

AVANTAGE REPLY

INTERNAL AUDIT EXPERTISE AND CO-SOURCE OFFERING



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INTERNAL AUDIT IN THE CURRENT ENVIRONMENT

Internal audit functions are faced with an increasingly challenging external environment driven by on-going regulatory change, macroeconomic factors and a competitive environment.

REGULATORY CHANGE

- Challenging pace and volume of regulatory change (see our regulatory change radar overleaf).
- Intensifying regulatory scrutiny (e.g. SREP processes are evolving and are becoming more intrusive; persistent use of the s. 166 tool).
- Individual accountability (such as SMR) and attestations (e.g. CRD IV SIF attestations) creating need for greater levels of internal assurance.
- More explicit demands on IA by regulators (e.g. CRD IV, EMIR, SR 11-7).
- Potential divergent approaches to regulation across the globe.

MACROECONOMIC AND COMPETITIVE ENVIRONMENT

- External forces are putting pressure on margins, profitability and return on equity; including:
 - the economic backdrop including persistent low interest rates;
 - increasing competition from challengers.
- This is making it necessary to impose tight cost control, which affects IA as a significant cost centre.
- Such increasingly difficult business conditions create risk in the business to which the IA must respond.

CHALLENGES

- The pace, the breadth and the volume of changes creates capacity constraints, making prioritisation within the audit universe more important; important decisions to be made in respect of annual audit coverage.
- The complexity of change creates skills gaps where IA are competing for scarce skilled resources in a difficult market for such qualified people.

HOW IA FUNCTIONS ARE RESPONDING

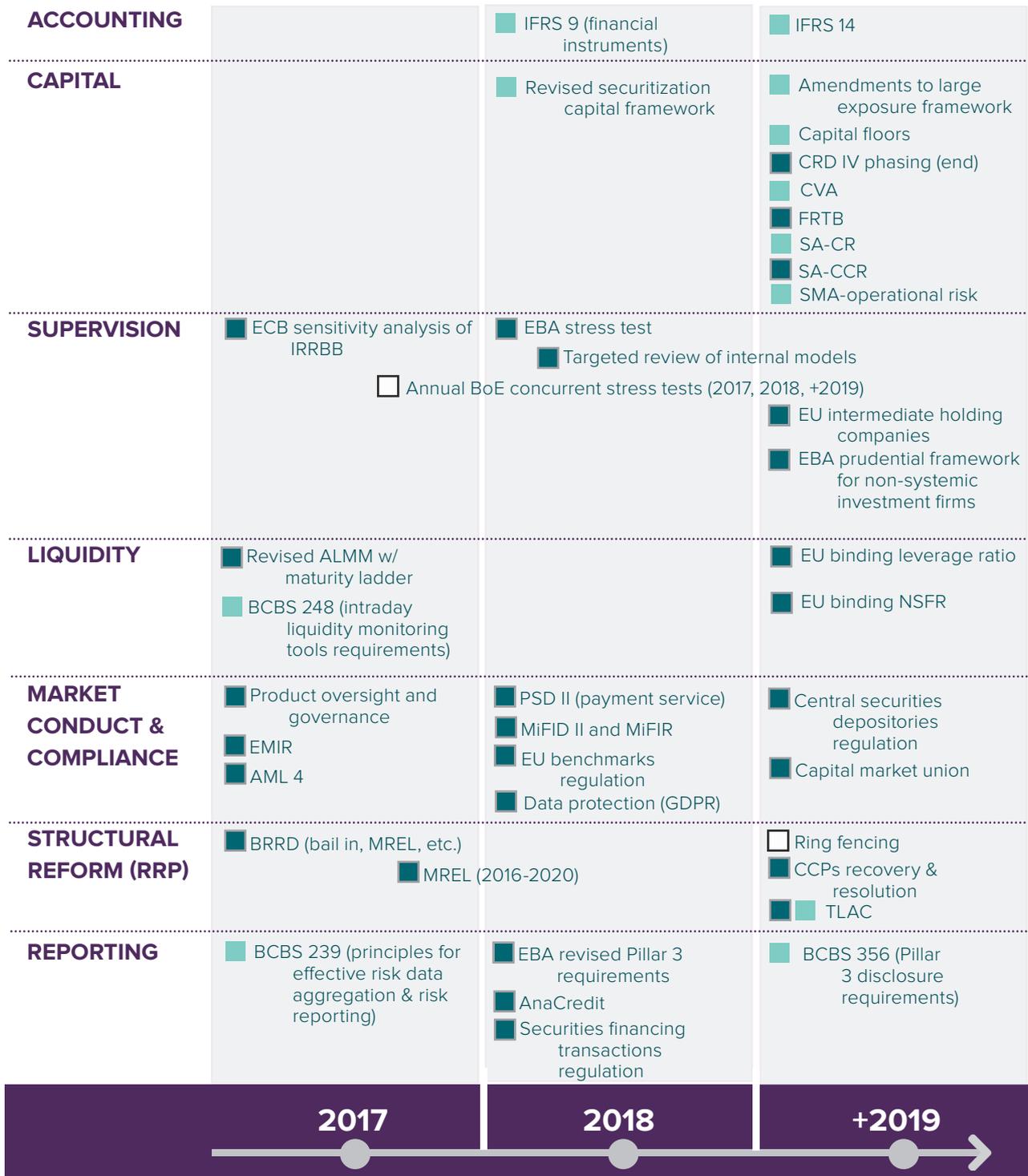
- Increasing use of specialist external expertise for particular regulatory audits;
- Cross-training resource making the team more agile and flexible;
- Co-sourcing internal audits in order to gain and transfer the acquired knowledge; and
- Achieving balance between real-time / concurrent auditing (e.g. during implementation) vs. post-implementation/change audits.

