

A GLOWING FUTURE FOR FINANCE IN CLEAN ENERGY

The 20th century – its politics, its economics, its wars – was dominated by oil. And while oil's power has slipped before, this time it's different. The transition to clean energy in pursuit of the reduction in global warming that is so vital to our grandchildren's wellbeing is not just the biggest challenge facing the financial sector in the next decade, but also one of its greatest opportunities to deliver sustainable profit, with purpose. In the capital markets, green infrastructure projects are to the fore as interest rates stick steadfastly near zero; clean energy stocks are up nearly 50% this year; giants like ExxonMobil have been culled from the main market indices.

Two themes dominate this issue – the geopolitics of energy and their impact on finance, and Modern Monetary Theory (MMT). Manfred Hafner and Simone Tagliapietra have created the definitive guide to the geopolitics of the global energy transition. Manfred and Simone teach at distinguished institutions in Europe and North America, notably Johns Hopkins and Sciences Po. They have assembled some two dozen subject experts from around the developed and developing world to focus on the background to the great energy transition, and the requirements that politicians and society will put on our sector and our allies in the Green Finance Education Charter – the accountants, the actuaries, the bankers and so on – to finance it.

Meanwhile, Russell Napier, one of the deepest-thinking investment practitioners, has delivered a masterly onslaught on MMT, in print here and also on CISI TV, arguing that it fails to address the large-scale theft on savers that he believes will inevitably ensue from this thinking.

Meanwhile, with Christmas around the corner in this difficult year, our thoughts turn to sensible gifts in times of coming hardship. Malcolm Gloyer, Chartered MCSI, casts a sober eye on cask whisky valuation techniques using options.

All will provoke comment, but not in the narrow confines of Twitter, so please email me (address below) with your comments.

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It's not personal

Nigel Pantling, Chartered FCSI, has had a distinguished career in the British Army, and at the highest levels in Whitehall and corporate finance. We are now delighted to have him as poet-in-residence in the *Review of Financial Markets*. You can hear him in conversation with fellow poet Martha Sprackland live on Sunday 1 November (and later on CISI TV replay) as he launches his new collection, *It's not personal*.

This evokes a life, from childhood in the 1950s through the challenges and eccentricities of the workplace, to the unpredictability of family, love and death. These are poems concerned with truth, and just as importantly, with what it means to tell a story.

In his day job, Nigel provides strategic advice to chief executives.
nigelpantling.com

It's Business

she said, from the chair
he still thought of as his.
New owners, new outlook:
we need to make changes,
show we're serious, starting
at the top. Nothing personal.

Nothing personal, not to do
with your management style,
the quality of your team,
your rapport with suppliers,
or relationships with clients:
all good. No, it's business.

Just business: we're pleased
with margins and cash flow,
so we'll pay half your bonus
and your long-term incentive.
It's just that I'm taking over.
Like I said, it's not personal.

THE GEOPOLITICS OF THE GLOBAL ENERGY TRANSITION

MANFRED HAFNER AND SIMONE TAGLIAPIETRA, IN A MAJOR CONTRIBUTION TO THE CLIMATE DEBATE, HARNESS SOME OF THE WORLD'S BEST BRAINS TO FOCUS ON HOW WE GOT TO THE ENERGY CHALLENGE, AND THE WAY AHEAD



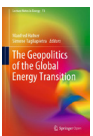
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Read on for an extract from *The geopolitics of the global energy transition* (Springer, 2020), edited by Hafner and Tagliapietra.

Energy has long shaped global geopolitics, determining great powers, alliances, and outcomes of wars. Every international order in modern history has been based on an energy resource: coal was the backdrop for the British empire in the 19th century, oil has been at the core of the subsequent 'American

century', and today many expect China to become the 21st century's world renewable energy superpower.

Since World War I, oil has undoubtedly represented the cornerstone of global energy geopolitics. The decision of then First Lord of the Admiralty Winston Churchill to shift the power source of the Royal Navy's ships from coal to oil in order to make the fleet faster than its German counterpart truly signalled the opening of a new era. The switch from the reliable coal supplies of Wales to the insecure oil supplies from what was then Persia not only made the oil-rich Middle East a key epicentre of global geopolitics, but also turned oil into a key national security issue.

Since the early 20th century, control of oil resources has played a central role in several wars. This was, for instance, the case of the 1967–1970 Biafran War, the 1980–1988 Iran–Iraq War, the 1990–1991 Gulf War, the 2003–2011 Iraq War and of the conflict in the Niger Delta ongoing since 2004.

The second half of the 20th century also saw increasing tensions between oil-producing and oil-consuming countries, which in two cases erupted into major oil crises. In September 1960, the Organization of the Petroleum Exporting Countries (OPEC) was established in Baghdad, with the participation of five member countries: Saudi Arabia, Iraq, Iran, Kuwait and Venezuela. The original aim of OPEC was to prevent its members from lowering the price of oil, by coordinating their production and export policies. During the 1970s, some OPEC members also had the aim of nationalising their petroleum resources to preserve sovereignty.

The geopolitical role of OPEC became clear as the Arab–Israeli War – also known as the Yom Kippur War – erupted in October 1973. Arab members of OPEC imposed an embargo against the United States, the Netherlands, Portugal and South Africa in retaliation for their support of Israel. A ban on oil exports to the targeted countries as well as oil production cuts was introduced by OPEC. This resulted in a sharp rise in oil

prices, and in severe oil shortages and spiralling inflation across the West. As OPEC kept raising prices in the following years, its geopolitical and economic power grew.

In the aftermath of the 1973 oil crisis, and on the proposal of then US secretary of state Henry Kissinger, the International Energy Agency (IEA) was established in November 1974 as a platform for oil-importing countries in the West to coordinate a shared response to major disruptions in the supply of oil. This was also allowed by the introduction of a requirement for all IEA member countries to maintain strategic petroleum reserves equal to at least 90 days of their previous year's net oil imports.

A second oil crisis erupted in 1979, as a result of the Iranian revolution and the following 1980–1988 war with Iraq, which brought the region into turmoil. By 1981, the price of oil stabilised at US\$32 per barrel, a level ten times higher than before the 1973 oil crisis.

