

A WORLD OF WONDER – AND SURPRISES

Jaw-dropping surprises have become the norm in business, economic and political life. Even leaving aside the increasingly parochial British twists and turns and somersaults over Brexit, the world's markets and governments have rarely floundered themselves into a more febrile state. In this issue of *Review of Financial Markets (RoFM)*, we bring together some of the best of academic and institutional thinking to consider markets, long and short term, and future trends in learning and cooperation between universities and our sector.

A meeting with Russell Napier is never without surprises. His starter for 2019 was to pull out Adam Smith's *The theory of moral sentiments*, published 260 years ago, in 1759, 17 years before his more famous and much more influential magnum opus, *The wealth of nations*, the first modern work of economics. *The Theory* is much less read, but Mr Napier wonders whether its time has come, as a counterbalance to its more robust and (apparently) nakedly capitalist successor.

The Theory begins with this assertion:

How selfish soever [sic] man may be supposed, there are evidently some principles in his nature, which interest him in the fortunes of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. Of this kind is pity or compassion, the emotion we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrows of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous or the humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society, is not altogether without it.

When the Soviet Union collapsed in 1991, robust, market-driven capitalism had won the great battle; socialism's days of political oppression and economic failure were over. But was that the end of the story? In America, the flock of candidates for next year's presidential election has veered sharply left. Millennials (and others) the world over are intent on shaking up economics and saving the climate. In our own sector, interest in

environmental, impact, social, sustainable, call-it-what-you-will investing has never been higher; it forms the theme of this year's annual integrity event, on 28 March.

The CISI's own mighty campaign for greater understanding of mental health in the workplace has unearthed some unlikely supporters – some of Smith's "greatest ruffians" in finance turn out to be the best and most empathetic listeners to others' problems.

So, are we in for a period when Smith's hard-line capitalism will be tempered by his earlier work? Mr Napier's take on markets positions him well to have a view here. His work for Orlock Advisers – and in particular, his quarterly Solid Ground analysis – from which we are privileged to glean some wisdom in this *RoFM* (from page 3) takes a much-needed long-term view of economies and markets. His History of Financial Markets programme is two-and-a-half days of rigorous analysis by top-flight practitioners on where we are and where we are going.

This long-running course, which is supported by the University of Edinburgh Business School and the CISI, among others, is praised by senior professionals and clients alike for tackling many of the more important, and more daunting, questions in finance and investments, and for putting today's frenetic financial markets into context.

The course is run by Didasko Education, a not-for-profit owned by five of the leading investment management houses in Edinburgh. The surpluses go to support students who would otherwise not be able to afford an education, as does a slice of the revenue from the Solid Ground reports.

TERMS FOR ALL SEASONS

In the list of what they don't teach at business schools, 'term sheets' come near the top of the list, even though – with 'Series A' and 'drag-alongs' – they are part of the lingua franca of sassy entrepreneurs and their kin in the investment world. A term sheet is one of the most critical documents an entrepreneur – and on the flipside, an investor or adviser – can sign. After gallons of sweat equity, the hipster, hustler and hacker teams that make up most tech start-ups rely on the terms they sign for the future of their start-up baby and their dreams for it. (The hipster, for clarity, is the one with the ideas; the hustler gets the money; and the hacker, the techie, makes it work.)

These term sheets for early stage financing are rarely longer than the well-crafted example below – from an online think-in between entrepreneurs and investors in the UK and 'the Valley' (Silicon) – but combine a wealth of necessary understanding of the basics of equity investment, and of ethics and integrity, protecting the rights of both sides in unknown start-up and scale-up territory.

Here at *The Review*, and in

cooperation with universities and business schools in the UK and overseas, we've been asking investors and their advisers on the one side, and start-ups and more grown businesses on the other, how best to help the entrepreneurs on whom we all depend for our future (see the chart on page 64 for graphic evidence of that) and how best to satisfy the reasonable requirements of the creators at this stage in their development, which are:

1. to raise as much capital as possible, while giving up as little of the company as possible, and
2. to ensure that they have not given up too much of the upside potential or assumed too much risk on the downside.

We'd like to hear the views of members on how this key to future growth can best be used to help finance the businesses of the future. Thoughts welcome to the email below.

SPREADING THE WORD

Technology-enhanced learning – in which the CISI is one of the global leaders – is addressing the need for continuing professional development

that derives from the emergence of new, specialised and constantly changing work practices. While CPD is fundamental to enabling individuals to function in and productively shape contemporary financial institutions, digital technology is increasingly central to productive workplace practice.

Just as new technologies continue to transform the way in which we work, so they have influenced learning interactions in professional contexts. In the past decade, CPD delivery through events and this print Review has been greatly overtaken by electronic delivery methods to a global membership and student base – with digital versions of this magazine, CISI TV and Professional Refreshers. The closing article in this issue takes a critical look at MOOCs – massive open online courses – once welcomed as a panacea but now seen to be in want of some tender loving care to bring them to their full potential in the workplace.



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COMING TO TERMS ...

<p>Securities: Series A Preferred Stock of the Company ("Series A").</p> <p>Investment Amounts: £[] million from [] ("Lead Investor") £[] million from other investors</p> <p>Valuation: £[] million post-money valuation, including an available option pool equal to []% of the post-Closing fully-diluted capitalisation.</p> <p>Liquidation Preference: 1x non-participating preference. A sale of all or substantially all of the Company's assets, or a merger (collectively, a "Company Sale"), will be treated as a liquidation.</p> <p>Dividends: 6% noncumulative, payable if and when declared by the Board of Directors.</p> <p>Conversion to Common Stock: At holder's option and automatically on (i) IPO or (ii) approval of a majority of Preferred Stock (on an as-converted basis) (the "Preferred Majority"). Conversion ratio initially 1-to-1, subject to standard adjustments.</p> <p>Voting Rights: Approval of the Preferred Majority required to (i) change rights, preferences or privileges of the Preferred Stock; (ii) change the authorized number of shares; (iii) create securities senior or pari passu to the existing Preferred Stock; (iv) redeem or repurchase any shares (except for purchases at cost upon termination of services or exercises of contractual rights of first refusal); (v) declare or pay any dividend; (vi) change the authorized number of directors; or (vii) liquidate or dissolve, including a Company Sale. Otherwise votes with Common Stock on an as converted basis.</p>	<p>Drag-Along: Founders, investors and 1% stockholders required to vote for a Company Sale approved by (i) the Board, (ii) the Preferred Majority and (iii) a majority of Common Stock [(excluding shares of Common Stock issuable or issued upon conversion of the Preferred Stock)] (the "Common Majority"), subject to standard exceptions.</p> <p>Other Rights & Matters: The Preferred Stock will have standard broad-based weighted average anti-dilution rights, first refusal and co-sale rights over founder stock transfers, registration rights, pro rata rights and information rights. Company counsel drafts documents. Company pays Lead Investor's legal fees, capped at £20,000.</p> <p>Board: [Lead Investor designates 1 director. Common Majority designates 2 directors.]</p> <p>Founder and Employee Vesting: Founders: []. Employees: 4-year monthly vesting with 1-year cliff.</p> <p>No Shop: For 30 days, the Company will not solicit, encourage or accept any offers for the acquisition of Company capital stock (other than equity compensation for service providers), or of all or any substantial portion of Company assets.</p>
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The "No Shop" is legally binding between the parties. Everything else in this term sheet is non-binding and only intended to be a summary of the proposed terms of this financing.

