Risk and regulation in a digitalized world

A survey for UK asset managers

2018

Building a better working world

Contents

Executive summary 1

The FCA's Asset Management Market Study 6

Brexit risk management 7

ICAAP/SREP considerations 9

MiFID II and best execution 10

MiFID II and research 12

MAR and surveillance considerations 14

Changes to third-party systems 15

Changes to managing data 16

GDPR and privacy data management 18

Managing innovation risk in 2016-17 19

What's next? 25

Executive summary

For the past nine years, EY has spoken to heads of risk and compliance at many of the best-known asset managers servicing European investors, to see how they're dealing with ever more challenging risks and regulations.

This year, *Risk and regulation in a digitalized world* compares views at nearly 50 organisations of different sizes and styles. We conducted one-to-one interviews, mainly between June and the end of 2017, under conditions of anonymity.

We're grateful to our respondents for taking the time to share candid opinions with us about the formidable issues they face. These valuable insights can benefit readers involved in all aspects of governance, risk and controls (GRC), whether at asset or wealth managers, private banks, asset servicers or investment banks.

Relentless pressures

Many of the conditions that characterized our survey last year were ramped up this year. Competitive pressures were unremitting, with investors continuing to chase returns in a low-yield environment. Fees and charges remained a focus of near-constant regulatory scrutiny. Heightened political uncertainty became a permanent fixture following the UK's referendum vote on 23 June 2016 to leave the EU. Finally, the sheer pace of technological innovation and disruption continued to transform the landscape.

Comparisons from Risk and regulation in a digitalized world — this year vs. last year*

Indicator	This year's result
Percentage of firms aware of and making preparations for Brexit, e.g., managing any early extreme-event (cliff-edge) planning	85%
Percentage of respondents managing third-party relationships	86%
Percentage of respondents citing legal risk (excl. regulatory risk) and tax risk (highlighted in grey) as areas requiring management in 2017	67% and 57%
Firms actively developing more advanced treatment of model risk management pre-greater regulatory interest in Europe	52%
Percentage of respondents intending to 'pay hard' for research provided by third-parties (i.e., pay from the profit and loss (PnL))	69%
Firm has applied solutions to monitor the behavioural aspects (or can apply metrics) to areas such as trade surveillance	21%
Percentage of Asset managers carrying a taxonomy to ensure the best use of data when it comes to client, trade or transaction reporting	65%
Respondents able to point to use of 'big data' facilities such as data lakes or data warehouses maintained by the parent or third-parties	54%
Percentage of Asset managers interested in exploring artificial intelligence (AI) and machine learning, and social media usage	36%
Percentage of Asset managers interested in exploring the opportunities from smart contracts, blockchain or distributed ledger technology (DLT), and Initial Coin Offerings (ICOs)?	39%

*This year refers to the full calendar year results from 2017. Last year refers to the full calendar year results from 2016.

Last year's result	Comments
71%	There was a notable increase in activity, not just in terms of broad brush study but also in terms of diving into the ramifications, e.g., investment strategies, operational continuity, data privacy or freedom of movement.
83%	There was a greater focus on business and operational resilience in light of elevated Internal Capital Adequacy Assessment Process (ICAAP) and Supervisory Review and Evaluation Process (SREP) Individual Capital Guidance scores during 2016–17, and given the need to dust down service-level agreements (SLAs) to cope with the onset of General Data Protection Regulation (GDPR) in May 2018.
60% and 44%	The need to manage legal risk (e.g., arising from the extraterritorial impacts of regulations such as Markets in Financial Instruments Directive II (MIFID II)) was more evident, as was the need to take account of different tax treatments both in the UK and elsewhere (e.g., VAT for research).
43%	There was a far greater appreciation and focus on how to define model risk in terms of components such as risk identification, model methodologies, model assumptions and calibration, model governance, model validation, and model process and controls.
23%	Clearly work in progress (WIP), but more than 70% of respondents would 'pay hard' or pay by subscription for at least some aspects of research provision, and the announcement by active manager JPMIM in August 2017 sent shock waves around the industry.
11%	Significant improvements were made to install solutions to help firms improve front-office controls by tracking market practices and behaviours (e.g., relationship maps and tone of voice).
51%	There was a significant ramp-up in firms upgrading their data hierarchies and architectures to cope with new surveillance and reporting needs under Market Abuse Regulation (MAR), MiFID II (RTS 23/24) and Securities Financing Transactions Regulation (SFTR).
45%	Regulations such as Markets in Financial Instruments Regulation (MiFIR), European Market Infrastructure Regulation (EMIR), MAR and SFTR all call for large data stores to be maintained. Firms with access to data lakes could enjoy considerable future flexibility compared with competitors struggling to acquire (and maintain) large stores of data in-house on an ad hoc basis.
26%	Firms demonstrated a greater appetite to gain investment insights and to improve operational effectiveness by using the latest NLP tools available, particularly for surveillance and analytics.
26%	Use cases consist of testing if blockchain can be used to save trading costs in illiquid instruments, developing blockchain-based funds, or establishing whether blockchain could yield significant cost savings by cutting out custodians and transfer agents.

In this environment, two of the core themes that emerged in last year's survey — both underpinned by technology — continued to dominate the focus:

- **The need to manage strategy and operational risks in the search for growth**
- **The need to manage the pace, complexity and cost of regulation**

The search for growth

There was no end in sight to the challenges active managers faced, with increasingly buoyant returns (in line with technology-driven transparency), skyrocketing popularity of exchange trade funds (ETFs) and the steady growth of smart beta (smart-β) indices. Added to this was the need to justify fees and show value for money (VfM), following the publication of the Asset Management Market Study (AMMS) by the Financial Conduct Authority (FCA).

Leading firms we spoke to were responding by evaluating the risks, outcomes and fees of their products, as well as searching for new ways to generate returns. Private debt, private markets and alternative investment solutions (private equity, real estate, syndicated or non-performing loans, and infrastructure funds) were all sought after by investors.

The growth imperative continued to drive the evolution of investment risk procedures in terms of risk appetite, measurement, monitoring and reporting, supported by analytics capabilities. The need to manage strategy, liquidity and operational risks with Brexit in mind was also critical. Top concerns included access to, and legal ability to operate in, certain markets; delegation of the portfolio manager function abroad; access to talent; and business continuity procedures.

Technological innovation was, unsurprisingly, also a major feature of the growth agenda. Financial technology (FinTech) achieved mass adoption in many global markets, with a wave of new players and services. Asset managers saw the opportunity to fulfil end-investor demand and enhance investment risk procedures, as well as improve their management of regulatory requirements.

With regulators giving the nod to new technologies to help manage regulatory requirements, this year's survey saw more asset managers gravitate towards three FinTech models:

1. **AI and algorithms** — including machine learning to support investment decisions, and the use of algorithms to gain investment insights or improve front-office processes
2. **Self-driving funds, robo-advisers and robo-selection** — direct-to-client (D2C) strategies, including direct digital, self-service investing solutions and guided advice
3. **DLT such as blockchain** — including usage for transfer agency flows, global funds distribution, illiquid assets, regulatory reporting and private markets

What was new in this year's survey, however, was the need to manage risks arising from these models. Some firms revisited the suitability of robo-advice in light of new guidelines provided by the MiFID II. There were fresh concerns about disruption arising from FinTech offerings. And caution was also evident in innovation strategies, with only a third of firms having a dedicated budget or having established innovation labs.

The pace, complexity and cost of regulations

Adjusting to the intense pace and complexity of the regulatory environment continued to be an expensive endeavour for asset managers. A mid-tier firm could easily spend £10M to £15M over the course of 2016–18 just preparing for and complying with MiFID II, for example. One large passive asset manager commented that complying with six key regulatory measures required that at least 10% of headcount work in regulatory reform. And some firms told us that the prospect of failing to comply with the minutiae of certain regulations, and being hit with fines proportionate to their revenues, had them caught in the headlights.

Broadly speaking, the thrust of regulatory efforts remained in two major areas:

1. Greater scrutiny of costs, charges and fees being passed on to or levied on end-investors
2. Greater onus of proof being placed on asset managers ('Prove it to me' continued to be a fundamental theme for front-offices, which were using forensic, evidential approaches in interactions with regulators. 'This time it's personal' also remained a theme, with individuals being held accountable, whether in control, risk, portfolio management or trading roles.)

Regulators assessing capital adequacy remained keen to see how firms were planning for a wide range of risks and scenarios, such as a 'hard' Brexit, computer network attacks and the bursting of the Bitcoin bubble. All aspects of the operational risk framework, as well as the core competencies of the finance and risk functions, were under scrutiny. However, many firms were jolted by higher-than-expected ICG scores.

The front-office remained the biggest focus of risk and regulatory efforts. MAR which came into effect on 3 July 2016, shone the spotlight on both risk-taking and oversight functions. But while some policies and procedures were largely in place — for example, surveillance — most firms struggled with front-office controls for certain asset classes. And many expected that scrutiny would only intensify in 2018.

Firms were also actively upgrading and demonstrating 'best execution' practices and desk procedures in the light of MiFID II taking effect on 3 January 2018. Additional emphasis was placed on improving front-office controls for non-equity instruments, especially in terms of transaction costs analysis (TCA).

Asset managers continued to be challenged by other MiFID II requirements to understand how all components of third-party research were priced, to justify the value-add to clients and report on research spend accordingly. There was a notable trend for more asset managers to pay for research themselves ('pay hard') by the end of last year, with concerns about different treatments across the EU and worries as to whether shrinking research budgets might impact sell-side coverage (and pricing).

The use of third-party risk and reconciliation systems saw a further boost. MiFID II compliance led to greater adoption of order management systems (OMSs), especially TCA and trade and transaction reporting tools. MAR compliance, meanwhile, drove a sharp rise in the uptake of surveillance offerings. But challenges remained: fragmentation and duplication of systems and suppliers continued to be an issue for many firms, and use of TCA was highly variable among asset classes.

More generally, the huge reporting load from MiFID II, MAR and other regulations put big data front and centre of digitalisation efforts. There has been a significant rise in firms developing reference data taxonomies and data lake capabilities, as well as more firms investing in data analytics, data visualisation and AI.

There was also overwhelming awareness that data security, whether maintaining the integrity of data, defending against cyber attacks or complying with the GDPR, was critical. At odds with this however – and with the recognition of innovation risks – was a notable lack of focus on data governance.

