic State’s ambition to destroy the old order completely and begin anew with a global caliphate.

If, as it appears, we are currently in the midst of a transition between super cycles, then we can expect major macro system change for at least a decade to come. In the new world disorder, the rules we have taken for granted throughout our lives – the capitalist system, free markets and the rule of law – may no longer hold. Already, the global institutions (United Nations, World Bank and IMF) set up by the victors of World War II are weakening.

I believe this transition period is likely to be long lasting (10-30 years) and characterised by conflict, disruption and elevated levels of geopolitical volatility. Investors can expect to see the rate of geopolitical change accelerate, increasing the likelihood of breakdowns in the macro system until a new world order emerges. What we have been experiencing for the last 18 months is the new paradigm.

## 2. What will the new world order look like when the system finally stabilises?

With so many factors in flux, this is a thorny question. What I can state with certainty is that the world will not go back to the way it was. There may be some elements of continuity, but not many.

To get a glimpse of a possible future, it is illustrative to look at potential challengers for world power, their likelihood of success and the systems they favour.

### ASSERTIVE CHINA

China has much invested in the old system, needing stability and open markets to deploy its excess capital. However, President Xi Jinping is happy to change the rules that don't suit him – witness China's activity in the South China Sea and its Silk Road initiative.

In an integrated play for trade and energy security, China is seeking to wrest control of the Malacca Strait from the US Seventh Fleet by aggressively militarising a number of reefs in the Spratly Islands. The rest of the world takes a dim view of this bellicose build-up in the world's most important sea, which carries more than 40% of world trade and 50% of energy trade. It could easily become an arena for escalating conflict, with major implications for financial markets, unless Xi is able to position the development in a sufficiently diplomatic light.

China is also targeting 64 countries and 15 Chinese provinces for transport, energy and trade projects through its massive Belt and Road connectivity initiative. If successful, the visionary program will develop Central Asia for China's benefit and bring neighbouring countries into its orbit. Notably, with Chinese-controlled ports being developed in strategic locations, such as Pakistan, the new Silk Road will also secure alternative sea access should energy and trade supply be disrupted in the Malacca Strait by any future conflict.

### UNSTABLE NORTH KOREA

China may be the antagonist in one potential conflict, but it is also the only power capable of defusing another – that of North Korea's nuclear weapon's program. Under Kim Jong-un, the rogue state has made major advances in its missile technology. By 2020, North Korea will have 100 nuclear warheads and an ICBM capable of reaching continental US. Not only will this be unacceptable to a belligerent Trump, it creates the real possibility that South Korea and Japan will develop their own nuclear programs.

Avoiding conflict will require a political solution, brokered by China on whom North Korea depends for trade and energy. It's a Hobbesian choice for China, which relies on North Korea as a buffer state with South Korea. But the situation is reaching a critical point, requiring a game changing event. We must hope it resolves via negotiations not war.

### DISRUPTIVE AMERICA

*Pax Americana* is dead and is being buried by Trump. But Trump is not responsible for its demise. His skill has been to identify and ride the crashing wave of systemic discontent surging across the US. What differentiates this presidency from previous administrations, is that, rather than being invested in protecting the old order, Trump is collaborating in pulling it down.

The US will survive Trump – it will eventually endure and strengthen because of its resilience and underlying strengths. But its reign of world dominance is over.

### AGGRESSIVE RUSSIA

Russian President Vladimir Putin's revanchism has been clear for some time. Putin has taken every opportunity to shake up the old order, shocking Europe with his annexation of Crimea and destabilisation of Ukraine. Resentful of US unilateralism and Europe's attempt to enlarge NATO, Putin will continue to assert himself on the world stage. He will use Trump's NATO attacks to try to reset Russia-US relations. His marriage of convenience with China may fall apart over competition for power and influence in Central Asia where Russia has long held sway.

### WEAKENED EUROPE

With Brexit, not Frexit, the European Union (EU) has not fragmented, but anti-EU sentiment remains in many countries. The question is how quickly this massive trading bloc will recover. With internal challenges far greater than those confronting the US, the likelihood is that Europe's decline will be more difficult to reverse.