“WHAT THE HELL IS WATER?”

RUSSELL NAPIER ON WHY JANUARY 2018 MARKED A ‘GENERATIONAL PEAK’ FOR US EQUITY VALUATIONS

Russell Napier’s followers – of whom there are many round the financial world – know that he currently expects a deflation shock before we have an inflation shock. “Inflation has steadily undershot expectations since the global financial crisis and will continue to do so,” he says. “A key part of any undershoot is highly likely to involve further declines in commodity prices, particularly as we witness ever-lower nominal GDP growth in China.”

Meanwhile in the US, from 1994 to 2014, US Treasury ownership shifted from savers to central bankers, depressing the risk-free rate and creating money and growth. Now a move in ownership from central bankers to savers is under way and the result will be higher risk-free rates, less money, less growth and lower equity valuations. What pointers for investors from global trends?

Savers financed the US government to the tune of US\$163bn in 2014, but in 2019 they will have to stump up US\$1,341bn. This supply of Treasury securities in 2019, from the US Treasury and the Federal Reserve, will exceed the likely entire increase in US personal savings by US\$322bn. These dynamics are behind a shift in savings, away from equities to Treasuries, acting to depress US share prices, despite, since January, a significant rise in the S&P500 earnings per share and record stock buybacks. This shift in savings is accelerating as the fiscal deficit grows, as the Federal Reserve has reached the maximum level of its balance sheet contraction, and as foreign central bankers are now also sellers of Treasury securities.

Since 2014, this shift in Treasury ownership from central bankers to savers has been under way, pushing interest rates higher and growth rates lower – particularly outside the US and in emerging markets. Asset markets have been reacting and the MSCI World

Index ex US is back to its 2011 level; commodity prices are well below 2011 levels. The shift in savings is now impacting the US, where commercial credit spreads are widening and US equity valuations have been declining since January 2018. This is the beginning of a structural shift that means US equity valuations will not return to January 2018 levels for a generation.

There is growing evidence that the water of liquidity that has sustained high equity valuations is draining away. OECD broad money (M3) growth has reached the lowest level recorded, apart from the levels associated with the global financial crisis. China’s broad money growth has reached a new all-time low and its commercial bank reserves are contracting for the first time since records began. Unless China abandons its exchange rate target, it will be unable to create the level of money growth necessary to inflate away its ever-rising debt-to-GDP level. Despite numerous post-crisis interventions by global central bankers, there is already evidence – outside the US – of lower growth, lower inflation and lower asset prices.

The period from 1994 to 2014, when central bank buying of Treasuries reduced the global risk-free rate and boosted the global growth rate, thus inflating equity valuations, is over. Where once the gap between the growth rate and the risk-free rate seemed structurally embedded in the system, a new reality is dawning: a new structure is in place, the gap is reducing and thus the net present value of future income streams is declining. Such a profound and structural change in liquidity conditions is often missed by investors rewarded for focusing on the short term and thus where we are in the business cycle. The situation is akin to the David Foster Wallace tale of the old fish who, passing two young fish one day, remarked: “Morning boys. How’s the water?” After a pause one of the young fish remarked to the other: “What the hell is water?”

The latest edition of global macro report the Solid Ground looks at the

high level of water we have been swimming in, representing the gap between the risk-free rate and the growth rate, producing higher equity prices. It concludes that this high level of water was the product of a unique monetary setting that pertained from 1994 to 2014, and has now ended. The analysis shows how the water has been draining away since 2014 and why the young fish, even those swimming in the US, will soon have an obvious answer to their question: “What the hell is water?”

MONETARY CAUSES OF THE GREAT EQUITY VALUATION INFLATION 1994-2014

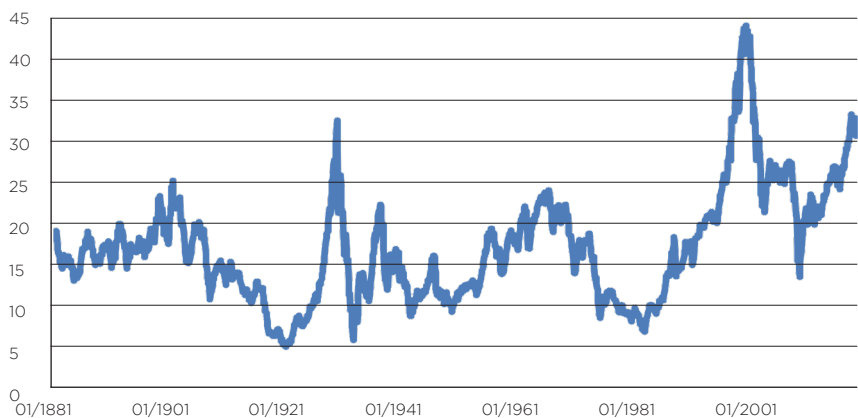
This analysis focuses on dramatic shifts in the ownership of US Treasury securities and the very negative impacts these shifts augur for global growth and the price of risk assets. Investors, particularly bottom-up equity investors, will wonder how something as mundane as the composition of Treasury security ownership could have such a profound impact on the value of their equity portfolio. In particular, investors will query how changes in US Treasury ownership could really have a global impact. This section of the report seeks to answer these questions. It looks at the links, direct and indirect, between Treasury security ownership, global economic growth, the determination of the global risk-free rate and share prices. In the second section of the report we look at the already observable shift in Treasury ownership and its already major impact on money growth, inflation and asset prices. So far, the impact of the post 2014 Treasury ownership shift has been outside the US, but there is now evidence, since January 2018, that it is impacting US equity prices.

The key assertion in this analysis is that the devaluation of the renminbi in 1994 has been the driver of the uplift in equity valuations to a seemingly “permanently high plateau” – to use a famous quote from economist Irving Fisher from 1929.