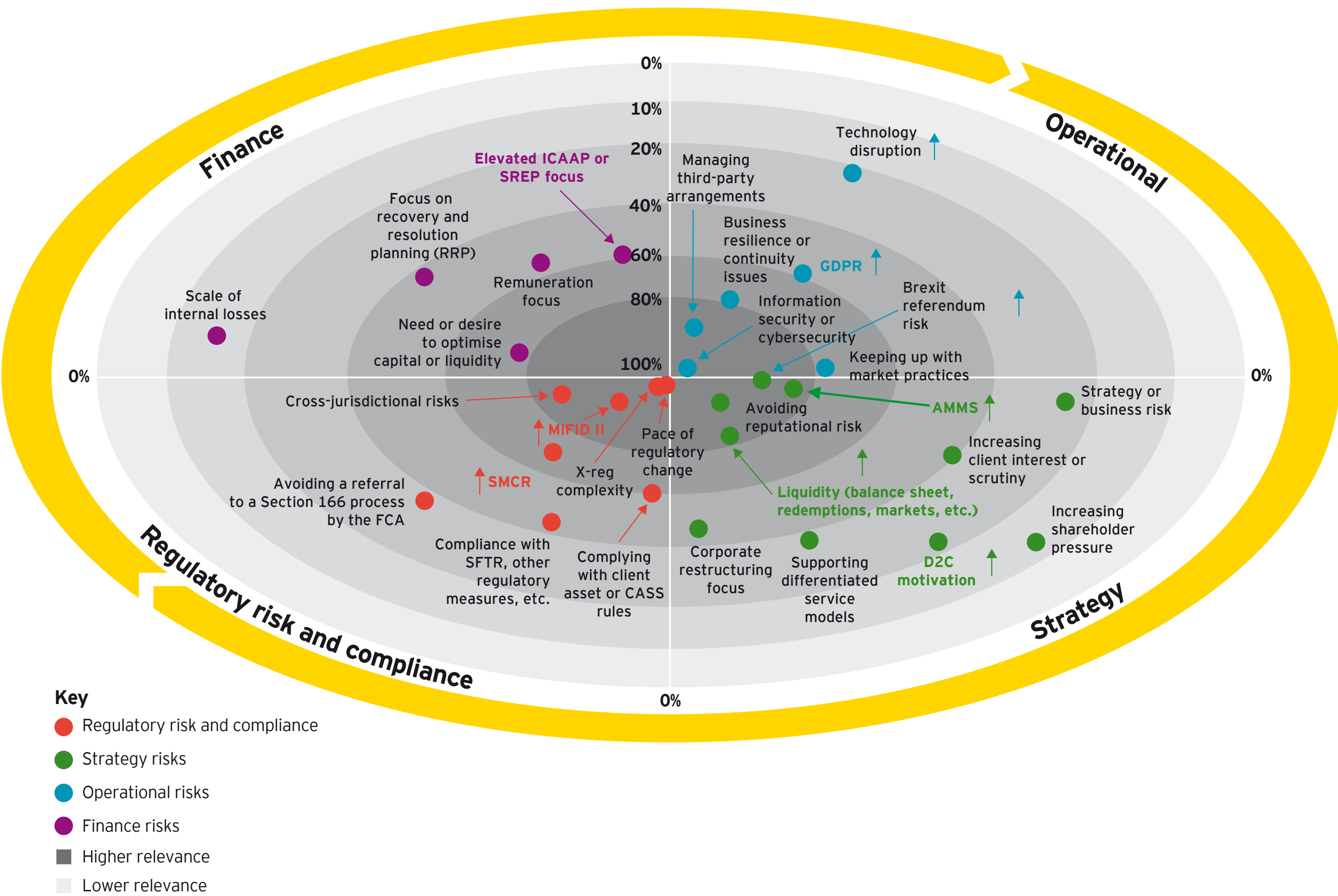
A central challenge for respondents in complying with GDPR, which comes into effect on 25 May 2018, was the large budget already allocated to MiFID II. Other issues included the greatly expanded scope of the regulation and difficulties in practical implementation – especially data flow mapping, the 'right to be forgotten' and the treatment of personal data consents.

Top motivators for a strong risk management function

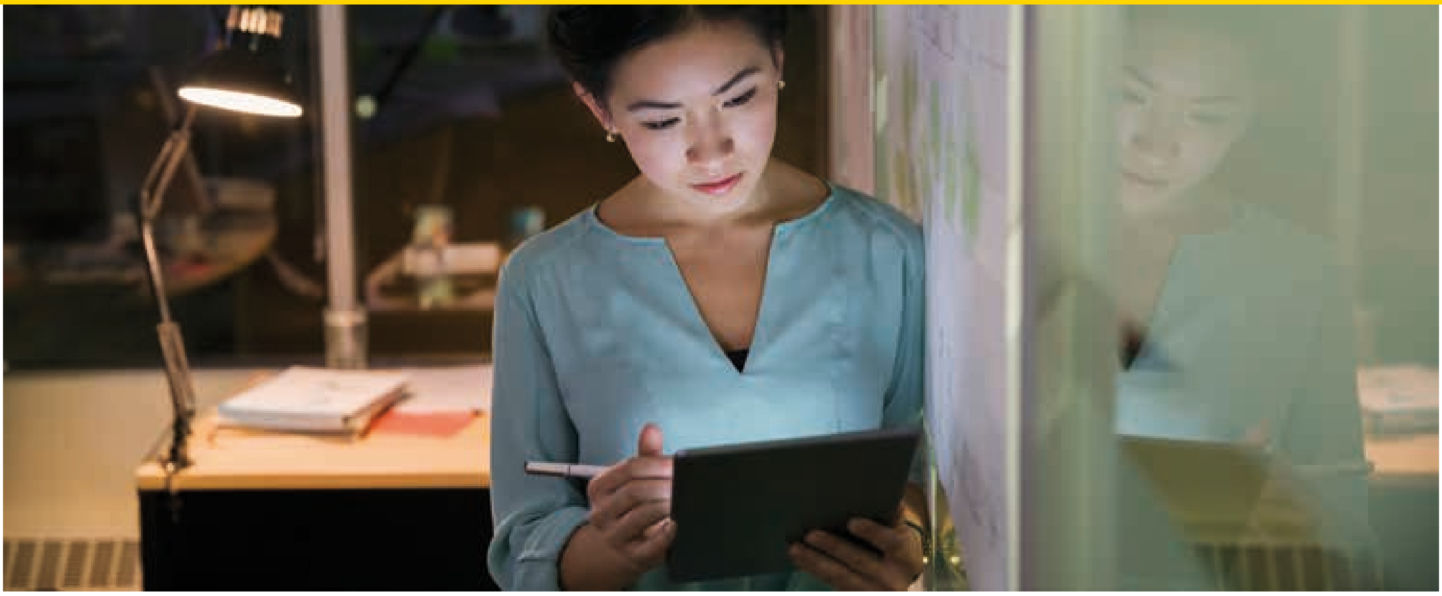
With the slew of pressures facing asset managers, it's no surprise that risk awareness was even higher among heads of risk and compliance. Several new risks made an appearance in this year's study:

- The need to manage legal risk – for example, arising from the extraterritorial impacts of regulations such as MiFID II – was more evident. So was the need to take account of different tax treatments both in the UK and elsewhere.

Figure 1 **What is the motivation for a strong risk management function in your firm?**



The FCA's Asset Management Market Study



The FCA's focus is on making competition work well in the UK's £8tr market (by assets under management (AUM) at the end of 2016) and ensuring that investment management firms deliver good investor outcomes with products that offer VfM. The FCA's Business Plan 2018/19 (pp38-40) stated the following sector priorities for investment management:

- Asset Management Market Study
- PRIIPs Regulation
- Liquidity strategy
- Strengthening governance
- Investment Firms Review
- Impact of passive investment
- Emphasis on outcome indicators

The FCA published its interim Asset Management Market Study in November 2016 and, after consultation with the industry, published its final report in June 2017, which then led to final rules published in April 2018. The aim of the report was to conclude consultations into areas such as risk-free box profits, costs and charges disclosures, and benchmarks and performance reporting by the end of last year.

The FCA proposed to have a single all-in fee detailing all costs that the investor would incur, including transaction costs. Furthermore, in CP17/18 3.25, the FCA mentions that it plans **"... to introduce a new rule to require the authorized fund manager (AFM) to assess whether value for money has been provided to fund investors. This assessment must take place on an ongoing basis and must be formally documented at least once a year ..."** The FCA proposes that this assessment be published by the AFM annually.

Key insights

- **Ninety-two percent** of respondents mentioned the need for requirements to align with the prescriptive approach to costs and charges expressed in Art. 50 of MiFID II (Regulation 2017/565) and Packaged Retail and Insurance based Investment Products (PRIIPs).
- **Eighty-nine percent** of respondents expressed concern at the lack of an industry benchmark (or scorecard) for VfM, that the process might be open to gaming, that regulators outside the UK were not likely to follow suit, or that investors might be wary of fund switching or investing in cheaper products for fear that they might lose out on performance.[1]
- Many firms expressed reservations at how the FCA would ensure that a minimum of two independent directors were represented on all AFM boards; **18%** of respondents (including all but one hedge fund) were concerned at the quality of supply of non-executive directors (NEDs).

Percentages correct as of the end of 2017.

[1] Advanced firms were evaluating how much active risk each portfolio manager was taking; looking at outcomes relative to the passive equivalent; subtracting the fees to see if the manager was taking enough risk relative to the mandate and risk appetite; flagging up funds and outcomes; and looking at the intent of the choices over a three- to five-year horizon look-back.

Figure 2 Key themes from the Asset Management Market Study

89% of respondents

Value for Money (VfM) for investors

- The FCA is consulting on proposals to help investors switch to better-value share classes by share class switching.
- It recommends that both industry and investor representatives agree a standardized template for costs and charges.

92% of respondents

Fees and charges

- The FCA proposes to introduce a single all-in fee.
- It proposes to include costs that would be required under MiFID II and PRIIPs – including transaction costs.
- It is considering consulting on rules so that performance fees should only be permitted above the fund's most ambitious target after ongoing fees.

Key themes

- Investor protection
- Asset manager competition
- Intermediary effectiveness

18% of respondents

Regulatory structure and impact on business models

- The FCA is aiming to improve governance by having a minimum of two independent directors on AFM boards.
- It is introducing VfM for investors as a distinct requirement for AFM boards under the proposed Senior Manager and Certification Regime (SM&CR) extension.