REGULATORY CHANGE RADAR

The breadth, volume and timing of regulatory change is not abating; creating a challenge for internal audit planning, prioritisation and resourcing.

LEGEND

- UK
- EU
- Global



KEY DIFFERENTIATORS

Avantage Reply acts as co-source for IA functions, leveraging our expertise and unique selling points:

EXPERIENCED, FOCUSED TEAMS



Our consulting business model has always been based on:

- A broad team with diverse and highly specialised industry experience (former regulators, bankers, risk management specialists, auditors);
- Formation of relatively small and senior on-site teams with concentrated skill and experience;
- Extensive experience with practical implementation and change; and
- Deep quantitative, analytical and technological strengths (drawing our broader Reply network of technologists and systems and data analysts).

AUDIT EXPERIENCE AT ALL GRADES FROM MULTIPLE SOURCES



Our team contains individuals:

- At partner level with extensive audit (external and internal) experience; and
- At all manager and junior grades with external and internal audit experience (through previous roles or co-sourcing as a consultant).

EMBEDDED IN THE INDUSTRY AND REGULATORY ECOSYSTEM



Given the importance of regulatory change to business, and internal audit, our team leverages:

- Relationships with all key UK and European regulators (e.g. BoE, PRA, FCA, EBA, ECB, ESMA); and
- Working relationships with industry associations (e.g. BBA, AFME).

STRONG INTEGRATED EUROPEAN FOOTPRINT



Our firm operates:

- In several major European centres; and
- Seamlessly across locations with a flexible and dynamic resourcing model, focused on sharing best practices and industry insights.

COST EFFECTIVE



Our offering is economically compelling for cost-constrained IA functions as:

- We have low overheads and an efficient resourcing model;
- Our model results in highly competitive pricing.

OUR INTERNAL AUDIT CAPABILITIES

LEADERSHIP TEAM

Avantage Reply has a team of senior people who have held audit positions in the past, have extensive co-sourcing experience and a significant depth and breadth of experience across a number of prudential risk categories.



ROB KONOWALCHUK

Partner

Rob has 13 years of experience in external audit working for PwC. He has covered clients in all sectors of financial services. Banking sector clients have included the large UK banks, UK arms of overseas investment banks, large custody banks, broker-dealers and asset management firms. As an experienced consultant Rob's involvement in audit has continued through internal audit co-sourcing with these clients.



DEAN MITCHELL

Partner

During his 30+ years of experience, **Dean** held the position of Interim Head of Audit for the financial services unit of a major multinational conglomerate. At Avantage Reply he has led a number of audits, primarily focusing on the prudential regulations and their implementation within UK based banks



MICHAEL ROATI

Partner

Michael is an experienced consultant with over 15 years of experience in risk and capital management. He has extensive experience in internal audit (risk related topics) across a range of clients including investment banks, wholesale banks, custodial banks and central counterparties. As well as supporting internal audit directly Michael has worked with audit in delivering independent reviews, validation of risk models and the implementation of risk and regulatory processes.