### INDIA IN THE WINGS

As compared to authoritarian China, India is taking longer than many expected to emerge as a global power. But India's time will come. After 25 years of economic liberalisation, India has some world-class sectors. Now its outward-looking leader is tackling corruption and criminality and putting in place the infrastructure needed to realise India's promise. Down the track, India will join the US, China and Russia as a force to be reckoned with.

### IMPLICATIONS FOR INVESTORS

China will not rule the world, but neither will the US nor Russia. We are going back to a more traditional multipolar system. In the current transitive state, disruptive transnational forces and emerging technologies will continue to accelerate geopolitical and economic change, causing greater uncertainty and volatility in the market.

Given the complexity of the macro system and the law of unintended consequences, making investment decisions in a silo won't work. Smart investors will integrate geopolitical considerations into a holistic approach to risk management. Good risk strategies won't necessarily future proof a portfolio or fund, but knowledge is always better than ignorance.

# Why hold bonds in a rising rate environment?

Clive Smith, Senior Portfolio Manager, Fixed Income, Australasia



Clive Smith

**“More money has been lost trying to anticipate and protect from corrections than actually in them.”**

Peter Lynch

Amid concern about the outlook for interest rates, many investors are questioning the value of holding bonds as part of a diversified portfolio. The thought is that if interest rates are rising, portfolios should have a materially lower allocation to bonds, or that cash is a better alternative. Yet investors should look beyond short-term movements and consider the longer-term rationale for having fixed income within a portfolio. Further, the entire question regarding the impact of interest rates should be answered in the broader context of ensuring that fixed income portfolios achieve an appropriate balance between the range of premiums available to investors.

## WHY DO INVESTORS HOLD FIXED INCOME SECURITIES IN THE FIRST PLACE?

The starting point for any discussion should be to ask: “Why are bonds in the portfolio in the first place?” While current bond yields may not be particularly impressive when compared to those in the past, the underlying rationale is that bonds help diversify a portfolio. Within a multi-asset portfolio, bonds are generally viewed as defensive assets due to their lower volatility. Rephrasing the rationale slightly, bonds aren’t generally viewed as return boosters but rather seen as volatility dampeners. Bonds can and will fluctuate in value, but they are nowhere near as volatile as some other asset classes, such as equities. This means that adding bonds to a portfolio is analogous to adding cool water to a hot bath to make it more comfortable.

Even very aggressive investors can benefit from keeping part of their investments in bonds, given the diversification they bring to a portfolio. As many investors face the perennial question of ‘bonds versus stocks’ within a multi-asset portfolio, the reality is that nothing has changed when it comes to reducing volatility. A portfolio containing global bonds remains an investor’s best defence against an uncertain future investment environment.

## IF THE AIM IS TO LOWER VOLATILITY, WHY NOT ADD CASH?

If an investor wants to reduce volatility, why not simply allocate more to cash and avoid the impact of higher interest rates? It’s true that adding cash to an equity portfolio will also lower volatility, but perversely, it may not reduce risk as much as adding bonds.

Even though cash has lower absolute volatility, it may not be as good a diversifier as bonds in a portfolio that contains equities. This is because bonds tend to have a negative correlation with equities during times of market turmoil.<sup>1</sup> When stocks plummet and the economy is in recession, interest rates typically fall, which drives up bond prices. That boost can offset at least some of the losses investors experience on the equity side of their portfolios.

▀ Bonds can and will fluctuate in value, but they are nowhere near as volatile as some other asset classes, such as equities.