Brexit risk management

Most respondents understood the need to comply with EU directives post 29 March 2019, when the existing 'acquis' will be converted into British law or continue as part of a transition agreement to 31 December 2020. They also recognized that preparations for Brexit needed to take the following into account:

- **Strategic Plans** – what are the firm's strategic plans post-Brexit transition, and would the firm grow its UK business footprint post-Brexit?
- **Business** – MiFID II distribution, delegation rights and the status of Undertakings for Collective Investments in Transferable Securities (UCITS) Management Company remained relatively high priority from a regulatory point of view.
- **Operational continuity** – where are operations located? Can people move freely between sites? Will licensing arrangements be impacted? Can data still flow freely?
- **Ability to access markets** – would service delivery be allowed in the markets the firm currently operates in? If so, will terms change? Would clearing or settlement be impacted?
- **Regulatory equivalence** – what would the new regulatory framework of rules look like in the light of developments in the Hayes Report, and what about transition arrangements when applying for equivalency?
- **Capital and liquidity** – will the cost of capital change? Will credit ratings be impacted? How should foreign exchange (FX) exposures be managed? Will capital and liquidity still be fungible?
- **Customer impacts** – will the FI need to change the way it interacts with customers? Will customers' business reorganisations impact the FI? What about personal data?

With potentially less than a year to go until the UK is no longer part of the Single Market, the default approach for Asset Managers is to create or re-purpose EU entities to cover the required MiFID distribution and fund ManCo functions. However, contingency plans have often proposed the minimum substance required to be compliant, and firms have seen regulators ask for an increase in both the quantum and seniority of resource. Firms will also need to consider revising their strategy when and if there is confirmation of a transition period, as well as what future EU/UK market access agreement model might be available post Brexit, including any unilateral enhancing of the EU's current equivalence model.

Key insights

- Most firms were more focused on reading the macro political landscape than performing quantitative modelling of the likely impact of Brexit on geolocational considerations, impacts for the capital markets or impacts on innovation. Most modelling carried out was qualitative at this stage.
- The delegation of the portfolio manager function was mentioned by many respondents. Specific areas for concern were firms handling segregated accounts and how to handle large European Economic Area (EEA) corporate accounts from the UK.
- US-headquartered firms in particular were mindful of the need to deconstruct how their investors are best served – with regard to contractual arrangements, offering investment advice, performing portfolio management, receiving and transmitting orders, and ensuring best execution of those orders. These firms were the most advanced in looking at Brexit in extraterritorial legal, tax and regulatory terms.
- Fifty-three percent of firms were looking at employee visa and succession planning for EU27; many alluded to the competition for attracting and retaining talent post-Brexit, and the strong likelihood of skills shortages and poaching once the Brexit process reaches a zenith.

85% of firms were making preparation for Brexit a priority.

53% of firms had modelled the freedom of movement (FOM) and access to talent implications.

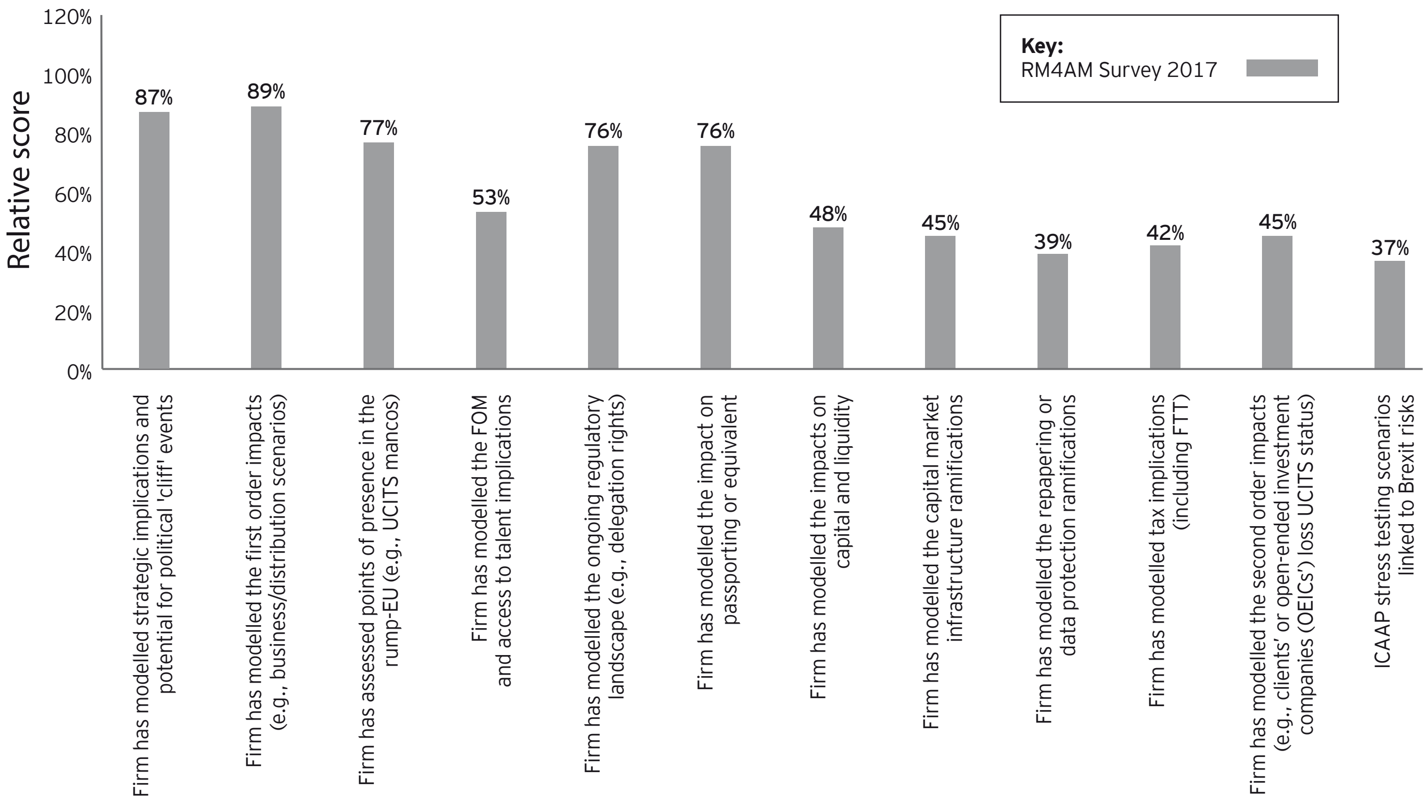
76% of firms were focusing on the ongoing regulatory landscape (e.g., delegation rights).

89% of respondents were concerned about the meaning of the term 'value for money' in the FCA's AMMS.

13 firms posted ICAAP/SREP ICG scores of more than 200%.

97% of respondents stated that liquidity risks were of concern to CROs; **43%** of firms used advanced techniques to model balance sheet liquidity risk with FCA market best practices in mind.

Figure 3 Respondents' views on risk management preparations for Brexit from March 2019



ICAAP/SREP considerations

The UK's ICAAP/SREP tests remained a 'top five' focus for firms going through the process in 2017. Firms fell into two categories:

1. Those working avidly to bring their scores down from the elevations seen during 2015–16 (with a couple succeeding).
2. Firms receiving a rude shock as ICG scores increased by 50% or even doubled unexpectedly, with at least a dozen firms recording off-the-scale ICG scores (i.e., more than 300).

There was an increase in the number of firms expecting this outcome see Figure 4. The FCA continued to probe the robustness of the risk culture, the risk appetite and the level of challenge around the OpR framework specifically, plus drilling down to examining liquidity risk, for example.

The FCA challenges covered various areas of interest – the proper articulation of the firm's risk appetite, the applicability and effectiveness of 'use' tests, and more quantitative questioning surrounding the assessments of market, credit and operational risk as line items. The latter should be modeled for stressed as well as normal markets. Respondents indicated how the FCA would focus not only on the robustness of the operational risk framework but also on core competencies of the CRO, CFO and their teams – the FCA wanted to see the ICAAP owned equally by finance and risk functions. The sense was that smaller firms were being reviewed thematically on longer cycles, with a handful applying a capital calculations based on 7 to 15 basis points of UK-administered AuM to calculate an upper limit.

Key insights

Firms told us that they were given higher than normal scores if they showed the following characteristics:

- Firms unable to 'tell their story' – i.e., their business, risks run, how they mitigated, use tests, how they capitalized, stressed markets, board engagement and risk scenarios devised by the business.
- Firms unable to demonstrate robust resilience and business continuity procedures around systemically important providers – e.g., insufficient management oversight, backup and standby arrangements or cyber protection against major cyber intrusions across an attack surface (this will be an area of sensitivity under GDPR in 2018).
- Firms unable to demonstrate robust risk governance (e.g., failure to minute meetings, to field a level of independent challenge or to identify possible conflicts of interest); firms failing to demonstrate a strong risk culture through effective risk appetite statements (supported by sufficient Key Risk Indicators (KRIs), use tests or proper briefs by the CFO and the finance team.
- Firms unable to demonstrate robustness around procedures for managing liquidity risk for investment funds (e.g., individual line items quantifying risks) and firms unable to demonstrate proper segregation procedures for client assets and client monies (e.g., with Client Assets Sourcebook (CASS) rules, EMIR or UCITS V in mind).
- Firms failing to provide evidence of devised risk assessments or key risk scenarios (KRSs) devised by the business, demonstrate involvement of the The First Line of Defence (1LoD) with the Risk and Control Self Assessment (RCSA) and future scenario workshops, or show effective use of the ICAAP in business decision-making.
- Firms failing to provide clear direction in OpR modelling (e.g., ensuring that limitations were clearly understood and communicated); failure to model effective 'combined scenario' events (e.g., dealing or corporate action error coupled with market downturn); failure to link loss events to risks effectively or pinpoint causalities; failure to model emerging risks driven by events, accelerating or deteriorating trends, or changes driven by projects and processes.

Figure 4 Comparison of recorded relative ICG uplifts (data drawn from 2014–17)

MiFID II and best execution

Given the MiFID II deadline of 3 January 2018, it was unsurprising that the front-office remained the prime area of risk and regulatory focus. Firms were exercised in terms of interpreting the MiFID II Art. 27 requirements to 'take all sufficient steps' when executing orders on behalf of clients (best execution), irrespective of whether dealing arrangements involved order or quote (RFQ) handling, telephone trading or 'lo-touch' channels to market. Both time-stamping (providing audit trails) and synchronisation of clocks were important upgrade features of MiFID II over prior MiFID I procedures. The key was demonstrating 'fit for purpose' to regulators and discriminating end investors alike.

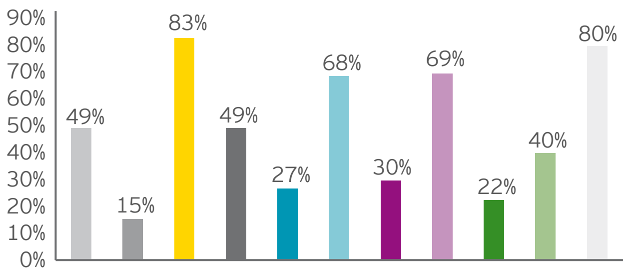
Most firms were active during the second half of 2017, upgrading best execution policies, desk procedures per each asset class (e.g., equities, fixed income, derivatives, money market instruments, collective investments or FX — see Figure 5) and the underlying data and workflows from the time-stamping the processing of orders, selection of particular trade execution venues.