In the following decades, other oil price shocks occurred, notably in relation to major geopolitical developments in the Middle East. For instance, in 1990, an oil price shock took place in the aftermath of the Iraqi invasion of Kuwait, with a doubling of the oil price in a matter of a few months, which contributed to the early 1990s recession in the United States. But energy geopolitics is not limited to oil. Natural gas, nuclear energy and even renewable energy sources such as wind and solar do have – more or less critical – geopolitical aspects.

In certain areas of the world, natural gas is even considered to be more geopolitical than oil. This is the case in Europe, where natural gas markets have been developed since the 1960s on the basis of large pipeline infrastructures connecting key suppliers such as Russia and Norway to European consumers. This situation has led to an over-reliance of Europe on a few major suppliers. Natural gas imports from Russia continue to provide a third of Europe's total natural gas supply mix.

For decades, this situation has not raised energy security concerns in

Europe. During the 1970s and the 1980s, in the midst of the Cold War, Europe decisively pursued the construction of the long pipelines connecting the large Siberian natural gas fields and Europe, which still today represent the main avenues of Russian natural gas export. Europe pursued these projects notwithstanding the strong opposition of the Reagan Administration, which even sanctioned German and French companies engaged in the construction of the 'Brotherhood' pipeline.

The (over-)reliance on Russian natural gas supplies started to be considered a major geopolitical threat in Europe when, first in January 2006 and then in January 2009, natural gas pricing disputes between Russia and Ukraine led to the halt of Russian natural gas supplies to Europe via Ukraine – its primary transit route. This generated economic damage for Europe, notably in south-eastern European countries heavily dependent on Russian natural gas for both electricity generation and residential heating. Europe responded to these natural gas crises by adopting an energy security strategy mainly focused on reducing its dependency on Russian natural gas supply. In the midst of the 2014 Ukraine crisis, concerns about a potential politically motivated disruption of all European natural gas supplies from Russia lifted again this issue to the top of the European agenda, leading to renewed efforts to lower the European dependency on Russian natural gas supply under the umbrella of the EU's 'Energy Union' initiative.

Nuclear energy, though, presents both security and geopolitical concerns, including the safety of nuclear facilities and nuclear waste management. The concerns for nuclear safety grew particularly after the Chernobyl accident in 1986 and the Fukushima disaster of 2011. These events sparked, especially in Europe and in Japan, broad public debates on nuclear energy. In certain cases, these debates led to radical energy policy shifts. For instance, after the Chernobyl accident, Italy held a referendum on nuclear power, which resulted in the decision to close down all operating nuclear power plants in the country. More recently, after the Fukushima disaster a surge of anti-

nuclear protests in Germany pushed chancellor Angela Merkel to announce the closure of around half of the operating reactors in the country and the complete phase out of nuclear by 2022. These concerns have been most recently accompanied by the emergence of new risks concerning potential terrorist attacks at nuclear power plants.

// THE LARGE-SCALE SHIFT TO LOW-CARBON ENERGY IS DISRUPTING THE GLOBAL ENERGY SYSTEM //

From a geopolitical perspective, proliferation is the main risk associated with nuclear energy. Elements of the nuclear fuel cycle can be used to develop nuclear weapons, either through uranium enrichment or through reprocessing (ie, the separation of plutonium from the highly radioactive spent fuel). It was precisely the close link between the civil and military use of nuclear energy that led to the establishment in 1957 of the International Atomic Energy Agency (IAEA), a United Nations organisation tasked with promoting the peaceful use of nuclear energy. In 1968 (ie, in the midst of the Cold War), the General Assembly of the United Nations also approved the nuclear Non-Proliferation Treaty, aimed at the disarmament of countries with nuclear weapons, as well as at the prevention of nuclear weapons adoption by countries still without them.

But if for more than half a century oil, natural gas and nuclear energy have been at the heart of the geopolitics of energy, it is sensible to investigate if and how this will change as a result of the global energy transition, a process driven by decarbonisation policies and by quick developments in renewable energy technologies and electric cars.

RESHAPING THE GLOBAL ENERGY SYSTEM

The Paris Agreement marked an important step forward in global efforts to respond to the challenge of global warming. For the first time, developed and developing countries have committed themselves to act to limit the increase in the average global temperature to well below 2°C compared to pre-industrial levels. This reinforces the decarbonisation measures

already in place in several parts of the world, primarily in Europe. Meanwhile, technological advances have increased the competitiveness of solar and wind energy technologies, batteries and electric cars. The convergence of these two elements has already begun to reshape the global energy system. By transforming the global energy architecture, international decarbonisation policies and low-carbon technology advancements will also have profound geopolitical implications. The large-scale shift to low-carbon energy is disrupting the global energy system, impacting economies and changing the political dynamics within and between countries. But what will be the consequences of these developments on the geopolitics of energy?

As far as energy-importing countries are concerned, the consequences will certainly be positive. In these cases, as imports of oil and natural gas decrease, both their 'national energy bill' and the associated geopolitical risks will decrease. Countries that are able to innovate more in renewables, batteries and electric cars will also be able to reap the industrial and economic benefits of this transition, generating jobs and economic growth. But, of course, the energy transition will also see the emergence of new geopolitical challenges.

First, the global energy transition represents a challenge for oil- and gas-producing countries, and, in particular, for those with a less diversified economy more dependent on oil revenues. This is the case for many countries in the Middle East and North Africa which, despite the adoption of elaborate strategies for economic diversification, have not really made much progress in this direction. If the global energy transition were to take place more quickly than expected, and if these countries were to remain unprepared, the consequences could be serious from both the socio-economic and geopolitical points of view.

Second, the spread of renewable energies will increase electrification and stimulate cross-border trade in electricity. Energy sources such as solar and wind require flexible energy systems that can cope with variable weather conditions. Smart electricity grids will, therefore, play an increasingly important role in mitigating this variability and

ensuring system stability. The digitisation of electricity grids clearly presents security risks, as terrorist groups or hostile countries could seek to either enter the systems to extrapolate information, or to disrupt them to cause economic and social damage.

Third, it is important to stress that the rapid development of wind and solar energy, together with that of electric cars, raises concerns about the security of supply of the minerals needed to manufacture them. These concerns have also developed following events such as those of 2008, when China imposed a limit on the supply of rare earths – of which it holds a large part of the global production – to foreign buyers, leading to panic in the markets and a rapid increase in prices. Another case was the ‘cobalt crisis’ of 1978, following the outbreak of a conflict in the province of Katanga – the heart of world mineral extraction – in what was then called Zaire. The crisis caused a global shortage of cobalt, driving the international price of the mineral sky-high. It is clear that if something like this were to happen in the future, the consequences for the production of electric cars would be significant. Cobalt is a key component of their batteries.

