

Week 1: Green Finance Foundations

Session 1: Introduction to Green Finance

Green Finance Professional Certificate

What is Green Finance?

Definition

- Financial products and services supporting environmental sustainability
- Climate change mitigation and adaptation focus
- Measurable environmental impact requirements
- Integration with mainstream financial markets

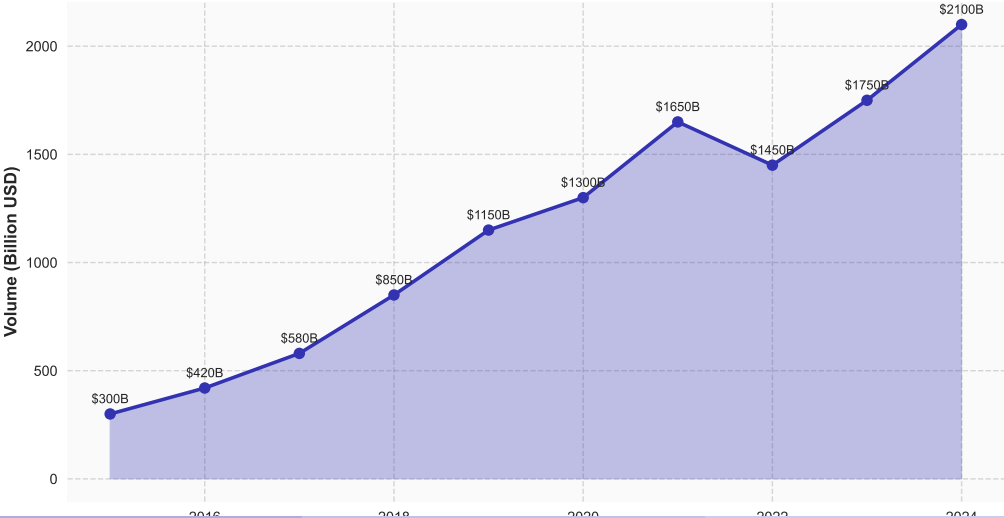
Key Drivers

- Paris Agreement commitments (2015)
- Regulatory pressure: EU Taxonomy, SFDR
- Growing investor demand for ESG integration
- Climate risk awareness in financial sector

Green finance has evolved from niche to mainstream in less than two decades

Global Green Finance Market Growth 2015-2024

Global Green Finance Market Growth
2015-2024



Historical Milestones

- 2007: First green bond issued by EIB
- 2014: Green Bond Principles established
- 2015: Paris Agreement catalyst
- 2020: EU Taxonomy regulation launched
- 2024: Mainstream institutional adoption

Current Landscape (2024)

- USD 2.1 trillion total market size
- 100+ countries with green issuances
- Institutional investors as major participants
- Expanding to emerging market economies

Green finance matured from experimental to essential in financial markets

Environmental Imperative

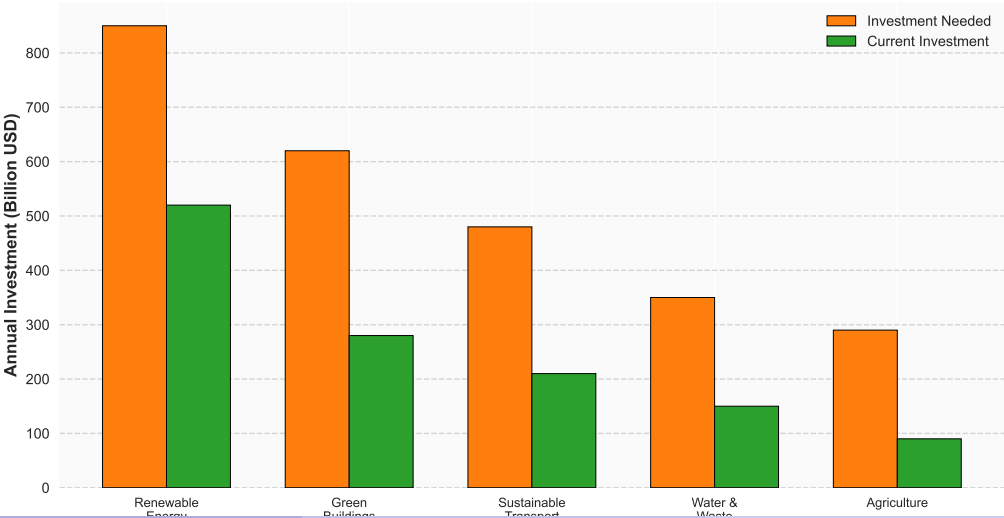
- USD 2.4T annual investment gap to meet Paris goals
- Climate change poses systemic financial risks
- Biodiversity loss threatens economic stability
- Transition requires massive capital reallocation

