

PROJECT PLANNING AND MANAGEMENT

FINANCING OF PROJECTS

CHAPTER

12

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Chapter Introduction

A financially viable project may still fail if appropriate financing is not available at the right:

- Amount
- Cost
- Time
- Currency
- Maturity
- Repayment structure
- Risk allocation

Project financing therefore connects investment appraisal with actual project implementation.

Central Financing Question

How should a project mobilize and structure sufficient financial resources while maintaining acceptable cost, risk, liquidity and control?

Learning Objectives

By the end of this chapter, students will be able to:

- Explain the meaning and importance of project financing
- Distinguish project finance from corporate finance
- Identify project-financing requirements
- Explain major internal and external financing sources
- Compare equity and debt financing
- Evaluate term loans, leases and supplier credit
- Explain mezzanine and hybrid financing
- Assess development and concessional financing
- Prepare a sources-and-uses statement
- Design an appropriate financing mix
- Explain debt capacity and financial leverage
- Prepare a loan-amortization schedule
- Assess financing risks
- Explain project-finance structures and special-purpose vehicles
- Identify lender security and covenant requirements
- Evaluate refinancing and restructuring alternatives
- Develop a financing strategy

Chapter Roadmap

This chapter covers:

1. Meaning of project financing
2. Financing requirements
3. Internal sources of finance
4. Equity financing
5. Debt financing
6. Lease and supplier financing
7. Hybrid and mezzanine finance
8. Development and concessional finance
9. Financing mix and capital structure
10. Project-finance structures
11. Debt-service design
12. Security and covenants
13. Financing risks
14. Financing strategy and decision

Opening Reflection

A project has

- Positive Net Present Value
- Strong market demand
- Experienced management
- Adequate technical capacity

However

- Banks require high collateral
- Interest rates are high
- The project has a long construction period
- Revenue begins slowly

Should the project proceed using a large short-term bank loan?

What Is Project Financing?

Project financing is the process of identifying, mobilizing and structuring the funds required to develop, implement and operate a project.

Purpose of Project Financing

Project financing ensures that the project has enough money to cover:

- Development studies
- Land
- Construction
- Machinery
- Installation
- Pre-operating expenditure
- Working capital
- Contingency
- Initial operating losses

Financing versus Investment Appraisal

Investment Appraisal

Determines whether the project is financially attractive.

Project Financing

Determines how the required funds will be obtained and repaid.

Financing Decision Questions

- How much financing is required?
- When is it required?
- Which sources are available?
- What is their cost?
- What security is required?
- How will repayment be structured?
- How much risk will owners retain?
- Will financing remain affordable?

Financing Objectives

A sound financing plan should:

- Fully cover project costs
- Match financing maturity with asset life
- Maintain adequate liquidity
- Minimize financing cost
- Manage financial risk
- Protect ownership objectives
- Support project flexibility

Financing Principle

$$\text{Total Sources of Finance} = \text{Total Uses of Finance}$$

A financing gap must be resolved before project implementation.

Financing Gap

$$\text{Financing Gap} = \text{Total Project Cost} - \text{Confirmed Financing}$$

A positive result indicates that the project is not fully financed.

Overfinancing

Overfinancing occurs when committed funds exceed justified project requirements. It may result in:

- Unnecessary interest cost
- Inefficient use of capital
- Weak financial discipline
- Unproductive cash balances

Financing and Project Risk

Financing structure affects:

- Default risk
- Liquidity risk
- Ownership control
- Return on equity
- Exposure to interest rates
- Exposure to exchange rates
- Ability to withstand delays

Determining Financing Requirements

Financing requirements should be based on:

- Total investment cost
- Implementation schedule
- Working-capital needs
- Financing fees
- Interest during construction
- Contingency
- Start-up losses

Main Uses of Funds

Uses may include:

- Land and site development
- Buildings and civil works
- Machinery and equipment
- Vehicles
- Technology and licences
- Preliminary expenses
- Pre-operating expenses
- Working capital

Sources-and-Uses Statement

Uses of Funds	Amount	Sources of Funds	Amount
Land and civil works		Equity	
Machinery		Term loan	
Pre-operating costs		Lease finance	
Working capital		Working-capital loan	
Total Uses		Total Sources	

Timing of Financing

Financing should be scheduled according to:

- Land-payment dates
- Construction progress
- Equipment orders
- Shipping
- Installation
- Working-capital start-up
- Commercial-operation date

Financing Drawdown

A drawdown is the amount of financing released to the project at a particular time. Funds should normally be drawn only when required to reduce:

- Interest cost
- Commitment cost
- Idle cash

Financing Disbursement Schedule

Period	Equity	Loan	Lease	Total Funding
Quarter 1				
Quarter 2				
Quarter 3				
Quarter 4				

Cost Overrun Financing

A financing plan should specify how unexpected cost increases will be covered through:

- Contingency
- Additional equity
- Standby loan
- Sponsor support
- Scope reduction
- Supplier credit

Completion Funding

Completion funding ensures that enough resources remain available to bring the project into operation even if:

- Construction is delayed
- Costs rise
- Initial output is below plan
- Revenue starts late

Corporate Finance

Under corporate finance, lenders generally assess and rely on the financial strength and assets of the sponsoring organization.

