

# Vanguard's comprehensive approach to risk management

Businesses face ongoing and sometimes unexpected risks that can have a huge impact on their clients' success. Over the past 25 years, we have witnessed several risk events in addition to risks encountered in the normal course of business. These events include the dot-com crash, the attacks of 9/11, the global war on terror, the global financial crisis, the 2020 cyberattacks on government agencies, and the COVID-19 pandemic.

The challenge of safeguarding business operations and client interests in an increasingly complex world requires proactive and comprehensive risk management.

Vanguard has a long history of thoughtfully managing risk and safeguarding our clients. Our holistic and disciplined program is designed to identify, assess, and mitigate risks at all levels

## A look at our team

Vanguard Global Risk & Security is an independent function that stewards a risk-smart culture by enabling risk-informed business decisions, helping to solve business problems, delivering actionable information to effectively manage risks, and driving optimal business outcomes in all of our operations and businesses. Its functions include:

- **Enterprise risk management.** We ensure a consistent approach to risk management across all Vanguard businesses. The team's purpose is to drive a strong risk-aware culture and encourage sound, risk-informed business decisions.
- **Resilience and business continuity management.** We oversee enterprise resilience and partner with business continuity teams in every division in each of Vanguard's sites around the world to ensure we can operate seamlessly regardless of disruption.
- **Enterprise security and fraud.** We provide global safeguarding of Vanguard employees, property, data, and client assets including information security; physical and personnel security; fraud prevention, detection, and response; and access management.

- **Investment risk management.** We analyze and monitor the investment risk of the Vanguard funds and the operational risks to our Investment Management Group (IMG). Our team operates independently of IMG and reports directly to Vanguard's chief risk officer.
- **Third-party risk management.** We manage the use of service providers that may expose Vanguard to risks and result in service disruptions, regulatory exposure, financial loss, litigation, or a negative impact on our clients.
- **Divisional and regional risk.** We advise business management on risk issues and managing key risks and consult on critical controls.

These functions are augmented by many other Vanguard teams, including Compliance, Legal, Office of the General Counsel, the Sarbanes-Oxley Governance Office, and Internal Audit. Additionally, Vanguard's chief risk officer reports directly to the CEO, is independent of our operating divisions, and regularly meets with Vanguard's board of directors.

of the company. Our priority is to keep our investors' assets safe and secure by enabling the business to make smart, risk-informed decisions and stewarding a strong risk culture.

### **Our comprehensive, multifaceted approach**

Vanguard Global Risk & Security (GR&S) is a centralized division that works to safeguard client, employee, and company interests, inform business strategy, and steward our strong risk culture. Our comprehensive program includes enterprise risk management, investment risk management, business continuity, cybersecurity, fraud prevention, and physical security. GR&S partners with Vanguard's businesses to provide counsel, enable faster, risk-informed decisions, and drive enterprise resilience. Our teams safeguard assets and data against existing threats and vulnerabilities and seek to anticipate and address emerging risks and exposures.

Our experienced professionals work to address a broad spectrum of risks and have established clear standards for identifying, assessing, and managing them, as well as advising on controls throughout the organization. These risks include:

- **Operational risk.** The risk to Vanguard's operations arising from inadequacies or failures of processes, people, or systems, as well as from external influences (such as service providers, geopolitical events, criminals, or natural disasters).
- **Financial risk.** The organization's ability to manage its financial resources efficiently and responsibly.
- **Strategic risk.** Management's ability to make appropriate decisions to prepare for and react to the broader economic, competitive, and regulatory environment. Prominent among these risks is failure to successfully execute our long-term goals and failure to change, adapt, and improve to meet new business realities.
- **Investment risk.** Market, credit, and liquidity risks that investment managers incur in their pursuit of investment returns on behalf of clients.
- **Legal and regulatory risk.** The risk of noncompliance with existing and proposed laws, regulations, and litigation.

- **Extended enterprise risk.** The risk of potential disruption caused by a failure to identify, measure, and mitigate risks at key third-party organizations (such as contractors and suppliers) or a failure to manage such relationships.
- **Technology risk.** The risk arising from system defects, inadequate decision-making in support of IT infrastructure, or illegal or unauthorized use of computer systems.
- **Reputational risk.** The risk of a potentially tarnished reputation and/or loss of the trust of our clients, community, and stakeholders caused by a breach in risk management requirements, operational breakdown, a legal/regulatory breach, or another event.

### **Our methods**

We employ three primary lines of defense to mitigate risk. The first is the business units themselves—the risk owners. Each is responsible for its particular area and has processes in place to monitor its effectiveness.