Key insights

- All firms were expecting to revise their best execution policies and desk procedures, and the underlying workflows behind both, for hi- and lo-touch trading in order- and quote-driven markets. The more advanced firms were taking account of both time-sensitive trades in liquid and illiquid markets for more asset classes (including spot FX).
- Many firms were also struggling with how to provide evidence of broker selection to support execution decisioning, DAR Art. 65(6) top five execution venues, use of single venues and Algorithm or dark venue procedures.
- Attention to TCA procedures for non-equities (particularly FX) was a landmark story of last year, as was consolidating market data to ensure fair values (not just indications) and audit trail storage and retrievals – so was MiFID II RTS 25 (clock synchronisation) for the larger participants using multilateral trading facilities (MTFs) and intending to use organized trading facilities (OTFs) (plus systematic internalizers) to come during 2018.
- All firms were applying MiFID II DAR Art. 50 costs and charges to execution (including implied costs derived from PRIIPs) was not popular; nor was the lack of clarity in trying to specify charges ex ante in a consolidated and illustrative manner.
- All firms were looking to upgrade their front-office control procedures following the FCA's Thematic Review 2014/13 (TR14/13), especially for non-EQ type instruments. Areas of focus included trade surveillance, front-office controls (e.g., pre-trade warnings, post-trade reviews, checks for cancelled or amended trades and late trade allocation fairness), paying for research, segregations of duty, portfolio manager controls, insider lists and ID checks for third-country bookings.
- There were improvements to certain procedures (e.g., discussion of using FIX tags 29, 30 and 851 to clarify execution statuses). However, many firms reported confusion in treating Smart Order Router (SOR) vs. Automated Order Router (AOR) and defining algos vs. direct electronic access (DEA); there were important country differences to note (e.g., Circular 6/2013 in Germany). Applying clock-sync measures also remained a challenge, as many firms were not sure of their member or participant status when using a MTF (thereby triggering a 1mS granularity).

Figure 5 **MiFID II investor protection challenges and expectations concerning best execution (BestEx)**

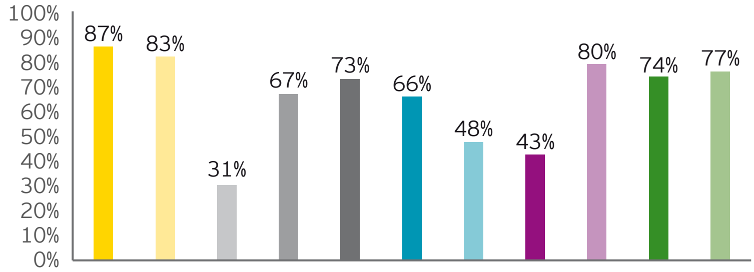
Challenges



Key:

- Non-centralised dealing desk in existence?
- BestEx for EQ-like products?
- BestEx for FI-like products?
- BestEx for FX-like products?
- FIX standards to enable broker to specify status?
- Operating hi-touch (telephone) trading?
- Operating with SOR and algos)?
- Changes to business models e.g. linking to new MTFs/OTFs/SIs
- Applying clock synch measures per Regulatory Technical Standard 25 (RTS 25)?
- Extra-territorial (ET) assessments – equivalence arrangements?
- Applying costs and charges (and pricing of the same)?

Expectations



Key:

- Revising desk procedures (all asset classes)?
- Revising factors and factor weights (all asset classes)?
- Handling client-specific instructions (all asset classes)?
- Supplying broker classification and selection factors (all asset classes)?
- Supplying top five execution venue requests (all asset classes)?
- Specifying circumstances and criteria per single venue (all asset classes)?
- Restrictions placed on operation of dark pools?
- Revising algos (all asset classes)?
- Monitoring Transaction Cost Analysis (TCA) assessments (all asset classes)? L763
- Consolidating market data for comparability (all asset classes)?
- Telephone tape audit trails and Record-keeping (RK)?

MiFID II and research

MiFID II requires asset managers to understand the pricing of research provided by third-parties in all its components (including services such as access, polling and any use of expert networks or detailed analytics). Firms need to justify why those research costs are value-enhancing to the client (e.g., original thought, intellectual rigour and meaningful conclusions). They are also required to upgrade administration systems to allocate budgets by funds or by each client, to provide pre- and post-spend research information to clients at year-end.

Following several high-profile announcements from US-headquartered firms during August to September 2017, the clear direction of travel among the larger passive and active firms was to pay for research from the PnL (pay hard). Equally, the trend among the smaller active European firms, including many hedge fund managers, was to opt for the RPA approach on economic grounds and employ an RPA administrator to help manage the flows.

- **Pay hard** — this is establishing the appropriate account and administration arrangements and paying from the firm's bottom line accordingly. This suited firms with a highly focused investment strategy (e.g., passive), firms running segregated mandates or firms concerned about the direction of travel of holding client money. Firms going down this route were also comfortable with the direction of travel of the FCA's AMMS, with some commenting that end investors were reluctant to pay for research as they did not see the value.
- **RPA for each client** — firms going down this route often coupled with research service administrators offering functionality to monitor commission flows, reconcile data flows, manage the invoicing of research provision or facilitate payment processing.
- The European Securities and Markets Authority (ESMA) Q&A Q8 and Q9 of ESMA Q&A 35-43-349 clarified the position regarding non-equity research provision, including the treatment of market colour, sentiment, sales notes and 'free' research. Questions remained on how to treat research costs and charges.

Key insights

- There were concerns raised about the supply of full waterfront coverage by sell-side firms, particularly in specialist areas such as small-cap equities or specialist fixed income provisions. The general consensus was that one (or potentially two) in every seven sell-side firms would retract coverage or even withdraw from the market; the concern was that the net amount of budget provisioned for research could shrink by 10% to 30% overall.
- There were concerns about the differential treatments across EU Member States – mixed in the UK under PS17/14; pay hard in Netherlands, Denmark, Sweden and increasingly Italy; going Research Payment Account (RPA) in France mixed in Germany (focusing on Quality Enhancement Tests (QETs)). The VAT treatment for research service provision (whether VAT-exempt or 'narrowly construed test') was important for UK firms considering the options for recoverability.
- There were concerns raised regarding the extraterritorial scope of MiFID II as applied to third countries (e.g., in US with Securities Exchange Act (SEC) Section 28(e) and countries such as Singapore).

49% of firms expressed unease at evidencing best execution for FX products.

68% of firms expect to experience challenges evidencing best execution for voice trading.

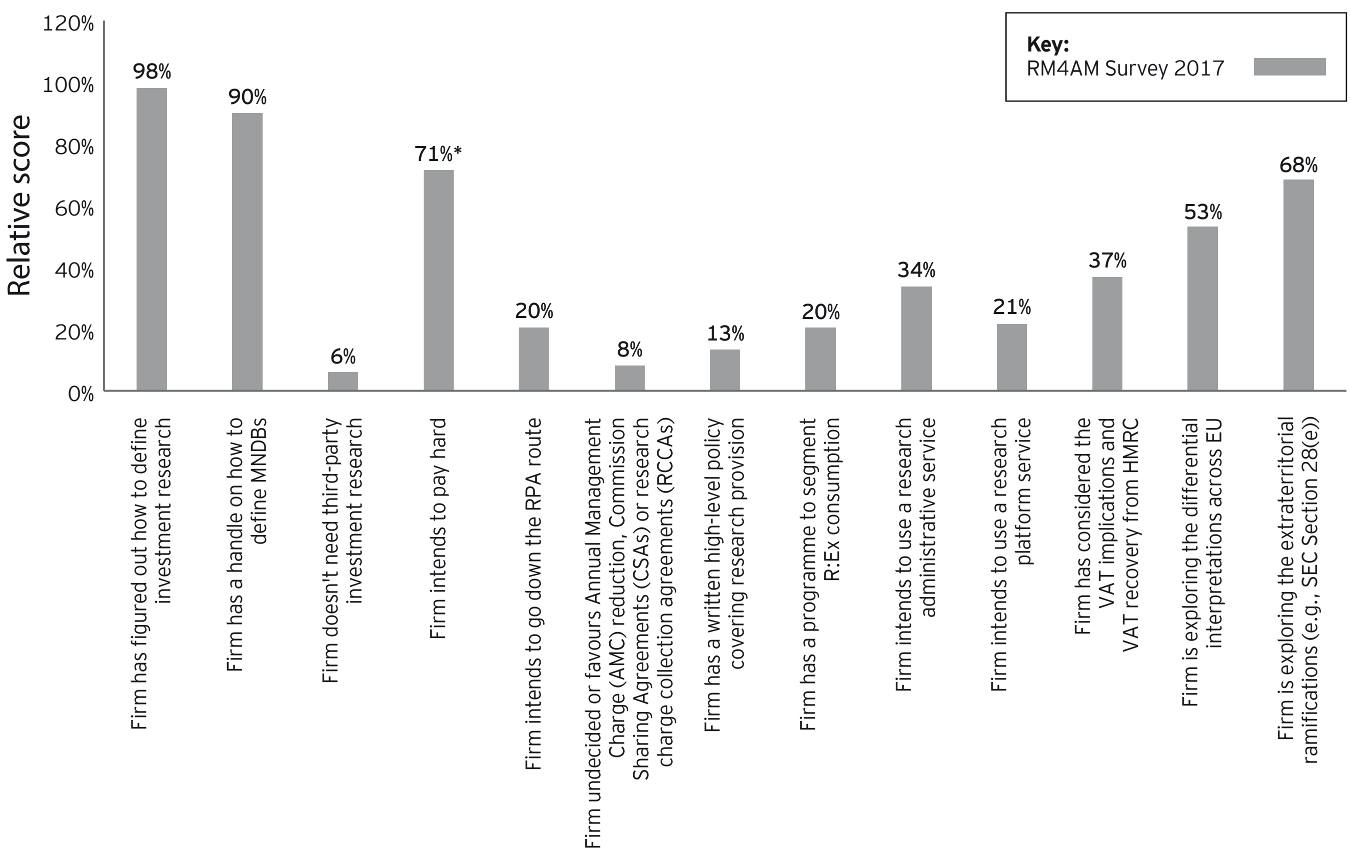
80% of firms expect to experience challenges when applying the costs and charges measures to best execution.

71%* of firms indicated a pay hard research model as a likely direction of travel under MiFID II.

37% of firms are focused on the VAT implications for research.