These are just some examples of how the minerals at the heart of the energy transition will carry their own geopolitical risks, just as oil and natural gas have had theirs.

The global energy transition will not, therefore, lead to the end of the geopolitics of energy, but rather to its transformation. On the one hand, it might strengthen the energy security of most of the countries currently importing oil and natural gas, promoting job creation and economic growth in those that will be able to seize the industrial opportunities of this development. On the other hand, it might create elements of instability in oil- and gas-exporting countries, which might have to reinvent themselves to keep developing in the new energy era, and new security risks linked to electricity grids and minerals.

A LOOK INSIDE THE BOOK

The book seeks to provide a comprehensive analysis of the geopolitical aspects of the global energy

transition, from both regional and thematic perspectives. The first part of the book provides a set of regional insights, aimed at analysing the geopolitical implications of the global energy transition in the world’s main energy-producing and energy-consuming regions. The second part provides in-depth

focuses on selected issues, spanning from the geopolitics of renewable energy to the mineral foundations of the global energy transformation, up to the governance issues related to the changing global energy order.

Below is a brief outline of each chapter.

‘The global energy transition: a review of the existing literature’

Manfred Hafner and Simone Tagliapietra present an overview of the existing literature in the field, which, surprisingly, remains fragmented. This should



represent for the reader a useful summary to the state of the art of knowledge in the field, and therefore a useful starting point.

// THE RAPID DEVELOPMENT OF WIND AND SOLAR ENERGY RAISES CONCERNS ABOUT THE SECURITY OF SUPPLY OF THE MINERALS NEEDED TO MANUFACTURE THEM //

Marco Dell’Aquila of the Johns Hopkins University SAIS Europe in Bologna, Daniel Atzori of Cornwall Insight in Norwich, UK, and Ofelia Raluca Stroe of the British Academy of Management in London provide a comparative analysis of how China and the UK have implemented policies transitioning away from fossil fuels to renewable energy, discussing the commonalities and differences of the two approaches.

‘The European Union and the energy transition’

Marc-Antoine El-Mazzega and Carole Mathieu of the Institut Français des

Relations Internationales in Paris, France discuss the EU and the energy transition by looking at the key strategic energy and climate policy issues facing the EU in the next five years, and elaborating on how EU energy and climate policies may be shaped, and what their global implications are.

‘US clean energy transition and implications for geopolitics’

Jonathan Elkind of the Center on Global Energy Policy at Columbia University in New York tackles the US clean energy transition and its geopolitical implications. He argues that in a time of complicated geopolitics, the country’s global standing will be materially affected by the way it manages energy and climate issues, as will its ability to work with international partners on other global challenges.

‘China: the climate leader, and villain’

Michal Meidan of the Oxford Institute of Energy Studies, UK analyses how China’s emergence as a global economic power and energy consumer has shaped global energy production and trade flows. She argues that while China was a technology follower in the fossil-fuel world, in the energy transition it is likely to play a vastly different role, at the forefront of global innovation and projected towards a global clean technology leadership.

‘Implications of the global energy transition on Russia’

James Henderson of the Oxford Institute of Energy Studies and Tatiana Mitrova of the Energy Center at Moscow School of Management Skolkovo, Russia discuss the implications of the global energy transition on Russia, arguing that this poses an existential threat for all the key



George Littlejohn MCSI (left) and Professor Alexander Van de Putte, joint authors of the chapter on financing the transition, have cooperated on a number of sustainability and governance projects

Italy highlight the main strengths and weaknesses of the current technologies for the global energy transition, to help the reader in understanding the main opportunities and challenges related to the development and deployment of each of them. They also provide strategies and policy recommendations from a technology point of view on how to decarbonise the global energy systems by

Russian stakeholders, challenging the very sustainability of the economic (and political) system in the country and therefore requiring a new strategy for development of the energy sector.

‘A fine balance: the geopolitics of the global energy transition in MENA’

Robin Mills of Qamar Energy in Dubai, UAE analyses the impacts of the global energy transition on the Middle East and North Africa (MENA) region, the cornerstone of global oil and gas production. He argues that while regional countries are – to different degrees – implementing policies to diversify their economies, regional unrest and conflict, climate change and geopolitical competition between the US, Russia, China and other local and international powers complicate the diplomacy and energy security challenges of the MENA energy transition.

‘Addressing Africa’s energy dilemma’

Lapo Pistelli of Eni in Rome, Italy discusses how the ongoing low-carbon energy transformation could reshape geopolitics within Africa and between the continent and the rest of the world. He analyses the drivers and modalities of Africa’s alleged shift to finally explore geopolitical dynamics, questioning whether Africa is still the locus for the global supply of natural resources, introducing patterns of engagement between Africa and international/regional actors, and finally presenting the socio-economic implications of the shift.

‘Technologies for the global energy transition’

Manfred Hafner and Michel Noussan of Fondazione Eni Enrico Mattei in Milan,

mid-century and of the necessity to take a systems approach.

‘Policy and regulation of energy transition’

Karolina Daszkiewicz, energy policy and markets expert from Paris, France, discusses the role of policies and regulations in fostering the energy transition. She looks at the different types of policies that have been effective in delivering these goals and provides examples for the way forward.

‘Financing the sustainable energy transition’

Alexander Van de Putte of Astana International Financial Centre (AIFC) in Nur-Sultan, Kazakhstan, and IE Business School in Madrid, Spain, Akshu Campbell-Holt, AIFC, and George Littlejohn MCSI of the Chartered Institute for Securities & Investments in London discuss the financing aspects of the global energy transition. They argue that there is also a role for governments in developing countries to develop their capital markets and gradually internalise the direct and indirect subsidies from which the fossil-fuel industry derives an unfair advantage; only when these various change factors come together will it be possible to scale the sustainable energy transition.

‘Minerals and the metals for the energy transition: exploring the conflict implications for mineral-rich, fragile states’

Clare Church and Alex Crawford of the International Institute for Sustainable Development in Vernier, Switzerland look at the minerals and metals underpinning the energy transition, in

view of exploring the extent to which increased demand for the minerals critical to green energy technologies could affect fragility, conflict and violence in producing states, and explore what would be required by the international community to mitigate these local and national threats.

