

GOOD ANCESTORS – BUT NOT QUITE YET

In her final weeks in power, UK Prime Minister Theresa May put climate change at the heart of her agenda by committing the country to a net zero carbon target. This is a major shift in economic policy, and one which requires serious parliamentary debate and scrutiny rather than a press release and some secondary legislation. Her successor will inherit that decision, plus the Brexit problem and a swathe of other challenges. This brave attempt to bring the issue to the fore and to be good ancestors brings echoes of St Augustine’s wayward prayer: “Lord, make me pure, but not yet.”

Climate change falls into the death and taxes category – we’d all rather put them off, as with St Augustine and chasteness, but they are happening. The science on climate change is undeniably depressing.

The business of green, responsible, sustainable, call-it-what-you-will finance arched forward on 2 July 2019 when Sir Roger Gifford, banker and former Lord Mayor, launched the Green Finance Institute with hefty backing from the City of London and UK government. The City grandees regard green finance as “prudent, profitable and one of the best tools available in the race to cut carbon”. Sir Roger is rightly keen to stress the profitability: old-fashioned but trusted enlightened self-interest.

In the wholesale field, this manifests itself in fast-growing business for savvy institutions like, for instance, London Stock Exchange (LSE). Green bonds listed on the exchange have raised in excess of US\$25.3bn in seven currencies. Investment in the UK’s clean energy sector has surpassed £100bn since 2004, representing 12.6% of all new investment in clean energy for the EMEA region.

2018 saw almost US\$170bn in labelled green bond issuance. There are 16 renewable funds listed on LSE with an aggregate value of over US\$7bn. In all, there are almost 100 green bonds listed on LSE in seven different currencies.

On the retail side, all of the world’s biggest asset management firms, from Aberdeen Standard and BlackRock to Vanguard, have seen a dramatic upsurge in demand in this area in recent years. Martin Gilbert, the robust chairman of Aberdeen Standard Investments, told a Guildhall audience in May 2019 that processes to measure environmental, social and governance (ESG) issues are vital for any firm wishing to win any

sizeable investment mandates. From October 2019, most British pension schemes with more than 100 members will have to report on their compliance with such measures.

Larry Fink, CEO of BlackRock, writes annually to his opposite numbers in firms in which he invests. This year, he turned to the key matter of purpose: “Companies that fulfil their purpose and responsibilities to stakeholders reap rewards over the long term. Companies that ignore them stumble and fail. This

// ALL OF THE WORLD’S BIGGEST ASSET MANAGEMENT FIRMS HAVE SEEN A DRAMATIC UPSURGE IN DEMAND FOR ‘GREEN’ FUNDS //

dynamic is becoming increasingly apparent as the public holds companies to more exacting standards.”

He continued: “[The world is] undergoing the largest transfer

of wealth in history: US\$24tn from baby boomers to millennials. As wealth shifts and investing preferences change, ESG issues will be increasingly material to corporate valuations. This is one of the reasons why BlackRock devotes considerable resources to improving the data and analytics for measuring these factors, integrates them across our entire investment platform, and engages with the companies in which we invest on behalf of our clients to better understand your approach to them.”

THE REGULATORS ARE ALSO ON THE CASE

A recent UK Prudential Regulation Authority survey finds that 60% of banks recognise that climate change is a factor that could increase their operational risks, especially where key elements in their operations, or of their wider supply chain, are located in vulnerable areas. These

risks though may be dwarfed by transition risks, such as changes in market sentiments. The gradual but inevitable move towards lower-carbon business will entail significant legal, market, policy and technological evolution.

But there is bright light at hand. Solar power, in the right regions, can be an answer to two urgent prayers – for cheaper, renewable energy, and for higher, more consistent yields. Our main paper in this *Review of Financial Markets* focuses on how science, business and finance are coming together to achieve those desirable objectives. And a better taxonomy of ESG, green, responsible, sustainable finance is emerging which will make communication of and between these three key pillars – science, business and finance – much clearer. We will be covering this in depth in the next issue of *The Review*.

THE BATTLE AGAINST ECONOMIC CRIME



In his article on pages 46–47 of this edition, on the fractured state of European anti-money laundering (AML) laws and practices, Richard Parlour, a prominent lawyer in the fight against economic crime, paints a picture of complexity and gaps, across the three key areas of governance, risk management and capability. So where do the solutions lie, and how should the new EU task force on AML of which he is part – he chaired the previous task force on cyber crime (see *RoFM Q2 2018*) – tackle them? At the next Cambridge International Symposium on Economic Crime in September 2019 – the 37th such annual event – and at follow-ups with CISI members, Parlour will be discussing steps including:

GOVERNANCE

- Develop clarity of vision and mission. Processes need to have an impact on the underlying threats, or there is no point introducing them.
- Assess whether a new AML body is needed within Europe at policy coordination level. This could be separate, or be the policy arm of Europol, for example.
- Ensure coordination works between EU member states, EEA member states, and non-EU/EEA states, at all levels, and with similar bodies in related areas.
- Improve cross-border cooperation, at all levels, including data collection,

intelligence generation, policy making, investigation, information exchange and prosecution.

RISK MANAGEMENT

- Adopt KPIs that relate to the underlying criminal threats that AML laws are intended to impact. These need to be thought through, rather than being measures which are adopted purely as they are a measure and/or are easy to measure (such as the number of suspicious activity reports filed with law enforcement). The right metrics are needed to combat the threat. Data collection techniques in this area are also in need of improvement.
- Allow firms to develop and use risk-based systems to improve effectiveness.
- Carry out effective 'Benefit Cost Analysis' (rather than cost benefit analysis) of proposed new measures. This is a particular hobby-horse of Parlour's; he strongly feels that regulators need to put the benefit horse before the cost cart, in part by understanding more clearly how our sector works.
- Adopt active, coordinated defences, rather than the static three lines of defence model with all the attendant difficulties to which he refers in his article.

CAPABILITY

- Encourage training and spending on specialised financial police.
- Increase funding and support of law enforcement, particularly of undercover operations and IT systems, enabling law enforcement to follow the money trail from commission of crimes.
- Improve training standards to a new EU

level, including the courts process, policymakers, investigators and intelligence analysts.

In essence, he believes, the options are to carry on as now ('EU AML 1.0'), with little success. "Alternatively," he says, "Europe can counter money laundering with renewed vigour, centralising that which needs to be centralised, integrating all AML defence systems, and ensuring that 'EU AML 2.0' works in all the member states, particularly given the differences in threat, vulnerability and risk of those states."

The price of getting this wrong was outlined in a talk to CISI members in June 2019 by Oliver Bullough, author of *Moneyland*. This is his name for what he calls "the secret country of the lawless, stateless, super rich. Over the past 50 years it has become the third largest economy in the world, and is annexing more every day". His talk (now on CISI TV) to the CISI came two weeks after Britain's National Crime Agency geared up its use of 'unexplained wealth orders', a strenuous new legal device to combat some of the higher levels of economic crime. This theme is high on the agenda of most global regulators.