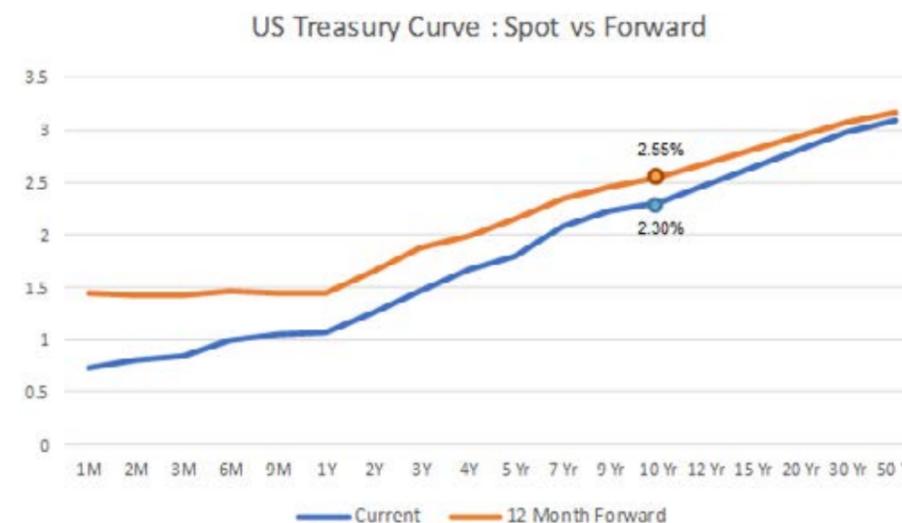
By contrast, holding cash in a portfolio during a stock market correction offers a much smaller benefit due to the lack of interest rate duration. An investor’s cash holdings will never spike in value and offset losses on the equity side. Further, cash holdings are likely to disappoint if central banks react to a stock market correction by cutting rates. This would reduce cash yields and illustrates how cash and bond returns can be negatively correlated in some circumstances, such as a stock market correction. This possible negative correlation between bonds and cash means investors shouldn’t think in terms of one or the other. Instead, they should consider holding both.<sup>2</sup>

If the strategic rationale for holding bonds is unchanged, should an investor always hold the same allocation within a multi-asset portfolio? Or in the context of today’s environment, should investors tilt away from bonds if they expect interest rates to rise? Such a tilt may make sense, but investors should keep the following points in mind.

## IT ISN’T WHETHER RATES RISE THAT MATTERS, BUT WHETHER THEY RISE BY MORE THAN THE MARKET EXPECTS

To decide whether it makes sense to tactically tilt away from global bonds, investors who believe that yields ‘can only go one way from here’ may need to ask whether their view reflects any special knowledge? In other words, do they know something the market doesn’t?

The reason is that longer-dated bonds are simply the average of the market’s expectation of future shorter-dated bond rates plus a term premium. This arises because, in an efficient market, changes in bond prices are typically driven by changes in the market’s consensus view of future interest rates (which in turn takes account of expectations concerning how short-term rates will evolve). These expectations are priced in to bond prices in much the same way that a company’s future earnings are built into stock prices. The result is that a 10-year bond yield is an estimate of what the market expects the 1-year bond rate to be over the next 10 years.<sup>3</sup>



<sup>1</sup> This relationship explicitly assumes that the bond portfolio has a low level of credit risk incorporated within it. To the extent that there is credit risk within the bond portfolio, the greater the credit exposure, the more the bond portfolio will tend to behave like the equity markets it is trying to diversify. Investors need to keep this in mind when determining the appropriate mix of bonds and equities within a portfolio.

<sup>2</sup> This argument still holds even if cash rates are zero, provided there is a positive yield curve, as yield curves can still become inverted. However, the argument becomes less persuasive where cash rates are zero and the yield curve is already highly inverted (i.e., nominal longer-date bond rates are negative). The rationale for holding longer-date bonds becomes much weaker in this scenario as there is a floor under the zero cash rate and the holding of longer-date bonds involves a negative carry versus cash.

<sup>3</sup> Note that the estimate will be biased in that the market’s expectations should normally incorporate a positive term premium.

The implication is that if the market and the individual investor expect interest rates to follow the same path, then the individual investor's opinion is already built into bond prices. To illustrate, the chart on page 13 shows the spot US yield curve and the 12-month forward curve<sup>4</sup>. While the spot 10-year bond rate is 2.30%, the 12-month forward 10-year bond rate is 2.55%. Here, the view isn't that rates will rise. Rather, it is that the 10-year bond rate will rise materially higher than 2.55% (or rise by more than 25 basis points) over the next year. When considering and incorporating a directional view on rates, the direction of the view is less important than the spot expectation versus what the market has already priced in.