RAM ANANTH

Senior Manager

Ram is a risk professional and a Quantitative Analyst with 12+ years of experience in consulting and banking institutions. He has significant expertise in Recovery and Resolution planning, ICAAP, Stress Testing, Credit Valuation Adjustment (CVA) capital modelling, wholesale credit risk modelling, economic capital, market risk (including Basel 2.5 and FRTB) and model risk. Ram has been the co-lead of numerous specific risk related audit engagements.

OUR INTERNAL AUDIT CAPABILITIES

OUR SKILLS AND EXPERTISE

Avantage Reply has a broad range of skills and experience on regulatory topics, risk-types, and supporting competencies, across all of our consulting grades. Below is a sample of our UK-based team, indicating their areas of expertise:

NAME	GRADE	SKILLS & EXPERTISE										
		RISK TYPE					TOPIC					SKILLS
		CREDIT	COUNTERPARTY	MARKET	LIQUIDITY	OPERATIONAL	REGULATORY REPORTING	RECOVERY & RESOLUTION	ICAAP	ILAAP	STRESS TESTING	MODELLING
Rob Konowalchuk	Partner	✓			✓		✓	✓	✓		✓	✓
Dean Mitchell	Partner	✓		✓	✓	✓		✓	✓	✓	✓	✓
Michael Roati	Partner	✓	✓		✓		✓	✓	✓	✓		✓
Ram Ananth	Senior Manager	✓	✓	✓	✓	✓		✓	✓		✓	✓
Adhurim Ruci	Manager	✓	✓				✓		✓		✓	✓
Hadrien van der Vaeren	Manager	✓	✓	✓				✓	✓		✓	✓
Rohan Wilson	Manager			✓		✓	✓					
Julie Popa	Senior Consultant	✓	✓						✓			
Orial Kryeziu	Senior Consultant	✓	✓			✓			✓		✓	✓
Blendi Hoxha	Consultant	✓				✓						



Established in 2004, **Avantage Reply** (a member of Reply) is a pan-European specialised management consultancy delivering change initiatives in the areas of Risk, Finance (Capital Management and Regulatory Reporting), Treasury and Operations.

CASE STUDIES INDEX

The following pages represent a series of case studies illustrating the deployment of our expertise in a variety of client situations. Some of these are internal audit co-sourcing arrangements while some are other forms of independent review (e.g. 2nd line or external review which make use of a similar skill set).

		SUBJECT MATTER	SKILLS DEPLOYED & EXPERTISE
1	Internal Audit of ICAAP, IRRBB and Market Risk	Internal audits on ICAAPs (including Operational Risk, Pension Risk and Capital Planning), IRRBB and Market Risk, for the group and for subsidiaries.	ICCAP Operational Risk Market Risk Pension Risk Capital Planning IRRBB
2	Internal Audit of Capital Planning, Liquidity Risk and Pillar 3	Internal audits on Capital Planning, Liquidity Risk and Pillar 3, for the group and for subsidiaries.	Capital Planning Liquidity Risk Pillar 3
3	Review of a Market Risk Stress Testing Framework	Internal audit co-sourcing project to assess the implementation of the market risk stress testing framework against previously identified BIPRU remediation gaps.	Market Risk Stress Testing
4	Liquidity Risk Framework and Model Review	Independent evaluation of the bank's liquidity risk management framework.	Liquidity Risk Risk Framework Model Review
5	Risk Management Function Effectiveness Review	Independent and objective review of the risk function to facilitate the Risk Committee chair's attestation.	Organisational Design & Structure Risk Appetite Monitoring & Reporting Risk Identification & Measurement Internal Controls Regulatory Compliance
6	Independent Validation of a CCP Member Credit Scoring Model	Independent validation of the credit scoring model used to rate their members.	Credit Scoring Model Validation Programming Languages (i.e. Python, SAS, etc.)

01 | INTERNAL AUDIT OF ICAAP, IRRBB AND MARKET RISK

UK (G-SIB) Banking group

Client situation

- Avantage Reply worked with a major international banking group to deliver internal audits on ICAAPs (including Operational Risk, Pension Risk and Capital Planning), IRRBB and Market Risk, for the group and subsidiaries.

Approach

- Avantage Reply provided SME support to the Internal Audit department on a number of audits.
- Audit plans were developed, relevant documentation was reviewed, comprehensive control tests were carried out and issues were discussed with stakeholders, including Finance, Market Risk, Credit Risk, etc.