In Britain, for instance, the FCA's action plan for 2019–20 highlights steps including:

- Improving tackling money laundering through intelligence and data and strengthening partnerships on tackling economic crime
- Deepening our understanding of types of fraud in key sectors
- Raising standards of professional bodies' AML supervision through the Office for Professional Body Anti-money Laundering Supervision.

COMING NEXT



In the next issue of *The Review*, we feature fascinating new research by Dr Keith Arundale, a member of the CISI/ ICAEW Diploma in Corporate Finance Examination Panel and senior visiting Fellow at Henley Business School, University of Reading. His research investigated differences in practice between the ways in which European and US venture capital funds go about

originating, executing, monitoring and exiting from their investments, and the structural and wider environments in which they operate.

Also next issue, a review of the work of Judge Business School at University of Cambridge on crypto regulation.



George Littlejohn MCSI
Senior adviser, CISI
george.littlejohn@cisi.org

SOLAR ENERGY INTO THE 2020s

THE DRIVE TO PROMOTE GREEN ENERGY, TOGETHER WITH FALLING SOLAR TECHNOLOGY COSTS AND MATURING PRACTICES, IS ATTRACTING STRATEGIC LONG-TERM INVESTORS, HUNGRY FOR YIELD, INTO THE SECTOR. ISLAMIC FINANCE HAS A SPECIAL ROLE ALONGSIDE CONVENTIONAL FINANCING, NEW RESEARCH FINDS

In the past decade, the world has witnessed a pressing need for a major transformation from conventional energy sources to renewables, starting with planned efforts in limiting the global temperature rise to below 2°C for the present century. According to the International Energy Agency (IEA) World Energy Outlook 2018, rising disposable incomes and an additional 1.7 billion people, mostly added to urban areas in developing economies, will push up global energy demand by more than a quarter between now and 2040.

While the prevalent approach followed by many countries is to decrease their energy-related carbon emissions, a key driver for climate change is arriving at a universal agreement on improving energy efficiency along with faster adoption levels for renewable energy as their primary source.

According to figures from the International Renewable Energy Agency (IRENA), global renewable capacity more than doubled in the past decade from 1,060 MW in 2008 to 2,179 MW in 2017 (one megawatt is one million watts; roughly enough to power 750 homes at once).¹ This provides an additional thrust to the overall appeal of renewable energy as one of the preferred areas for investing in the future. Increasing renewable energy deployment by various countries contributes to numerous policy objectives, including boosting national energy security and economic growth, creating jobs, developing new industries, reducing emissions and local pollution, and providing affordable and reliable energy.²

Global new investment in clean energy increased by almost 50% from US\$200bn in 2008 to US\$332bn in 2018, with maximum investment per MW in the solar sector compared to the rest of renewable energy sources. This is largely

due to a drastic decrease in required capital cost, thereby reducing the total investment in solar to US\$130bn in 2018, according to Bloomberg NEF.

Looking at the Gulf Cooperation Council (GCC) region, the renewable energy market has been on an upward trend in recent years with all countries incorporating renewable energy targets in their National Determined Contributions (NDCs) under the United Nations Framework Convention on Climate Change (UNFCCC).

Renewable energy financing in the GCC region generally has long tenures with high debt-equity ratios (more than 70%). However, the rise of the green bond market is seen as one of the innovative financing methods, with the National Bank of Abu Dhabi issuing the first green bond in the Middle East, valued at US\$587m, in 2017.³

Islamic finance is considered one of the new options for solar financing, alongside conventional loans, bonds and equity schemes. One of the popular finance techniques, green sukuk, which are Shariah-compliant green bonds, have recently been used in five renewable energy projects in Malaysia (as at December 2018). Indonesia launched the world's first sovereign green sukuk bonds (for US\$1.25bn) in February 2018, whose proceeds will partially finance renewable energy projects.

Overall, the adoption of green sukuk as one of the alternatives to several traditional financing techniques will grow due to factors such as increasing number of solar projects, lower capital cost, faster, favourable green energy policies, along with preference towards Shariah-compliant instruments.

GLOBAL SOLAR ENERGY LANDSCAPE

Renewable energy is gaining impetus these days as part of a focused approach in every country's economic growth policy. It is considered one of the many ways to achieve a country's development ambitions and to meet the increased

demand for power with emphasis on developing the infrastructure needed to meet the demands of the future. Increasing global prosperity drives growth in energy demand. According to IRENA's 2018 report on the global landscape of renewable energy finance, global annual investment in renewable energy rose steadily from 2013 to 2015, peaking at US\$330bn in 2015 before falling to US\$263bn in 2016. While annual investment declined in 2016, capacity additions in the same year were up from 2015. This was partially due to declining costs, and the time lag between financial

closure (ie the time of investment) and the completion of construction, after which an installation becomes operational. Cost declines

// GREEN SUKUK AS AN ALTERNATIVE TO TRADITIONAL FINANCING TECHNIQUES WILL GROW //

for key technologies have influenced finance flows in the renewable energy space. Lower solar and wind power costs were key contributors which reduced the total value of renewable energy investment in 2015 and 2016, as each dollar of investment financed more capacity than in previous years.⁴

However, global clean energy investment reached US\$332.1bn in 2018, down 8% in 2017, according to Bloomberg NEF.

GLOBAL NEW SOLAR ENERGY INVESTMENT

Investments in renewables have continued to increase each year and continue to make remarkable progress. According to the Frankfurt School-UNEP Centre annual Global trends in renewable energy investment 2018 report, global investment in renewable energy went up by 2% in 2017 to US\$279.8bn, taking cumulative investment since 2010 to US\$2.2tn. This rise in capital expenditure took place in the context of a further fall in the cost of wind and solar that made it possible to buy megawatts of equipment more cheaply than ever before.

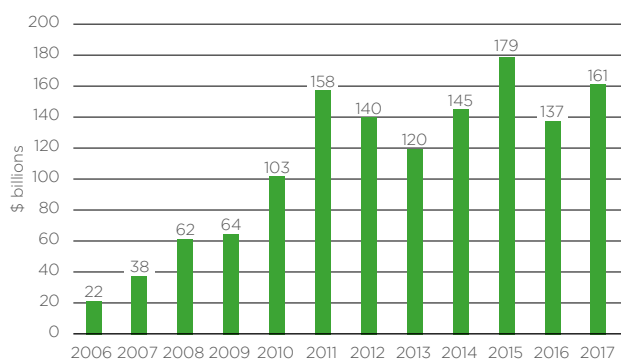
¹ IRENA (2018), *Renewable energy statistics 2018*, Abu Dhabi.

² REN21, *Renewables 2018 global status report*.

³ IRENA (2019), *'Renewable energy market analysis: GCC 2019'*. IRENA, Abu Dhabi.

⁴ IRENA and CPI (2018), *'Global landscape of renewable energy finance'*, 2018, Abu Dhabi.

FIGURE 1: GLOBAL NEW INVESTMENT IN SOLAR PHOTOVOLTAIC (PV) (US\$bn)



Source: Deloitte Islamic Finance Knowledge Centre

Solar power gained prominence in 2017 as total installed capacity from new solar power projects stood at 98 gigawatts (GW), which was more than the total of new coal, gas and nuclear plants put together.⁵

Global investment in solar projects increased dramatically to reach US\$161bn in 2017, as shown in figures 1 and 2.