*71% was correct at the time of writing; the model is predominantly "pay hard" as of April 2018

Figure 6 **Focus on MiFID II investor protection measures concerning research**



MAR and surveillance considerations

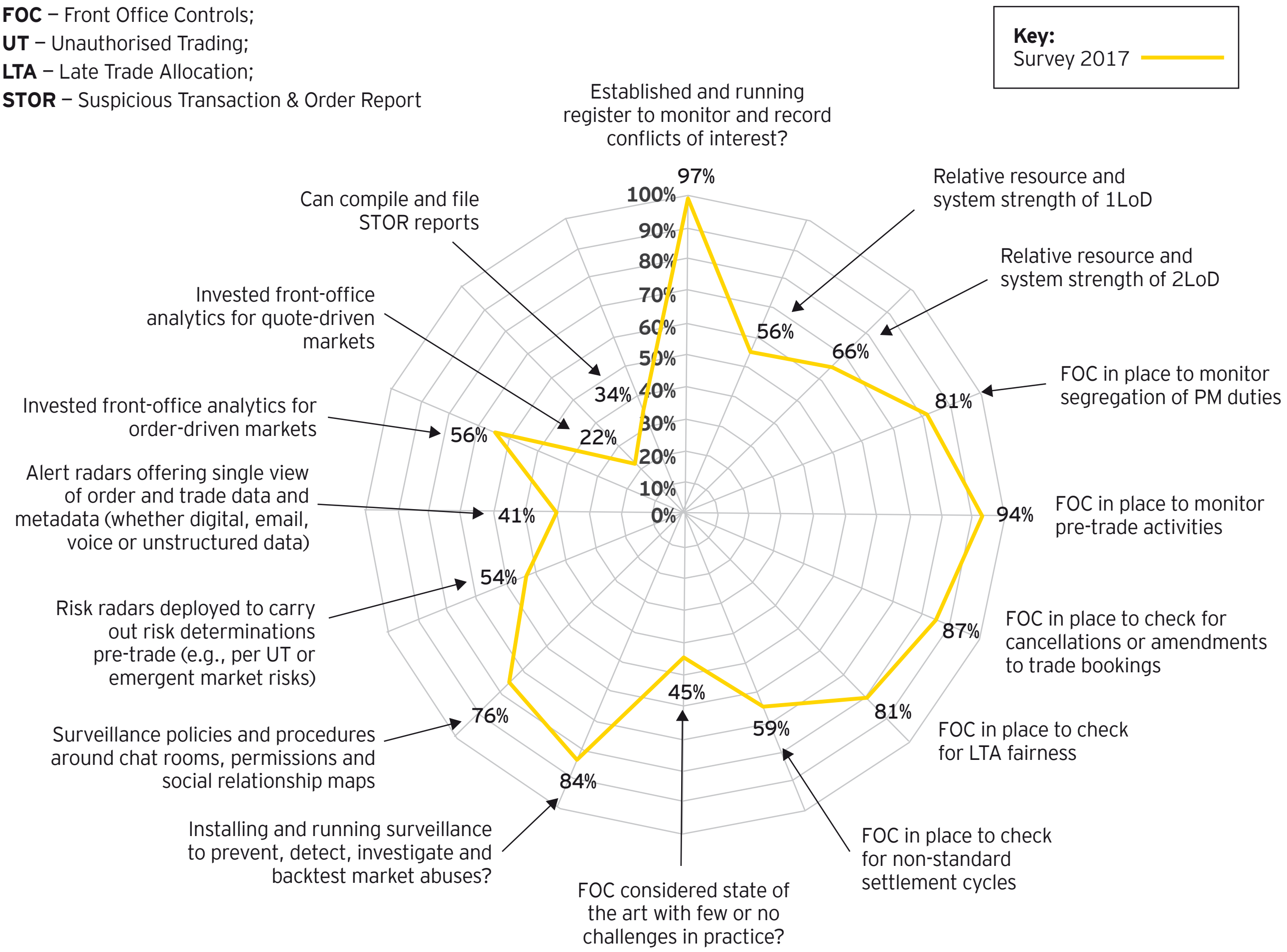
Given that the MAR took effect on 3 July 2016, there was an unsurprisingly strong focus on market abuse prevention (MAR Annex 1) . The requirements under MAR include investment recommendations, cross-market order surveillance, buy-back programs or stabilisation, market manipulation, insider lists, public disclosures and confidentiality, suspicious transaction and order reporting (STOR), automated and proactive surveillance, and detection and monitoring. The general pattern was for asset managers to revisit their GRC focal points, spanning broker selection, order management and execution, portfolio management, position performance, insider and personal trading, and financial crime prevention procedures.

Key insights

- Front-office controls were a particular regulatory focus, with the regulator taking a keen interest in the balance and effectiveness of controls in both the 1LoD and the 2LoD – independent 2LoD surveillance is a requirement per the FCA's *Market Watch* (issue 50) newsletter.
- There was a plethora of solutions to help firms manage surveillance, offered by nearly **50 vendors**; some firms had several packages, and not all were integrated.
- The majority of firms were experiencing challenges with FOC for certain asset classes, such as fixed income (unless the volumes of trading were small). Many respondents expected regulatory scrutiny to intensify during 2018, with particular focus around segregation of duties, unauthorized trading and best execution evidencing.
- More firms invested in front-office analytics procedures for order-driven markets compared with RFQ markets; the same was true for TCA arrangements (with the exception of FX).
- Firms were also struggling with anticipating STOR procedures at the order (pre-trade/RFQ) stage and the use of tools to monitor and track behaviours (particularly for voice trades).

Figure 7 **Focus on MAR readiness and surveillance tools**

FOC – Front Office Controls;
UT – Unauthorised Trading;
LTA – Late Trade Allocation;
STOR – Suspicious Transaction & Order Report



Changes to third-party systems

2017 saw wider use of OMSs in the wake of concerns surrounding readiness for MiFID II, plus a significant expansion in the usage of both surveillance and TCA systems arising from:

- A specific focus on surveillance systems due to the need to support firms complying with MAR.[4]
- An expansion in the use of TCA tools, particularly for non-equities, partly due to the need to support firms complying with MiFID II's best execution measures.

Key insights

- The use of surveillance systems was a significant feature following MAR taking effect – systems such as Actimize, BTCA, Cluster 7 , GLASS, PTA, Rapptr, Risk Control, Smarsh, SMARTS, Star, Sybenetix and TradingHub (MAST) were mentioned in addition to the OMS and risk system vendors listed above. It was not uncommon to see multiple monitoring and surveillance systems used in the same firm – systems integration and the need to rationalize suppliers was a challenge for many.
- Usage of TCA was most mature to examine order reversion for equities (implicit costs, e.g., market impact and opportunity costs) and, to some degree, spot FX. Usage of TCA was least mature in the case of fixed income and illiquid asset classes, such as some OTC-traded derivatives.
- Usage of TCA was nascent in addressing price evidencing and analysis per the various categories of fixed income – especially non-investment grade corporate debt, high-yield debt or emerging market debt – and unquoted securities.
- Several new TCA entrants appeared in the FX and FXF space, such as (in alphabetical order) BestX (QSI); FX Transparency; Global Trade Analytics; Klarity FX; LiquidMetrix; and New Change FX.

In light of MiFID II, we saw the rapid uptake of authorized reporting mechanisms (ARMs) and approved publication arrangements (APAs) to handle transaction and trade reporting:

- **ARMs:** UnaVista remained the system considered by the majority of participants **(74%)**, with Trax also in the running with **18%** of recorded share.
- **APAs:** the story was somewhat more fragmented and tentative pending announcements of SIs. At the time of writing, Trax and TRADEcho were being mentioned by **57%** and **27%** of respondents respectively, with Tradeweb and BATS in the running as well.

US$8M-US$12M is the average cost for a mid- to large-sized asset manager designing and implementing solutions in readiness for MiFID II.

~10 vendor packages at least are being used on average per firm.

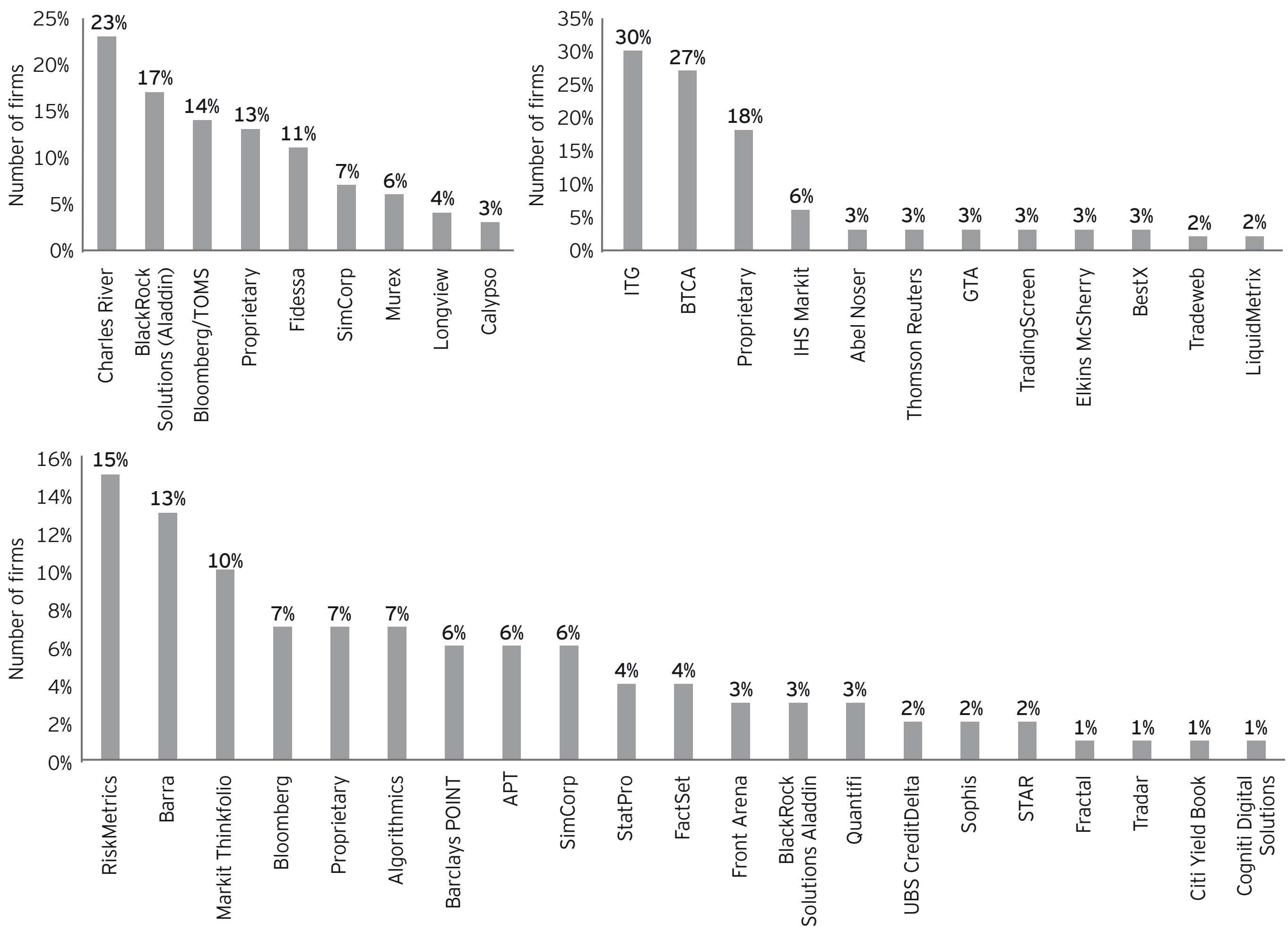
34% of firms plan to use a research administration or platform aggregation service.