Project Finance

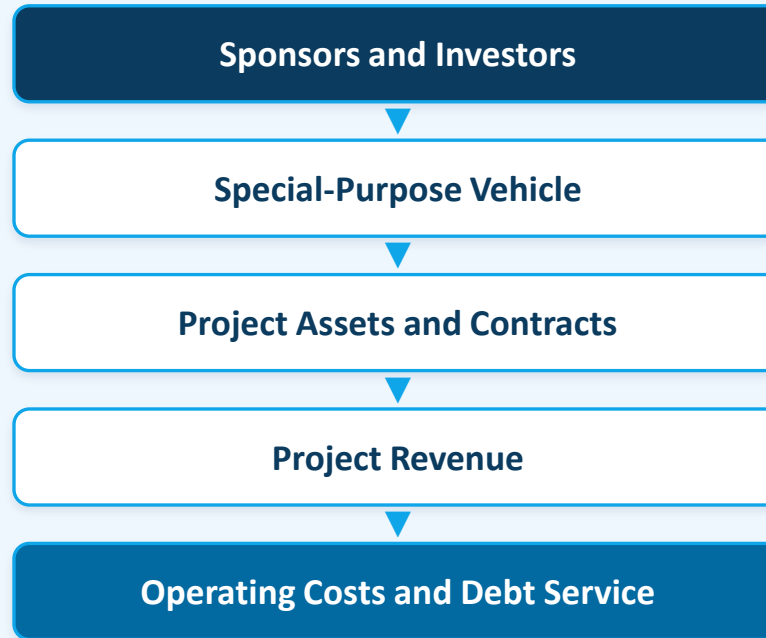
Under project finance, funding is structured primarily around:

- Project cash flows
- Project assets
- Project contracts
- Risk allocation

Special-Purpose Vehicle

A Special-Purpose Vehicle is a separate legal entity formed to own, finance and operate a specific project.

Project-Finance Structure



Corporate versus Project Finance

Corporate Finance	Project Finance
Based on sponsor balance sheet	Based mainly on project cash flow
Corporate assets support debt	Project assets and contracts support debt
Simpler structure	Complex contractual structure
Lower transaction cost	Higher development cost
Broader creditor recourse	Limited or non-recourse

Full Recourse Financing

Full recourse means lenders may claim repayment from the sponsoring organization beyond the project's assets and cash flows.

Limited Recourse Financing

Limited recourse allows lenders to claim against sponsors only under specified conditions. Examples:

- Construction overrun
- Completion failure
- Sponsor breach
- Minimum equity commitment

Non-Recourse Financing

Non-recourse financing relies primarily on project assets and project cash flows.

In practice, completely non-recourse financing is uncommon during construction.

Suitable Projects for Project Finance

Project finance is commonly associated with:

- Power plants
- Toll roads
- Mining
- Telecommunications
- Water facilities
- Large industrial plants
- Public–private partnerships

Project-Finance Requirements

A financeable project normally needs:

- Predictable revenue
- Proven technology
- Clear contracts
- Stable regulation
- Strong sponsors
- Adequate risk allocation
- Sufficient debt-service capacity

Internal Financing

Internal financing comes from within the sponsoring organization.

Main Internal Sources

- Retained earnings
- Depreciation-generated funds
- Sale of surplus assets
- Reduction in working capital
- Owner contributions
- Internal cash reserves

Retained Earnings

Retained earnings are profits reinvested in the business rather than distributed as dividends.

Advantages of Retained Earnings

- No interest obligation
- No ownership dilution
- No external approval
- Flexible use
- Lower transaction cost

Limitations of Retained Earnings

- May be insufficient
- Reduces funds available for dividends
- May create internal competition
- Can conceal the true cost of capital

Sale of Non-Core Assets

An organization may finance a project by selling:

- Unused land
- Old equipment
- Nonstrategic investments
- Excess vehicles
- Underperforming divisions

Internal Financing Is Not Free

Internal funds have an opportunity cost because they could be:

- Distributed to owners
- Invested elsewhere
- Used to repay debt
- Retained as liquidity

What Is Equity Financing?

Equity financing represents funds contributed by owners or investors in exchange for an ownership interest.

Main Equity Sources

- Promoter contributions
- Ordinary shares
- Private investors
- Venture capital
- Private equity
- Strategic partners
- Public share issue

Ordinary Share Capital

Ordinary shareholders generally receive:

- Voting rights
- Residual profits
- Capital gains
- Residual claim on assets

They bear the highest financial risk.

Advantages of Equity Financing

- No compulsory principal repayment
- No mandatory interest
- Strengthens debt capacity
- Absorbs project losses
- Suitable for long-term assets

Limitations of Equity Financing

- Ownership dilution
- Shared control
- High expected return
- Complex investor negotiations
- Possible dividend expectations
- Limited availability

Promoter Equity

Promoter equity demonstrates:

- Commitment
- Risk sharing
- Confidence in the project
- Financial strength

Lenders often require promoters to contribute a minimum percentage.

Equity Contribution Timing

Lenders may require equity to be:

- Contributed before debt
- Contributed proportionately with debt
- Maintained until completion
- Supported by proof of funds

Strategic Investor

A strategic investor may provide:

- Equity
- Technology
- Market access
- Management expertise
- Brand
- Supply-chain support

Venture Capital

Venture capital may finance:

- High-growth projects
- Innovative businesses
- Early-stage companies
- Technology projects

Investors usually expect significant growth and an eventual exit.