REGULATORY AND INVESTMENT POLICY SUPPORT

The majority of the financial support has come through government-backed programmes boosted by the willingness of development financial institutions (DFIs) to advise and fund these projects. For example, the World Bank Group's lending arm, the International Finance Corporation (IFC), has provided nearly US\$6bn in capital for 250 renewable energy projects in emerging markets (5 GW solar and 4 GW wind).⁶

Technology is accelerating the deployment of renewables. Automation and advanced manufacturing are improving the production and operation of renewables by reducing the costs and

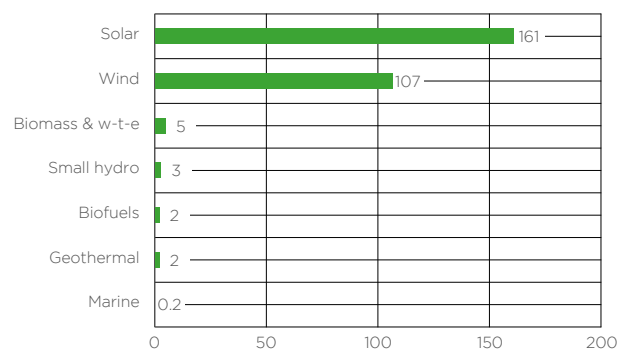
time of deploying renewable energy systems. Artificial intelligence (AI) can improve weather forecasting, optimising the use of renewable resources, whereas blockchain can enable energy attribute certificate (EAC) markets to help resolve trust and bureaucratic hurdles.

Advanced materials have the potential to transform the materials in solar panels and wind turbines (Deloitte analysis).

EMERGING MARKETS

In 2017, emerging markets accounted for 63% of global new investment in renewable energy, widening the investment gap with developed countries to a record high. China recorded the highest growth for solar and wind segments along with capacities marking above 100 GW for both in 2017. China accounted for over half of new solar additions and two-thirds of global photovoltaic (PV) production in 2017. Developed countries have benefited from market and product designs that initially took off in emerging countries. For example, renewable energy auctions are a trend that emerging markets embraced

FIGURE 2: GLOBAL INVESTMENT OF RENEWABLE ENERGY BY SECTOR 2017 (US\$bn)



Source: Deloitte Islamic Finance Knowledge Centre

first and that have brought steep price declines in renewable prices across the globe.

A combination of enabling trends and demand trends are helping solar and wind compete on par with conventional sources and win (Deloitte analysis, see table 1).

INVESTMENT TRENDS BY REGIONS

A report published by IRENA - *Unlocking renewable energy investment: the role of risk mitigation and structured finance* (2016) - identifies the main risks and barriers to renewable energy investment and provides policymakers and public finance institutions with a strong portfolio of measures, instruments and tools (see figure 3) that can be used in combination to mobilise private investment at scale.

INVESTMENT IN RENEWABLE ENERGY PROJECTS - GCC

The renewable energy projects in GCC are concentrated in the UAE. According to IRENA's *Renewable energy market analysis: GCC 2019* report, investment trends in renewable energy projects in the GCC spiked in 2011 with US\$765m invested in the UAE's 100 MW Shams 1 CSP plant, which became operational in 2013. Investment activity dropped in 2012. Because of increasing government interest and falling technology costs, investment in new projects rose in 2015, and included US\$326m in the UAE's 200 MW Mohammed bin Rashid Al Maktoum

⁵ Frankfurt School-UNEP Centre, *Global trends in renewable energy investment 2018*.
⁶ MESIA, *Solar energy outlook 2019*.

TABLE 1: SOLAR ENERGY GROWTH

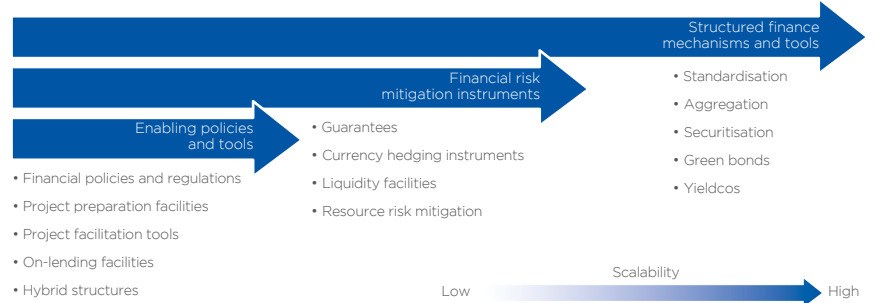
Enabling trends	Demand trends
Lower solar cost	Focused approach by government to support growth of non-conventional energy sources
Expanding investor interest	Population growth, increasing economy and climate changes are fueling demand for power
Technology innovation	Persistent energy deficit

Source: Deloitte

Solar Park Phase II; US\$400m in the Shagaya project in Kuwait; and US\$600m in Oman's 1 GW Miraah Solar EOR project.

After a lean year in 2016, renewable energy investments again picked up in 2017, mainly in three large-scale solar projects in the UAE. In Dubai's Mohammed Bin Rashid Al Maktoum Solar Park, the 950 MW solar PV Phase III and the 700 MW CSP Phase IV received investments of US\$940m and US\$3,870m respectively, as reported by IRENA. In Abu Dhabi, about US\$870m was invested in the 1,177 MW Noor Abu Dhabi solar PV plant in Sweihan.

FIGURE 3: POLICIES, TOOLS AND INSTRUMENTS THAT REDUCE RENEWABLE ENERGY BARRIERS AND MITIGATE RISKS



Source: IRENA, 2018

MENA

The Middle East will require additional power capacity of 267 GW by 2030, an increase of 66%, according to research by Siemens. The following tables highlight the market growth trends and list some of the key solar projects and capacity.



MENA	Industry investment trends
<ul style="list-style-type: none"> ✓ Morocco, Jordan and Egypt are including large scale CSPs in their energy mix ✓ Morocco planned to construct 800 MW project valued at US\$2.4bn 	<ul style="list-style-type: none"> Investment in renewable energy projects within the MENA region has seen an upward trend due to the rise in clean energy-based electricity demand coupled with factors such as growing population, economic growth, decreased cost of solar energy, and increased industrial activity. Solar energy has continued to gain momentum both globally and in the MENA region. As of H1 2018, over 470 GW of solar photovoltaic was installed worldwide, of which 100 GW was added in 2017. The 200 MW Kom Ombo solar PV project in Egypt and Jordan's Round 3 PV auction received bids below 3 US\$ cent/kWh. In addition, the Egyptian government has requested bids no higher than 2.5 US\$ cent/kWh for the ongoing 600 MW solar PV West of Nile tender. The biggest solar projects to be financed included the 800 MW Noor Midelt PV and solar thermal portfolio in Morocco, at an estimated US\$2.4bn, and Dubai Electricity and Water Authority (Dewa) in UAE Phase IV is 950 MW and has a total project cost of US\$4.36bn. Morocco's 580 MW Noor II and III projects at the Ouarzazate solar complex, one of the largest in the world to consist of PV and Concentrated Solar Power (CSP). Concentrated solar power in MENA: Despite the MENA region's contribution standing at a mere 7% of the global CSP's generation of 5 GW, countries such as Morocco, Oman and the UAE are early adopters of large scale CSP, while other countries like Egypt, Jordan and Kuwait have or are looking to implement utility scale projects.