#### ACHIEVING DIVERSITY OF PREMIUMS WITHIN FIXED INCOME PORTFOLIOS

Just as bonds are one exposure within an investor's portfolio, it is important to remember that interest rate risk may be only one exposure within an investor's bond portfolio. This is best illustrated by considering that for most bond portfolios the main drivers of returns are not only interest rates but also credit spreads. These tend to be negatively correlated over the cycle. Accordingly, simply focusing on the outlook for interest rates may risk overlooking other interactions within a bond portfolio. To highlight an extreme example, assume that an investor has a bond portfolio that is 100% longer-duration global credit. Within this portfolio, the interest rate duration and credit spread duration can together act as a natural hedge (i.e., they tend to be negatively correlated over the cycle). Now the investor is concerned about the risk of rates rising so decides to hedge out all interest rate risk. Perversely, by eliminating the offsetting impact of interest rates and credit spreads, the investor may actually be increasing the risk of the bond portfolio.<sup>5</sup>

The interaction between interest rates and credit spreads is an example of the diversifying impact of combining different premiums. More generally, investors should ensure that a fixed income portfolio, subject to investor constraints, strikes a balance between exposures to the different premiums available. The key premiums available to investors are listed below.

##### Term premium

This is simply the premium associated with the expectation that 'normal' yield curves are positively sloped (i.e., investors receive a higher return for assuming longer-duration securities). However, term premiums are not linear, so the optimal point for accessing such premiums can be at the shorter end of the curve where roll down assists investor returns.

##### Credit premium

This is simply where securities that exhibit higher levels of credit risk will generate higher returns than those of comparably lower credit risk. Normally, such a premium is quantified as the return earned over government bonds (i.e., government bonds are viewed as being risk-free).

##### Illiquidity premium

A bond illiquidity premium is the compensation an investor seeks for investing in less liquid debt securities. Credit and illiquidity premiums are often closely connected, and in practice can be difficult to separate.

##### Real yield premium

This relates to the tendency for bonds issued by sovereign countries with higher real yields to have a higher likelihood of outperforming those with low real yields. There are three drivers for this outperformance: (a) higher carry associated with the real yield premium; (b) potential for longer-term real rate convergence; and (c) a steeper yield curve associated with higher inflation volatility.

##### Currency premium

Russell Investments believes that carry, valuation and momentum strategies are the three dominant ways investors can capture returns in currency markets.

#### PROACTIVE MANAGEMENT TO HELP NAVIGATE THIS ENVIRONMENT

Ensuring that a bond portfolio incorporates a diversified range of premiums helps avoid excessive reliance on any single source of return enhancement. Just as importantly, it may assist in proactively managing exposures over the cycle in the event that the investor wants to tilt exposures. For example, an investor may be concerned about the outlook for interest rates and want to reduce the exposure to those rates. As has been highlighted, such an action may have flow-on impacts to other risks within the portfolio. By having a more diversified range of premiums within a portfolio, the investor may be in a better position to minimise any negative impact from reducing their exposure to interest rate risk. In fact, the increased diversification of premiums may be a more efficient means of managing interest rate risk than simply trying to tactically tilt at different points in the cycle. Russell Investments also believes skilful active management can add value over passive management, and that it has a demonstrated ability to identify such capable managers.

#### SUMMING UP

It's always important to consider asset classes in context, rather than in isolation. On their own, bonds may appear unattractive today if an investor's goal is simply to maximise returns from that part of a multi-asset portfolio in the short-term. However, if an investor is in it for the long-haul, they should never forget that bonds are still the asset class that puts the 'balance' in a balanced portfolio. This does not mean that all bond portfolios are created equal. Investors should ensure they maximise the range of premiums within their portfolios to reduce their reliance on any particular premium when building value in their bond portfolios. In our view, this is key because the diversification of bond premiums is likely to become more important as volatility rises across the global investment market.

<sup>4</sup> The forward curve is the current estimate of the market's expectation of 10-year bond rates 12 months from now.