Private Equity

Private-equity investors typically finance established or scalable businesses and may actively influence:

- Governance
- Strategy
- Management
- Financial restructuring
- Exit planning

Public Equity Offering

A company may raise funds through public sale of shares. This requires:

- Regulatory approval
- Disclosure
- Governance standards
- Audited financial information
- Investor communication

Equity Return

Equity investors may receive returns through:

- Dividends
- Share-price appreciation
- Sale of ownership
- Buyback
- Project distributions

Return on Equity

$$\text{ROE} = \left(\text{Net Income} / \text{Average Equity} \right) \times 100$$

Equity Risk

Equity holders are paid after:

- Operating expenses
- Taxes
- Interest
- Principal obligations
- Other senior claims

What Is Debt Financing?

Debt financing provides borrowed funds that must normally be repaid with interest according to agreed terms.

Main Debt Sources

- Commercial-bank loans
- Development-bank loans
- Bonds
- Debentures
- Working-capital loans
- Supplier loans
- Subordinated debt
- Foreign-currency loans

Term Loan

A term loan is commonly used to finance:

- Buildings
- Machinery
- Equipment
- Long-term technology
- Infrastructure

Main Loan Terms

A term-loan agreement specifies:

- Principal
- Interest rate
- Maturity
- Grace period
- Repayment frequency
- Security
- Fees
- Covenants

Fixed Interest Rate

A fixed rate remains unchanged during the agreed period. Advantages:

- Predictable payments
- Protection from rising rates
- Easier cash-flow planning

Variable Interest Rate

A variable rate changes according to a benchmark or lender policy.

It creates exposure to increasing debt-service costs.

Effective Interest Cost

The effective financing cost may include:

- Nominal interest
- Commitment fee
- Arrangement fee
- Guarantee fee
- Insurance
- Legal fees
- Compensating balance

Grace Period

A grace period postpones principal repayment. It is often used during:

- Construction
- Installation
- Trial production
- Initial market development

Principal Grace versus Full Grace

Principal Grace

Interest is paid, but principal is postponed.

Full Grace

Both principal and interest are postponed, with interest often capitalized.

Loan Maturity

Maturity should match:

- Asset life
- Project cash generation
- Market ramp-up
- Debt-service capacity
- Risk profile

Short-Term Debt Risk

Using short-term loans for long-term project assets may create:

- Refinancing risk
- High periodic payments
- Liquidity pressure
- Interest-rate exposure
- Default risk

Amortizing Loan

An amortizing loan is repaid gradually through periodic principal and interest payments.

Equal-Principal Repayment

$$\text{Periodic Principal} = \text{Original Loan} / \text{Number of Repayment Periods}$$

Interest declines as the outstanding balance falls.

Equal-Payment Loan

Under an equal-payment structure, the total periodic payment remains approximately constant. Each payment contains:

- Interest
- Principal

Balloon Payment

A balloon structure requires a large principal payment near the end of the loan period.

It may create significant refinancing or liquidity risk.

Bullet Repayment

Under bullet repayment, the principal is repaid mainly or entirely at maturity.

This may be suitable only when a reliable future cash inflow exists.

Loan-Amortization Table

Year	Opening Balance	Interest	Principal	Total Payment	Closing Balance

Loan-Interest Formula

$$\text{Interest (t)} = \text{Opening Loan Balance (t)} \times \text{Interest Rate}$$

Equal-Principal Example

Loan = \$1,000,000

Repayment period = 5 years

Annual principal = $1,000,000 / 5 =$
\$200,000

Year 1 Debt Service

Interest rate = 10%

Year 1 interest = $1,000,000 \times 10\%$ =
\$100,000

Total Year 1 debt service = \$300,000

Year 2 Debt Service

Opening balance = \$800,000

Interest = $800,000 \times 10\%$ = \$80,000

Total Year 2 payment = \$280,000

Bond Financing

A bond is a long-term debt instrument issued to multiple investors.

Bond Components

A bond normally specifies:

- Face value
- Coupon rate
- Maturity
- Payment frequency
- Security
- Redemption terms
- Covenants

Advantages of Bonds

- Access to large pools of capital
- Longer maturity
- Diversified lenders
- Potentially fixed interest
- Suitable for large projects

Limitations of Bonds

- High issuance cost
- Regulatory requirements
- Credit-rating needs
- Disclosure requirements
- Market-access risk
- Refinancing pressure

Working-Capital Finance

Working-capital financing supports:

- Inventory
- Receivables
- Payroll
- Utilities
- Routine operating expenses
- Seasonal needs

Main Working-Capital Sources

- Bank overdraft
- Revolving credit
- Short-term loan
- Supplier credit
- Receivables financing
- Owner contribution
- Cash generated from operations

Bank Overdraft

An overdraft allows the organization to withdraw more than its account balance up to an approved limit.

Revolving Credit Facility

A revolving facility allows repeated borrowing, repayment and re-borrowing within an approved limit and period.

Receivables Financing

Receivables financing uses customer invoices to obtain immediate cash. Forms include:

- Factoring
- Invoice discounting
- Receivables-backed lending

Working-Capital Matching

Permanent working capital should generally be financed with:

- Equity
- Long-term debt
- Stable financing

Temporary or seasonal needs may use short-term facilities.