Source: MESIA



TABLE 2: MENA SOLAR PROJECTS

Project	Country	Capacity (MW)	Status
CREG PV IPP	Algeria	150	-
Solar PV EPC	Algeria	50	-
Algeria PV	Algeria	4,000	Announced
West Nile PV IPP	Egypt	600	-
West Nile PV IPP 2	Egypt	200	-
Round 3 Solar PV	Jordan	150	-
RAI Solar PV	Jordan	50	Awarded
Noor Midelt PV	Morocco	800	-
ANME Solar Park	Tunisia	1,700	Announced
Tunisia Authorisation Scheme	Tunisia	64	Awarded
Tunisia PV – Round 1 Auction	Tunisia	500	-
Tunisia PV – Round 2 Auction	Tunisia	70	-
Solar IPP project	GCC country	900	-
Solar IPP	GCC country	2 GW	-
12 Solar PV projects	GCC country	-	-

Source: MESIA, Solar Outlook Report 2019 and others

GCC*	Industry investment trends
<ul style="list-style-type: none">  The GCC region is expected to add 7 GW of new renewable energy  KSA's 300 MW project began construction in November 2018 	<ul style="list-style-type: none"> • The GCC region is expected to witness a dramatic rise in renewable energy deployment. Led by the UAE, Oman and Saudi Arabia, nearly 7 GW of new renewable power generation capacity is expected to become operational by the early 2020s. • According to IRENA, the Solar PV remains the dominant technology in the GCC's project pipeline, with a share of over 75%, followed by CSP at 10% (all of which was accounted for by a single project in the UAE) and 9% share for wind projects, primarily in Saudi Arabia and Oman. Solar-assisted enhanced oil recovery in Oman is also expected to contribute about 1 gigawatt-thermal (GWth) in 2019. • GCC countries are investing in the renewable energy value chain including project developers, manufacturing companies, and research and development initiatives. Although the bulk of investments to date are concentrated in the UAE, as deployment picks up, investment flows will likely be distributed more evenly among the countries in the region. • Saudi Arabia's 300 MW solar PV Sakaka project, the first utility scale project in the country, was awarded at 2.34 US\$ cent/kWh and began construction in November 2018.

Asia*	Industry investment trends
<ul style="list-style-type: none">  China leads with US\$126bn investment  Indonesia witnessed US\$1bn worth of investment for RE projects 	<ul style="list-style-type: none"> • The East Asia-Pacific region was the dominant destination for renewable energy investment which witnessed rapid growth from US\$64bn in 2013 to US\$114bn in 2015, before a dip to US\$88bn in 2016. • According to Frankfurt School-UNEP Centre Global trends in renewable energy investment 2018 report, China was the leading country for renewable energy investment in 2017, which accounted for US\$126.6bn, contributing to 45% of the global total. There was an extraordinary solar boom in that country in 2017, with some 53 GW installed (more than the whole world market as recently as 2014), and solar investment of US\$86.5bn, up 58%. • Indonesia was the prominent country in Asia within the geothermal energy space with total of US\$1 bn worth of investment. Almost 60% is contributed by Supreme Energy Muara Laboh geothermal project of 80 MW. • Pakistan continued to attract investment in non-hydro renewables, particularly large-scale and small-scale solar, but its total of US\$695m, while up 42% on 2016, was far below the average of US\$1.7bn achieved in 2014 and 2015.⁷

Europe*	Industry investment trends
<ul style="list-style-type: none">  Renewable sector employs about 1.2 million people  The European Investment Bank has supported solar photovoltaic projects 	<ul style="list-style-type: none"> • Europe shows that renewable energy can reach very high penetration at low cost. By 2050, renewables will comprise 87% of the electricity mix, with wind and solar playing a dominant role, according to Bloomberg Nuclear Energy Finance. • By 2050, Germany will be running on wind and solar, and 84% renewables, but it has the highest emissions in Europe. • By 2025, the UK will have added 158 GW of wind and solar. • According to IRENA, The renewable sector employs about 1.2 million people in Europe. This figure would increase substantially with a doubling of the renewable share by 2030. • The EU will require investment of around US\$76.5bn annually to achieve 34% renewables in its power mix by 2030, according to IRENA. • Turkey's renewable energy sector will attract nearly US\$28bn investments by 2020, according to a new report by the World Bank's IFC arm. • Some US\$16.4bn of these investments will be made in wind power, US\$7.4bn in solar energy, US\$3.4bn in geothermal energy, and US\$560m in hydro power, according to data compiled by state-run Anadolu Agency.

*Source: MESIA, Solar outlook report 2019

INDUSTRY AND BUSINESS LEADERS' OUTLOOK

This section summarises the feedback from Deloitte's online survey questionnaire, which aims to understand how Islamic finance as an option could be considered to fund projects. The target audience consisted of executives from organisations whose primary industry was oil and gas production, solar generation, banking, asset management or professional services.

Figure 4: What is the estimate of solar energy contribution to energy generation in your country?

- Majority of respondents (more than 70%) believe that share of solar energy in their country's total energy generation has been low despite having considerable amount of support from their governments.
- This is evident from the fact that non-hydro renewables comprise only 11% of the gross energy consumption

compared to 29.7% for petroleum products.⁸

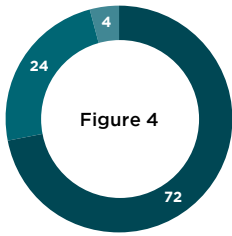
Figure 5: Aside from solar energy, what other renewable energy projects exist in your country/region?

- Apart from solar, geothermal is the primary renewable energy source

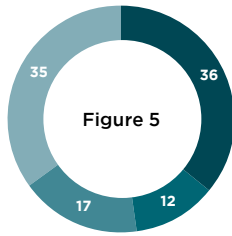
⁷ Frankfurt School-UNEP Centre Global trends in renewable energy investment 2018.

⁸ Economist Intelligence Unit (EIU).

