

# Analytics & Risk

BlackRock was founded by eight entrepreneurs who wanted to start a very different company. One that combined the best of a financial leader and a technology pioneer. And one that focused many diverse views on a singular purpose: to create a better financial future for our clients - companies, governments, and millions of individuals saving for retirement, their children's educations, and a better life.

Being part of BlackRock means being part of a community of smart, ambitious people. People who value diversity of thought, perspective and background, who believe everyone has a voice at the table. So, whatever your background, whatever you're studying, there's a place for you here.

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## FINANCIAL MODELING

### Research and develop financial models

The Financial Modeling Group (FMG) is responsible for researching, designing and implementing the quantitative models used to assess financial risk across fixed income, derivatives, equities and multi-asset products. We work closely with the Portfolio Analytics Group to deliver analytical insights to investment and risk professionals both within BlackRock and at Aladdin clients.

## PORTFOLIO ANALYTICS

### Create and deliver analytics to help solve business problems

The Portfolio Analytics Group (PAG) within BlackRock Solutions creates and delivers Aladdin's analytical capabilities to help the firm and our clients understand and manage their investments and risk. Our group leverages financial expertise, technical skills and knowledge of the investment process to implement scalable solutions. Analysts develop a comprehensive understanding of finance, clients, and technology; they learn to navigate all groups at BlackRock to solve business problems.

## RISK & QUANTITATIVE ANALYSIS

### Manage BlackRock's fiduciary and corporate risks

The Risk and Quantitative Analysis (RQA) team provide independent advice and quantitative evaluations to lead BlackRock's management of its fiduciary and corporate risks. We apply statistical insights to our clients' portfolios and broad financial markets in order to form close advisory partnerships with investment teams and encourage best practice across the firm.

## FINANCIAL MARKETS ADVISORY

### Advise clients with complex capital markets exposures

The Financial Markets Advisory (FMA) group helps financial institutions, long-term investors, finance ministries and central banks address their most difficult, and interesting capital market, balance sheet and regulatory challenges. The customized services our team provides include customized model construction, complex asset valuation, strategic consulting, asset management and regulatory advisory.

# Financial Modeling

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The Financial Modeling Group (FMG) is responsible for researching, designing and implementing the quantitative models used to assess financial risk across fixed income, derivatives, equities and multi-asset products. We work closely with the Portfolio Analytics Group to deliver analytical insights to investment and risk professionals both within BlackRock and at Aladdin clients.

## Our team is known for

- Developing industry-leading financial models across all major asset classes
- Delivering research and thought leadership on timely topics
- Engineering Aladdin's analytics platform with modern, scalable technologies
- Leveraging sophisticated statistical techniques to derive actionable insights from massive data sets

## As an analyst you will

- Implement new & improved financial models in Aladdin's code base
- Contribute to high-profile projects that advance BlackRock's top strategic priorities
- Solve clients' needs by debugging production issues and engineering more scalable, resilient solutions
- Explain complex models to non-technical end users
- Learn finance while doing engineering

## Teams at a glance

### Security Modeling

Construct mathematical and statistical models to calculate prices and measure risks of financial instruments. Apply cutting edge technology from data science and machine learning to model the prepayment and credit behaviors of individuals and firms.

### Portfolio Modeling

Multi-asset tail risk estimation and stress testing using factor-based models. All built on deep empirical analysis and modern statistical techniques, with seamless coverage from single securities to entire enterprise portfolios.

### Derivative Pricing and Simulation

Calculate prices and estimate risks for complex financial instruments by constructing models which combine techniques from mathematics, statistics and computer science. Design and build a high-performance universal simulation framework.

### Advanced Data Analytics

Engage in different projects to tackle problems making use of and developing machine learning techniques, statistics and big data infrastructure.



**Positions available in all regions:  
Americas, EMEA, APAC**



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# Portfolio Analytics

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The Portfolio Analytics Group (PAG) within BlackRock Solutions helps to influence investment decisions by applying data and financial models. Our group leverages financial expertise, technical skills and knowledge of the investment process to implement innovative scalable solutions. Analysts develop a broad understanding of finance, clients, and technology; they learn to navigate all groups at BlackRock to solve business problems.