<sup>5</sup> This historical interaction between interest rates and credit spreads also highlights the importance of ensuring portfolios are appropriately constructed to be consistent with the investor's desired objectives. For example, duration and credit within a fixed income portfolio will assist in diversifying each other as interest rate duration and credit spread duration tend to offset each other during periods of market stress (i.e., major risk-off events). However, this diversification benefit can only be used once. Put another way, the more the interest rate duration within a fixed income portfolio is needed to offset credit risk within the fixed income portfolio, the less is left to offset the investor's equity exposure. Accordingly, if an investor is using interest rate duration within a fixed income allocation to protect against adverse equity moves, then it makes sense to also use more conservative credit exposures, if any credit exposure at all, to provide the maximum level of diversification with respect to the investor's equity holdings. Conversely, if an investor is using higher-risk credit strategies within their fixed income portfolio, they may want to reconsider their allocation to equities given the potential overlap in exposures.



# SUMMIT2018

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**[jrobert@russellinvestments.com](mailto:jrobert@russellinvestments.com)**  
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## What real-ly matters?

Andrew Johnson, Head of Asset Consulting, NZ

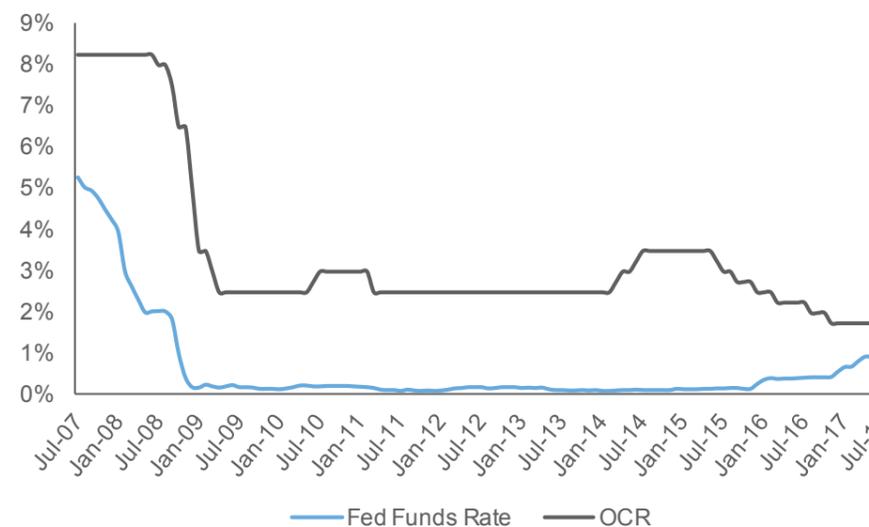
It is often argued that low cash yields are good for those with mortgages, but potentially disastrous for retirees who depend on bank (and similar) deposits for their income. This short article explores this notion and concludes that this isn't necessarily the case, as the relevant metric is real (inflation-adjusted) returns rather than headline, nominal numbers. Further, it demonstrates that lower returns might even be preferable after you factor in tax.

Across the world, as central banks sought to stimulate their economies, cash yields fell dramatically in response to the global financial crisis (GFC) and have remained at or near their lows ever since. In the United States, for example, the Federal Funds Rate (the interest rate at which depository organisations lend to each other overnight) fell sharply from approximately 5.25% in the third quarter of 2007 to close to zero in the following 18 months. The rate has reversed slightly in the last two years, to currently sit at approximately 1.25%. Meanwhile, the Reserve Bank of New Zealand's Official Cash Rate (OCR) was reduced even more dramatically – from just over 8.25% in mid-2008 to 2.5% in the space of less than 12 months. While the OCR (the rate the RBNZ charges on overnight loans to banks) was then increased over 2014, it has since retraced and currently sits at just 1.75%. These moves are shown in figure 1.



Andrew Johnson

Figure 1 – (US) Fed Funds Rate and (New Zealand) OCR



While this paper focuses on cash, similar conclusions could be drawn for investment in other, riskier asset classes. The performance of these investments can be thought of as comprising the cash return (which, in turn, is in part a function of inflation) plus a risk premium. The concept that it is real returns that matter is important to many investors, including savers with inflation-plus objectives and charitable organisations that reserve for the impact of inflation on their capital.