Financial Opportunity

- Growing asset class with strong performance
- Risk mitigation through ESG integration
- New market opportunities in clean tech
- Competitive advantage for early movers

Green finance bridges environmental necessity with financial opportunity

Green Investment Gap by Sector
(Billions USD Annual)



Week-by-Week Overview

- Week 1: Foundations and Ecosystem
- Week 2: Green Bonds and Debt Instruments
- Week 3: ESG Integration Strategies
- Week 4: Climate Risk Assessment (TCFD)

Continuing Through

- Week 5: Renewable Energy Finance
- Week 6: Regulatory Frameworks
- Week 7: Impact Measurement
- Week 8: Advanced Applications

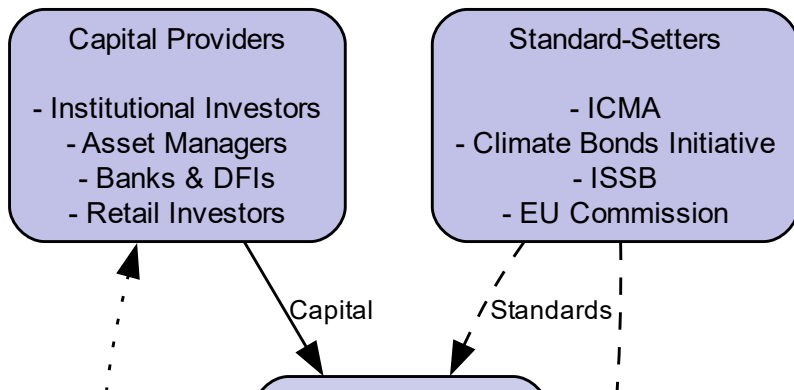
Progressive learning from fundamentals to advanced applications over 8 weeks

The Green Finance Ecosystem

Session 2: Participants and Flows

Understanding the interconnected network of green finance

Green Finance Ecosystem Map



Institutional Investors

- Pension funds (largest green allocators)
- Insurance companies (climate-aware)
- Sovereign wealth funds (ESG mandates)
- Asset managers (ESG product demand)

Motivations and Constraints

- Fiduciary duty to long-term returns
- Climate risk as financial risk
- Beneficiary pressure for sustainability
- Regulatory ESG disclosure requirements

Institutional investors control over USD 100 trillion in assets globally

Financial Intermediaries

- Investment banks: Structuring and underwriting
- Commercial banks: Green lending programs
- Exchanges: Green bond listings
- Index providers: Green indices creation

Verification and Standards

- Second-party opinion providers
- Credit rating agencies (ESG ratings)
- External verifiers and auditors
- Impact measurement specialists