80% of firms expect to upgrade TCA packages and controls post-MiFID II.

22% of firms had invested in front-office analytics solutions for quote-driven markets.

74% and 57% are the market shares of the top providers of ARM and APA reporting solutions respectively.

Figure 8 **Usage of OMS, TCA and risk systems in 2017**



Changes to managing data

As more firms embrace digitalisation, several are shifting their focus to integrating big data lakes and analytics, data visualisation and surveillance tools, and exploring AI. Areas of significant development included a notable increase in firms developing their reference data taxonomies and their data lake capabilities. Both showed large increases over the previous year.

The prevention of cybercrime was also a universal theme in the wake of several high-profile cyber attacks. Some firms had installed preventative cybersecurity measures, such as:

- An emergency committee approach involving senior members of staff, focusing on 'protect', 'detect' and 'respond' (not all risk departments have FTEs competent in this field)
- Examining likely points of entry on attack surface, e.g., BYOD, social media or cloud computing (paying attention to regulatory developments, e.g., FCA's FG16/5, dead-boxes and directors' emails)
- New areas for focus include CNA/CNE (affecting finance, media and energy companies), malware on mobiles, ransomware, whale-phishing (not just spear-phishing). Cryptocurrency, smart contracts and bio-data are all areas of current focus

[4] (1) MAR L1 Art. 16 and ESMA 2015_1455 §6.4 Prevention/detection of market abuse requirements ' ... using software capable of deferred automated reading, replaying and analysis of order book data on an ex post basis'.

Key insights

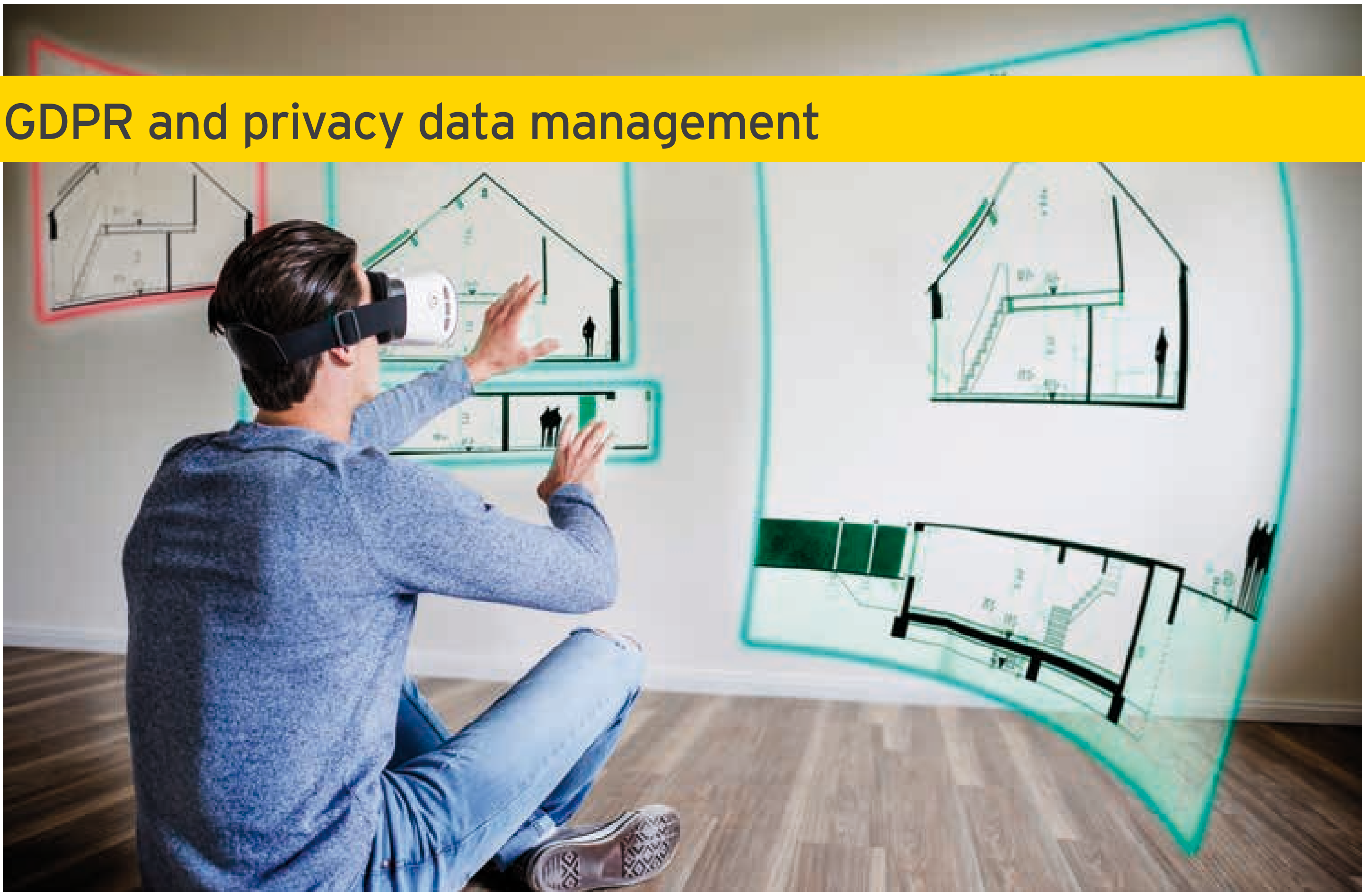
- There were big data challenges associated with current data processing requirements to comply with regulations such as MiFIR, EMIR, MAR and SFTR, given the extensive transaction reporting data load from each measure.[5]
- **Fifty-four percent** of respondents could point to use of big data facilities such as warehouses maintained by the parent or third-parties – a significant improvement compared with 2016. Firms with access to data lakes enjoyed considerable future flexibility compared with competitors struggling to acquire (and maintain) large stores of data in-house on an ad hoc basis.
- Finally, there was an overwhelming awareness among CROs that monitoring, managing and maintaining data security (including 'golden copy' records for audit trail purposes) remained critical. Inconsistent or insufficiently attributable data governance lagged as an area of focus, despite the requirements to come when GDPR takes effect on 25 May 2018.
- There will be a need for robust GRC oversight when managing the risks associated with digital or CRM, robotics or robo-advice tools, or future technologies such as AI or smart contracts, DLT and blockchain.

Figure 9 **Summary of feedback concerning systems, controls, reporting and data issues**

ERM – Enterprise Risk Management
ST – Stress Testing
RST – Reverse Stress Testing
CDO – Chief Data Officer

[5] MiFIR requires 65 data fields to be recorded for transaction reporting (with many more needed for client, trade and best execution reporting). EMIR requires 85 data fields to be recorded. SFTR requires 153 fields (covering counterparty, transaction and collateral reporting). And MAR Annex XI STOR reporting requires more than 60 data components to be captured.

GDPR and privacy data management



Data security – whether defending the firm from cyber attacks and cybercrime, maintaining the integrity of data lakes and data warehouses, or complying with the new GDPR, or Data Protection Act (DPA) in the UK – was rightfully cited as a focus by **97%** of respondents. A central challenge identified by our clients in relation to the implementation of GDPR consisted of how to set budgets for GDPR programs, given that the majority of respondents were already allocating large significant resources to MiFID II. There was also a lack of industry consensus on the 'right to be forgotten' (administered by the European Court of Justice) and how to treat requests for data portability.

Respondents complained that the scope of GDPR (Regulation 2016/679) was greatly expanded over the prior Data Protection Regulation 95/46/EC – and included derived data and IP addresses. Most firms were busy setting a clear vision and identifying the home for data protection (plus the DPO role within their firms), with the leading firms creating a 'culture of data protection' and formalising a central design authority. Questions remained as to whether the FCA might designate the DPO as a control function next year.

Preparations included: 1) performing audits of processing records – mapping through legacy IT systems and processes; and 2) managing marketing communications (including the use of customer profiling) to ensure that consents could be expressed as opt in vs. opt out – i.e., not tick-box or implied consent.

Key insights

- Some firms located the data protection office under legal; others located it under the COO (information security), the CTO, the CRO or even HR. In some cases, the head of data will report to the COO with a dotted line to the group CDO. In other cases, the DPO will report to the CRO with the data office managed by the head of data (CDO). Current arrangements are fluid.
- The five main areas of difficulty in implementation were: 1) Personal data flow mapping; 2) The Data Privacy Risk and Control Framework; 3) Collecting and maintaining records of consent*; 4) Data privacy notifications; and 5) Managing retention and individual's rights. Records of consent were an area of specific challenge.
- Most respondents were unaware of their client, employee, supplier and other data flows, and had launched ambitious data flow mapping initiatives to assess the privacy impact, data locations, requirements for reporting under GDPR and treatments for unstructured data.
- Most data environments did not yet support GDPR's requirements around the right to be forgotten, data portability and data retention. In particular, many organisations struggle with supporting the right to be forgotten, due to the complexity and wide distribution of data across different databases, backups, etc.
- Respondents were struggling to handle the treatment of personal data consents, which must be demonstrable, distinguishable and withdrawable.

65% of participants use a data taxonomy or data field dictionary to manage reference data.

55% of firms have a designated CDO, and **54%** of respondents mention the existence of a data warehouse (or data lake facilities) within the group structure.