So what does this mean for those depending on cash returns for their income in retirement? Surely getting, say, 5% is better than, say, 3%? In fact – it depends!

In a neutral state (that is where the central bank is trying to neither stimulate nor dampen economic growth), cash rates broadly comprise compensation for inflation and a margin for credit (and depending on the tenure of the deposit) term risk. That is, inflation is a core component of cash rates. At the same time, inflation also reduces our purchasing power. That is, inflation simultaneously “giveth” and “taketh away”.

It is therefore not nominal, but real cash returns investors should be concerned with. If cash returns are 5% and inflation is, say, 3% this results in an entirely different outcome to the situation where inflation was 1%.

Consider the case of an investor requiring an annual, inflation-adjusted drawdown of \$50,000 on their capital of \$1,000,000. If inflation is 3% and nominal cash returns are 5% (i.e., 2% real), the investor’s position at the end of each year is as shown in Table 1:

**Table 1 (\$000s) – 3% inflation, 5% nominal cash return**

Year	Opening \$	Income \$	Drawdown \$	Closing \$
1	1,000.0	50.0	50.0	1,000.0
2	1,000.0	50.0	51.5	998.5
3	998.5	49.9	53.0	995.4
...	...	...	...	...
25	244.3	12.2	101.6	154.9
26	154.9	7.7	104.7	58.0
27	58.0	2.9	107.8	(47.0)

As is evident, in the first year the income is sufficient to meet the drawdown (which, for simplicity only, we have assumed occurs at the end of each year). However, in the second year, the impact of inflation starts to bite and the income is less than the drawdown, meaning that the closing capital is slightly reduced. The rate of decline in capital accelerates over time, such that it is nearly exhausted by the end of year 26.

What if inflation had been 1% and, retaining the same margin as above, nominal cash returns were 3%. The investor’s position at the end of each year is as shown in Table 2:

**Table 2 (\$000s) – 1% inflation, 3% nominal cash return**

Year	Opening \$	Income \$	Drawdown \$	Closing \$
1	1,000.0	30.0	50.0	980.0
2	980.0	29.4	50.5	958.9
3	958.9	28.8	51.0	936.7
...	...	...	...	...
25	125.1	3.8	63.5	65.4
26	65.4	2.0	64.1	3.3
27	3.3	0.1	64.8	(61.4)

As is evident, in the first year the income is insufficient to meet the drawdown and the closing capital has reduced quite markedly. The reduction in capital from year 2 is further impacted by inflation. However, relative to the earlier example, inflation has a much smaller part to play. Moving forward, we see that capital is, once again, all but exhausted at the end of year 26. While the investor’s remaining capital at that point is lower than in the earlier example, the difference is not that material – in both cases his capital lasts just over 26 years.

The above examples show that despite materially different nominal cash returns, the investor would be more or less indifferent if we assume that the real cash returns are the same in both cases.

Further, there’s a twist – tax! It is nominal, rather than real, cash returns that are taxed. That is, **both** the inflation and margin components of cash returns are taxed. As inflation increases, so does the amount of tax payable. Let’s look again at the above examples after allowing for a tax rate of, say, 20%.

**Table 3 (\$000s) – 3% inflation, 5% nominal cash return, 20% tax rate**

Year	Opening \$	Income \$	Drawdown \$	Closing \$
1	1,000.0	40.0	50.0	990.0
2	990.0	39.6	51.5	978.1
3	978.1	39.1	53.0	964.2
...	...	...	...	...
22	186.4	7.5	93.0	100.8
23	100.8	4.0	95.8	9.1
24	9.1	0.4	98.7	(89.2)

Unsurprisingly, tax has worsened the investor’s position, with her capital now all but exhausted at the end of year 23 (rather than year 26).