What Is Lease Financing?

Lease financing allows a project to use an asset in exchange for periodic payments without necessarily purchasing it immediately.

Main Lease Parties

- Lessor: owner or financing provider
- Lessee: project or organization using the asset
- Supplier: provider of the equipment

Finance Lease

A finance lease transfers substantially the economic risks and rewards of the asset to the lessee.

Operating Lease

An operating lease is generally shorter and may allow the asset to be returned or replaced more easily.

Advantages of Leasing

- Lower initial cash requirement
- Access to equipment
- Flexible asset replacement
- Possible tax advantages
- Preservation of borrowing capacity

Limitations of Leasing

- Total payments may be high
- Contract may be inflexible
- Ownership may remain with lessor
- Early termination may be costly
- Foreign-currency exposure may arise

Lease-versus-Buy Analysis

The decision should compare the present value of:

Leasing Costs

- Lease payments
- Fees
- Maintenance obligations
- Tax effects

Buying Costs

- Purchase price
- Financing
- Maintenance
- Tax effects
- Residual value

Lease Decision Factors

- Asset life
- Technology obsolescence
- Maintenance responsibility
- Tax treatment
- Cash availability
- Residual value
- Financing cost

Supplier Credit

Supplier credit allows delayed payment for:

- Equipment
- Raw materials
- Components
- Services

Advantages of Supplier Credit

- Faster access
- Reduced initial cash need
- Simpler negotiation
- Linked to procurement
- Useful for working capital

Limitations of Supplier Credit

- Higher purchase price
- Short repayment period
- Supplier dependence
- Foreign-currency risk
- Limited flexibility

Equipment Supplier Finance

Equipment suppliers may offer:

- Deferred payment
- Installment purchase
- Export credit
- Lease arrangement
- Manufacturer-supported loan

Export Credit Financing

Export-credit agencies may support the purchase of imported equipment through:

- Guarantees
- Insurance
- Direct loans
- Buyer's credit
- Supplier's credit

Trade Credit Cost

Credit terms should be evaluated carefully. Example — “2/10, net 30” means:

- 2% discount if paid within 10 days
- Full amount due in 30 days

Rejecting the discount may have a high effective annual cost.

Hybrid Financing

Hybrid instruments combine features of debt and equity.

Preference Shares

Preference shares may provide:

- Fixed dividend
- Priority over ordinary equity
- Limited voting rights
- No fixed principal repayment in some structures

Convertible Debt

Convertible debt begins as a loan but may be converted into equity under agreed conditions.

Mezzanine Finance

Mezzanine finance lies between senior debt and equity in terms of:

- Risk
- Priority
- Expected return
- Security

Mezzanine Characteristics

It may include:

- Subordinated debt
- High interest
- Profit participation
- Warrants
- Conversion rights
- Flexible repayment

Advantages of Mezzanine Finance

- Fills financing gap
- Reduces immediate ownership dilution
- More flexible than senior debt
- Supports leveraged transactions
- May require less collateral

Limitations of Mezzanine Finance

- High cost
- Subordination risk
- Complex agreements
- Possible future dilution
- Strong investor oversight

Subordinated Debt

Subordinated debt is repaid after senior debt in the event of liquidation or default.

It is therefore riskier and generally more expensive.

Development Finance

Development-finance institutions may support projects that contribute to:

- Economic growth
- Employment
- Infrastructure
- Industrialization
- Climate resilience
- Social development

Development-Finance Instruments

- Long-term loans
- Equity
- Guarantees
- Technical assistance
- Credit lines
- Risk-sharing facilities
- Blended finance

Concessional Finance

Concessional finance is provided on more favorable terms than standard commercial financing. It may offer:

- Lower interest
- Longer maturity
- Longer grace period
- Reduced collateral
- Technical support

Grant Financing

Grants do not normally require repayment but may impose:

- Restricted use
- Reporting
- Performance conditions
- Procurement rules
- Audit requirements

Blended Finance

Blended finance combines public, concessional or philanthropic funds with commercial finance to improve project bankability.

Guarantee

A guarantee protects the lender against specified losses if the borrower or project fails to pay.

Types of Guarantees

- Credit guarantee
- Partial-risk guarantee
- Political-risk guarantee
- Completion guarantee
- Performance guarantee
- Foreign-exchange guarantee

Benefits of Guarantees

Guarantees may:

- Reduce lender risk
- Improve loan terms
- Increase loan maturity
- Reduce collateral requirements
- Mobilize private investment

Public–Private Partnership Finance

PPP projects may combine:

- Public land or support
- Private equity
- Commercial debt
- Development finance
- Government payments
- User charges

Viability-Gap Funding

Viability-gap funding is public support provided to make an economically desirable but financially weak project commercially feasible.

What Is Capital Structure?

Capital structure is the combination of long-term debt, equity and hybrid financing used to fund the project.