If correct, this assertion has important implications for investors as the surge in equity valuations since 1994 does not reflect some new permanent shift in valuations based on fundamentals but instead is the product of a particular monetary setting that, as the full analysis shows, is now clearly ending. The worrying conclusion for investors would be that the last low for the cyclically adjusted price-to-earnings ratio (CAPE) of 13.3X in March 2009 does thus not represent the low in the seeming higher 'new normal' range for equity valuations. Instead, in looking for the lowest valuations that can be expected, investors should look at the full history of the CAPE since 1881 and the average of the four great bottoms for CAPE, from 1881 to 1982, is just below 7X. More urgently, if this monetary driver for valuations is deteriorating quickly – as the later parts of the full study suggest – the decline in the CAPE from 33X to 30X, during the course of 2018, is just the beginning of a major mean reversion in US equity valuations.

The rise in equity valuations to a seeming new range since 1994 is the result of an artificial depression of the US risk-free rate through a monetary mechanism that simultaneously boosted emerging market growth and hence global growth. The monetary change that produced this apparent upward shift in valuations was the devaluation of the renminbi in 1994. Since that devaluation, the accumulation of US Treasury securities by foreign central banks has been the key monetary driver of higher equity prices. That is not to say that monetary factors are the only driver of higher equity prices, as technological change and stock buybacks, amongst others, also play important roles. However, it is to say that this key monetary setting has been the key driver of the global risk-free rate, the yield on US Treasury securities, and the rate of global economic growth. If this one factor has been the key driver in determining the risk-free rate and also the economic growth rate, then it has played a profound role in determining the net present value of the future income streams of corporations as reflected in their share prices. If it has indeed played such a profound role in driving share

US CAPE 1881-2018



Source: www.econ.yale.edu/~shiller/data.htm

prices, then there are major implications as this relationship ends. Clearly something did change for US equity valuations after 1994.

The chart above shows how the CAPE for the US equity market has seemingly shifted into a higher range. That shift in valuations astounded many investors, and by November 1995 the CAPE had risen above its 1966 and 1901 peaks. It did not stop there and by 1997 it had risen above even its 1929 high. While the US stock market has crashed twice since its record high valuation of March 2000, the lowest valuation since recorded, of 13.3X CAPE in March 2009, was just below the average CAPE that pertained for the period prior to the devaluation of the renminbi. By January 2018, the CAPE, at 33X, had once again exceeded all pre-1994 valuations. From 1881 to 1993, the average CAPE of the US market was 14.8X and from 1994 to current, it has averaged 26.9X!

For many other developed markets, we have CAPE data from 1978 and it shows a very similar pattern, with the exception that non-US equity valuations have declined steadily since 2015, while US equity valuations rose until January 2018. The PE of the MSCI World ex US index has declined from 21X in 2015 to a current PE of 14X. The shift in the monetary regime since 2014 has coincided with lower equity valuations outside the US, and this analysis considers why the same forces now bring lower valuations to the US.

The most common reason provided for the shift higher in equity valuations

is the changing nature of the corporation, in particular towards the asset-light business model that permits permanently higher returns for corporate capital. This explanation, of course, has the advantage that it is based on what seems a permanent new business model and thus the higher valuation range for US equities is 'the new normal'. It is an argument that asserts that neither competition nor regulation can assail the high returns associated with such business models. It is an argument that ignores the fact that the role of intangible assets on the US corporate balance sheet has been growing steadily for many decades and a structural shift in valuations would thus probably have happened gradually over decades rather than from 1994 to 2000.

Perhaps it was only in the 1994 to 2000 period that the implications for such a shift were finally recognised by the market. If so, that was a global recognition, even in equity markets far from US shores, where the role of intangibles was much more limited, where CAPEs also soared from 1994 to 2000. This argument, that asset-light companies attract permanently higher returns and permanently higher valuations, ignores the fact that the 1994 to 2000 rise in equity valuations to all-time highs coincided with the devaluation of the renminbi and the creation of a new monetary order.

Perhaps there is a combination of both factors at play, but while investors have their eyes focused on what they believe

is the transformational impact on corporate returns of the capital-light model, they are missing the crucial role that the reset of the global monetary system from 1994 played in also boosting equity valuations. The Solid Ground doubts that we have created corporates with profits now insulated from the power of competition and regulation, but even if it were so, current lofty valuations are not insulated from global monetary factors. These factors, as we shall see, are taking a marked turn for the worse. Of course, correlation is not causation; by what mechanism did the devaluation of the renminbi in 1994 lead to a move higher in the range of the US CAPE that continues to this day?

The chart below right shows the growth in world reserves and the acceleration in that growth after the devaluation of the renminbi in 1994.

GROWTH IN WORLD FOREIGN RESERVES

Why should equity investors care about the massive growth in world foreign reserves that followed the devaluation of the renminbi in 1994? This growth matters for investors because it represents forced, non-price sensitive buying of US Treasury securities combined with the creation of excessive amounts of money by those doing the purchasing. It is a monetary setting that depresses the global risk-free rate, frees up savings to fund private sector opportunities and also boosts global growth. In this way it increases the gap between the growth rate and the discount rate and leads to higher equity valuations.

The surge in world reserves, shown in the chart to the right, was led by China but then came to a halt in 1997 as China's 1994 devaluation had undermined the competitiveness of other emerging markets and eradicated their external surpluses. Then followed the Asian economic crisis in which, initially, the foreign reserves of Asian countries were depleted in an attempt to defend their exchange rates. In only a few cases, most notably Hong Kong, did these attempts succeed. Following massive devaluations across Asia and eventually in Latin America, these countries also linked their currencies to the US dollar at gross undervaluations.

This caused massive external

surpluses in the countries operating such policies and thus massive growth in their foreign reserves. World foreign reserves then entered a period of supercharged growth as China entered the WTO in December 2001, and as a result moved to even larger current account surpluses. This growth in world foreign reserves continued until it peaked at 30% year-on-year in Q1 2008. The collapse in growth that followed coincided with the global financial crisis and would have been greater had the Federal Reserve not granted swap lines to many foreign central banks to allow them to provide US dollar funding to their local financial systems without forcing them to liquidate their US dollar reserves. After the financial crisis, a flood of debt capital into the emerging markets, from developed world investors seeking to boost the yield on their savings, created another surge in the growth in world reserves as emerging markets' central banks fought to prevent appreciation in their exchange rates. The chart below also shows how the growth in world reserves has now all but gone, and it is on the consequences of this slowing that the full report focuses.