**Table 4 (\$000s) – 1% inflation, 3% nominal cash return, 20% tax rate**

Year	Opening \$	Income \$	Drawdown \$	Closing \$
1	1,000.0	24.0	50.0	974.0
2	974.0	23.4	50.5	946.9
3	946.9	22.7	51.0	918.6
...	...	...	...	...
22	170.1	4.1	61.6	112.6
23	112.6	2.7	62.2	53.0
24	53.0	1.3	62.9	(8.6)

While the investor’s position is understandably less favourable than was the case when we ignored tax, she is now slightly better off than in the 3% inflation example. That is, if we assume the same real cash rates in both cases, the investor is actually better off in the low return environment after allowing for tax! In our first example, tax accounted for 1% (20% of 5%) of the return. The effective real return was therefore 1% (2% margin less 1% tax). In the second example, tax accounted for only 0.6% (20% of 3%) of the return. The effective real return was a healthier 1.4% (2% margin less 0.6% tax).

**SUMMARY**

This short paper has demonstrated that low cash yields do not necessarily spell potential disaster for retirees depending on bank (and similar) deposits for their income. Real, rather than nominal, cash returns are what is key. Assuming the same real yield, investors should be largely indifferent to changing nominal cash rates. Further, when we take tax into account, low nominal cash rates might actually be preferable.

# Resisting temptation

## Why overcoming our worst human impulses can have great rewards

Emily McQualter, Member Marketing & Communications Manager, Australia



Emily McQualter

Human beings have developed language, conquered gravity, and made the most of our opposable thumbs. What we're not terribly good at though, is overcoming our own worst impulses – particularly as investors.

### ARE WE WIRED FOR FAILURE?

Could it be that the way human beings are psychologically made up makes it difficult for us to pursue an optimal investment strategy? Are we somehow wired to be more susceptible to behaviour that produces less-than-great results?

This theory comes from various neuropsychological research. In one particular study<sup>1</sup>, after observing a series of light flashes, human subjects were asked to guess whether the next flash of the light would be at the top or bottom of the screen. The order that the light appeared in each location was random, but over time it appeared at the top of the screen 80 percent of the time. The non-human subjects, rats, were required to do the same thing. If the rats were right they got food, and if they were wrong they got a mild electric shock.

The scientists noticed the subjects engaged in two very different types of behaviour. The rats employed a 'maximisation' strategy, while the humans preferred a 'matching' strategy.

### MAXIMISING VS MATCHING

The 'maximising' rats just engaged in the behaviour that most often gave a positive result. They soon learnt that the light flashed most often at the top of the screen, so eventually they only selected the top – and were rewarded with food 80 percent of the time.

The human 'matchers' also figured out that the light flashed most often at the top. But they tried to figure out the underlying pattern to the random flashes and then match their guesses to the (non-existent) pattern – and only guessed right 68 percent of the time.

### OUR NEED TO BE RIGHT MAKES US WRONG

The psychologists hypothesised that rats choose a more optimal strategy than we oh-so-smart humans because they accept they're going to be wrong some percentage of the time and simply want to minimise the error (and risk of shocks). Humans, on the other hand, aspire to be perfectly correct – and, as a result, we're wrong a higher proportion of the time.

So, what does this have to do with investing? The random outcomes tested in these studies are much like the day-to-day variations we see in financial markets. Our need to find patterns in uncertainty actually causes us to do much more poorly than if we, like the rats, simply pursued the best long-term strategy and accepted we'll receive a few 'shocks' along the way.

### INVESTORS ARE GREAT AT PREDICTING THE PAST

Chasing performance is a good example of how we alter our behaviour based on recent events. If a stock does well, investors are likely to flock to it (buying high). If it drops, many investors will flee (selling low).

Studies show members of superannuation funds have a similar mentality. The majority of investment switching during the global financial crisis happened just after market downturns, and most of those transfers were from medium- or high-growth portfolios to more conservative strategies. Those who switched to cash during March 2009 (when the market was at its lowest point) were six percent worse off by August that same year, having missed out on the sharp market rebound.<sup>2</sup>

### HOW TO BREAK THE MOULD

So what can we do to improve our chances of investment success? The answer, of course, is to ignore your very human gut instincts and behave more like a rat. Determine the optimal plan based on your retirement objectives and tolerance for risk, then stick with it. You don't have to change your investment strategy as soon as the market moves – in fact, it's best not to.