Financing Mix Objective

The financing mix should balance:

- Cost
- Risk
- Flexibility
- Control
- Debt capacity
- Liquidity
- Investor expectations

Debt–Equity Ratio

$$\text{Debt–Equity Ratio} = \text{Total Debt} / \text{Total Equity}$$

Debt–Equity Example

Debt = \$7,000,000

Equity = \$3,000,000

Debt–Equity Ratio = 2.33

Debt Ratio

$$\text{Debt Ratio} = \text{Total Debt} / \text{Total Project Financing}$$

Equity Ratio

$$\text{Equity Ratio} = \text{Equity} / \text{Total Project Financing}$$

Financial Leverage

Financial leverage uses debt to increase the potential return to equity holders.

It also increases financial risk.

Positive Leverage

Positive leverage occurs when the project return exceeds the after-tax cost of debt.

Negative Leverage

Negative leverage occurs when the project return is below the cost of debt.

Debt then reduces equity returns and increases distress risk.

Advantages of Debt

- Interest may be tax-deductible
- Ownership is not diluted
- Debt may cost less than equity
- Returns to owners may increase

Disadvantages of Debt

- Mandatory payments
- Collateral requirements
- Default risk
- Restrictive covenants
- Reduced flexibility
- Higher exposure during downturns

Optimal Financing Mix

There is no universal optimal debt ratio. The appropriate mix depends on:

- Cash-flow stability
- Project risk
- Asset type
- Loan maturity
- Market conditions
- Sponsor strength
- Lender requirements

Stable versus Volatile Projects

Stable Cash-Flow Project

May support more debt.

Volatile Cash-Flow Project

Generally requires more equity and liquidity protection.

Financing-Mix Example

Source	Amount	Percentage
Equity	\$3.0m	30%
Senior loan	\$5.5m	55%
Lease	\$1.0m	10%
Supplier credit	\$0.5m	5%
Total	\$10.0m	100%

Cost of Debt

The cost of debt includes interest and related borrowing expenses.

After-Tax Cost of Debt

$$\text{After-Tax Cost of Debt} = k_d \times (1 - T)$$

where

- k_d = before-tax cost of debt
- T = corporate tax rate

Cost of Equity

The cost of equity is the return required by owners for bearing project risk.

It is not directly shown as a contractual payment.

Weighted Average Cost of Capital

$$\text{WACC} = w_e \cdot k_e + w_d \cdot k_d \cdot (1 - T) + w_p \cdot k_p$$

where

- w_e, w_d, w_p are financing weights
- k_e, k_d, k_p are component costs

WACC Use

WACC may be used as a discount rate when:

- Project risk is similar to the organization's normal risk
- Target capital structure is stable
- Cash flows are measured before financing

WACC Limitation

A single WACC may be inappropriate when:

- Project risk differs significantly
- Financing changes over time
- Country risk is high
- Foreign-currency exposure is significant
- Cash flows have different risks

Financing Fees

Financing fees may include:

- Arrangement fee
- Legal fee
- Appraisal fee
- Commitment fee
- Guarantee fee
- Agency fee
- Insurance premium

Commitment Fee

A commitment fee may be charged on the undrawn portion of an approved loan.

It encourages timely and realistic drawdown planning.

Interest during Construction

Interest during construction may arise before the project generates revenue. It may be:

- Paid by sponsors
- Funded through the loan
- Capitalized into project cost

Debt Capacity

Debt capacity is the amount of borrowing the project can support without creating unacceptable default or liquidity risk.

Debt-Service Coverage Ratio

$$\text{DSCR} = \text{Cash Available for Debt Service} / (\text{Principal} + \text{Interest})$$

DSCR Interpretation

- Greater than 1.00: cash exceeds debt service
- Equal to 1.00: cash exactly covers debt service
- Below 1.00: insufficient cash for full debt service

DSCR Example

Cash available for debt service = \$750,000

Principal and interest = \$500,000

DSCR = 1.50

Minimum DSCR

Lenders may require a minimum DSCR such as:

- 1.20
- 1.25
- 1.30
- Higher for volatile projects

Average versus Minimum DSCR

A project may have a strong average DSCR but still fail in a particular year.

The minimum annual DSCR is therefore important.

Interest-Coverage Ratio

$$\text{Interest Coverage} = \text{EBIT} / \text{Interest Expense}$$

Loan-Life Coverage Ratio

$$\text{LLCR} = \frac{\text{PV of Cash Available for Debt Service over Loan Life}}{\text{Outstanding Debt}}$$

Project-Life Coverage Ratio

$$\text{PLCR} = \frac{\text{PV of Cash Available for Debt Service over Project Life}}{\text{Outstanding Debt}}$$

Debt-Service Reserve Account

A Debt-Service Reserve Account holds cash to cover scheduled debt service during temporary cash shortages.

Reserve Requirement

A lender may require reserves equal to:

- Three months' debt service
- Six months' debt service
- One full debt-service period

Cash Sweep

A cash sweep uses excess project cash to repay debt earlier than originally scheduled.

Sculpted Repayment

Debt repayment may be structured to match projected project cash flows.

Higher principal is paid when cash flow is stronger.

Debt-Service Profile

A suitable profile should avoid:

- Large payments during construction
- Heavy payments during market ramp-up
- Balloon payments without refinancing
- Maturity before assets generate sufficient cash

Why Lenders Require Security

Security reduces lender loss if the project cannot repay its debt.

Forms of Security

- Mortgage over land and buildings
- Charge over machinery
- Pledge of shares
- Assignment of receivables
- Bank-account control
- Sponsor guarantee
- Insurance assignment

Collateral

Collateral is an asset pledged to secure loan repayment.