## Our team is known for

- **Problem solving:** We partner with investment, risk and client-facing teams to understand their business problems and provide differentiated, creative solutions using Aladdin analytics
- **Innovation:** We sit at the intersection of finance and technology. We conceptualize, design and implement new capabilities to ensure that Aladdin remains the best platform for clients to understand and manage portfolios and risk
- **Centralized & scalable operating platform:** Aladdin is a global investment platform that helps us solve problems in a scalable and efficient manner

## As an analyst you will

- Gain a broad understanding of **analytics, markets, and Aladdin's capabilities**
- **Utilize analytical models, reports and large scale data processing tools** to help investment teams and clients manage their portfolio risk, exposure and performance
- Perform **special analyses in response to market events**, new business needs and client needs
- Contribute to the **creating, testing and roll-out** to risk managers of financial models, analytics and reporting for new security types and products
- Provide **rapid response tactical solutions** leveraging critical thinking, programming skills and creativity
- Coordinate with colleagues **globally**, across **cross-functional** teams
- **Engineer processes and enhance tools** to deliver analytics and support BlackRock's Aladdin technology infrastructure
- **Improve operational efficiencies** to enable scalable business growth
- Work with technology and analytics groups across BlackRock to build and deliver scalable customized solutions leveraging **Aladdin APIs and the Aladdin Data Sciences** platform

## Develop a core skillset

As an analyst in PAG you will develop expertise in four core areas that will serve as the foundation for your career:

- Financial markets
- Clients / Industries
- Technology / Aladdin
- Navigating BlackRock

## Representative projects

### Sustainable Investing Analytics

Developed scalable framework to assess Environmental, Social, and Governance (ESG) metrics across all portfolios, as well as using optimization techniques to reduce risks such as carbon emissions while minimizing tracking error.

### Industry peer risk analysis

Modelled suite of portfolios leveraging public data representing segments of the insurance industry. In depth analytics highlighted relevant trends enabling our client teams to deepen existing relationships and win new business.

### Portfolio tools for Alternative Investments

Prototyped analytics and investment tools leveraging Python, R-Shiny and Tableau for managing multi-asset Alternative portfolios. Prototypes solidified the requirements and user experience and laid the foundation for future Aladdin apps.

### Deployment of Attribution Models for Multi Asset

Partnered with the Financial Modeling Group, Risk and Quantitative Analysis group and Investment teams to model, build and deploy Enhanced Brinson attribution models across Multi Asset teams.

### Custom Aladdin Client Demos

Collaborate with the Aladdin business to demonstrate Aladdin's enhanced analytical content and tools to new clients. Continually expand Aladdin's ecosystem to meet and anticipate client needs.



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# Risk & Quantitative Analysis

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The Risk and Quantitative Analysis (RQA) team provides independent oversight of BlackRock's fiduciary and enterprise risks by developing and delivering risk management, tailored advice and analytics. The RQA team promotes BlackRock as a leader in risk management by providing top-down and bottom-up oversight to help identify investment, counterparty, operational, regulatory and technology risks. In addition to producing quantitative analysis to support BlackRock in managing its fiduciary and enterprise risks, RQA ensures that portfolio risks are consistent across mandates, reflect current investment themes within particular strategies, and comply with client-specific risk guidelines. The RQA team partners with investment businesses to help portfolio managers build risk-aware portfolios and partners with BlackRock solutions to develop analytics used for risk and portfolio management leveraging the capabilities of Aladdin.

## Our team is known for

- Integrity as a fiduciary to clients
- Unbiased insights into Financial Markets and Portfolios
- Critical independent thought leadership
- Partnering with the global investment teams in constructing portfolios that are consistent with specified risk and performance objectives
- Providing independent risk oversight for senior management of the firm and the board of directors

## As an analyst you will

- Apply statistical techniques to real financial data and live portfolios to aid fund managers' real-time decision making
- Enhance processes and risk analyses to better align risk policies and methodologies with the client's objectives
- Learn to critique and exercise judgment around analytics, having developed a deep understanding of risk methodologies
- Learn to communicate complex ideas to key stakeholders in a high impact manner
- Facilitate risk and control self-assessments with the business.
- Provide independent and consultative risk management services to the business on a range of key projects including risk identification and evaluation of corresponding controls

## Teams at a glance

RQA's activities can be divided into four teams:

### Investment risk

Advise investment businesses on portfolio construction, hedging strategies and other quantitative aspects of managing risk and return for portfolios.