‘The impacts of the energy transition on growth and income distribution’

Giacomo Luciani of Sciences Po PSIA in Paris, France discusses the impacts of the energy transition on growth and income distribution, claiming that if we want to make progress with the energy transition, it is necessary to acknowledge its cost and seek agreements on the division of the burden. Agreements are needed at the international level, between rich and poor countries, but also at the national level between rich and poor citizens.

‘The global energy transition and the global south’

Andreas Goldthau, Laima Eicke and Silvia Weko of IASS in Potsdam, Germany provide a ‘Global South’ perspective on the energy transition, by shedding light on the specific circumstances pertaining to countries of this part of the world.

‘Governing the global energy transition’

Maria Pastukhova and Kirsten Westphal of Stiftung Wissenschaft und Politik in Berlin, Germany conceptualise the governance of energy transition and argue that the Paris Agreement should be accompanied by governance mechanisms in the energy realm, since the energy sector is a key contributor to global emissions.

‘Setting up a global system for sustainable energy governance’

Vladimir Zuev of the National Research University Higher School of Economics in Moscow, Russia discusses the potential ways to set up a global system for sustainable energy governance, arguing that energy governance institutions are key to a global sustainable transformation.

The book, normally €52, is available free to all CISI members.

Contact george.littlejohn@cisi.org if you'd like a copy.

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THERE BE DRAGONS: THE MYTH OF THE DEFICIT MYTH

MODERN MONETARY THEORY GOES UNDER THE **RUSSELL NAPIER** MICROSCOPE



Russell Napier is the author of *The solid ground*, an independently published global macro investment report.

Russell is also a co-founder of ERIC (www.eri-c.com), a platform for the sale of individually priced investment research. He was a consultant global macro strategist with CLSA Asia-Pacific Markets for almost 20 years. In 2013, Russell was elected as a Fellow of the CFA Institute of the UK.

Russell founded a course on finance at the Edinburgh Business school, called 'A Practical History of Financial Markets' and is author of the book *Anatomy of the bear*.

Russell became a limited partner of Cerno Capital and is a member of the Investment Advisory Committee to Cerno's investment management team.

In 2009, Russell was appointed a non-executive director of the Mid Wynd International Investment Trust. The same year he joined the Investment Committee of the National Trust for Scotland.

In 2014, Russell established 'The Library of Mistakes'. The Library is a charitable venture and a first-class financial history resource for anyone wishing to learn the lessons of the past as a guide to our financial future. He is also the Keeper of The Library. See cisi.org/learning-lessons.

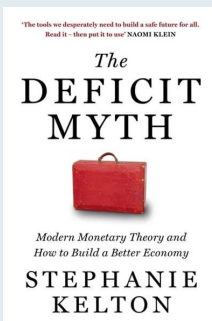
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*Who trusted God was love indeed
And love Creation's final law –
Tho' Nature, red in tooth and claw
With ravine, shriek'd against his creed –*

*No more? A monster then, a dream,
A discord. Dragons of the prime,
That tare each other in their slime,
Were mellow music match'd with him.*

*O life as futile, then, as frail!
O for thy voice to soothe and bless!
What hope of answer, or redress?
Behind the veil, behind the veil.*

**Alfred, Lord Tennyson:
In Memoriam A.H.H**



As a student of monetary history and as someone who advises savings institutions, I am particularly interested in Modern Monetary Theory (MMT) and its implications.

To further

understand it, I read Randall Wray's *Modern money theory* earlier this year and have just finished reading the newly published *The deficit myth* by Stephanie Kelton. Apart from the numerous errors in both monetary theory and financial history that these books contain, there is something much more concerning – a complete refusal to discuss what impact MMT will have on savers. I was certainly hopeful that Kelton, schooled as she is in the work of Wynne Godley, would have to discuss how this largest of stocks might be impacted by, and react to, the new flow of money that MMT creates. However, this subject is entirely avoided in her book, as it is by Wray as well. It is this silence that likely betrays the true

intent of the project, at least as it pertains to savers.

There are probably two differing explanations as to why the impact of MMT on the stock of savings is avoided in *The deficit myth*. One would be that she simply forgot to mention how this new policy might impact savers. That would be a difficult thing to forget, and quite an oversight in assessing the economic impact of a policy, but it's possible. The other reason might be that she deems it politically astute not to mention the consequences of these policies on the stock of savings. Having read *The deficit myth* I can only conclude that it is the latter motivation that drove the decision to ignore any public analysis of the impact on savers from MMT. Yet another book analysing the impact of the new MMT money flow without any reference to how this might impact shifts in stocks, particularly the stock of savings, cannot be accidental. So why the silence on the impact of MMT on savers? In hope of answer or redress this report looks behind the veil of MMT.

Looking behind the veil of MMT involves quite a bit of guess work, but it is guess work based upon assuming

what factors must be held constant for MMT to work as described. Preventing shifts in the stock of savings is the key unspoken assumption that MMT must involve. For those who prefer conclusions up front, it is clear that MMT is financial repression by another name.

Having previously described financial repression as a policy that is designed to 'steal money from old people slowly', it is clear why MMT proponents would prefer not to mention the implications for savers from their policies. What politician would endorse a policy that is designed to destroy savings, given the socio-political devastation that such destruction has wrought historically? Perhaps, more importantly, what savers would choose to subject their savings to such theft when it would be possible to move money out of a jurisdiction pursuing an MMT/financial repression policy? For MMT to succeed, you, as a fiduciary responsible for the savings of millions, must not be alerted to the policies necessary to fix savings in place as the MMT monetary 'medicine' is administered. The only conclusion on the reticence of 'MMTers' to acknowledge that savings move

between asset classes and out of currency zones, must be that they foresee a time when they are not allowed to move. The acceptance that savings can move destroys much, perhaps all, of the MMT analysis so there must be a policy, yet to be disclosed, that prevents such movement. You heard it here first!

Kelton has lofty and often admirable goals and, interestingly, they are goals that have already been achieved in many countries, but not the US. These goals for greater equality, public healthcare, etc. have all been achieved without any resort to MMT. They have been reached by choices on fiscal policy enacted through legislation passed by democratically elected governments. In short, there is ample evidence that Kelton's goals can be achieved with the use of the existing policy tools.