The impact of this unparalleled growth in world foreign reserves was positive for equity valuations. The key link between the rise in US equity valuations and the devaluation of the renminbi in 1994 is the ensuing wave in foreign central bank purchases of US Treasury securities necessitated by the growth in world

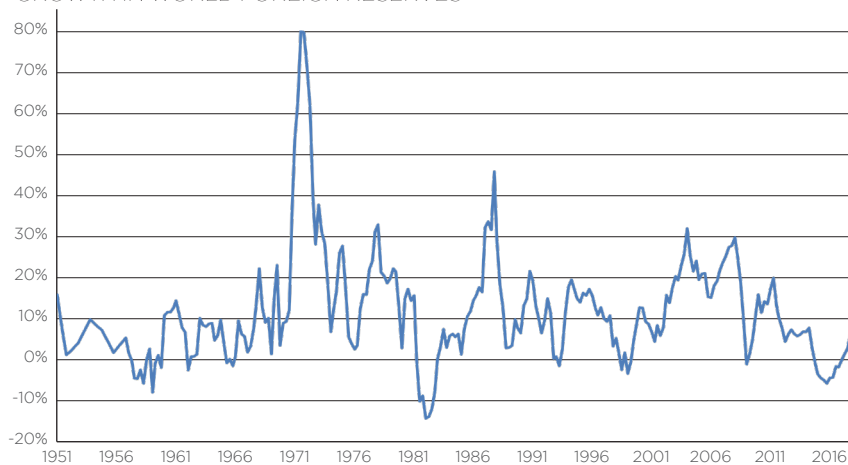
foreign reserves. The table on page 6 shows the ownership of US Treasury securities split into the four key categories of owner: US savers, foreign savers, foreign central banks and the US Federal Reserve. The data is taken from the US Flow of Funds Statistics up until 2011, when this data stopped including Treasury ownership by foreign central banks. After 2011 the data is taken from the Treasury International Capital (TIC) System database, which attempts to track foreign central bank treasury ownership (data that is subject to significant revision).

US TREASURY SECURITY OWNERSHIP

The table on page 6 shows how foreign central bank ownership of the Treasury market surges from just 11.7% to 38.5% from 1991 to 2010, an incredible change in the ownership of the world's largest government bond market. Throughout this period, the proportion of the Treasury market owned by US savers was thus able to steadily decline and this decline accelerated as the US Federal Reserve bought Treasuries aggressively from 2009 to 2014.

In 1991, the US saver owned US\$1,857bn or 71% of the US Treasury market but by 2014, US savers owned just 32% of the Treasury market with a total value of US\$4,048bn. Had their proportion of ownership stayed at 71%, they would have had US\$8,931bn invested in Treasuries in 2014. The difference between these two numbers - US\$4,847bn - is the amount of

GROWTH IN WORLD FOREIGN RESERVES



Source: IMF

US TREASURY SECURITY OWNERSHIP

	1991	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018 2Q
Total Treasury Securities	2619.7	3503.7	3173	4472.9	9173.6	10243	11386.4	12149.1	12578.8	14969.5	15817.9	16069	16932.8
Owned by US Federal Reserve	266.5	378.2	511.7	744.2	1021.5	1663.4	1666.1	2208.8	2451.7	2461.6	2463.6	2454.2	2378.3
% of Total Outstanding	10.17%	10.79%	16.13%	16.64%	11.14%	16.24%	14.63%	18.18%	19.49%	16.44%	15.57%	15.27%	14.05%
Owned by Foreign Central Banks	307.1	471.5	639.8	1344.5	3527.6	3620.6	4032.8	4054.6	4122.6	4091.6	3814.1	4025.6	3988.4
% of Total Outstanding	11.72%	13.46%	20.16%	30.06%	38.45%	35.35%	35.42%	33.37%	32.77%	27.33%	24.11%	25.05%	23.55%
Rest of World (Foreign Central Banks & Savers)	496.6	860.5	1021.4	2196.8	4394.1	5004.4	5571.5	5794.9	6078.9	6146.2	6002.8	6284.9	6290.7
% of Total Outstanding	18.96%	24.56%	32.19%	49.11%	47.90%	48.86%	48.93%	47.70%	48.33%	41.06%	37.95%	39.11%	37.15%
Owned by Foreign Savers	189.5	389	381.6	852.3	866.5	1383.8	1538.7	1740.3	1956.3	2054.6	2188.7	2259.3	2302.3
% of Total Outstanding	7.23%	11.10%	12.03%	19.05%	9.45%	13.51%	13.51%	14.32%	15.55%	13.73%	13.84%	14.06%	13.60%
Owned by US Savers	1856.6	2265	1639.9	1531.9	3758	3575.2	4148.8	4145.4	4048.2	6361.7	7351.5	7329.9	8263.8
% of Total Outstanding	70.87%	64.65%	51.68%	34.25%	40.97%	34.90%	36.44%	34.12%	32.18%	42.50%	46.48%	45.62%	48.80%

The table above shows how foreign central bank ownership of the Treasury market surges from just 11.7% to 38.5% from 1991 to 2010 – an incredible change in the ownership of the world's largest government bond market. Throughout this period, the proportion of the Treasury market owned by US savers was thus able to steadily decline and this decline accelerated as the US Federal Reserve bought Treasuries aggressively from 2009 to 2014.

Source: CBO, Treasury TIC Data, Federal Reserve ZI

savings that US investors were freed up to invest in private sector assets. By freeing up US savers to buy equities and other private sector assets, Treasury security purchases by foreign central banks and then the US Federal Reserve produced an upward shift in US equity valuations. This was the first way in which the 'new normal' of higher US equity valuations was related to the devaluation of the renminbi in 1994 and the ensuing devaluations of emerging market currencies from 1997.

The surge in foreign central bank purchases of US Treasury securities decoupled the US yield curve from economic fundamentals. While savers judge the attractiveness of US Treasury securities based upon their price/yield, central bankers have no interest in such niceties. Their purchase of Treasuries is driven by their policy targets and they do not consider Treasury security price in relation to any fundamentals. The rapid growth in world reserves and hence Treasury purchases was solely necessitated by the policy targets of exchange rate management. Similarly, the Fed's purchases of US Treasury securities were necessitated by their policy of QE, regardless of what price Treasury securities happened to be trading at when that policy was implemented. In pursuing other targets, central bank buyers of Treasuries were insensitive to the key variables that drive

savers' purchases of Treasuries – most notably inflation expectations.

In 1991, 78% of the Treasury market was owned by savers, both US and local, but by 2014 this had declined to just 47% of the market. In this process the price-sensitive buyers of the market had been increasingly replaced by buyers who were insensitive to price and inflation expectations. The so-called 'bond vigilantes', who cared passionately about inflation expectations, were increasingly driven from the Treasury market by the civil servants implementing their monetary targets. Had savers maintained their ownership share of the Treasury market at 1991 levels, the value of their total ownership of Treasuries would have been US\$9,488bn in 2014 compared to their actual ownership of US\$5,962bn.