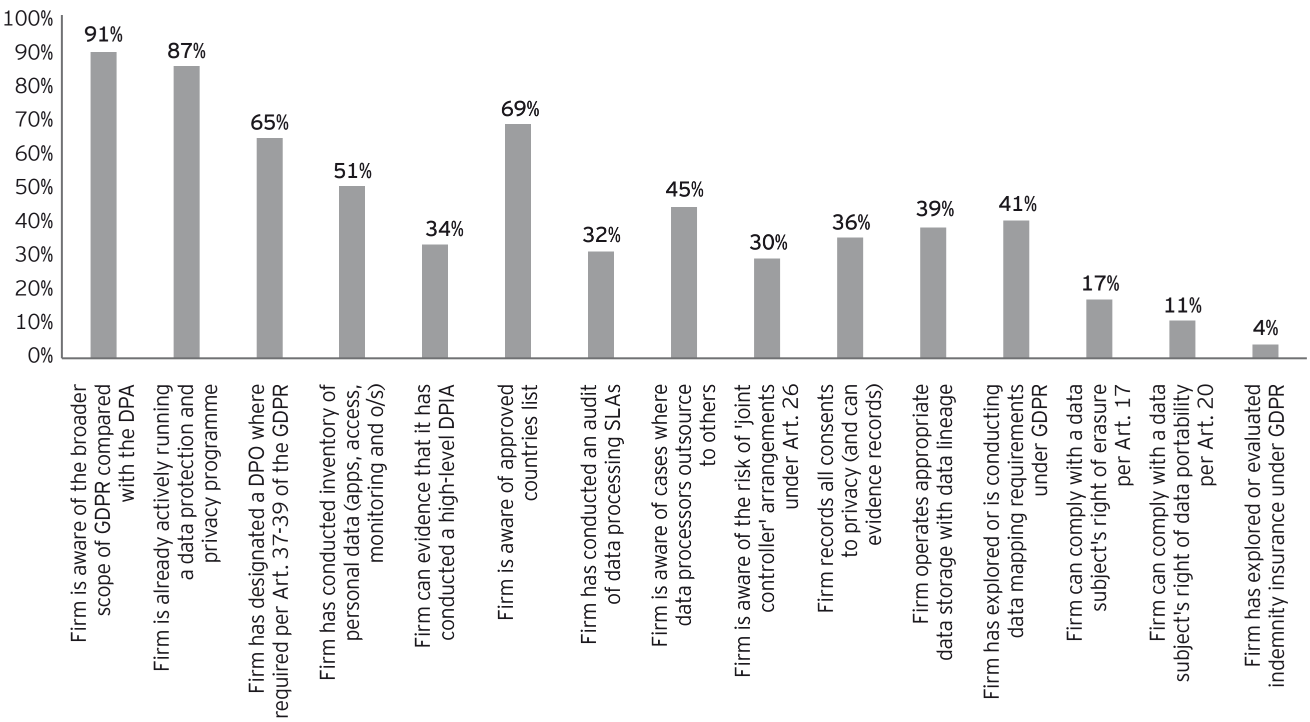
65% of firms had designated a DPO where required per Art. 37-39 of the GDPR.

51% of firms had conducted an inventory of personal data, and only **32%** had conducted an audit of data processing SLAs.

36% of firms recorded all records of consent to privacy (and could evidence them).

17% of firms' GDPR programs had considered how to treat a data subject's right of erasure.

Figure 10 **Respondents' views with respect to GDPR readiness and privacy risk management as of the end of last year**

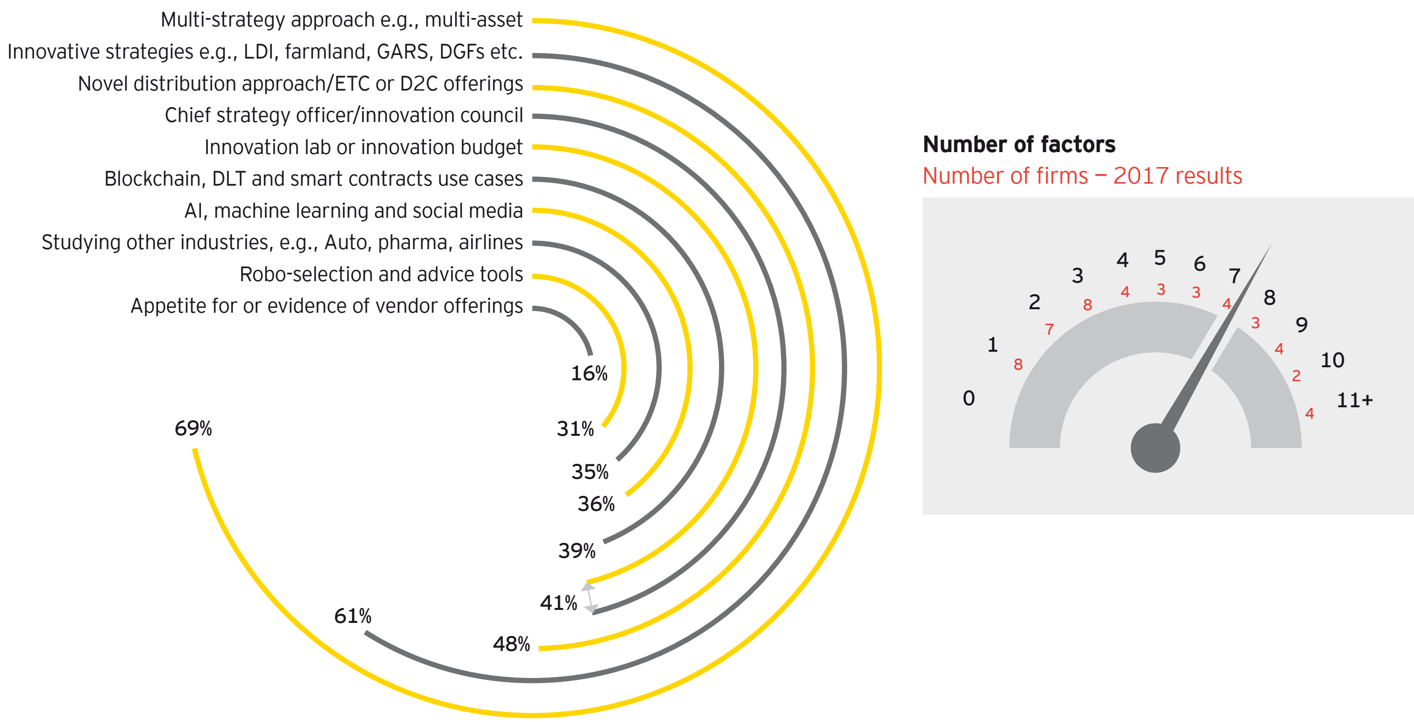


Managing innovation risk

The FCA's mandate is to promote innovation by encouraging firms to use technology to help them better manage regulatory requirements. In addition, this will help the regulator fulfil its primary objectives of ensuring market integrity, protecting end investors and promoting effective competition in the industry. FinTech solutions will also support firms in developing advanced data analytics capabilities (including scenario analytics, trend and horizon scanning), which the FCA considers as important tools to improve the quality of information and insights. Innovative technologies can also help CROs to identify risks, analyse data, generate reports and help standardize compliance procedures for CCOs, thereby having a positive impact on business performance by driving down costs.

It was little surprise that firms were showing a broad spectrum of behaviour when it came to innovation. While the majority of respondents in the survey were pursuing a multi-strategy approach (e.g., operating multi-asset investment style models or innovative strategies, or playing catch-up by offering their own LDI or GARS variants), fewer firms were setting aside an innovation budget or establishing labs to test potential proofs of concept or service offerings. **Forty-one percent** of respondents were recorded as having established their innovation labs this year and **Sixty-one percent** were reported as pursuing their own innovation strategies, leveraging potential models often borrowed from other industries.

Figure 11 **Managing innovation risk**



The promise of mass digitalisation, the sharing economy and near-zero marginal costs was catalysing a bow wave of FinTech start-ups featuring AI and algorithms to support asset selection patterns, disruptive paradigms such as robo-selection tools or the use of DLTs such as blockchain. Last year, several respondents commented that the global level of investment in FinTech signalled the arrival of technical disruptors such as 'challenger apps' starting to move into asset manager domains. If last year proved to be the year when many firms developed use cases and proofs of concept while waiting for regulators to catch up (and offer concrete guidance of the permissibility of the new technologies), this year signalled that regulatory bodies such as OICV-IOSCO, ESMA, ECB, and individual regulators such as the FCA, CFTC and the MAS.

Firms were keen to attain improved operational leverage by using FinTech solutions, but there were important practicalities to address, such as the need for solid business cases (taking account of incubation and migration strategies) and the need to manage cultural disparities (BAU culture with its need for immediacy vs. risk-taking, start-up cultures). Typical start-up or scale-up firms were keener on disintermediating incumbent financial services firms using break-out technologies to circumvent or replace existing infrastructure, operating to generate multiple revenue streams including store-front advertising, viral marketing and monetisation of data.

There were three areas that were becoming distinct in last year's survey in terms of asset managers re-imagining their business and operating models:

Use of Artificial Intelligence (AI) and algorithms

Background

There was growing interest in studying the use of robotics[6] in other industries, such as auto, airline or pharmaceutical. Some of the leading US-headquartered firms were expressing interest during 2017 in leveraging data lakes and data warehouses, implementing machine learning systems across their investment decisioning teams. These firms have hired data scientists and enjoy working with several FinTech firms to develop algorithmic tools for gaining investment insights, such as amalgamating uncorrelated sources of pure alpha (as opposed to disguising β).

Further downstream, asset manager captives were already versed in using such algorithmic techniques to automate front-office processes, improve processing efficiencies and facilitate cross-asset class dealing. For example, lo-touch trading algorithms had been deployed in the capital market industry since at least 2000 to route and execute orders according to predetermined logical routines. The experience of executing strategies such as those based on primary VWAP, TWAP, implementation shortfall and IVOL participation algorithms for equities was giving way to new techniques such as market-making inventory, observational and cash ladder algorithms for FX that were capable of outperforming irrational dealers who might otherwise be inclined to overcompensate, be risk-averse or be prone to over-rely on index benchmarks.

Benefits

- **AI and machine learning** – this can help firms employ past performance and attribution data to glean insights that can be used to improve individual managers' future performance, including being able to analyse managers' behavioural patterns of portfolio managers, thus anticipating any future decisions a manager might take.
- **Execution** – algorithms can automate trading processes to locate liquidity according to predefined parameters, or to aggregate, prioritize, slice, peg or dynamically scale orders at normal or high-frequency trading speeds in order to mitigate the effects of market impact or opportunity costs. RPA processes can ping or otherwise test the degree of liquidity in the market, or can look up the most up-to-date indications and prices and then route the transactions for hi- or lo-touch (platform) execution options accordingly.
- **Reporting** – robotic solutions can log into systems to capture information from multiple sources to produce tailored reports; they can then build the reports required and send these to clients. They can also run checks to ensure that all market, reference or metadata elements are described in the appropriate ISO formats and produce custom execution, trade or transaction reports on demand.