If she regards achieving those aims as success, then many democratically elected governments have achieved that success without any recourse to MMT. Much of the book explains how fiscal policy can achieve key political goals – and who can argue with that as they have achieved such goals elsewhere? If all Kelton argued for was the same fiscal policies that had achieved her preferred social goals elsewhere, then every saver would be well prepared for the consequences of those policies. However, for some reason, while listing the achievements of other governments through fiscal policy choices her book is about ... well, let Kelton explain:

MMT takes as a starting point a simple and incontrovertible fact: our national currency, the US dollar, comes from the US government, and it can't come

from anywhere else – at least not legally ... It's not something households, businesses, or state or local governments can do. Only the federal government can issue our currency. Everyone else is merely a currency user.

... the government doesn't go around looking for someone else to pick up the tab, it just spends its currency into existence.

When the government spends more than it taxes away from us, we say the government has run a fiscal deficit. That deficit increases the supply of green dollars.

Perhaps Kelton deliberately uses the term 'currency' rather than money to confuse, thus avoiding the simple fact that most money creation, at least since the eighteenth century, is the product of commercial banking balance sheet expansion and has nothing to do with government fiscal deficits. We have just seen a spectacular example of this in the rush by commercial banks to lend during Covid-19 and the ensuing massive jump in the growth of broad money. These things did not happen during quantitative easing, when central banks laboured hard to boost the growth in broad money. So the private sector has just created a huge amount of money. The government has clearly not just spent its money into existence; the money has instead been created by an expansion of commercial bank balance sheets.

That is an 'incontrovertible fact' that is inconsistent with the 'incontrovertible fact' that is the very basis of MMT. The government does not spend its currency into existence and a deficit does not increase the supply of dollars. That is not how money is created. With money created primarily by commercial

banks, and the government deficit funded by an existing stock of savings, this description of how the monetary system works is palpably wrong. It's either a fundamental error or a necessary conceit to justify why MMT will work. Kelton has an opinion on that:

The problem we have today is that economic policy is often prescribed by people who, despite holding advanced degrees in economics, possess no real understanding of how our monetary system works.

It seems that Kelton believes she sees something no one else can see. As she appears not to see the role of fractional reserve banking in the money creation process, one can determine how she comes to such revolutionary conclusions on money creation. I think on this issue it's best just to ignore her assessment of

how money is created, as it's so clearly wrong, and focus on MMT as her policy by which it should be created. Of course, by

// KELTON APPEARS NOT TO SEE THE ROLE OF FRACTIONAL RESERVE BANKING IN THE MONEY CREATION PROCESS //

doing so this does avoid the tricky issue of how one ends the money creating capabilities of fractional reserve banking and the impact for private sector access to credit. Perhaps that's why the current money creation process is fictionalised as a product of fiscal deficits, but really who knows why she comes to such a conclusion? On this topic, as with so much more on the impact on the private sector, *The deficit myth* is silent.

Have MMTers not noticed that most money is created by the fractional reserve banking system, or is there a reason why they want to ignore this fact? This is the problem (or omission) that occurs throughout this work and also Wray's seminal piece, and it is hard to believe that such statements spring entirely from ignorance. As it stretches credulity to its limits that these authors would not know their description of money creation is so wrong, one has to assume that it has been deliberately misstated.

In my opinion, it is deliberately misstated for the important reason that



most of the rest of the reasoning around MMT falls down if we admit for a moment that private sector institutions do play a huge role in creating money and also allocating savings. The fact is that MMT means ultimately both those functions pass to the state with massive negative consequences for those savers who see their asset allocation mandated by the needs of government, rather than expected future returns.

That is the 'incontrovertible fact' that must not be revealed and that spurs the mental gymnastics necessary to ignore the role of the private sector in both creating money and shifting the stock of savings to fund the public and private sector. Those roles have to be abolished for the new flow of money called MMT to work its supposed magic, but it is important not to disclose this. To be fair to the authors, it is difficult to reveal the full consequences of a new economic policy when its success largely results in the secrecy of its methods. Savers and commercial bankers must not know what is coming and so they are simply left out of the analysis. Kelton openly admits to be furthering 'our cause', but at whose price that cause is delivered is the price that dare not speak its name. It is at the price of savers.

So let's pretend that money will be created in the way that MMT suggests, which must entail ending the fractional reserves banking system, with the plan being to fund whatever the government wants by the creation of new money. Of course there does have to be a limit on the use of this newly created money:

If the [Congressional Budget Office] CBO and other independent analysts concluded it would risk pushing inflation above some desired inflation rate, then lawmakers could begin to assemble a menu of options to identify the most effective ways to mitigate that risk.

With monetary policy abolished and replaced by fiscal spending as the tool of money creation, policymakers will have to control inflation via alterations in fiscal policy. The CBO will advise on this, and our elected representatives will identify effective ways to take effective

// THE NOMINAL GROWTH RATE OF GDP WILL BE FORCED ABOVE THE YIELD CURVE //

measures, presumably by a tightening of fiscal policy, to control inflation. No level of required inflation is recommended by *The deficit myth* that would trigger such CBO conclusions, nor are the 'effective' ways of controlling inflation through fiscal policy elaborated.

Each reader will have their own opinion as citizens as to whether government should control the supply of money as part of fiscal policy. However, as representatives of

savers, it will be obvious very quickly to you that lawmakers would face extreme political pressure in trying to rein in spending or raise taxes as part of their attempt to control inflation. Their failure to curtail fiscal policy from the mid-1960s is why a move to the independence of central bankers was eventually endorsed from the late 1970s onwards. Savers will demand higher interest rates, given the risks of higher inflation associated with such a radical shift in money creation to politicians. Recognising that interest rates also rise, *The deficit myth* partially lifts the veil on what has to befall savers in the MMT world.

It can't lose control of its interest rate. As Fulwiller observed, interest on the national debt is a "matter of political economy", meaning that policymakers can always overrule market sentiment.

Indeed, that's exactly what the Federal Reserve did during and immediately after World War II, and it's what the Bank of Japan is doing today.