Project-Asset Security

Project lenders may take security over:

- Physical assets
- Project contracts
- Cash accounts
- Insurance proceeds
- Shares in the SPV
- Project revenue

Sponsor Guarantee

A sponsor guarantee may cover:

- Cost overrun
- Completion
- Debt repayment
- Equity contribution
- Performance obligations

Completion Guarantee

A completion guarantee requires sponsors or contractors to ensure that the project reaches defined completion standards.

Step-In Rights

Step-in rights allow lenders or designated parties to intervene when serious project default threatens operations.

Insurance Requirements

Lenders may require insurance for:

- Construction
- Machinery damage
- Fire
- Business interruption
- Liability
- Political risk
- Transport

What Is a Loan Covenant?

A covenant is a contractual condition that the borrower must observe during the loan period.

Positive Covenants

Positive covenants require the borrower to:

- Maintain insurance
- Submit reports
- Pay taxes
- Maintain assets
- Comply with laws
- Maintain financial records

Negative Covenants

Negative covenants may restrict:

- Additional borrowing
- Asset disposal
- Dividend payments
- Ownership changes
- Related-party transactions
- Major project modifications

Financial Covenants

Examples include:

- Minimum DSCR
- Maximum debt–equity ratio
- Minimum current ratio
- Minimum reserve balance
- Maximum additional debt

Covenant Breach

A covenant breach may lead to:

- Corrective-action requirement
- Waiver request
- Increased interest
- Restrictions
- Loan acceleration
- Default

Covenant Headroom

Covenant headroom is the margin between forecast financial performance and the covenant threshold.

Low headroom indicates higher financing risk.

Contractual Risk Allocation

Project-finance arrangements depend on contracts that allocate:

- Construction risk
- Supply risk
- Market risk
- Operating risk
- Political risk
- Currency risk

Construction Contract

A construction contract may specify:

- Price
- Completion date
- Performance standards
- Delay damages
- Cost-overflow responsibility
- Warranty
- Acceptance tests

Offtake Agreement

An offtake agreement commits a customer to purchase the project's output under defined conditions.

It reduces market risk.

Take-or-Pay Agreement

Under take-or-pay, the buyer agrees to pay for a minimum quantity whether or not it takes delivery.

Supply Agreement

A supply agreement may guarantee:

- Quantity
- Quality
- Price formula
- Delivery schedule
- Penalties
- Alternative supply

Operations and Maintenance Agreement

An O&M agreement assigns responsibility for:

- Operating the facility
- Maintenance
- Performance
- Staffing
- Reporting
- Availability standards

Concession Agreement

A concession agreement grants a private party the right to develop and operate a project or public service for a defined period.

Direct Agreement

A direct agreement creates rights and obligations among lenders, the project company and major contractual parties.

It may support lender step-in rights.

Main Financing Risks

- Funding gap
- Interest-rate risk
- Exchange-rate risk
- Refinancing risk
- Liquidity risk
- Credit risk
- Covenant risk
- Disbursement risk

Funding Risk

Funding risk is the possibility that expected financing will not be available when required.

Interest-Rate Risk

Interest-rate risk arises when borrowing costs increase. Possible responses include:

- Fixed-rate loan
- Interest-rate cap
- Swap
- Shorter repricing period
- Higher contingency

Foreign-Exchange Risk

Foreign-exchange risk arises when:

- Debt is in foreign currency
- Revenue is in local currency
- Imported costs are significant
- Exchange rates are volatile

Natural Hedge

A natural hedge exists when foreign-currency inflows offset foreign-currency obligations.

Example: export revenue used to repay foreign-currency debt.

Currency-Risk Responses

- Borrow in revenue currency
- Use forward contracts
- Maintain foreign-currency reserves
- Negotiate currency-adjustment clauses
- Increase equity
- Limit foreign borrowing

Refinancing Risk

Refinancing risk is the possibility that maturing debt cannot be replaced on acceptable terms.

Liquidity Risk

Liquidity risk is the possibility that the project cannot meet short-term obligations despite having valuable long-term assets.

Credit Risk

Credit risk includes the possibility that:

- Customers do not pay
- Suppliers fail
- Guarantors default
- Financial institutions fail
- Sponsors do not contribute equity

Construction Financing Risk

During construction:

- Costs may rise
- No operating revenue exists
- Delays increase interest
- Technical problems may affect completion
- Lenders may suspend disbursement

Completion Risk

Completion risk is the possibility that the project will not be completed:

- On time
- Within budget
- At required capacity
- At required quality

Debt-Service Risk

Debt-service risk increases when:

- Revenue is volatile
- Costs rise
- Grace period is short
- Repayment is front-loaded
- DSCR is weak
- Working capital is underestimated

Political and Regulatory Risk

Possible risks include:

- Expropriation
- Licence cancellation
- Tax change
- Currency controls
- Tariff changes
- Government nonperformance

Financing-Risk Register

Risk	Probability	Impact	Response	Owner
Interest-rate increase	Medium	High	Fix part of loan rate	Finance Director
Exchange depreciation	High	High	Match debt and revenue currency	CFO
Funding delay	Medium	High	Standby facility	Sponsor

What Is Financial Close?