THE RENEWABLES ROLLOUT



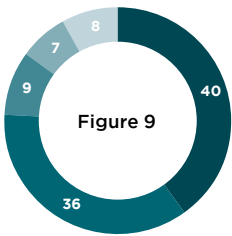
- Less than 5%
- More than 5%
- Non-existent



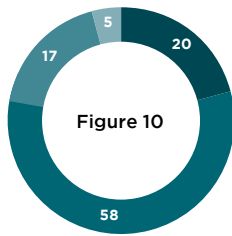
- Geothermal
- Biofuel
- Wind turbines
- Other



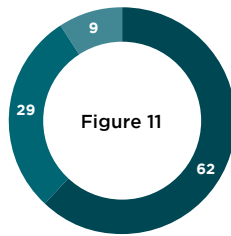
- Yes
- No
- Some progress in place
- Not sure



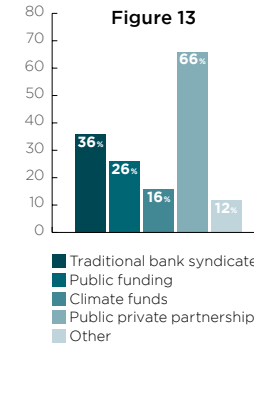
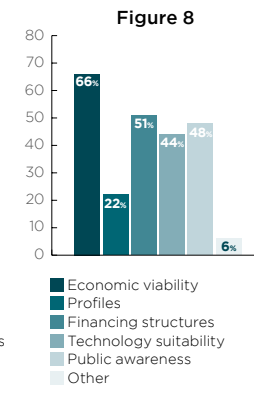
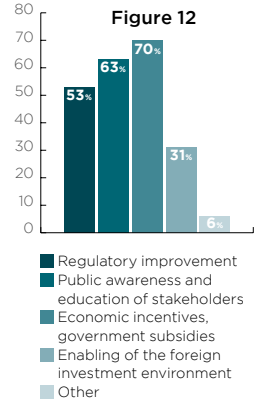
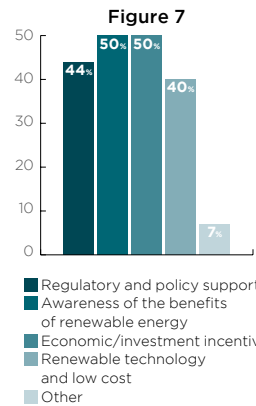
- At an early stage
- Developing stages
- Maturing level
- Not sure
- Non-existent



- Yes
- No
- Planning to in the near future
- Not considering Islamic finance as a source of financing



- Equity-based financing where the financier takes an equity stake in the project
- Debt-based financing where investors take a dividend/return on their investment
- Other



Source: Deloitte Islamic Finance Knowledge Centre

followed by wind turbines and biofuel which substantiates strategies to invest in and undertake renewable energy projects in future.

- As reported by IRENA, there is ample evidence that Solar PV and wind power dominate global spending on new renewables projects, moving from 83% of total finance in 2013, to 93% of total renewable energy investment in 2016.
- Therefore, solar projects can be seen as an important asset, underpinning economic growth of the countries.

Figure 6: Is there a defined solar energy strategy/initiative in your market/jurisdiction?

- A majority (70%) of industry experts identify the presence of solar energy strategy in their market.
- This indicates that the countries' governments are starting to make room for more solar projects in the coming future. This hopefully will

result in significant change in the solar energy market.

Figure 7: Which factors have most influenced the growth of solar energy projects in your country?

- Awareness of the benefits of renewable energy, and economic/investment incentives are the factors which have most influenced the growth of solar, with more than 50% of respondents indicating the same.

Figure 8: Which factors do you think will influence the growth of solar energy projects in your country?

- Technological suitability and financing structures (40% of respondents) are major influencers to the growth of solar energy.

Figure 9: What is the level of regulation and government support/guidance relating to solar energy in your country/region?

- A large number of respondents have

witnessed government support on regulation and guidance, with many other leaders considering it to be at the nascent stage with very little progress.

- Results indicate that countries' governments are active in shaping solar energy strategies within their countries.

Figure 10: Have you or a member of your team, or any affiliate organisation, engaged in Islamic financing of a solar project?

- Less than 20% of respondents were engaged in Islamic financing of a solar project. Factors such as technological improvements and demand for innovative ways of financing will see an upward trend in the future.

Figure 11: If you are considering Islamic finance for solar projects, which of these options suit you more?

- Investment in equity-based and debt-based investments (collectively

90%) are considered best options for investing in solar.

- A small amount of respondents suggested that diversified options between debt and equity could be a good method.

Figure 12: What types of support and policy would you be interested in seeing to consider solar energy in your business?

- A majority (60%) of respondents expect to see improvement in regulatory and foreign investment environment, which will help them consider solar in their business.

Figure 13: Which of the following is more suited to solar financing projects?

- Most of the respondents (66%) believe public private partnerships (PPPs) are suitable for financing projects, followed by traditional bank syndicates and public funding.
- Few respondents (12%) suggested that Islamic finance instruments like mudarabah and sukuk would be the ideal way to invest in solar projects.

CONCLUSIONS

As this paper illustrates, solar energy developers and investors alike now have enviable structures of Islamic finance to

boost growth of green energy in the countries we studied. The drive for more sukuk and other Islamic financing structures such as murabaha, ijarah and mudarabah in greenfield projects will continue to play a key role in the solar industry investment landscape.

The UAE and KSA collectively will be leading the GCC region with the maximum number of solar projects currently active or announced by their key industry players, followed by Bahrain and other nations.

The increasing acceptance and the adoption of Islamic finance across the countries studied indicate that energy operators and investors are taking advantage of the equity-based financing model. Different Shariah-compliant financing structures have been used for different phases of solar projects. Sukuk stands out as a popular asset class amongst international investors.

Due to such offerings, both developers and investors have implemented Islamic financing strategies in their project financing and plant investments, thereby boosting their acceptance levels across the world. Many international agencies have started to reap the benefits offered by Shariah-compliant financing options,

which lowers their debt to equity ratios for capital intensive projects.

Hence, in the coming few years, Islamic finance will be considered as one of the primary financing strategies and in particular, in the GCC, Jordan, Egypt, Malaysia, Indonesia and Pakistan. Other countries will follow suit as the market matures and becomes a driver of green economy in these regions.

// INCREASING ACCEPTANCE AND ADOPTION OF ISLAMIC FINANCE //

KEY MESSAGES

- Financing solar and renewable energy projects will develop faster than ever, particularly in countries challenged by new environmental and climate rules, responsible investment guidelines, green energy principles, sustainable finance, social impact attributes and investment governance. Success in achieving a balanced commercial and social financing strategy will require inclusive industry stakeholder partnerships that embrace sustainable finance and responsible investment.
- Governments and private sector enterprises are under increasing pressure to provide sustainable and competitive energy prices to meet growing economies' energy demands. This will require innovative project financing strategies to access a diversity of international investors and perhaps tap into Islamic financial institutional investors.
- Energy and solar companies need to be mindful of the disruptive technological and regulatory and policy reforms which are shaping the industry infrastructure space, and hence develop commercially viable and sustainable financing structures.

INDUSTRY OUTLOOK SUMMARY

OPPORTUNITIES

Government policies
Many countries have formulated explicit solar focused regulatory policies along with ambitious RE targets.

Declining capital cost
Large numbers of investors have shown interest to invest in solar sector owing to decline in cost of capital required with support from industry and government.

Use of unproductive land areas
Many countries have started to utilise available unproductive lands in their countries to set up solar plants.

Financial support
Many government agencies offer financial support in terms of tax exemptions, incentivising SMEs engaged in RE project development, providing incentives for citizens to adopt RE based electrification programmes in their localities and buildings.

CHALLENGES

Lack of available government resources
State owned utilities in some countries want to keep a firm grasp over the power sector and are hesitant to liberalise their energy sectors.

Unrealistic expectations
Countries need to set expectations for tender prices based on their own risk profiles, not on tender results achieved in other countries.