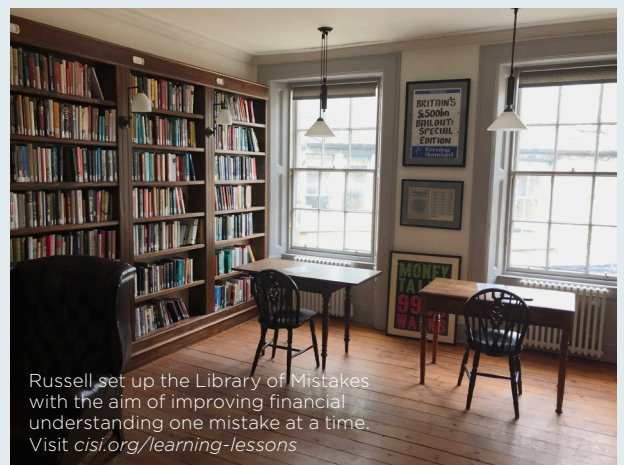
There's nothing inherently dangerous about offering a safe, interest-bearing way for people to hold on to dollars. If we choose to live with 'em, we should come to grips with the fact that the thing we call the national debt is nothing more than a footprint from the past. In spite of what most economists say, there's

simply no pre-ordained relationship between fiscal deficits and interest rates ... A little history will prove the point. From 1942 until 1947, the Federal Reserve - at the behest of the Treasury Department - actively managed the government's borrowing costs. Even as spending to fight World War II drove the federal deficit to more than 25 percent in 1943, interest rates trended lower.

... a government that borrows in its own sovereign currency can always maintain the critical condition for sustainability ($r < g$ [rate of return on private capital 'r' is less than economy's growth rate 'g']). It never has to accept a market rate of interest.

The statements above make it very clear what the outcomes for savers are from MMT. The nominal growth rate of GDP will be forced above the yield curve. Unless MMT manufactures some major jump in real growth, it is clear that the move in the growth rate above interest rates will involve a move to much higher rates of inflation. Throughout that process the yield curve will be capped. This r and g equation is financial repression - pure and simple.

MMT believes that investors will continue to hold these 'safe, interest-bearing' securities, despite the fact that they would see their real value decline every year. Yes, this was all achieved from 1942 to 1947, but Kelton simply fails to mention that the policies associated with its success were rationing, price controls, credit controls, capital controls, and enforced



purchases of government debt. Yield curve control was possible within the strictures of what was a *de facto* command economy. It's not a great advertisement for MMT but, as ever, the consequences of the policy are either forgotten or deliberately ignored; I suspect deep down, it is the latter.

Because the MMT world is one of flows, and which ignores stocks, it cannot see that the market reaction to such a policy is to put the entire stock of Treasuries to the new buyer of those instruments. Glorifying in the impact of each new drop of fresh monetary snow, the theory has to assume that the massive stock of already created money and savings does not turn into a dangerously shifting avalanche triggered by the greater weight of money. As it is very hard to believe that MMTers have just forgotten this fact, we once again have to postulate that MMT must include policies further down the line in which the private sector is compelled to own these investments.

The ability to keep r less than g is the key element of financial repression, and also the clear recommendation of Kelton's book. MMT is financial repression but in its written expression seeks to pull its punches on the impact on savers, and thus hopefully succeed in corralling savers into the killing pens of fixed-interest securities. One has to look hard in *The deficit myth* to divine any guide as to how r is kept above g while allowing savers the freedom to choose their own investments. However, there is a hint as to one policy that would prove useful in utilising such monetary sovereignty:

In addition to South-South trade agreements, developing countries need to return to regulating financial transactions across borders. They may not be able to implement the classical form of capital controls that ruled Bretton Woods and relied on global cooperation but they can certainly do better than they are now.

In other words, regulating international capital flows shouldn't be looked at as a short-term 'stop-gap' measure, but a

permanent policy to help nations reach higher and higher degrees of monetary sovereignty.

A resort to capital controls in pursuit of monetary independence is admitted in *The deficit myth*. While Kelton foresees it as a policy for developing countries, it is clearly a policy that is on the table should MMT implementation

// THE AIM OF MMT IS TO REDISTRIBUTE WEALTH IN AN ECONOMY WITHOUT FULL DEMOCRATIC ENDORSEMENT AND, CRUCIALLY, IN AN ARBITRARY FORM //

trigger the scale of capital outflow from the US that is all but inevitable. What other policies will be necessary to lash savers to the deck during MMT are not revealed in *The deficit myth*.

Subscribers to *The solid ground* will know that such policies are many and dangerous and outlined in my earlier paper, *Capital management in an age of repression* (Q3 2020). A study of the 1945 to 1979 period reveals that policymakers play a game of whack-a-mole with savers who are constantly trying to escape the inflation tax that MMT/financial repression brings. That game leads to more and more administrative measures to whack the mole until there is little of the private sector left. That's a dialectic which is not discussed in *The deficit myth* either – once again, in case it frightens savers and causes them to bolt.

Of course, there are numerous consequences for savers from other recommendations in *The deficit myth* but these are very much the standard consequences that savers are used to from the operation of fiscal policy. The most striking thing about the book is that probably all of its goals can be achieved without resort to MMT at all! While eschewing the need to tax the wealthy – something very different from savers – in order to finance new spending, the book does have certain recommendations on the subject of taxation:

Feigning dependence on those with incredible wealth sends the wrong message, making them appear more vital to our cause than they actually are.

There is a strong case to be made for taxing the rich, and we need to do it. But we need to do it strategically, recognising that the purpose of the tax is not to pay for government expenditures but to help us rebalance the distribution of wealth and income because the extreme concentrations that exist today are a threat to both our democracy and to the functioning of our economy.

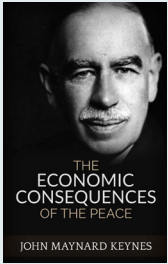
This is straight fiscal policy, and it will be up to the people to either endorse or not endorse through the ballot box. It has the advantage of being honest and directed, and openly decided and enforced. It is just the sort of policy that MMT is not. MMT aims to take money from savers, whether rich or not, and given the obfuscation around its consequences in *The deficit myth*, it is not one to be fully explained to, or endorsed by, the electorate. It is an attempt to impose an inflation tax on savers and redistribute wealth without an open discussion – at least that is what one must conclude from the reading of a book that simply refuses to discuss the implications for savers of MMT's implementation.