Financial close occurs when:

- Financing documents are signed
- Conditions precedent are satisfied
- Equity is committed
- Loan availability is confirmed
- Implementation funding can be drawn

Conditions Precedent

Possible conditions include:

- Licences obtained
- Land secured
- Insurance arranged
- Equity deposited
- Contracts signed
- Environmental approvals obtained
- Security documents completed

Financial-Close Checklist

Confirm that:

- Total financing equals total cost
- Equity is available
- Loan terms are documented
- Security is established
- Required contracts are effective
- Drawdown conditions are satisfied
- Contingency financing exists

Failure to Reach Financial Close

Possible consequences include:

- Project delay
- Contract expiry
- Cost escalation
- Loss of suppliers
- Loss of permits
- Reduced investor confidence
- Project cancellation

Refinancing

Refinancing replaces existing debt with new financing. It may be used to:

- Reduce interest
- Extend maturity
- Change currency
- Release security
- Improve cash flow
- Replace construction debt

Construction-to-Term Refinancing

Construction financing may be replaced by long-term operating debt after:

- Completion
- Commissioning
- Stable revenue
- Performance testing

Debt Restructuring

Debt restructuring changes existing loan terms because the project cannot meet its original obligations.

Restructuring Options

- Extend maturity
- Increase grace period
- Reduce interest rate
- Reschedule principal
- Convert debt to equity
- Capitalize interest
- Provide additional collateral

Restructuring Warning

Restructuring may improve liquidity but does not correct a fundamentally unviable business model.

Financing-Strategy Process

1. Estimate total project cost
2. Prepare funding schedule
3. Determine sponsor contribution
4. Assess debt capacity
5. Identify financing sources
6. Compare cost and risk
7. Structure repayment
8. Negotiate terms
9. Reach financial close
10. Monitor financing performance

Financing-Source Assessment

Evaluate each source based on:

- Amount available
- Cost
- Maturity
- Grace period
- Currency
- Security
- Control implications
- Flexibility
- Conditions

Financing Alternatives Matrix

Criterion	Equity	Term Loan	Lease	Supplier Credit
Repayment obligation	None fixed	Mandatory	Mandatory	Mandatory
Ownership dilution	Yes	No	No	No
Security	Usually none	Common	Asset-based	Supplier-based
Cost	High expected return	Interest	Lease cost	Embedded cost

Maturity-Matching Principle

- Long-term assets → long-term finance
- Permanent working capital → stable long-term finance
- Seasonal working capital → short-term finance

Currency-Matching Principle

Finance should preferably be denominated in the same currency as the project's cash inflows.

Risk-Sharing Principle

Project risks should be allocated to the parties best able to:

- Control
- Monitor
- Manage
- Absorb
- Finance them

Flexibility Principle

The financing structure should permit reasonable flexibility for:

- Delays
- Cost changes
- Refinancing
- Early repayment
- Expansion
- Temporary cash shortfalls

Financing Recommendation

A financing recommendation should state:

- Total financing required
- Proposed financing mix
- Loan terms
- Equity contribution
- Repayment profile
- Key risks
- Approval conditions
- Contingency arrangement

MBA Case Exercise

Proposed Agro-Processing Project

Total project cost = \$10,000,000

Construction period = 18 months

Commercial operation begins in Year 2

Proposed Financing Sources

- Sponsor equity: \$3 million
- Senior term loan: \$5 million
- Equipment lease: \$1 million
- Supplier credit: \$500,000
- Working-capital facility: \$500,000

Financing-Mix Calculation

Source	Amount	Percentage
Equity	\$3.0m	30%
Senior loan	\$5.0m	50%
Lease	\$1.0m	10%
Supplier credit	\$0.5m	5%
Working-capital loan	\$0.5m	5%

Debt–Equity Ratio

Total debt-like financing = \$7,000,000

Equity = \$3,000,000

D/E = 2.33

Loan Terms

Assume:

- Senior loan: \$5 million
- Interest: 10%
- Principal grace: 2 years
- Repayment: 5 equal annual principal installments

Annual Principal

$$\text{\$5,000,000} / 5 = \text{\$1,000,000}$$

First Repayment-Year Interest

Opening balance = \$5,000,000

Interest = \$5,000,000 × 10% = \$500,000

Total debt service = \$1,500,000

DSCR Exercise

Cash available for debt service = \$2,100,000

Debt service = \$1,500,000

DSCR = 1.40

DSCR Interpretation

The project generates approximately \$1.40 of cash available for every \$1.00 of scheduled debt service.

Financing-Risk Exercise

Assess the project's exposure to:

- Exchange-rate depreciation
- Interest-rate increase
- Cost overrun
- Delayed market entry
- Weak DSCR
- Supplier-credit withdrawal
- Refinancing risk

Financing Alternative Exercise

Compare the two alternatives.

Alternative A

30% equity and 70% debt.

Alternative B

45% equity and 55% debt.

Assess: return on equity, DSCR, default risk, ownership dilution and financing cost.