What yield on Treasury securities would need to have pertained to attract that additional US\$3,526bn of private savings to the Treasury market? The retreat of the price-sensitive buyer and the arrival of the central banks depressed the yield on Treasuries to levels well below those that would have pertained had the US government continued to be primarily funded by savers. The devaluation of the renminbi thus led to a depression of the global risk-free rate to levels below that associated with US growth and

inflation. Anyone who has ever played around with discounting calculations will know that the change in the gap between the discount rate and the growth rate can have major impacts on the net present value calculation. The new monetary system that developed post the devaluations of 1994 and 1997 created a bigger gap between those two variables and thus higher equity valuations.

Russell Napier is a market strategist and founder of research platform ERIC. Watch him on 'What the hell is water?' and other themes on CISI TV now, and join him at a CISI Chartered members and Fellows masterclass in London on 24 April 2019. Details at cisi.org/events

For a full analysis of market trends, including why the end of world reserve growth reasserts the "gravity of value", and why central bankers will be "pumping harder, producing less", plus details of the Solid Ground report and the History of Financial Markets courses, please contact Russell Napier.

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BRINGING BRIGHT, YOUNG, GLOBAL BRAINS TO BEAR ON FINANCE ANALYTICS

A PROJECT BETWEEN ONE OF BRITAIN'S LEADING BUSINESS SCHOOLS AND TOP INVESTMENT FIRMS SHINES FRESH NEW LIGHT INTO INDUSTRY ISSUES

The CISI is working with the University of Edinburgh Business School to engage its finance Master's students with the sector through company-sponsored dissertations (CSDs). These – which involve no fees either way – involve a student carrying out an authoritative piece of work on a business analytics issue identified by a project client. The work typically takes an in-depth look at a defined research area and results in a substantial report containing extensive research, rigorous analysis and practical conclusions. The

school currently has more than 120 students studying on its postgraduate one-year MSc Finance programme, which has three specialisms: corporate finance; finance and investment; and energy finance and markets. The students are drawn from almost 40 countries, from Afghanistan to Vietnam. Over 90% are from outside the UK.



UNIVERSITY OF EDINBURGH
Business School

The MSc Finance programme covers all aspects of investment, corporate and energy finance. We can consider almost any topic that has a finance, accounting, investment and/or energy market focus. Successful projects tend to have an empirical element, which has practical relevance. Most students are keen to work with practitioners on projects which will be of real value to them, helping them find solutions to strategic financial issues such as validity forecasting, forecast asset market returns, risk modelling, dynamic life cycle strategies etc. Further details of the programme can be found at

<https://www.business-school.ed.ac.uk/msc/finance>

WHAT KIND OF TOPIC IS SUITABLE?

Previous client projects have included:

- investigating the dynamic life cycle strategies for defined contribution pension plans
- researching global financial features of the steel industry
- researching whether cross-sectional dispersion of stock market returns is an alternative to the time series approach to estimating global correlation level of equity markets
- investigating valuation multiples that

- drive share price re-rating and de-rating in growth companies across developing and developed countries
- analysing historic returns to gold
- testing the relationship between corporate ownership and financial performance
- analysing the increasing demand in the shorting market
- applying a behavioural economic perspective towards the understanding of potential mispricing of deep-out-of-the-money options
- investigating whether investors capture similar return from property investment using more liquid and less costly alternatives
- researching how options strategies can be used to increase the yield of a portfolio.

NEXT MOVES

If you are interested in submitting a project topic for next year's scheme, please send a brief outline of the project topic to Aidan Hetherington at the address below, which the programme director will then discuss with you.

AIDAN.HETHERINGTON
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FEEDBACK FROM PAST CLIENTS: THREE RECENT CASE STUDIES

Alliance Trust is a self-managed investment company with investment trust status. It is one of the largest generalist investment trusts in the UK, based in Dundee, and has been investing since 1888. Alliance Trust tasked the student to research which types of investment vehicles have delivered the best net returns over the short, medium and long term. In particular it was keen to investigate the key differences between the open-ended structures and the closed-ended investment trust sector.

The project involved detailed analysis into the relative performance of investment trusts and OEICs. One of the major challenges of the project was to ensure that the correct datasets were compared like for like.

Many previous studies in the area have failed to capture the differences between regional and fund types as well as the impact of fees. This was not an easy task and the student encountered many difficulties in isolating the correct data. However, after considerable effort and persistence, the student delivered an accurate and comprehensive project.

This is the fourth year we have undertaken such a project with the University of Edinburgh Business School and every year we have been encouraged by the enthusiasm and competence of the students involved, as well as finding the output challenging and worthwhile.

George Renouf, director, public affairs, Alliance Trust

The research division of **State Street Investment Analytics** spends a lot of time working on topics that provide its clients with a better sense of the quality of returns delivered by their investment managers. One such topic is the dispersion of returns and how the general investment environment over a particular period enhances or limits the opportunities for active management. State Street issued a research paper on this in April 2018 concentrating on the UK equity market.

We wanted a student on the MSc Finance course to help us expand our research to global equity markets, in particular to look at the time varying nature of global equity market dispersion and its relationship to the returns achieved by our clients' global equity portfolios.

The student matched with our research proposal, Hang Zhou, was ideal – very bright and engaged and he contributed substantially to developing our thoughts on the research during a series of highly productive meetings. We have worked with students from the course for a number of years and it has proved both enjoyable and worthwhile in terms of tangible results for our research programme.

Alastair MacDougall, vice president, State Street Global Services

Scottish Widows Investment Partnership is one of Europe's largest asset management companies and part of Lloyds Banking Group.

This is the third year I have been involved in setting a dissertation. Previously we have asked students to look at using currency market turbulence as a signal to exit risky currency trades, or appraise and back-test various early warning signals to cut out of emerging market foreign exchange 'carry' strategies. This time we asked the student to consider how the exploration and extraction of natural gas might affect the exchange rates of gas producers, including sterling. Karin Mashler took up the challenge and after a couple of brief meetings, produced a good dissertation on the subject. According to her model, increases in the UK's recoverable gas resources may lead to a rise in exchange rate volatility while increased net exports may decrease volatility.

I have always found the school easy to work with and the students require surprisingly little input. When resource is tight for most companies, it is no doubt mutually beneficial for industry and the school to work together in this way. I would encourage more companies to do so.

Roddy Macpherson, investment director, currencies, Scottish Widows Investment Partnership

FIGHTING ECONOMIC CRIME – A SHARED RESPONSIBILITY

REGULATORS ROUND THE WORLD – NOTABLY BRITAIN'S FINANCIAL CONDUCT AUTHORITY – HAVE ECONOMIC CRIME AT OR NEAR THE TOP OF THEIR AGENDAS. HOW CAN THE SECTOR WORK WITH REGULATORS AND OTHER LAW ENFORCERS TO HELP STAMP OUT THIS SCOURGE?



