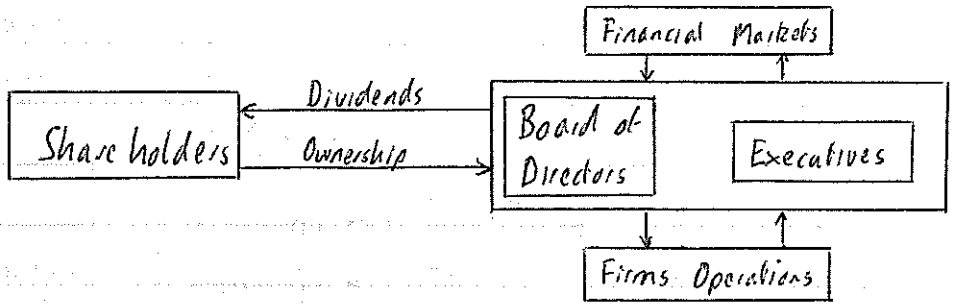
Structure of a Company

The typical structure of a company is as follows



Shareholders own the company. They elect a board of directors to run the company. Their responsibilities are to appoint the management, ensure accounts are produced, approve dividend payments and deal with strategic issues. Money may be borrow from financial institutions and invested in the firms operations.

Splitting up the ownership, management and sources of finance gives advantages. For example, ownership can change without affecting operational activities, you can choose the best source of finance, etc. However it gives scope for conflicts of interest.

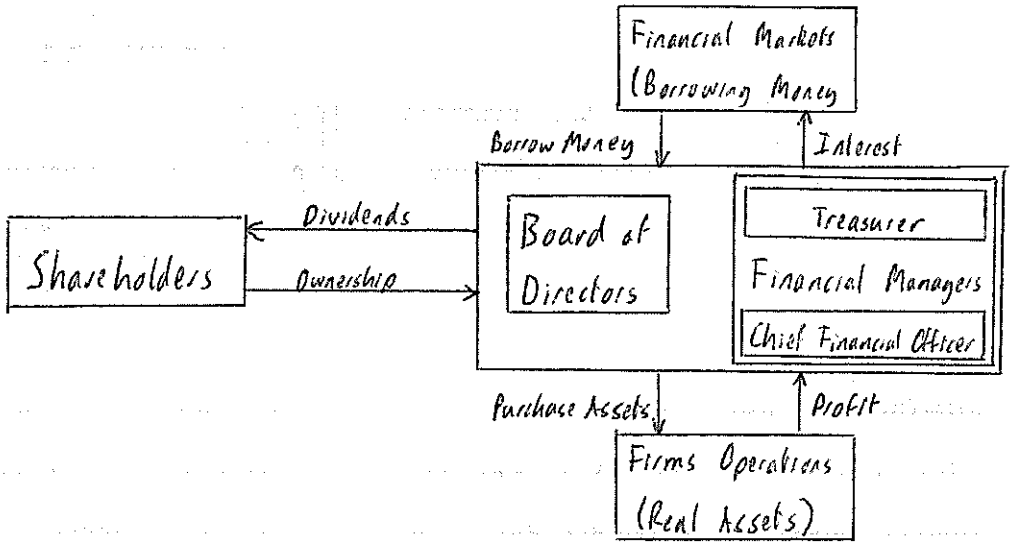
Shareholders / Managers - Shareholders usually want maximum profits.
Managers want interesting projects, a big company to manage, etc.

Shareholders / Lenders - Shareholders like risky projects for long term growth.
Lenders prefer safe projects for short term security.

Shareholders / Shareholders - Different shareholders have different attitudes to risk, want different timings of payments, etc.

Corporate governance provides a high level framework for how the company should be managed, to deal with the conflicting requirements of stakeholders. Examples of good corporate governance include incentivising managers to act in the interests of shareholders (share options), appointing non-executive directors to represent shareholders interests (particularly with respect to executive pay and audits) and having appropriate agreements drawn up with lenders.