“So what can we do to improve our chances of investment success? The answer, of course, is to ignore your very human gut instincts and behave more like a rat.”

<sup>1</sup> Gazzaniga, M (2002), *The Split Brain Revisited*, Scientific American, p26–31

<sup>2</sup> Gerrans, P (2009), *Member Investment Choice Response to the Global Financial Crisis*, The Australian Institute of Superannuation Trustees

GREAT MOMENTS IN FINANCIAL HISTORY

# The origins of trade (40,000 B.C.)

Bob Collie, FIA, Chief Research Strategist, Americas Institutional



Bob Collie

We can trace the origin of money in ancient Mesopotamia back to 3000 B.C. Trade is even older than that, going back to the very beginnings of mankind tens of thousands of years ago.

In *The World Until Yesterday*, Jared Diamond describes several features of the traditional societies in which mankind lived for most of our history. He devotes a section to trade.

In the absence of money, traditional societies traded by barter i.e., the exchange of one good for another. Traditional societies' trading differed from modern commerce in many other ways, too. Trade was occasional, not continuous. It was commonly not structured as an explicit exchange, but rather as a series of gifts. These gifts were not, generally, given simultaneously. This meant that trust was essential. It is no surprise, then, that trade seems to have served not only to allow one group's shortage to be met from another's surplus, but also to build and maintain alliances between groups.

Indeed, while much trade in traditional societies was of the comparative advantage type (e.g., coastal Inuit trading seal oil and walrus skins to inland Inuit in exchange for berries and caribou antlers), there was also extensive trading of objects that could readily have been obtained independently. Diamond argues that for traditional societies, constantly at risk from warfare or famine, the maintenance of alliances developed through trade often proved more important to survival than the goods themselves.

One aspect of ancient trade that is familiar today is the spectrum of goods involved. Early mankind traded not only raw materials and manufactured products (such as pots) but also pure luxury items (such as decorative shells) and a wide category of objects that, while useful, served also to convey status. Diamond explains how this oldest great moment of all is not simply ancient history:

"Cro-Magnons tens of thousands of years ago traded obsidian spear points necessary for hunting meat, shells and amber useful purely for decoration, and beautiful finely finished spear points of translucent quartz. The Cro-Magnons presumably would have no more dreamed of using their quartz spear points in hunting and thereby risking breaking them than we would use our best Gucci tote bag to carry home our fish purchase dripping with redolent fish oil from the seafood market."

For traditional societies, constantly at risk from warfare or famine, the maintenance of alliances developed through trade often proved more important to survival than the goods themselves.

Source: Diamond, J. (2012). *The world until yesterday: What can we learn from traditional societies?* New York: Viking Press

INSIGHTS AND RESEARCH FOCUS

# Russell Investments' research



## BRACE FOR IMPACT – ENSURING IMPACT INVESTMENTS LAND SMOOTHLY IN YOUR PORTFOLIO

By: Noah Schiltknecht, Head of Implemented Consulting, NZ

Impact investing has gained considerable attention and prominence over the last few years in New Zealand. This is not surprising. It is easy to like the idea of having a positive impact on society while making money at the same time. However, things are not always as simple and clear cut as interested investors would probably like.

This paper discusses and provides practical examples on the following areas:

- › What is impact investing?
- › Where should impact investments sit in your portfolio?
- › Modelling impact investment risk and return
- › Case study – impact investment loans
- › A portfolio perspective – how to benchmark impact



## LOW CARBON: A UNIQUE GLOBAL EQUITIES SOLUTION

By: George Thomson, Consultant, NZ

In this paper, we explain how we can help investors manage the potential investment implications of a transition to a low carbon economy, without introducing significant investment risk. Going beyond reduction of carbon footprint alone, our solution tilts a global equity portfolio away from companies with the greatest exposure to carbon related risk and towards companies expected to contribute to, and benefit from, an 'energy transition'. This solution also avoids some of the pitfalls prevalent in existing strategies, and will continue to evolve as the nascent carbon management sector develops.

If you would like to receive a copy of the above research papers, please let us know.

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