Economic crime touches on all aspects of the financial sector. Economically motivated criminals poison our prosperity and undermine our stability through victimisation, exploitation and subversion. In the investment world, securities-based money laundering has become one of the biggest issues of this decade and, alas, the next.

The Cambridge International Symposium on Economic Crime was first convened nearly 40 years ago as a result of widespread concern that both the development and the integrity of the global financial system were at risk from those who engage in economically motivated crime, and those who would assist them.

From the very beginning its mission has been to bring together anyone who has a responsibility to prevent and inhibit such abuse – no matter their background – to better understand the threats and to facilitate co-operation and collaboration in protecting all our economies and societies. The Cambridge symposium has, over the years, grown into a unique international platform that makes a real difference to the control of economically relevant crime and misconduct across the world.

The symposium runs over eight days, with an emphasis on expertise, topicality and practicality. Its emphasis has always been practical; therefore, it brings together experts across a range of fields

to share knowledge and expertise. There are over 120 plenary sessions and workshops, as well as smaller interactive workshops and think tanks. With delegates from over 100 countries, the symposium is truly international and a unique opportunity to forge cross-border connections. Over 2,000 participants join the symposium each year. This makes the symposium a unique well of expertise and experience.

For more information on the symposium, which this year runs 1–8 September, and its special 'City Day' on 'Financial institutions and crime: the new frontiers' on Thursday 5 September 2019, please visit www.crimesymposium.org.

SCYLLA AND CHARYBDIS: THE INVESTMENT ODYSSEY CONTINUES

ODYSSEUS WAS RENOWNED FOR HIS INTELLECTUAL BRILLIANCE, GUILF AND VERSATILITY (POLYTROPOS). 2019'S INVESTORS NEED SOME OF THAT POLYTROPOS, AND THE REST, TO NAVIGATE STORMY SEAS

DWS, the asset management wing of Deutsche Bank, has entertained and informed CISI members in recent years with tales of Odysseus and his struggles with the two great nautical monsters, Scylla and Charybdis – in the DWS model, taking market and economic form. Francesco Curto, DWS head of research, active and passive, was our latest guide to the markets' *Odyssey* – his analysis is available on CISI TV. Here, with his colleagues Colin McKenzie and Sarvesh Agrawal, he gives an introduction to the theme and the analytical basis that underpins it.

In the ten years since the financial crisis, central banks have played a fundamental role in stabilising economies and financial markets. During this period, equity investors have benefited from two principal trends: the inflation of asset prices via quantitative easing and strong earnings growth from the technology sector. Both these trends are now showing signs of fatigue. In addition, growing populism has also created uncertainty about future growth. The rise in share price volatility points to investors' unease about these shifting trends.

Alternative economic models that remove some of the imbalances of globalisation are certainly possible, but switching to those models is likely to be a lengthy process, just like the *Odyssey*. Regular cash return on capital invested (CROCI – see box, p.63) followers are probably familiar with the references to Homer's Odysseus which have served as themes for CROCI Outlooks for the past couple of years. Well, our mythical hero eventually returned to Ithaca, but his journey was perilous, fraught with risk and came at great human cost.

As we entered 2019, investors faced the same dilemma as Odysseus, a choice between Scylla and Charybdis. Steering the ship unscathed between the two monsters is not possible. Choosing Scylla involves losing the

lives of sailors but the whirlpool of Charybdis risks the entire ship.

For investors, Charybdis is the central banks' tightening programmes. In theory, a country's neutral rates should be similar to its nominal GDP. In the US, this would mean interest rates close to 4%. Accommodative monetary policy, alongside twin trade and budgetary deficits, is not desirable in the long term. Still, excessive tightening risks creating a whirlpool which rapidly deflates asset prices and constrains the very animal spirits that central banks have tirelessly tried to revive over the past decade.

The alternative is Scylla: the six-headed monster. This route would involve fewer rate hikes (as companies and consumers deal with the additional cost of protectionism), a synchronised global economic slowdown and the hope that the journey does not veer off course. Our mythical hero chose Scylla – a rational choice that kept the ship safe in return for the sacrifice of a few sailors. Conservatism might dictate a similar choice to policymakers now. The main difference is that Odysseus had a clear objective in mind, which may not be the case today.

Our bottom-up analysis suggests that a slowdown is well under way, with capital expenditure (capex) falling and risk premia rising. Equity valuations may still be rich at the market level, but there are few alternatives available to investors and good pockets of value are starting to emerge for astute investors.

THE CALM AFTER THE STORM?

Some of the most interesting debates we have with economists are on equity prices. While economists generally respect CROCI's bottom-up approach built upon economic analysis, it is not clear whether they fully appreciate the impact that equity prices have on economic activity.

The relationship between the two is straightforward, in our view. Equity markets connect owners of financial capital with those in need of that capital. The two forms of capital, namely

financial and operational, have returns and over the long term these returns have to match. When equity prices rise, the embedded return on that capital falls, incentivising projects that would otherwise not qualify for investment. At the broad economy level, this means that higher equity prices themselves contribute towards increased activity.

The opposite happens when prices fall. Investors' return on capital increases beyond the levels that earlier operational capital investments are able to generate. Companies respond by delaying investments in new projects, thereby reducing levels of economic activity, and this may ultimately end in recession. From this perspective, equity prices are not only the result of economic activity but also a principal driver. In other words, the mother of all leading indicators.

After the financial crisis, central banks tried to harness this connection between equity prices with economic activity. By increasing market liquidity, they tried to revive animal spirits and inflate asset prices. The objective was to lower the expected return on capital (that is, the cost of capital) thereby incentivising more investment and kick-starting economic activity. Between 2011 and 2017, the economic earnings of our developed market coverage fell 9% in real terms. By comparison, equity prices increased by 60%, taking the economic P/E from 18.1x to 28.4x by 2017. By this reckoning, central banks clearly succeeded in lowering the cost of capital.

Things have now changed, however. This past year, equity valuations fell for the first time in eight years. We calculate a market-implied expected return from equities by equating discounted future earnings from companies with their observed prices, taking earnings cyclicity into account. This measure of cost of capital rose last year, suggesting lower future economic activity. Companies are already factoring in this higher cost. Capital expenditure is expected to fall from 2018 levels this year, which is only likely to aggravate the impact on economic activity.