If we look at the model in more detail,



we see there are two main decisions to be made

- What real assets to invest in (investment or capital budgeting decision)
- How to finance them (the financing decision)

People making these decisions are financial managers. They have a legal responsibility to make decisions leading to the greatest rise in share price. By following this principle, the conflict between shareholders and managers is mitigate Moreover, if a free competative capital market exists, shareholders can choose investments matching their profile, so shareholder conflicts are also mitigated

The concequences of these choices are hard to predict, but can have a serious effect on the direction and pace of a firm's growth. Dealing with them rationally is what corporate finance is all about.

Environment for Corporate Finance

The main entity determining the environment for corporate finance is the government. This attempts to influence inflation, growth, unemployment and the balance of payments using the following tools.

Monetary Policy

This is about controlling the money supply. It is usually achieved by setting the level and structure of interest rates by buying and selling gilts. However non-market methods such as minimum liquidity reserves and interest rate ceilings may be used.

This is often done through a central bank. Central banks may also deal with financial market and banking regulation, intervention in currency markets and minting money

Raising interest rates makes saving more attractive, leading to a lower money supply, lower inflation and lower growth. Internationally, a lower money supply leads to a stronger currency, cheap imports and expensive exports, affecting the balance of payments

Fiscal Policy

This is about the level and structure of tax and expenditure (and so public borrowing)
The government will typically tax income, turnover, profits, wealth and wealth transfers
It will try to structure the tax system to encourage or discourage certain activities.
It will typically avoid double taxation and penal rates of tax.

Other Policies

Competition controls attempt to ensure sellers do not exploit the public, by preventing monopolies, and regulating those it cannot prevent (e.g. natural monopolies)

Labour policies set the flexibility of labour and the bargaining power of organised labour
Limits may be set on maximum and minimum income and income changes.

The government may offer incentives or tax breaks for certain investment.

Long Term Financial Planning

This looks at the companies needs over the next three to five years.
Its development should always start by looking at the business plans, both for organic growth of the current business, and scope for new developments, under various scenarios.

We then forcast future cashflows, taking need for working capital, growth in fixed assets and tax, interest and dividend payments into account. We then use this to plan for capital budgetting and structure and then borrowing and the financial structure.

When raising finance, there are a number of practical considerations

- Equity — Raising equity capital has high costs involved, cannot be done in small amounts and is relatively permanent. It is chosen when it is considered cheap relative to debt or if debt would create inappropriate gearing.

- Debt — This is cheaper, easier and quicker to get than equity capital and is relatively passive and term-flexible. It can be got from

Retail banks	High volume, low value loans
Wholesale banks	Low volume, high value loans
Financial markets	More hands off than banks, but need credit rating.
Syndicated loans	Big, flexible loans in a short time span.

- Leases — For certain assets, leasing is an option. Operational leases are short term and may be cancelled. Financial leases last the economic life of the asset.

- Securitisation — This can be used to turn income streams into cash.

- Internal — Where available, this is the cheapest source of finance. As funds could otherwise be paid to shareholders, it reduces gearing.

There are also non-operational issues including financial covenants, the impact on credit ratings, and frictional costs of changing the capital structure.

Capital Structure

A major component of capital structure is the proportion of equity and debt finance
This is called gearing. In an idealised world, the level of gearing is irrelivant.
The increased return due to more debt finance is exactly matched by increased risk
In the real world, two factors mean this is not the case.

Tax implications

If there is a cheaper rate of tax on interest payments than dividends, it is more tax efficient for companies to gear than individuals. Thus moderate levels of gearing increase the value of the company.

Financial Distress

Greater risk gives a higher chance of financial distress, which may cause

- Failure to exploit opportunities
- Risky ventures
- Conflicts of interest between shareholders and bondholders
- Massaging of financial reports
- Overpayment of dividends

And may lead to bankruptcy

- Court, legal and administrative fees
- Extra management costs
- Sale of assets below true value
- Higher costs to return staff, customers and suppliers

Most companies therefore take a balanced view and have a moderate level of gearing.

Transitional Finance

Good examples of this include leveraged buyouts and management buyouts. Typically, the company will become privately owned for a period of time. In this period, management, incentivised by an equity stake in the company and stock options will cost-cut and improve efficiency. After this, the company will be returned to public hands, hopefully at a profit.

Structured lending covers the initial period. This is a short term financing arrangement with a planned exit route.