Subsidy reform
In the long run, energy subsidies are unsustainable, hence, long-term reform is a necessary measure that will help countries become energy independent.
However, reform, if not implemented with an adequate safety net to protect the poorest segments, may cause public unrest.

Dr Hatim El Tahir, director of the Islamic Finance Group of Deloitte & Touche, is the chief driving force behind this work. He is a regular and valued contributor to the CISI's work on Islamic finance and also, broadly put, responsible investment. He is the architect of our annual Islamic finance summit, which is available on CISI TV.

HELTAHIR@DELOITTE.COM

THE SUN SHINES ON ISLAMIC FINANCING STRATEGY

The increasing use of independent power producer (IPP) and power purchase agreements (PPAs) in many countries, including those analysed, is welcome news for Islamic financing strategies, as this helps identify and quantify both business and financial risks to design structures that balance, with risk sharing and asset-backed and ownership transfer elements designed in the structure. This is important to ensure that all stakeholders' interests are safeguarded.

Sale-based, lease-based and equity-based Shariah-compliant financing structures such as murabaha, ijarah, mudarabah respectively can be designed to reflect the solar project risks and timeline requirements, in the different phases of the project lifetime.

Evidently, solar asset sukuk financing brings benefits and skills along the entire value chain. Its transactional structure, as seen in the below proposed structure, is divided in different phases to reflect the level of the project implementation and capital expenditure.

The proposed solar sukuk structure described below illustrates the suitability of sukuk in addressing developers' and investors' interests alike.

IMPROVING GRID NETWORK THROUGH SOLAR SUKUK STRUCTURE¹

Project overview

1. Gulf Municipality (GM) - project originator is seeking finance to build a 100 MW solar plant (Gulf Solar Farm).
2. GM aims to procure an independent power project (IPP) to build the project asset in one of its suitable sites.
3. GM will purchase the renewable energy certificates (RECs), through its affiliate, Gulf Electricity & Water Authority (GEWA).
4. GEWA will enter with Gulf Solar (service manager) into a Power Purchase Agreement (PPA).

TRANSACTION HIGHLIGHTS

Construction phase:

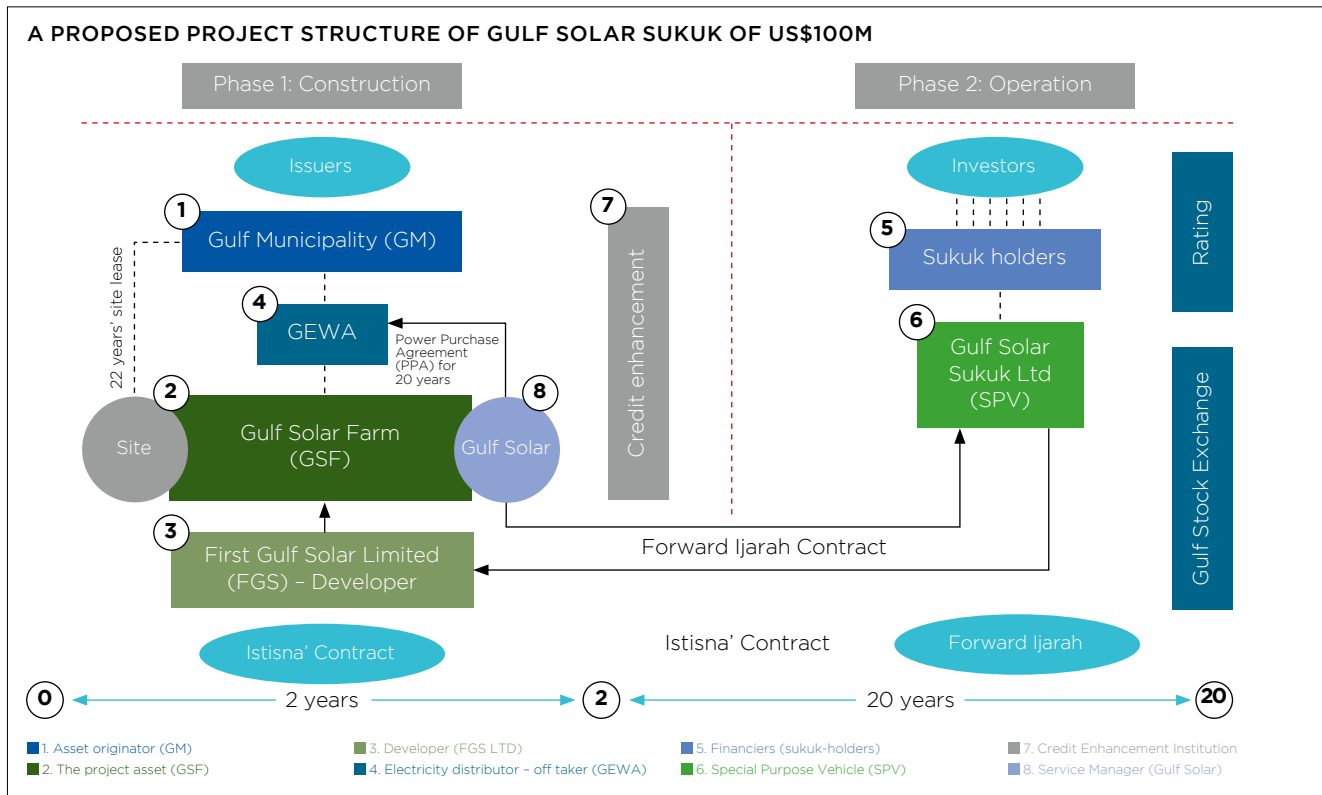
- A special purpose vehicle (SPV) will be set up to act as trustee

of sukuk holders (also known as investors).

- Gulf Solar Sukuk (SPV) signs an Istisna' contract with the project originator (GM), to construct the project asset (Gulf Solar Farm).
- A tech know-how developer (First Gulf Solar) will deliver the project asset.
- Upon completion (two years), title and asset ownership pass to the Gulf Solar Sukuk (SPV).

Operation phase:

- GM (the project originator) will also sign a forward ijarah with Gulf Solar Sukuk to lease the solar farm.
- The completion of the solar plant, Gulf Solar Sukuk (SPV) leases the solar farm to project originator (GM).
- Both parties are subject to a purchase undertaking where the project originator (GM) will repurchase the solar farm from the Gulf Solar Sukuk (SPV).



¹ Developed by Deloitte IFKC and published in the IIFM's Annual sukuk report, 7th edition, 2018.

MANAGING CLIENTS' PERCEPTIONS OF RISK AND REGRET

KEITH ROBERTSON, CHARTERED FCSI, BRINGS HIS SHINING LIGHT TO BEAR ON SOME OF THE WEAKNESSES IN THE PROFESSION'S APPROACH TO EXPLAINING, ASSESSING AND UNDERSTANDING CLIENTS' RISK APPETITES

In his paper in the Q3 2018 edition of *Review of Financial Markets*, Keith Robertson stirred a few hornets' nests with a poke at some of the received wisdoms of 'behavioural finance', and some of the realities behind them. Here he continues the theme with his own scathing take on the issues of framing, regret – and bar charts.