In a recent interview, economist and professor of finance at the University of Chicago Booth School of Business, Raghuram Rajan, described MMT as 'absolute nonsense'. Of course, that is what it does look like, but this is because its proponents cannot bring



An exhibit at the Library of Mistakes

themselves to reveal the nature of the capture of private savings necessary to make the theory work as they propose. The apparent theoretical failings, necessary to disguise its intent, make it look like 'absolute nonsense'; actually, it is much more dangerous than that.



John Maynard Keynes, no slouch as an economist or in using fiscal policy for public good, had a warning for those who would seek to use monetary policy to redistribute wealth in a society.

From his book *The economic consequences of the peace* (1919):

Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency. By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and while the process impoverishes many, it actually enriches some. The sight of this arbitrary rearrangement of riches strikes not only at security, but at confidence in the existing distribution of wealth. Those to whom the system brings windfalls, beyond their deserts and even beyond their expectations or desires, become 'profiteers', who are the object of the hatred of the

bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat. As the inflation proceeds and the value of the currency fluctuates wildly from month to month, all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless; and the process of wealth-getting degenerates into a gamble and a lottery. Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and it does it in a manner which not one man in a million is able to diagnose."

Savers must be in no doubt that the aim of MMT is to redistribute wealth in an economy without full democratic endorsement and, crucially, in an arbitrary form. While many large and better-informed savers will successfully dodge the new inflation tax, many smaller and less-informed investors will see the purchasing power of their savings undermined. It will achieve a form of wealth distribution, but almost certainly not the intended form.

As history shows, it is most likely to fall most heavily upon that section of society which has heretofore supported the rule of law, democracy and property rights. Destroying their savings – their

buffer against uncertainty – usually leads to their endorsement of that dangerous political extremist who, under the guise of bringing certainty, destroys liberty and often peace. Perhaps the dream before the monster!

When one looks at the goals that Kelton describes in her book as 'our cause', nothing could be further from her intentions than to facilitate such a destructive political shift. Her goals can be met without resort to MMT but that would require overt political endorsement for a much more active fiscal policy, as once enjoyed by FDR, for example. Sound money can be compatible with such goals, and democratic endorsement for achieving them through fiscal policy can and has been achieved both in US history and now elsewhere in the world.

The solid ground has been writing about financial repression for many years and advising subscribers on how to maintain the purchasing power of their savings in such a repression. MMT is financial repression, red in Tennysonian tooth and claw, and the irony is that it not only destroys savings but, alas, also 'the cause' that Kelton so passionately believes in. Thus ultimately it is the aim of MMT to hide its *modus operandi* in pursuit of a consequence that its proponents do not understand must destroy its goals.

O life as futile, then, as frail!

O for thy voice to soothe and bless!

What hope of answer, or redress?

Behind the veil, behind the veil.

FINANCIAL HISTORY IN ACTION

A Practical History of Financial Markets is an acclaimed course designed, written and taught by leading investment practitioners: Stephen Wright, Derry Pickford, John Greenwood OBE, Peter Warburton, Herman Brodie and Russell Napier. These teachers deliver the course in an intensive two-day session (usually Thursday to Friday).

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They find that two measures of valuation – contrary to the teachings of the Efficient Market Hypothesis – are predictive of future equity market returns. Having established the best guide to fair value for equities, the rest of the course focuses on the forces that cause equities to trade away from fair value.

CASK WHISKY VALUATION USING BASKET OPTIONS

MALCOLM GLOYER, CHARTERED MCSI, BSC, BUSINESS ANALYST AND EXTERNAL SPECIALIST FOR THE CISI, OUTLINES A FORMULA FOR CASK WHISKY VALUATION



Malcolm has more than 30 years' experience working as a business and quantitative analyst on projects in the UK and Australia, specialising in data strategy, market and credit risk, derivatives, commodities, valuations and artificial intelligence.

www.linkedin.com/in/malcolm-gloyer-b0812515/

INTRODUCTION

Alternative asset investment is gaining increasing popularity against a backdrop of high volatility in the price of traditional financial market assets. One such alternative asset is cask whisky. Casks older than two years are sold by brokers to private investors, who then resell the same casks at a later date via brokers to other investors, or bottle the whisky for retail or private consumption.

Cask owners discuss market prices with brokers and the brokers then resell the casks for the agreed price plus commission.

Technologically aware broking companies already have a cask portfolio management tool. Brokers currently conduct task valuation manually using their market knowledge, but could instead use a whisky valuation app to help an investor select or sell a cask.

Embedding the cask valuation app in a cask portfolio management tool would help the broker automate cask valuation and selection. Brokers could develop this to enable investors to buy and sell casks at cask valuation price via a bulletin board exchange, thereby rendering the current broking function obsolete. Brokers would then transition to become cask portfolio management service providers and cask asset managers.

METHODOLOGY

Deriving the forward price of cask whisky

Establishing a forward price for the cask is the first step in modelling and valuing the price behaviour of cask whisky. According to John C Hull in *Options, futures and other derivatives* (3rd edition, 1997, pp.65-67), the forward price (F) of an investible commodity without storage costs can be calculated using S (the current spot price) and r (the risk-free rate) at time to expiry (T-t):

$$F = S e^{r(T-t)}$$

Adding U, the present value of all storage costs that will be incurred during the life of the contract:

$$F = (S + U) e^{r(T-t)}$$

Should the commodity be consumable the following will apply:

$$F \leq (S + U) e^{r(T-t)}$$

Users of the commodity may feel that there are benefits from ownership of the physical commodity that are not obtained by the holder of a forward contract - benefits may include the ability to profit from temporary local shortages - referred to as the convenience yield, y, provided by the commodity:

$$F e^{y(T-t)} = (S + U) e^{r(T-t)}$$

Now that the forward price has been established, the model for the price behaviour of cask whisky can be derived.

Deriving a model for the price behaviour of cask whisky

The next stage is to establish a stochastic model for the price behaviour of cask whisky. The process for cask whisky prices developed in this paper involves two parameters μ (the expected return earned by the investor in time t years annualised and expressed as a proportion) and σ (the volatility in the price of the underlying asset).