Economists prefer to look at other economic indicators, though, and assume that the impact of prior monetary stimulation, such as bubbles, can somehow be contained. One of the problems with monetarism is that asset prices do not increase smoothly. Monetarism is like an inflatable with an uneven surface: as you pump it up, some areas inflate more than others and some even inflate excessively. The role of central banks is to ensure that if a pocket is faulty and inflates excessively to the point of bursting, the burst can be controlled and does not make the inflatable useless. The impact of rising risk aversion has been marginal so far for equity investors. Despite the correction, the number of companies in bubble territory remain high by historical standards although the

What is CROCI?

Cash return on capital invested (CROCI) is a cashflow-based analysis which, by making a series of economic adjustments to traditional accounting data, aims to make non-financial companies comparable – regardless of industry or domicile. The main areas where CROCI ‘economic data’ differ from accounting data are as follows:

- Accounting for ‘hidden’ liabilities – CROCI enterprise value (EV) includes not only financial liabilities (such as debt) but also operational liabilities (such as operating lease commitments, warranties, pension funding, specific provisions).
- Depreciating similar assets in a similar manner – adjusting depreciation to reflect ‘economic depreciation’ and effective useful economic life.
- Replacement value of assets – inflating the value of net assets using the relevant inflator (based on the real age of assets).
- Unreported assets – systematically capitalising real cash-generative assets that are left off the balance sheet. Research and development costs and advertising are examples of such assets.

bubble amplitude is now smaller.

However, the impact has not been this benign everywhere. The most brutal effects are being felt by cryptocurrencies, which are down by more than 80% this year. Other areas deemed major

beneficiaries of QE also had a tough year (for example, high yield, emerging markets, commodities).

Should investors be concerned? Only if the Fed goes on with its excessive tightening programme. Low capital productivity may push companies to become more cautious. A slowdown is already under way, but the full impact of the unwinding of QE is still uncertain. The market may also lose one of its strongest drivers, IT. If cryptos were in a bubble, some of the demand growth in IT was speculative as IT was a major beneficiary of investment growth for mining cryptocurrencies. A slowdown in IT demand is also under way. The problem is that IT has been the primary driver of the market for the past ten years and it is difficult to identify another sector that can take over its leadership. There is limited scope for sector rotation as well. Staples had a phenomenal performance recently, but has the highest proportion of companies in bubble territory. Traditionally defined value is also not that cheap, when analysed through CROCI’s framework.

As investors entered 2019, the risk of being sucked into Charybdis’s vortex (of excessive quantitative tightening) was high. The Fed could manage to steer the economy towards the more benign Scylla (by not tightening policies as much as planned), but that would leave structural imbalances.

Within this context, the market has done the right thing: volatility has risen as investors try and estimate the new economic normal. Further concerns will

TECHNOLOGY: COMING OF AGE?

Technology has returned an annualised 18.5% since March 2009, outperforming the MSCI World by 540 bps (as of October 2018), which makes it the best performing developed market sector since the financial crisis. Even in 2018, despite the sharp correction in September and October, the sector managed to outperform the market.

The strong performance of technology and related stocks was underpinned by earnings growth. Over the past decade, global Economic Earnings grew by a real 3% annually, whereas technology managed to grow by 10%. Next best was Consumer Discretionary, where earnings grew by 9%.

start to emerge:

- Valuation is still unattractive on long-term assumptions, so can we really afford a full adjustment? Lowering the price of equities further is economically not appealing and, in any case, dividend yields are not far from ten-year US Treasuries. The level of free cash flow (FCF) yield is twice the dividend yield, so long-term investors can buy and wait for the eventual economic recovery.
- Isn’t the level of profitability high by historical standards and so unsustainable in the long term? True, but this argument has been present for the past 20 years. Could it finally be a realistic concern?

Uncertainty will remain abundant, but eventually the storm will be calmed and volatility will come down, as the Fed realises that it has already tightened enough. This may come earlier than expected, given that the slowdown is well under way.

At a practical level, markets may remain expensive, but the correction is starting to create attractive opportunities for long-term investors. We find good quality companies with high levels of profitability, positive revenue growth, low financial leverage, attractive dividend yields (and cover) and trading on a FCF yield of over 6%. Investors will require nerves and stamina, but in the end, who said that the journey to the new world was going to be easy?

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A TIME FOR THEMATIC INVESTING?

MEGATRENDS ARE GIVING RISE TO A NEW SET OF POWERFUL INVESTMENT THEMES. WHERE DO THE OPPORTUNITIES LIE?

In a well-received event for CISI members at BlackRock in February 2019, managing director Alastair Bishop delved deep into the theme of thematic investing, with a particular emphasis on transport. He pointed to a confluence of global trends that is promoting structural shifts in many industries and changing the drivers of corporate earnings.

Most major economies, he said, are undergoing powerful shifts in their demographic profiles, while resourcing scarcity and climate change are coming under greater scrutiny.

Rapid urbanisation is resulting in significant investments and changing consumer behaviour, especially in high-growth emerging economies. At the same time, the increasing ubiquity of technology is redefining business models in a host of industries, while also enabling a new breed of asset-light innovators.

THE TALK FOCUSES ON FIVE OF THESE MEGATRENDS

“These forces,” Alastair said, “which we call megatrends, are giving rise to a new set of powerful investment themes – the advent of disruptive technologies, radical shifts in consumer choices, greater regulatory intervention, and new opportunities for growth.”

Against this backdrop, he said, investing thematically can add value to the more traditional methods of assessing and valuing stocks. How? “By analysing companies across regions and sectors, thematic investing can identify stocks that are favourably positioned to the most rewarding themes and build portfolios that offer pure exposure to them.”

Alastair and his colleagues focus on five of these megatrends – demographics and social change, changing economic power (emerging markets), climate change and resource scarcity, rapid urbanisation and technological breakthrough. Their most powerful investment themes tend to be drawn from two or more of these megatrends.

Consider, for instance, the impact of demographic and social change as well as the proliferation of technology on

eating habits. On the one hand, rising healthcare costs have led to greater regulatory intervention in food products (such as the introduction of a sugar levy in the UK in 2018). On the other hand, greater consumer awareness and the use of social media have led to a gradual decline in calorie and sugar consumption in the West, primarily among younger age groups. In the US, the share of high school students who drink soda daily has fallen to 20.5% from 33.8% a decade ago. More recently, companies have pointed to the growing popularity of organic foods, low-calorie alternatives and plant-based proteins.

“We believe these shifts,” said Alastair, “have an enduring impact not just on food producers, but also on food retail, beverages, restaurants, staples, consumer tech, brands and healthcare companies.”