There is another irrational group in our professional world: those advisers who outsource investment to third-party discretionary investment managers (DIMs). These practitioners want to concentrate on financial planning and, without false modesty, often claim insufficient competence in investment, which of course is why they farm out this function. But if they are not competent to do the investment themselves, how can they possibly be competent to judge the investment competence of their outsourced manager? Where a service comprises a series of linked functions, one link of which the key facilitator does not understand, the chain of linked competencies breaks apart. When things go wrong, whom is the client to hold responsible?

This is a form of reverse availability bias. Selection of a DIM is bound to be subject to some form of bias and error. There are scores, if not hundreds, of DIMs out there, so how to select the right one? It is impossible to conduct proper due diligence on each, so there must be some

sort of shortcut applied. Perhaps a third-party rating (but who assesses the competence of the third party to carry out such a function flawlessly?), perhaps a recommendation from a colleague or, most likely, a plausible pitch. Even for a diligent adviser there will come a point when the 'next one', whoever that is, will do. Anchoring bias, availability error and halo effect may all come into play. Yet what else can an adviser, who is likely not to be an investment specialist, do? But who is fooling whom in such a setup?

FRAMING FRAMED

Among all the psychological biases, errors and heuristics rampant in retail financial services, in terms of the public interest and the doctrine of treating customers fairly, framing is probably the most important and dangerous of all. It is unique because it is the only one which has nothing to do with investors, except as victims. Framing is not something that investors do in finance, it is always something that is done to them. This technique is deployed to take advantage of the psychological traits and vulnerabilities exposed by prospect theory, among others. When marketing to retail clients, advisers and managers will employ framing to present selected information to a prospect in the best light and later, when a prospect becomes a client, framing will be ever-present when meeting with or reporting to the client. This will happen because everyone wants to present

themselves and their offering in as good a light as possible. There is nothing intrinsically immoral or ignoble about this. The bigger worry is that advisers fail to spot inadvertent framing in their own presentations or malignant framing from elsewhere in their day-to-day work with clients. It is present in every polished bit of material provided by DIMs, fund

managers and the sell-side generally.

When framing is used in conjunction with other techniques to take advantage of an unprepared lay investor by triggering some of the biases and errors discussed in this paper, it is entirely plausible to say that sell-side designers are subtly forcing clients into decisions they would not willingly make if they had been better informed or warned. Framing, primed also to trigger availability bias, anchoring, representativeness and loss-aversion, together can make a toxic blend – not so much to mislead investors, but to lead them where, with more knowledge, they would not likely go. One could select myriad examples of unfair framing but, for sake of space, one need consider only risk-profiling questionnaires.

Most questionnaires have or had a set of 'composure' questions to assess how the investor might react to market falls. This question seems less common than a couple of years ago, so perhaps criticism has had some effect. In its simplest form the question would be along the lines of: "Markets can be volatile; would you feel uncomfortable if the stock market fell by

// FRAMING IS PROBABLY THE MOST IMPORTANT AND DANGEROUS OF ALL //

0% / 5% / 10% / 20% / >20%?" It is important to realise that any risk-profiling process will structure questions and

answer algorithms to capture as many responders as possible in their medium-risk bracket. That is pretty safe from a regulatory perspective, as the last thing anyone wants is a few outliers at one extreme or the other. Having tested many questionnaires, it turns out a responder has to be pretty dogged to get outside the middle of the bell curve.

One can see that a naive but not necessarily risk-seeking responder might look at the range of options and think, "well, everyone knows that markets go up and down, so it would be ridiculous to go for 0%; I certainly would not want to lose 20%, so if I go for 10% or perhaps 5%, that wouldn't make me seem too timid".



Keith Robertson, Chartered FCSI, is a highly qualified practitioner who has spent over 20 years as a practising fee-charging financial planner and investment manager. He continues to sit on the CISI level 7 exam panels and forum committees.

KEITH@ARMSTRONGFINANCIAL.CO.UK

The question has been framed in such a way that the highest figure of >20% looks as if it is heading off into the distance, and an inexperienced investor would have no idea what it feels like to lose 10% or 15% of an investment, so the framing, together with the availability and anchoring of the 0%-20% range guides the investor to somewhere safely in the middle. In fact around 70% of respondents finish up in the middle three risk bands; this may not be coincidence.

But 0%-20% seems a rather low range for a market fall, given what markets have done historically. In the UK, top-to-bottom falls have been up to about 75%-80%. It is hard to be sure, because most statistics will, at best, show only the daily closing price; one has to hunt hard for the daily range. Anyhow, in the early 1970s the UK market fell around 75%. In the US, in the decline from its September 1929 peak to its July 1932 bottom, the Dow Jones index fell 89%. Markets in emerging markets have chalked up even bigger falls, approaching 95% on occasion. So, instead of settling on 0%-20% for its composure question, the risk-profiling manufacturer could have injected a more realistic scenario with: "Markets can be volatile; would you feel uncomfortable if the stock market fell by 0% / 25% / 45% / 65% / >85%?" One doubts that 70% of respondents would fix on the mean or median of 45% - that's a lot to lose. Given the range to anchor on, and the shock of realising it might actually happen, one would expect at least 70% of respondents would mark 0%.

A respondent, anchoring on a range of possible losses, may ask whether that means the manager would put a stop-loss order on at that level. No adviser or wealth manager has been recorded as offering that protection. So, would a fairer and more realistic approach be for the basic 0%->20% question to be followed by a supplementary question which would say: "You have selected 10% as the maximum loss you would feel able to bear without discomfort. Market declines quite often last for two or even three years, and losses of up to 40% or more in a year are not uncommon. Knowing that a market fall of 10% might be the beginning of a sustained and deep fall, would you wish to change your original answer?"

A more experienced investor would be

unable to answer a question in that form. The answer he would want to give, but is not allowed to, would be: "Well, it all depends. If my portfolio had put on 70% in the past three years and you could persuade me that a 10% fall was just a technical correction, and all the fundamentals were in place for markets to resume their bull market then, yes, I might be comfortable with a 10% fall. But if I heard that there had been a massive

// MARKET
DECLINES QUITE
OFTEN LAST FOR
TWO OR EVEN
THREE YEARS //

outbreak of bird flu or SARS in Asia, or that China and Japan had just gone to war over the Spratly Islands,

then I wouldn't want to wait for a 1% fall, I would want to be out immediately." These risk-profiling questionnaires are designed with questions framed to produce the answers the provider wants to receive, not what the investor probably wants to give.

All discussion and all feelings about risk are context dependent. Today one might be comfortable with a particular level of risk, as if one could actually order such a thing off the shelf or an adviser could really provide it. But 15 months from now one's life may have taken one unlucky turn after another, and the market may have fallen 35%. One would probably not think much of the risk-matching process in that case.