Deliverables

- Comprehensive internal audits were delivered on time.
- Expertise developed at a number of the firm's peers allowed new audit findings to be raised.
- An open and communicative approach enabling methodology to be improved and, in some cases, figures to be restated by BAU teams before submission to the board and to regulators.

Key benefits

- SME expertise was available to cover a stretched Internal Audit department.
- Experience gained in internal audit, consultancy and practice at a number of key competitors allowed for sharing of best practice approaches and ideas.
- Internal audits enabled timely remediation by BAU teams.

02 | INTERNAL AUDIT OF CAPITAL PLANNING, LIQUIDITY RISK AND PILLAR 3

US (G-SIB) banking and financial services organisation

Client situation

- Avantage Reply worked with a major international banking group to deliver internal audits on Capital Planning, Liquidity Risk and Pillar 3, for the group and for subsidiaries.

Approach

- Provided SME support to the Internal Audit department on a number of audits.
- Audit plans were developed, relevant documentation was reviewed, comprehensive control tests were carried out and issues raised were discussed with stakeholders, including Finance, Market Risk, Credit Risk, etc.

Deliverables

- Comprehensive internal audits were delivered on time.
- Expertise developed at a number of the firm's peers allowed new audit findings to be raised.
- An open and communicative approach enabling methodology to be improved and, in some cases, figures to be restated by BAU teams before submission to the board and to regulators.

Key benefits

- SME expertise was available to cover a stretched Internal Audit department.
- Experience gained in internal audit, consultancy and practice at a number of key competitors allowed for sharing of best practice approaches and ideas.
- Internal audits enabled timely remediation by BAU teams.

03 | REVIEW OF A MARKET RISK STRESS TESTING FRAMEWORK

Major UK Investment & Wholesale Bank

Client situation

- Avantage Reply worked with a major UK investment bank as an internal audit co-source to assess the implementation of the market risk stress testing framework against previously identified regulatory remediation gaps. The scope covered historical stress testing, vulnerability stress testing and reverse stress testing. The findings were required to be communicated to senior management and the PRA.

Deliverables

- Audit test plan.
- Audit testing documentation covering control design assessment and control effectiveness testing.
- Gap analysis against regulatory rules.
- Finding closure document.

Key benefits

- Timely submission of the remediation audit report to the PRA.
- Identification of gaps, materiality and recommendations for compliance with rules.
- A detailed drilldown of the full revaluation vs. P&L approximation function coverage for both linear and non linear products.

Approach

Avantage Reply completed the audit of the market risk stress testing framework following the stages below:

- **Stakeholder discussions:** Meetings with Market Risk, front office and IT stakeholders in order to understand the state of implementation of historical, vulnerability and reverse stress testing with evidence of compliance and gap closure requested from the business.
- **Test plan definition:** The test plan covered definition of control design assessment and control effectiveness testing for input data (mainly full revaluation and P&L approximation function coverage for linear and non-linear products), methodology, model approval, model validation, policies and use of stress testing outputs.
- **Test execution:** Execution of CDA and CET based on evidence gathered from business stakeholders.
- **Test documentation:** Completion of audit testing documentation, based on evidence provided by the business.
- **Finding closure:** Agreed findings articulated, evidencing gap closure and testing completed, with any new gaps highlighted.

04 | LIQUIDITY RISK FRAMEWORK AND MODEL REVIEW

Major US Custodian Bank

Client situation

Our client, a major US Custodial Bank with operations across Europe, engaged Avantage Reply to complete an independent evaluation of their liquidity risk management framework.

The scope of the review included two separate legal entities and the client wanted us to evaluate their existing approach to liquidity risk management to confirm compliance with all regulations and to ensure the approach was in line with regulatory expectations and with industry sector peers. We agreed with our client the following objectives:

- Ensure the risk framework is fit for purpose;
- Ensure the policies, processes, controls, governance and reporting activities adhere to regulatory expectations;
- Compare the risk framework structure of each legal entity to other peers;
- Document our findings for future reference including identification of any significant risks and/or regulatory gaps.

Deliverables

- Structured and detailed final report of our findings and recommendations
- Identification and prioritised recommendations for risk management of liquidity risk exposures.
- Action plan with indicative timelines to remedy recommendations.
- Delivery of a Board level presentation for each legal entity.