Intermediaries ensure credibility through verification and standardization

Issuer Types

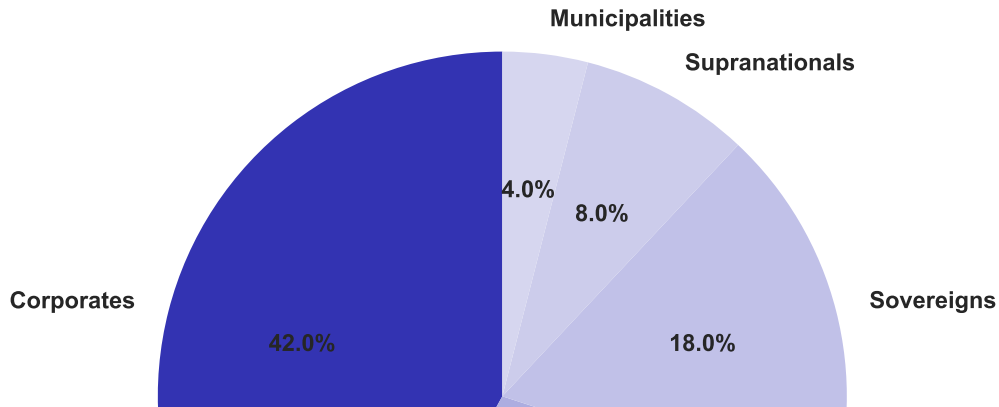
- Sovereigns: National climate programs
- Supranationals: Development finance
- Corporates: Green capex and projects
- Financial institutions: On-lending

Eligible Project Categories

- Renewable energy generation
- Energy efficiency improvements
- Clean transportation infrastructure
- Sustainable water and waste management

Use of proceeds must align with recognized green taxonomies and standards

Green Finance Market by Issuer Type 2024 (USD 2.1T)



Key Standard-Setting Bodies

- ICMA: Green Bond Principles (voluntary)
- Climate Bonds Initiative: Certification
- EU: Taxonomy Regulation (mandatory)
- ISSB: Sustainability disclosure standards

Role and Impact

- Define eligibility criteria for green labels
- Ensure consistency and comparability
- Prevent greenwashing through verification
- Enable market scalability and liquidity

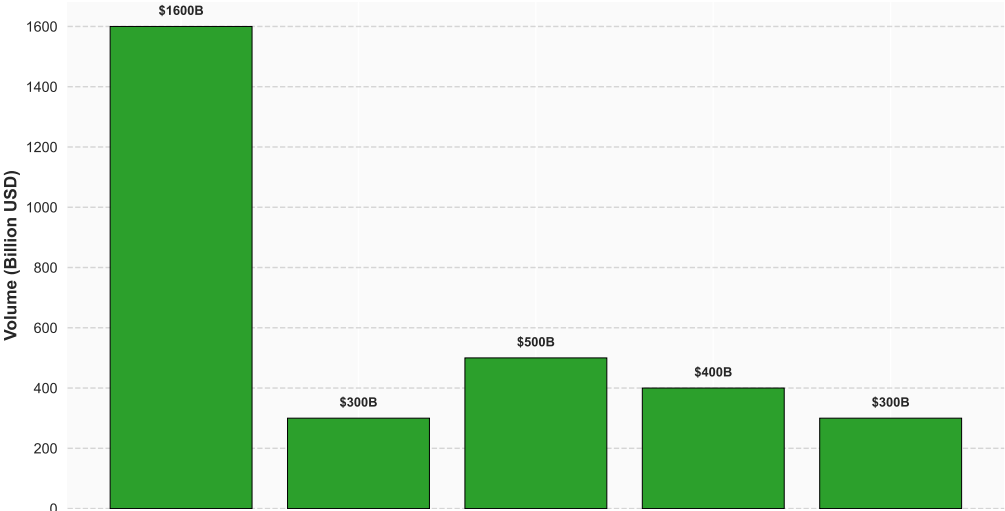
Standards provide credibility essential for market growth and integrity

Green Financial Instruments

Session 3: Products and Structures

Comprehensive overview of green finance products

Green Finance by Instrument Type
2024 Market Volume



Key Characteristics

- Use of proceeds earmarked for green projects
- Similar structure to conventional bonds
- Third-party verification recommended
- Reporting on environmental impact

Market Development

- USD 1.6T outstanding (2024)
- First issued 2007 by EIB
- Annual issuance exceeds USD 500B
- Greenium: 0-5 bps pricing advantage

Green bonds are the most established and liquid green finance instrument

Structure and Mechanics

- Coupon tied to sustainability KPIs
- Step-up if targets missed
- General corporate purpose (not use of proceeds)
- Forward-looking performance targets

Advantages and Challenges

- Flexibility: Any company can issue
- Incentivizes company-wide sustainability
- Complexity: Target setting critical
- Risk: Greenwashing if targets weak