THE FALSE ALLURE OF BAR CHARTS

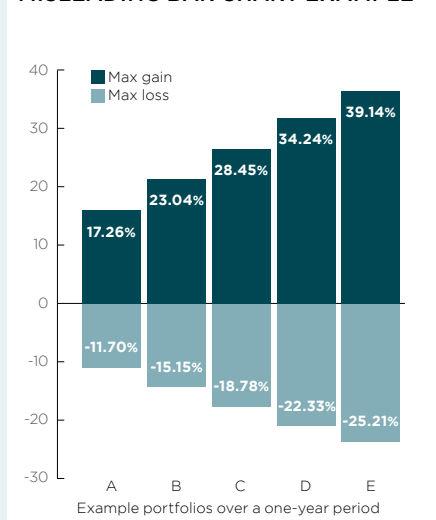
In the past three or four years there has been a change in the way many risk questionnaires describe expected future outcomes, and that is by means of brightly coloured bar charts. These almost invariably consist of five bars, each purporting to show one portfolio. The upper portion is in one colour and represents gains and the lower portion is in a different colour, showing losses. These five bars fan out across the page, each one showing progressively larger gains and losses, but with the eye being drawn irresistibly to dramatic increases in gains, beside which the losses look relatively trivial by comparison. The subliminal message from the framing is clear: "If you invest with us, you are going to make big profits without much risk of losing money."

Reading the narrative attaching to the question confuses matters further. One example says: "The following graph

shows the results of five example portfolios over a one-year period. The best potential gains and worst potential losses are displayed. Note: the portfolio with the best potential gain also has the largest potential loss. Which of these portfolios would you prefer to hold?" The key shows a small block of each colour: 'Max gain' and 'Max loss'. How can anyone interpret the information displayed?

- The numbers are all in percentages to two decimal places. This makes them look as if they are the results from real portfolios. Are they?
- The bars show both gains and losses. What does this mean? Perhaps the portfolios made gains of 28.45% and also losses of -18.78% in this particular year? There is no explanation of what the numbers show or how each portfolio is composed.
- Are these real portfolios, or fictional? If real, are these more-or-less the portfolios investors could expect to be put into?
- What are the underlying data? Are the data genuine and taken from just one year, or some sort of composite?
- The key states that the chart shows the maximum gains and losses. Does this mean that if you invest in the first of these portfolios you will never have a loss greater than -11.70%? Or a gain larger than 17.26%? Investors are going to anchor on the big numbers shown.
- Why would an investor not expect his or her investments to show future returns like these?
- What is in these portfolios to produce

MISLEADING BAR CHART EXAMPLE



such different results? Why are the results so different?

- How would an investor know what to expect if they decide to invest with the adviser who used this risk questionnaire?
- What do 'potential gains' and 'potential losses' in the narrative mean?
- The first bar, presumably representing the most risk-averse portfolio, shows a 'Max loss' of -11.70% in one year. Would a highly risk-averse investor really be comfortable with a portfolio that generated a loss of about -12% in one year? Would that investor really think that a gain of over 17% was 'normal' if he was used to holding cash?
- The framing of the question clearly raises expectations of rising good returns and, so far as one can interpret anything, the gains are always bigger than the associated losses so, overall, one might expect to make only net gains in the future.
- The 'gain' bars are visually more prominent and with a strong message of increasing profit. This plays to the availability heuristic.
- The first numbers one sees are the impressive 'gain' figures. One could expect novice investors to anchor on these.
- The data are complex and confusing to the point that no professional would be able to analyse exactly what this bar chart was showing. This plays to the lack of knowledge of an investor, who probably would not even be able to work out what questions to ask by way of clarification, let alone interpret the answers.
- Investors completing these questionnaires are expressly forbidden from asking for guidance or clarification when filling out their answers.

A different questionnaire provider uses a very similar format. In this case the gains and losses are shown as values in pound sterling, the bars blue for gains, red for losses. The question narrative states: "Suppose that you are considering investing £20,000. There is an equal chance that the investment will either increase or decrease by the amount shown." The numbers are heavily rounded, so an informed observer might assume these were notional or hypothetical portfolios, but the narrative does not say so. The gains, from left to right, are: £1,600;

£3,200; £5,200; £6,200 and £9,000. The losses are: +£200 (no loss); -£500; -£1,200; -£2,200 and -£4,000. The key states these are 'Lowest value' and 'Highest value'.

- Are these portfolios real?
- If not, how were they constructed?
- What are the underlying data used?
- Do these charts reflect what an investor with £20,000 can expect to earn each year if they select the adviser using the risk questionnaire?
- If "there is an equal chance that the investment will either increase or decrease by the amount shown", does this mean that a simple average of the gain and loss represents what these portfolios will generate each year?
- Why should there be an equal chance of the maximum gains and maximum losses each year?

The sector is unashamedly taking advantage of investors' limited knowledge and psychological vulnerabilities to push them through a process where the respondent can neither ask questions or for clarification nor give the answers they might want to give. This is done in the belief it will satisfy the regulator and allows the very fast processing of thousands of investors through what should be the most sensitive part of advice – a clear understanding by both client and adviser of what is meant by risk, how the client is likely to feel about things going wrong in the future, and how the adviser's approach to investment can protect the client. Advisers almost universally use risk profiling questionnaires like the ones exemplified and every one of many questionnaires examined in the past 15 years contains numerous questions that have been framed or constructed in some way to either 'lead' the respondent or to confuse them beyond understanding. If advisers are to act in their clients' best interests, why do they not challenge these absurd questionnaires and their associated processes designed to throw out a 'suitable' portfolio at the end, perfectly matched to every client's feelings about risk? The best chance of defending investors from these subtle attacks is if their own adviser warns them, alerting them to what is going on, and finding a more honest way to understand what their client thinks about risk.

REGRETS, WE'VE HAD A FEW

Regret changes lives deeply. From an adviser perspective its importance lies in its connection with risk. During the 2007-09 crisis, an adviser had clients almost completely in cash due to main asset classes being, in his opinion, too overvalued for it to be rational to invest. But after a year or so, around mid-2008 one client felt she was paying fees and nothing was happening. She was seriously ill and anxious to improve returns. Eventually she prevailed, and after much discussion some of her money went into risky assets, purchased after a clear analysis about the risks generally, and specifically at that time (markets were already sliding). The inevitable happened. The markets crashed in unison and she faced significant book losses. At an urgent meeting she said, "I had no idea these investments would be so risky," because that was what she perceived had happened. But it became clear that she did know there were risks in making the investments she had insisted on. The risk warnings and market analysis all confirmed the opinion that markets were fundamentally overvalued and at risk, as they had been at the time of the dot.com

// THE SECTOR IS UNASHAMEDLY TAKING ADVANTAGE OF INVESTORS' LIMITED KNOWLEDGE //

bust in 2000. It turned out that it was not the risk she had not understood or anticipated, but the fact that when the losses were actually incurred, she had completely misunderstood just how badly she was going to feel about the whole situation when it happened. This was a profound lesson, sharpened by the fact she died before seeing her investments recover.

In finance, regret by any investor for an investment mistake should induce more than just a sense of gleeful schadenfreude from a professional. Understanding just how painful such events can be for those damaged as a result could usefully be incorporated into every adviser's process when discussing risk with clients.

We will be debating some of these issues, and much more, in a special CISI Fellows and Chartered Members masterclass in autumn 2019. For details please visit the CISI website.