Downsides

- Intelligent algorithms feature safeguards, deal flow constraints, market volatility constraints, cash into and out of the security, and maximum or minimum reward thresholds per investor risk appetite.
- The very high speed of execution (shoot first, query later) can be destructive if the executing algorithm has no sense of context or overall market sentiment, as proven historically with quant-only investment styles.
- While algorithms can make use of RPA for gathering data (analytics) to highlight exceptions automatically, the efficiency of the monitoring and validation checks depends on the accuracy of the source data and the quality of workflows powering the algorithm(s).

[6] Robotics – the use of software to emulate repetitive human tasks, thus enabling organisations to automate high-volume and complex data-handling actions. This enables firms to reduce costs while improving service levels, enhancing data quality and reducing risk.

Self-driving funds, robo-advisers and robo-selection

Background

Thirty-one percent of respondents (including several bank-owned captive and independent asset and wealth managers offering B2C models) were interested in providing robo-advice style services[7] (in the form of direct digital, self-service investing solutions or guided advice). Notably, there were several global and European banks who offered solutions across these domains during 2016-17. Additionally, a number of independent asset managers were also contemplating bringing solutions to market during 2017. In addition, thematic funds investing in robotics were attracting the interest of fund selectors, with reports circulating that some firms had launched sector-specific funds.

Benefits

- There are currently over 350 providers of robo-selection, robo-advice or robo-software tools globally. Asset and wealth manager looking to provide D2C services were targeting both mass-affluent and affluent segments and the millennial demographic specifically.
- Typical functionality includes asset allocation, managed accounts and re-balancing, although there is talk of financial planning, tax planning, tax loss harvesting and even real estate planning in the longer term.
- Robo-software tools are inherently scalable and, given that both inputs and outputs are digitized, the incremental costs to produce value-adds, custom reports or reconfigurations is close to zero.
- Investment products include the range of ETFs, although some providers are keen to expand deeper into transferable securities such as stocks and bonds, mutual funds and even AIFs.
- The key differentiating factors for robo-providers are the promise of lower fees (and fee transparency), the brand value and, therefore, the relative quality of advice that investors might be inclined to trust.

Downsides

- IOSCO warned in its report on FinTech, issued in February 2017, that the algorithms powering robo-advisers and other online investment platforms may not be fit for purpose, commenting that robo-algorithms were likely to cause unintended consequences for clients due to inadequate design and planning.
- IOSCO cautioned that robo-advisers were in danger of making investment decisions that may not be in the client's best interest and warned that the algorithms may contain errors that could lead to the systematic mis-selling of investments.
- There are also significant legal and regulatory uncertainties surrounding the treatment of 'guidance' and whether it conforms to the formalized regulatory definition of investment advice or recommendations as specified in Art. 4(1)(4) of MiFID II or Art. 3(1)(35) of MAR respectively. The FCA set up an Advice Hub to review these matters.

[7] Robo-advisers are tools that provide online, automated, algorithm or decision tree based guidance and advice to investors or to financial advisers, either with or without a degree of human intervention. Tools provided to the former could be:
1. Fully automated (e.g., allocation services)
2. Adviser-assisted – automated advice with a digital financial adviser facility for those who require bespoke assistance (provision of digital tools to support customers to identify, scope and create wealth advice and guidance, typically in relation to a specific need such as life insurance or retirement planning)
3. Guidance tools where no recommendation is involved (where an individual subscribes to wealth guidance and advice that will be provided and implemented without the customer's explicit consent, such as managed accounts)

Tools provided for the latter could allow financial institutions to offer automated financial advice to their customers across investment (e.g., recommendations for individual securities or a customized portfolio) or tools that assist financial advisers to assess customer risk tolerance or portfolio risk

(Mutual) Distributed Ledger Technology (DLT)[8]/blockchain

Background

The thought leaders in the survey were exploring new sources of value while mindful of the roles performed by other ecosystem participants – particularly investment banks and asset servicers, and especially exchanges – and the potential for 'agitation' or 'disruption'. **Examples of 'hot' use cases consisted of automating transfer agency flows, global funds distribution, illiquid assets (such as syndicated loans), regulatory reporting and facilitating private markets.**

Several respondents commented on how their firm was collaborating with industry bodies such as The Investment Association to facilitate tax transfers or ISDA to develop **smart contracts** (which could be used to encode business logic into workflows, allowing transactions to be self-executing and irrevocable). Many respondents were also aware of cryptocurrencies such as Bitcoin, Ripple, Ethereum, Litecoin and Dash, and the direction of travel of competent authorities such as the SEC and MAS towards regulating Initial Coin Offerings (ICOs) as securities. While **37%** of respondents also mentioned an interest in DLT (or indicated that they or their parent firm was working on prototypes to demonstrate use cases or proofs of concept), there was also a greater level of comparative scepticism.

Benefits

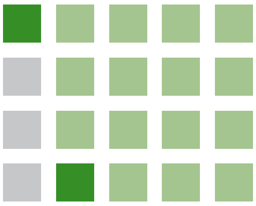
- Technology companies, market infrastructure providers and sell-side firms are attracted to blockchain because it could reduce costs, enable real-time transactions and improve data quality.
- The use of DLT or blockchain allows for greater efficiencies of post-trade transaction processing with the ability to track transfers of ownership of digital assets, thus ensuring payment or settlement finality. This in turn appeals to leading regulators keen to 'track and trace' the life cycle of any transaction for forensic purposes.
- If DLT is used to record the ownership of assets, it could become a 'golden copy' (single source of truth, able to be evidenced centrally) for financial transactions or customer data, hence reducing the need for unnecessary data reconciliations and data error handling.
- DLT augments existing processes. Asset managers and, in particular, ETF providers might find the ability to 'trade anything, on demand' value-enhancing, with higher processing speeds and efficiencies across the value chain (e.g., from execution to custody).
- The efficiencies of communication are richer, resulting in greater levels of accuracy, which can reduce the costs associated with labour-intensive contracting and documentation management, and minimize the potential for errors, thus reducing operational risks.
- Settlement can be made automatic, conditional, irrevocably final and auto-reconciled (in situ DvP). DLT can also record 'performance history'; ability for the ledger to present its own signature 'golden record' audit trail.

Downsides

- DLT or blockchain is not a panacea; it has the potential to disrupt existing business models and any benefits could materialize over a 2-5 year timeframe for solutions to reach full production. Augmentation has a greater chance of success than displacement.
- DLT might reduce or eliminate counterparty and credit risk, but the operational risk would be significant. Recovery and resolution bodies for DLT-based market infrastructures are needed to manage failure(s).
- Standards, protocols and market best practices are multiple and competitive, and many of the solutions are being developed as hypothetical use cases without the operational process, risk systems or compliance experience to underpin them.
- Identities may be intercepted, spoofed or cloned, with yet-to-be-determined risks from malware inserted into blockchain sequences.
- Not all regulators and central banks are convinced that DLT is the right way to go. Regulatory arbitrage is a risk, because some regulators are unconvinced or even unsupportive, given the challenges in treating cryptocurrencies, or virtualized or tokenized assets?
- Firms face migration issues, including how to develop solutions in parallel with legacy market infrastructures, and they need to be careful when managing the differing expectations of technology start-ups vs. incumbents.

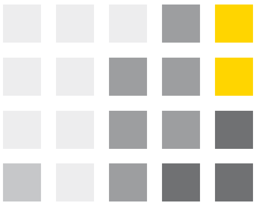
[8] Blockchain is networked digitized system of record for inventory and identity. It is typically a form of DLT (a shared ledger of activity among trusted, semi-trusted or untrusted parties) that allows various parties to share data and records stored in validated, immutable blocks). Blockchain features a ledger, a messaging protocol typically featuring 'smart contracts' (a set of promises specified in digital form, including protocols within which the parties [self-] execute [irrevocably] on those promises) and cryptography to ensure data integrity so that transactions cannot be edited after they are accepted onto the blockchain – typically via an exchange of digital signatures (such as a public or private key infrastructure (PKI)) in the case of permissioned ledgers. Updates are accepted into the data using a consensus method – usually, with some or all participants checking that the update meets some pre-agreed validation criteria.

Figure 12 The innovation and DLT ecosystem for asset management



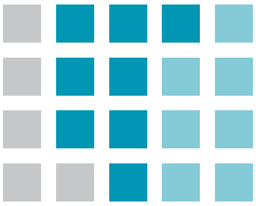
Number of firms claiming to have an innovation lab or innovation budget of some form:

- **17 Innovation lab or budget**
- **16 Innovation models**



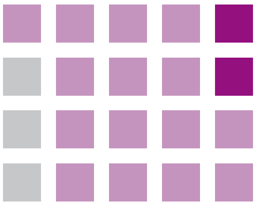
Number of firms that have expressed interest in DLT or blockchain, joined initiatives such as PTDL or announced PoC or launches:

- **Interest in PoCs for DLT**
- **Building or joined PTDL**
- **Scoping**
- **Hyperledger Member**



Number of firms that have begun to look at robotics from either the robo-selection or robo-advice perspectives:

- **15 Robo-selection**
- **7 Digital or CRM**



Number of firms actively studying other industries, e.g., FMCG, pharmaceutical or the auto industry, in order to develop new routes to innovation:

- **17 Studying SCM**
- **2 Advanced robotics or RPA**

97% of firms were focusing on intercepting cyber attacks and computer network espionage.

34% of firms were exploring the use of AI or machine learning and social networking tracking to gain better investment insights.

21% of firms were using systems to track, monitor and manage (mis-) conduct risk arising from behaviours.

31% of respondents indicated that their firm was offering a robo-selection or robo-advice tool of some description.

16% of firms were looking to devise their own CfD algorithms or margin simulation tools.

37% of firms were in the advanced league when it came to innovating or exploring new strategies or paradigms such as smart contracts, DLT or blockchain.

What's next?

Going forward, the evolution of the regulatory environment will put the onus of responsibility squarely on GRC and front-office controls to demonstrate fitness for purpose and VfM. With effective compliance heavily reliant on data and technology, efforts will move from TCA today to AI in future.

But along the way, the very face of the asset management industry will be transformed. The twin forces of change evident today – intense regulatory pressures on the one hand and the search for growth on the other – present fundamental tensions: how to run the day-to-day business and manage a daunting range of current issues, while at the same time changing the firm and embedding innovation into the business and operating model.

But both forces of change are also disrupting the industry from opposite ends.

'Bottom-up' regulator-driven disruptions and 'top-down' strategy-led disruptions signal the death of opaque financial intermediaries and herald a move towards transparent, decentralized, consumer-led models. New FinTech entrants and potential non-financial services competitors such as Amazon and Google will only accelerate this process. The asset managers that thrive in this new environment will be those that recognize and anticipate the risk of wholesale disruption and help to shape the transformation of their industry.

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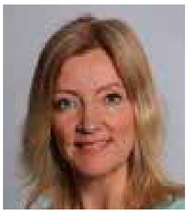

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