Turning to the theme of the February talk, rapid urbanisation and the rising scrutiny on pollution and climate change have together accelerated investments in electric vehicle technologies in both advanced and emerging economies. By the end of next year, global original equipment manufacturers are expected to have launched 132 electric vehicles, up from just 33 in 2012. The ripple effects of this are being felt not just by auto manufacturers, but also component suppliers, tech hardware firms and commodity suppliers, as well as infrastructure providers. BlackRock’s

own Future of Transport fund invests in this theme and looks ahead towards more connectivity in cars and autonomous technologies.

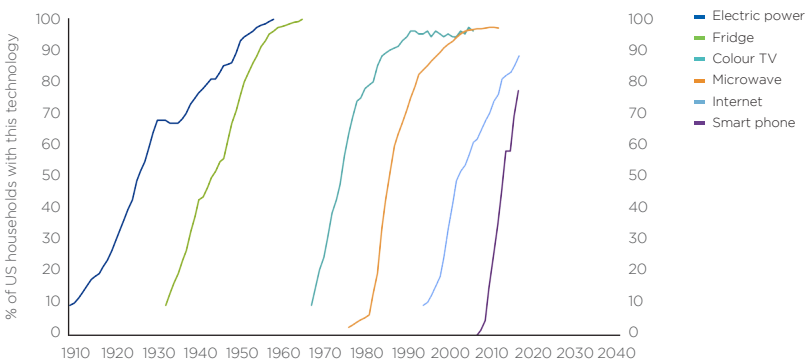
Alastair and his colleagues are alert to the life cycle of themes. “Themes have longevity because the key megatrends that underpin them tend to persist for a long time. However, across this extended timespan, themes evolve and change shape. Themes overcome hurdles and gain momentum. Themes can be accelerated by innovation, but constrained by consumer inertia. Themes can be reinforced by corporate investments, but hindered by regulatory uncertainty. Thematic investing is non-linear.”

This is particularly true for themes that are triggered by new hardware technologies. Take for example electric vehicles and batteries, clean energy and wind turbines, or even the Internet of Things and sensors. For each of these themes, the initial stage is marked by high expectations for the new hardware, and in turn hardware producers tend to outperform as demand overtakes nascent supply. In the BlackRock view, artificial intelligence and certain types of automation are currently in this early adoption phase.

As the chart shows, in this new world it’s the quick or the dead.

Alastair Bishop's talk on thematic investing is available now on CISI TV.

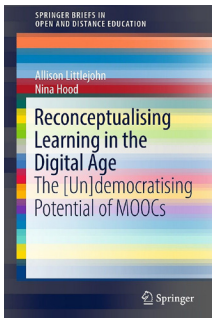
THERE'S NO STOPPING THE TAKE-OFF OF NEW TECHNOLOGIES



Source: BlackRock, July 2018.

RECONCEPTUALISING LEARNING IN THE DIGITAL AGE

NEW LEARNING TECHNOLOGIES ARE TAKING OFF IN FINANCE LIKE THE ROCKETS CHARTED OPPOSITE. WILL MOOCS - MASSIVE OPEN ONLINE COURSES - DELIVER ON THEIR EARLY PROMISE?



Massive open online courses (MOOCs) have been hailed as a disruptive and democratising force in education, providing free education from the world's top institutions to

students of all ages and abilities wherever they are. But are they the panacea that they seem? A new book* by Professor Allison Littlejohn, chair of learning technology and academic director at Britain's Open University, and Nina Hood of the University of Auckland

in New Zealand, examines these claims, identifying characteristics that influence their development. MOOCs, they say, appear to advantage elites, rather than act as equalisers; they tend to reproduce formal education, rather than disrupt it; they are designed for those who can learn, rather than opening access for all; and they are measured by metrics that may not be appropriate for open, distance education. These tensions are analysed and potential ways forward are sketched out.



MOOCs is the idea of drawing on the support of the massive numbers of other learners in the MOOC. Yet these social features of MOOCs often are missing. MOOCs have to be designed to allow learner interaction with other learners and with tutors.

- Data that is used to measure progress in open online platforms may provide a reductionist view of learner development. Future analytics platforms and tools for open online learning should capture data in ways that provide a holistic understanding of the learners' intentions and scaffolds to support them in achieving their goals.
- Open online courses and credentials sometimes are viewed as products for 'consumer' students. This view might oversimplify the notion of learning as a means to transform human thinking and practice. This transformative role of education and learning has to underpin our future planning and policy around open online learning.

THE COMMERCIALISATION OF MOOCS

The original MOOCs were developed by educationalists using rudimentary tools and platforms. These were funded through small-scale projects and often staffed by educators volunteering their time and labour. The leap from informal business arrangements to larger-scale commercial enterprises took place around 2011-12 when three US-based platform providers opened up: Udacity (www.udacity.com), formed as a for-profit educational organisation; Coursera (www.coursera.com), a spin-out from Stanford University; and edX, funded by Harvard University and Massachusetts Institute of Technology (MIT). The UK government, keen to be seen at the forefront of online learning innovation, founded FutureLearn (www.futureLearn.com) in December 2012, as a for-profit company wholly owned by The Open University.

Massive open online courses have become popular in recent years. The term MOOC has become synonymous with almost any open, online learning. This book identifies specific tensions that beset MOOCs and characterise open online learning in general, and looks at how both could be harnessed better for both professional and general education and development.

- MOOCs have the potential to democratise education. However, by highlighting prominent universities and organisations, they reinforce the values and extend the influence of the privileged. Open online learning could be introduced in ways that emphasise the value, knowledge and cultures of all societies and institutes.
- MOOCs have the potential to disrupt education. Yet, rather than being based on a future-focused view of learning, MOOCs often are modelled on the designs and traditions of conventional education. These norms include an expectation that learners intend to complete a course or that they will complete assignments, yet research illustrates that MOOC

learners often have very different intentions. MOOC designs could be future-focused to ensure they disrupt education, rather than replicate conventional forms of learning online.

- An important feature of MOOCs is to open access to learning for everyone. Conversely, they are designed in ways that require learners to regulate their own learning even though there is ample research that indicates not everyone has the capability to learn independently. More emphasis should be placed on governments to make sure all citizens have the ability to regulate their learning. Until this happens, all forms of open online learning will benefit those who can learn, rather than serving everyone.
- A vision that underscores open online learning is that learners can follow their own goals. Yet MOOC designs and analytics are often based on predetermined objectives, rather than learner-defined goals. Learners usually are expected to conform to expected 'norms', such as submitting an assignment or completing a course. MOOCs could be designed in ways that allow learners autonomy and freedom to learn what they want in ways that suit them.
- An important aspect of the vision of people learning autonomously in

**Reconceptualising Learning in the Digital Age: The [Un]democratising Potential of MOOCs* by Allison Littlejohn and Nina Hood (Springer; 2018)