Lease-versus-Buy Exercise

Evaluate whether the project should:

Options to evaluate

- Purchase the equipment using a loan
- Lease the equipment
- Negotiate supplier credit

Consider

- Present value of payments
- Ownership
- Maintenance
- Tax treatment
- Flexibility

Group Assignment

Each group should prepare:

1. Project-cost statement
2. Sources-and-uses statement
3. Financing-disbursement schedule
4. Equity plan
5. Loan-amortization schedule
6. Lease evaluation
7. Working-capital facility
8. Debt–equity analysis
9. DSCR and coverage ratios
10. Security package
11. Covenant framework
12. Financing-risk register
13. Financial-close checklist
14. Final financing recommendation

Common Financing Mistakes

- Underestimating total project cost
- Ignoring interest during construction
- Using short-term debt for long-term assets
- Assuming all approved funds are immediately available
- Using excessive debt
- Ignoring working-capital finance
- Ignoring foreign-exchange exposure
- Accepting unrealistic repayment terms

Common Debt-Structuring Mistakes

- Insufficient grace period
- Front-loaded repayment
- Balloon payment without refinancing plan
- Weak DSCR
- Maturity shorter than project cash generation
- Variable interest without protection
- Debt currency different from revenue currency

Common Equity Mistakes

- Promoters contribute too little
- Equity is contributed too late
- Ownership dilution is ignored
- Investor exit terms are unclear
- Governance rights are undefined
- Internal funds are treated as free

Financing Checklist

Confirm that:

- Total project cost is complete
- Sources equal uses
- Timing of funding matches expenditure
- Equity is confirmed
- Loan maturity matches asset life
- Grace period supports start-up
- DSCR is adequate
- Currency risk is manageable
- Security requirements are acceptable
- Covenants allow operational flexibility
- Contingency financing exists
- Financial-close conditions are achievable

Knowledge Check

1. What is project financing?
2. How does project finance differ from corporate finance?
3. What is a Special-Purpose Vehicle?
4. What are the main sources of equity?
5. What are the main characteristics of debt financing?
6. What is a grace period?
7. What is lease financing?
8. What is mezzanine finance?
9. What is blended finance?
10. How is the debt–equity ratio calculated?
11. What does DSCR measure?
12. Why do lenders require security?
13. What is a loan covenant?
14. What is financial close?
15. What is refinancing risk?

Knowledge Check Answers

1. Mobilizing and structuring the funds needed to establish and operate a project
2. Project finance relies mainly on project cash flows and assets; corporate finance relies on the sponsor's balance sheet
3. A separate legal entity formed for a specific project
4. Promoters, ordinary shares, strategic investors, venture capital and private equity
5. Mandatory repayment, interest, maturity, security and covenants
6. Period during which principal repayment is postponed
7. Use of an asset in exchange for periodic payments
8. Financing positioned between senior debt and equity
9. Combination of concessional or public funds with commercial finance
10. Total debt divided by total equity
11. Ability of project cash flow to cover principal and interest
12. To reduce loss if the borrower defaults
13. A contractual condition imposed on the borrower
14. Point at which financing agreements are completed and funds become available
15. Risk that maturing debt cannot be replaced on acceptable terms

Individual Assignment

Select one proposed project and prepare:

- Total financing requirement
- Sources-and-uses statement
- Funding-disbursement schedule
- Equity-financing plan
- Debt-financing plan
- Loan-amortization schedule
- Lease-versus-buy analysis
- Working-capital financing
- Debt–equity analysis
- Cost-of-financing analysis
- DSCR and coverage ratios
- Security package
- Financial covenants
- Project-finance structure
- Financing-risk register
- Financial-close checklist
- Refinancing strategy
- Final financing recommendation

Chapter Summary

- Project financing determines how investment and operating requirements will be funded.
- Financing sources must equal total project uses.
- Financing should be available in the required amount and at the required time.
- Corporate finance relies mainly on sponsor strength.
- Project finance relies mainly on project cash flows, assets and contracts.
- Equity absorbs risk but may dilute ownership.
- Debt preserves ownership but creates compulsory repayment obligations.
- Loan maturity and grace periods should match project cash generation.
- Working-capital requirements need separate financing.
- Leasing and supplier credit may reduce initial cash requirements.
- Hybrid and mezzanine instruments fill gaps between debt and equity.
- Development and concessional finance can improve project bankability.
- The financing mix should balance cost, control, flexibility and risk.
- Debt capacity depends on stable cash flows and adequate coverage ratios.
- Security and covenants protect lenders but may restrict project flexibility.
- Financing risks include interest, currency, liquidity, refinancing and completion risks.
- Financial close should occur before major implementation commitments.
- A sound financing strategy matches source, maturity, currency and repayment with project needs.

KEY MESSAGE

A feasible project requires more than adequate funding. It requires financing whose amount, timing, currency, maturity, repayment profile and risk allocation match the project's cash-flow capacity.

Project Cost



Funding Requirement



Financing Sources



Capital Structure

Debt Capacity



Security and Covenants



Financial Close



Monitoring

Next Chapter Preview

Project Implementation Planning and Control — the next chapter will cover:

- Project scope planning
- Work Breakdown Structure
- Activity definition
- Activity sequencing
- Duration estimation
- Network analysis
- Critical Path Method
- Gantt charts
- Resource planning
- Cost baselines
- Earned Value Management
- Change control
- Progress reporting
- Corrective action

THANK YOU

Questions and Discussion

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Effective project financing aligns long-term investment needs with reliable funding, realistic repayment obligations and clearly allocated risks. The cheapest source of funds is not always the best; the strongest structure is the one the project can sustain under both expected and adverse conditions.