### Enterprise risk

Identifies risks which directly impact the corporate entity Responsible for all aspects of operational risk; error investigation, new product risk assessments and development of the operational risk framework.

Includes technology, model, third party, and regulatory risk management.

### Technology risk

Helps define and oversee BlackRock's technology controls to protect our clients and the firm.

Focuses on key risks such as technology outages, information security breaches and ineffective change management.

### Counterparty & concentration risk

Focuses on identifying potential counterparty credit risks inherent to BlackRock and its clients.

Responsible for assessing, approving and monitoring the creditworthiness of all trading counterparties, as well as analyzing BlackRock's exposure to these entities.



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# Financial Markets Advisory

The Financial Markets Advisory group (FMA) advises financial institutions, central banks, regulators, and government entities on their most critical and often most complex financial issues. The group typically works with senior management at clients around the globe with a focus on their balance sheet and capital markets exposures as well as a wide range of other strategic, regulatory, and operational challenges. Since its founding in 2008, FMA has executed assignments in over 30 countries for over 250 unique clients.

## Our team is known for

- **Expertise:** Combine the strategic mindset and creative problem solving of a financial consultancy with the asset expertise of an investment bank. Our team advises senior executives at financial institutions and government entities on their most difficult – and most interesting – capital markets, balance sheet, and regulatory issues
- **Customized services:** We provide customized services to meet our clients' needs including model construction, complex asset valuation, strategic advisory, asset management, and regulatory consulting
- **Clients:** Include some of the largest, most sophisticated financial institutions in the world, as well as government institutions across the globe, providing our Analysts with diverse and challenging work experiences
- **Scale:** Ability to analyze large, complex data sets, produce comprehensive analyses, and leverage cross-functional professionals to meet client needs
- **Trusted Advisor:** Operates to the highest fiduciary standards and conflict management principles

## One team, two paths.

FMA offers two paths within BlackRock's Analyst program, one focused on strategic advisory, problem solving, and client relationships (Advisory) and the other focused on capital markets, data, analytics, and technology (Markets and Analytics Group). While these roles differ functionally, projects are staffed in a multi-disciplinary manner, with team members constantly working together to meet client objectives.

### ADVISORY

- Play a key role in managing large, multi-disciplinary project teams including subject matter experts, market practitioners, and technologists
- Assist in leading project execution with a hands-on role in driving project progress and deliverables
- Develop analytical skills by performing quantitative analyses in support of client engagements
- Enhance written and verbal communications skills and synthesize complex topics in client presentations and pitch materials
- Build and deploy subject matter expertise across a range of themes in order to help clients achieve their objectives, including bank balance sheets, capital markets, credit risk management, etc.

## As an analyst you will

- Be afforded a diverse and challenging professional experience with broad reach across the public and private sectors
- Interact directly with clients to present results, address requests and questions
- Work on multiple cross-functional project teams concurrently, providing you with access to a range of professionals, their expertise and experience
- Learn about financial institutions, markets, and the key issues driving change

## We are looking for individuals who have

- Excellent problem-solving abilities and intellectual curiosity
- Rigorous attention to detail and strong sense of initiative and ownership
- Effective communication and analytical skills
- Interest in financial institutions and capital markets

### MARKET & ANALYTICS GROUP

- Develop asset class expertise by working alongside capital market experts in support of client objectives
- Gain a deep understanding of data, analytics, and modeling by contributing to the execution of engagements
- Leverage BlackRock proprietary technology and relevant programming languages to create, enhance, and execute projects in a scalable manner
- Stay abreast of market trends and of the evolving landscape of relevant technology
- Significant quantitative coursework and familiarity with programming languages (in particular Python and/or R) recommended



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