From equation $F = S e^{r(T-t)}$ we get:

$$\frac{\partial F}{\partial S} = e^{r(T-t)} \quad \frac{\partial^2 F}{\partial S^2} = 0 \quad \frac{\partial F}{\partial t} = -r S e^{r(T-t)}$$

Assume that S follows geometric Brownian motion with expected return μ and volatility σ . The process for F from Ito's Lemma (Hull, 1997) is given by:

TABLE 1: CALCULATING FORWARD VALUE OF 6-YEAR-OLD BLAIR ATHOL

Distillery: Blair Athol		Alcohol by volume(ABV): 60.10%		Current age: 6 years		Cask selling price: £5,250				
Distillation date: 15/09/2013		Cask type: 1st fill bourbon		Approximate # bottles: 289						
	Price per bottle	T-t	X (= real cask selling price)	S (=bottle price x no. bottles - retail - duty - bottling)	r	σ	d_1	d_2	$Xexp(-r(T-t))$	c
Exit at 12 years (6-yr investment)	£48.45	6	£5,912	£4,801	0.02	0.1	-0.2373	-0.4823	5243.7864	£291
Exit at 17 years (11-yr investment)	£59.95	11	£6,528	£7,128	0.02	0.1	1.0944	0.7627	5238.6141	£2,078
Exit at 21 years (15-yr investment)	£105.78	15	£7,066	£10,285	0.02	0.1	1.9376	1.5503	5234.4799	£5,098

Using $V_{cask} = c(t_6) + c(t_{11}) + c(t_{15})$ the cask valuation is calculated to be £291+£2,078+£5,098=£7,467 compared to the current cask selling price of £5,250 so we conclude that the cask is currently undervalued.

TABLE 2: CALCULATING FORWARD VALUE OF 12-YEAR-OLD LINKWOOD

Distillery: Linkwood Distillation date: 11/10/2008		Alcohol by volume (ABV): 60.10% Cask type: 1st fill bourbon		Current age: 11 years Approximate # bottles: 250		Cask selling price: £8,800				
	Price per bottle	T-t	X (= real cask selling price)	S (=bottle price x no. bottles - retail - duty - bottling)	r	σ	d ₁	d ₂	Xexp(-r(T-t))	c
Exit at 12 years (1-yr investment)	£46	1	£8,976	£3,050	0.02	0.1	-10.544	-10.644	8798.2633	£0
Exit at 15 years (4-yr investment)	£66	4	£9,525	£6,550	0.02	0.1	-1.3725	-1.5725	8793.0552	£47
Exit at 21 years (10-yr investment)	£139.57	10	£10,727	£17,680	0.02	0.1	2.3706	2.0544	8782.6483	£8,918

Using $V_{cask} = c(t_1) + c(t_2) + c(t_3) + c(t_4) + c(t_5)$ the cask valuation is calculated to be £0+£47+£8,918=£8,965 compared to the current cask selling price of £8,800 so we conclude that the cask is currently fairly valued.

$$dF = [e^{r(T-t)} \mu S - r S e^{r(T-t)}] dt + e^{r(T-t)} \sigma S dz$$

Substituting $F = S e^{r(T-t)}$ this becomes

$$dF = (\mu - r) F dt + \sigma F dz$$

Showing that like S , F follows a geometric Brownian motion with the expected growth rate of $\mu - r$ rather than μ .

Now that the model for the price behaviour of cask whisky has been derived, the cask whisky valuation model as a basket of call options priced using historical time series and volatility of the underlying asset can be established.

CASK WHISKY OPTION VALUATION MODEL

As the maturing cask provides the investor with the right but not the obligation to bottle their asset at a particular maturity, a call option is the appropriate model to use for cask valuation at any particular point in its maturity. In their pathbreaking paper, *The valuation of option contracts and a test of market efficiency*, Black and Scholes succeed in solving their differential equation to obtain exact formulas for the prices of European call and put options with strike price X :

$$c = S N(d_1) - X e^{-r(T-t)} N(d_2)$$

$$p = X e^{-r(T-t)} N(-d_2) - S N(-d_1)$$

Where N is the cumulative Normal Distribution function for a variable that is normally distributed with a mean of zero and a standard deviation 1 and

$$d_1 = \frac{\ln\left(\frac{S}{X}\right) + \left(r + \frac{\sigma\sigma}{2}\right)(T-t)}{\sigma\sqrt{(T-t)}}$$

$$d_2 = \frac{\ln\left(\frac{S}{X}\right) + \left(r - \frac{\sigma\sigma}{2}\right)(T-t)}{\sigma\sqrt{(T-t)}}$$

Now that the cask whisky option valuation model has been established, the cask whisky valuation using basket options can be derived.

Cask whisky valuation using basket options

A basket of call options is the appropriate model to use for cask valuation. Put options are inappropriate as the asset isn't being sold at market price, rather converted into bottles for retail sale. Similarly, an asset swap is inappropriate because there is no obligation to convert nor is there an over the counter market in either asset - the cask only has commercial value when converted into bottles for retail.

Options at each maturity band can be summed to provide a cask valuation. Where V_{cask} is the cask value and $c(tx)$ is the value of the call option at maturity point x :

$$V_{cask} = c(t_1) + c(t_2) + c(t_3) + c(t_4) + c(t_5) +$$

...Or more practically:

$$V_{cask} = c(t_1) + c(t_2) + c(t_3) + c(t_4) + c(t_{>5})$$

APPLICATION

Historic volatility in spot prices of rare whisky bottles from the various

distilleries and regions are available at whiskystats.net, which combines data from three whisky auction houses, grouping products into similar asset classes. Implied volatility σ for the Black Scholes European call option model can be estimated using calculated historic volatility and combined with the retail price of bottles less duty, bottling and retail costs as spot and the inflation adjusted investor's cask sale price as strike. d_1 , d_2 and c from the cask whisky option valuation model section above can then be calculated.

FURTHER DEVELOPMENT

- Existing spreadsheets used to value a single cask could be automated and developed as an app that could be integrated into an API platform.
- Alternative option valuation models (eg, binary trees) could be used instead of Black Scholes.
- The valuation method may be extended to other alternative investment classes like wine.
- Opportunities to combine users of the valuation models (brokers) and blockchain (cask management teams and auction houses). Cask management teams who are currently transitioning to their own government bonded warehouse with a tens of thousands of cask capacity from the current cask storage model (ie, cask storage on distillery site) may be interested in moving to an intelligent commodity blockchain solution as part of this planned transition.