Approach

To complete our evaluation we adopted a multi stage approach as summarised below:

- Review and understand the main liquidity risk exposures/drivers within each legal entity through desk top review, discussions and ad hoc questions with stakeholders as required
- Evaluation of the existing liquidity risk framework compliance with regulatory requirements (BIPRU and European) with particular focus on overarching liquidity systems, controls and governance, compliance, policies, risk appetite and governance oversight.
- Hold meetings with relevant stakeholders to provide regular updates on our observations and valid our conclusions.
- Prepare draft and final reports for senior management and the board of each legal entity.

Key benefits

- Delivery of a comprehensive summary and report of the banks liquidity risk framework.
- Prioritised recommendations outlining improvements to the bank's management of liquidity risk measured against regulatory standards and industry peers.
- Board level understanding of current regulations and industry practices to manage liquidity risk.

05 | RISK MANAGEMENT FUNCTION EFFECTIVENESS REVIEW

European operations of large global insurer

Client situation

- Over the past couple years, our client's lead regulator, the Prudential Regulation Authority (PRA) were increasingly critical of the effectiveness of their risk management function. The company has commissioned external reviews in the past but the regulator was still not satisfied and has issued a requirement that the Risk Committee chair write to them with the results of his review of the function attesting to its effectiveness.
- The main lens of this attestation : i) effective independent challenge posed to the business; and ii) adequate coverage of continental Europe.
- The client wanted an independent and objective review of the risk function to facilitate the Risk Committee chair's attestation.

Deliverables

- We provided the client with a detailed report setting out our overall assessment of the function and our detailed findings and recommendations.
- We also assisted the Risk Committee chair in using the content of our report to construct his attestation letter to the PRA.

Approach

- We used our extensive knowledge of enterprise risk management frameworks to construct a structured approach to assessing the risk management function and the board risk committee.
- This entailed a detailed look at organisational design and structure, governance, policy, risk appetite, monitoring and reporting, risk identification and measurement, internal controls, regulatory compliance and culture and behaviours.
- Our review consisted of review of documentation and interviews with stakeholders within and outside the risk function, including most of the non-executive directors.
- In performing our review, we sought the views of insurance industry experts to compare to industry peers and we used the banking industry as a cross-sectoral comparison point which the client found valuable.

Key benefits

Through our review the client received value in the form of:

- An independent and objective perspective.
- A cross-sectoral perspective, using the banking industry as a mature and robust comparison point to which to aspire.
- An efficient and cost-effective method of obtaining a thorough health check without distracting the team from their BAU activities.
- Insights and advice into how to position the findings with the regulator from our experience helping clients with regulatory demands.

06 | INDEPENDENT VALIDATION OF A CCP MEMBER CREDIT SCORING MODEL

Major European CCP

Client situation

Avantage Reply worked with a major European central clearing counterparty (CCP) to conduct an independent validation of their credit scoring model used to rate their members. An assessment of the model across the full model cycle and development of a benchmark model to replicate model outputs and performance metrics was required. The independent validation required sign off by the model oversight committee (MOC). It is an EMIR regulatory requirement for a CCP to have their models independently validated at least annually.

Deliverables

- Independent validation project plan.
- Independent validation report to the MOC on the overall suitability of the Counterparty Rating Model and supporting documents, including any issues, concerns and recommendations.
- Benchmark model developed in Python with code, libraries and documentation
- Benchmark model outputs delivered in MS Excel.
- A concluding workshop to discuss the validation report and key findings in detail.

Approach

Avantage Reply delivered the independent validation of the credit scoring model following the stages below:

- **Documentation review:** A review of the documentation pack as per templates outlined in the model risk governance framework.
- **Bilateral discussions:** Meetings with stakeholders in order to understand the strengths and limitations of the model and model documentation.
- **Validation report:** Assessment of the model across the full model lifecycle covering open issues, documentation & purpose, theory & application, development, performance monitoring and usage.
- **Benchmark model:** Development of the benchmark model in Python using the documentation to replicate the outputs and performance metrics; covering the steps of data acquisition, calibration and calculation.
- **Closing Workshop:** Q&A session with the independent risk director and model owner on the validation process, findings and recommendations.

Key benefits

- Identification of improvements required to the model across the full lifecycle, including documentation, input data, theoretical soundness, underlying assumptions and use, with benchmarking to industry best practice.
- Extended set of metrics to assess model performance.
- A robust and fully documented benchmark model verifying data input, calibrations and calculations for the credit scoring algorithm and associated performance metrics.



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