SLBs complement green bonds by incentivizing holistic sustainability transformation

Green Loans

- Bank lending for specific green projects
- Similar to green bonds but bilateral
- Green Loan Principles (LMA/APLMA)
- Growing in infrastructure and real estate

Sustainability-Linked Loans

- Margin linked to sustainability KPIs
- Widely adopted by corporates
- Flexible: Applies to general purposes
- Lower documentation vs project finance

Green and SL loans total USD 300B, complementing bond markets

Green Equity

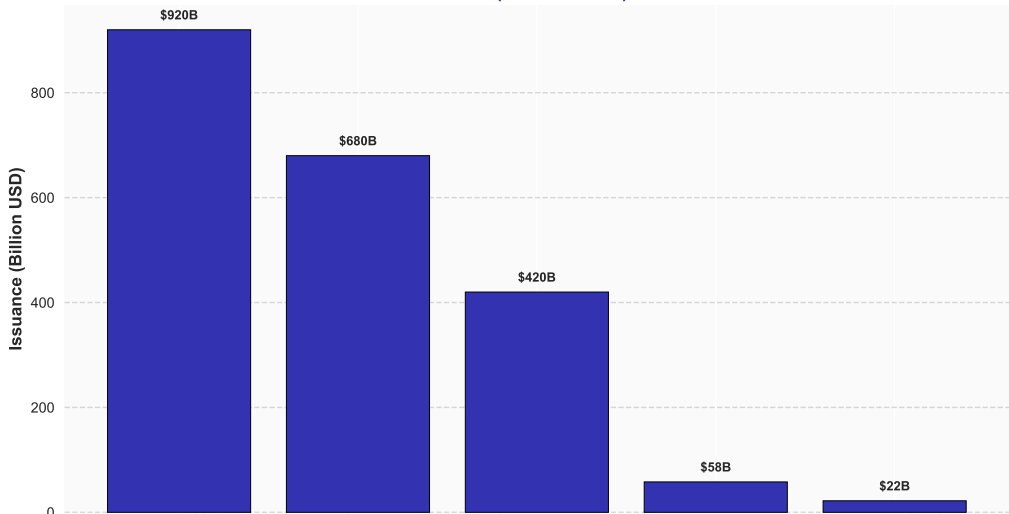
- Public equity in pure-play green companies
- Green indices and ETFs
- Venture capital and private equity
- USD 400B in dedicated green equity funds

Carbon Markets

- Compliance markets (EU ETS, regional)
- Voluntary carbon credits
- Carbon derivatives and futures
- USD 300B traded annually (2024)

Diverse instruments enable capital allocation across asset classes and risk profiles

Green Finance Issuance by Region
2024 (Billions USD)



Financial Fundamentals

Session 4: Valuation and Analysis

Applying traditional finance to green assets

Traditional Metrics Apply

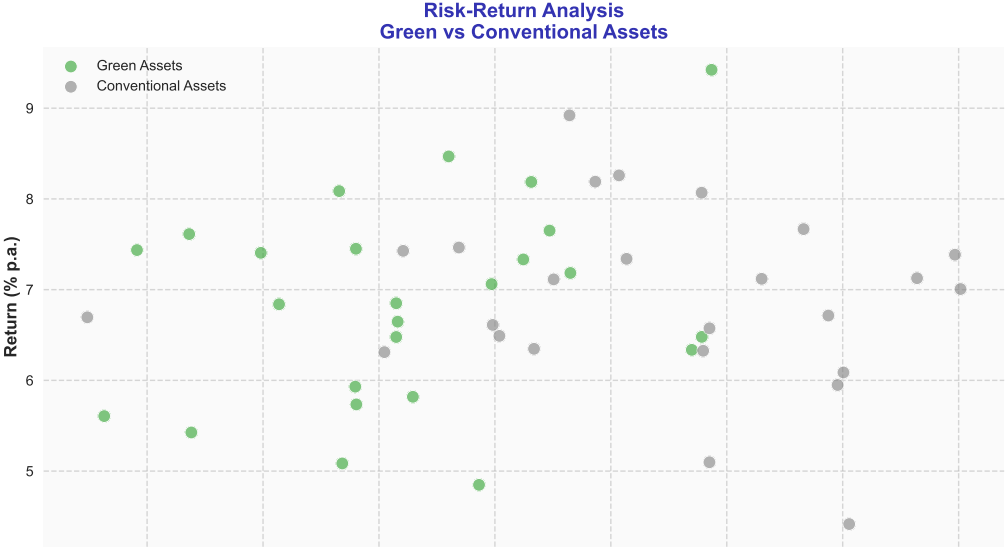
- NPV and IRR for project evaluation
- Credit analysis for bond issuers
- Equity valuation models (DCF, multiples)
- Risk-adjusted return frameworks