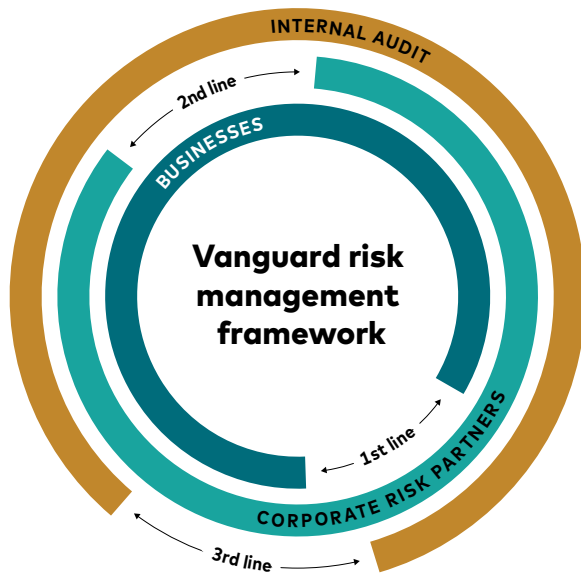
Our business units also have embedded risk control, design, and oversight teams to improve the efficiency of key controls, validate that these controls are up-to-date, oversee controls testing, and conduct design adequacy testing.

Our corporate risk partners, including Enterprise Risk Management, the Office of the General Counsel, the Sarbanes-Oxley Governance Office, and Enterprise Security & Fraud, provide the second line of defense. These internal subject matter experts establish enterprise-wide risk policies and methodologies, advise on specialized matters, and perform certain centralized functions.

Additionally, chief risk officers lead experienced professionals in all Vanguard office locations and critical shared areas, such as investment management and information technology. These officers serve as advisors to address the unique needs of each business and division.

Vanguard's Internal Audit Group, the third line of defense, is a broad, independent, and objective team directly accountable to the board of directors. It provides assessments of internal control design and effectiveness throughout the organization and highlights improvement opportunities to leadership.

## Mitigating risk through three lines of defense



### Managing investment risk

While our portfolio managers operate with a focus on minimizing risks to portfolio performance, Vanguard also has a separate team solely dedicated to investment-specific risk.

Our Investment Management and Finance Risk Management (IMFR) group, which is organized by asset class, independently monitors portfolio risk, positions against limits, and works with portfolio managers to ensure risks are identified and controlled. It also oversees operational risk in investment and financial management, focusing on reducing or avoiding processing errors, compliance breaches, and trading errors.

Whether managed by Vanguard's internal investment teams or one of our external advisory firms, each of our funds has documented investment objectives and strategies, benchmarks against which its composition and performance are assessed, documentation of permitted instruments, and risk limits.

Ongoing investment risk management considers market, credit, counterparty, liquidity, and regulatory risk and evaluates internal and external investment advisors' operational effectiveness and business contingency programs.

Although it is an independent division within Vanguard, IMFR closely aligns with IMG to provide superior risk-adjusted outcomes and create a lasting and reliable low-cost advantage for our clients.

IMFR and IMG use various proprietary and vendor-provided risk management systems, dashboards, and monitoring tools to carry out our risk management activities.

They also support the corporate finance function in embedding risk control into Vanguard's finance business practices.

### Managing financial risk

Vanguard regularly assesses its balance sheet and monitors the market environment to ensure a sound financial position. This enables us to operate effectively and mitigate business and operational risk by, for example, maintaining sufficient liquidity to withstand the financial implications of significant, unexpected events and market volatility.

Vanguard is financially strong, with healthy cash flows, fund and business diversification, and asset growth. We practice diligent expense management and prudent operating practices to keep our operating costs reasonable.

### Safeguarding client assets and information

The safety and security of our clients' assets and sensitive information is of utmost importance at Vanguard. We invest heavily in security measures, follow industry best practices, and employ advanced technology and rigorous online security standards.

We safeguard our systems to counter threats from malicious electronic attacks with strategies including firewalls, anti-malware software, network intrusion prevention systems, and endpoint detection and response systems. Our Global Cyber Security Operations Center monitors our networks and websites 24 hours a day, seven days a week, assessing and safeguarding all Vanguard computing assets and critical data against threats to confidentiality, integrity, and availability. We continually assess our practices to ensure they address the evolving threat landscape.

Integrated business continuity helps ensure that the firm can continue operations and serve our clients during a significant local, national, or global event. The business continuity management team oversees enterprise resilience and partners with business continuity teams in every division in each of Vanguard's sites around the world.

### **Experience, knowledge, and commitment**

A fully integrated, rigorous risk management approach permeates Vanguard's businesses and investment management process. Our culture of continuous improvement and commitment to evolving and strengthening our risk management program leads to better knowledge and management of the risks we take on and how they align with our objectives. This underpins our ability to continue managing our clients' assets and creating long-term value well into the future.

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All investing is subject to risk, including the possible loss of money you invest.

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