Green-Specific Adjustments

- Carbon pricing in cash flow projections
- Regulatory risk premium/discount
- Greenium in bond pricing
- Stranded asset risk assessment

Green finance applies traditional finance with adjustments for sustainability factors

Risk-Return Profile: Green vs Conventional Assets



Greenium Phenomenon

- Green bonds trade 0-5 bps tighter than conventional
- Driven by excess demand from ESG investors
- More pronounced in certain jurisdictions
- Evidence of market segmentation

Carbon Pricing Integration

- Explicit carbon price in project valuation
- Shadow carbon pricing by companies
- Impact on relative valuations
- Forward curve uncertainty

Pricing reflects both investor preference and regulatory policy expectations

Empirical Evidence

- No systematic underperformance vs conventional
- Lower downside risk in many studies
- Outperformance during ESG-favorable periods
- Performance varies by sector and geography

Risk Factors

- Policy and regulatory risk
- Technology and obsolescence risk
- Greenwashing and reputation risk
- Liquidity risk in some segments

Green investments demonstrate competitive financial performance with distinct risk profile

Green vs Conventional Bond Yields

Investment-Grade Bond Yields
Green vs Conventional (2019-2024)



Portfolio Construction

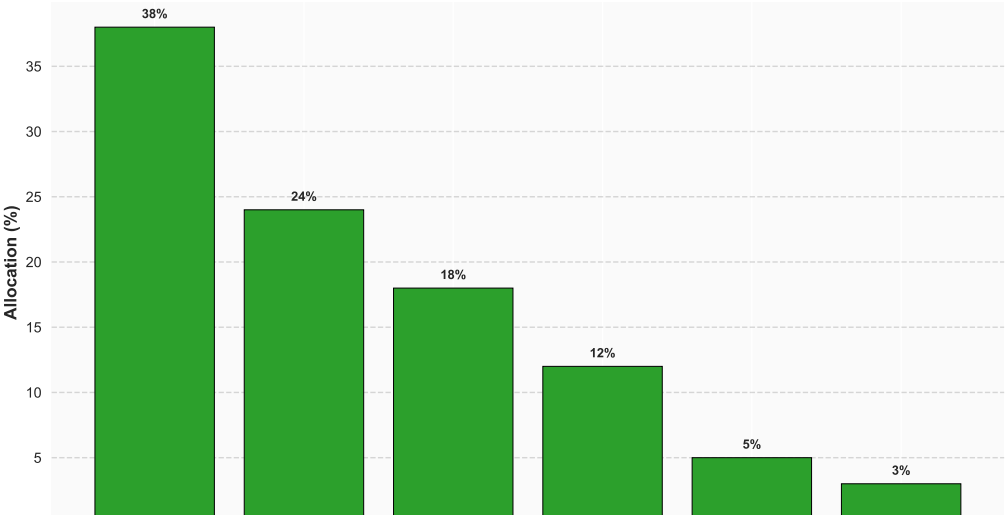
- Green allocation as strategic decision
- Diversification benefits assessment
- Factor exposure analysis
- Benchmark selection challenges

Risk Management

- ESG risk integration in VaR models
- Scenario analysis for climate policies
- Transition risk exposure measurement
- Physical risk assessment

Modern portfolio theory applies with additional sustainability dimensions

Green Finance by Economic Sector
2024 Allocation



Green Finance Foundations - Week 1 Summary