At this point, mezzanine finance would take over. This is a long term loan, subordinated to secured bank loans but including cross-default provisions. Usually investors would look for an exit opportunity after three years. There will typically be three components of return

- Cash coupons (usually floating rate)
- Repayment premium (repayment of interest at end of loan)
- Equity warrants (provide upside exposure)

Following this, the company goes back into public hands.

Project Finance

This is debt supported by a project rather than the project's sponsoring companies. It typically has the following features

- The project is established by a specially set up company
- The contractors developing and operators running it become major shareholders
- The project company enters a series of contracts distributing risk to the party best able to measure and control it.
- Where appropriate, national or local government provides guarantees
- The detailed risk management allows a high proportion of debt capital.

A framework for project management is provided by RAMP.

Process Launch A team is assembled to define the objectives, scope and plans for the project as well as identifying underlying assumptions and principle stakeholders. They create a preliminary brief, assessing its value to the sponsor.

Using this, they define a strategy for risk reviews and management, including the level and timing of risk analysis and a budget for RAMP. All these are combined as the RAMP 'baseline'.

Risk Review This is repeated at key stages during the project. It involves identifying risks, putting them in a risk register and evaluating them to determine likelyhood, impact and relationships between them.

For each risk, identify a mitigation strategy - the typical strategies are reduction, transfer, avoidance or absorbtion (pooling)

Risk Management Implement the risk mitigation strategies, monitoring activities to identify and mitigate new or changing risks

Process Close Down Review the project for future reference.

Public - Private Partnership

These include elements such as

- Private Finance Initiative - A private sector contractor funds assets that provide a service, and is paid for the service.
- Part - privatisation
- Franchises - A private sector company takes responsibility for a public service
- Wider markets initiative - Private sector expertise and finance used to exploit the commercial potential of government assets.

Features of public - private partnership include

- A good sustained competitive process for awarding contracts
- Encouraging creative ways of reducing costs
- Payment made for services rather than assets.
- Transferring risks to the private sector where it can handle them
- Creating a single private sector contact point.

To assess how well PPP is doing, we model how the public sector would have sought to deliver the same benefits through conventional means, and compare how the private sector has done.

Mergers and Acquisitions

These are when two companies come under common ownership. It is often hard to distinguish between them, but generally, we say it is a merger if

- Directors and shareholders of both companies back the arrangement
- Directors and shareholders of both companies remain involved

We say it is an acquisition if

- One company makes a successful hostile bid for another
- Directors and shareholders of the target company do not remain involved.

The purpose of a merger or acquisition is to give rise to an economic gain, because the firms are worth more together than apart. Specifically, the purchaser will try to increase earnings per share in the first or second year following the deal. To measure this, we need to separate the gains from synergies from the cost.

There are three types of merger and acquisition, each with different synergies

Horizontal	Between two firms engaged in similar activities. Synergies include economies of scale, complementary resources, the chan to eliminate inefficiencies, and access opportunities available to large compa
Vertical	Between companies in different stages of the production process. Control of a greater part of the process, so administration and coordinatio are improved. Possibly access to complementary resources
Conglomerate	Between companies in unrelated areas of business Typically few synergies. Synergies include using unused tax benefits, protect against takeover and access opportunities available to large companies. Variety synergies include diversification, use of surplus funds and enhancing earnings per share.

Evaluating Mergers and Acquisitions

Buying another firm is just a particularly complicated investment project, and should be handled in the same way. One item that adds complexity is that the price is unknown. We need to be able to evaluate the future income and the range of prices it is worth offering the current owners of the firm.

To evaluate, we follow the usual procedure - model the cashflows of the combined company under all scenarios, including operation until end of economic life, and sale to a third party. When doing this, we will need to consider the following.

- Uses made of surplus assets
- All debts and financial obligations
- Hidden assets and liabilities (or over or undervaluation of assets and liabilities)
- Level and expected increases in wages (and stock options)
- Industrial relations history
- Redundancy options and service contracts
- Valuing goodwill, and relationships with customers and suppliers
- Tax implications, for the company and when buying it.
- Competition and anti-monopoly legislation.
- The costs of the merger or acquisition, even if it doesn't go ahead.
- The form of payment (cash or shares)
- Pensions assets and liabilities

There are also practical considerations - the company may not want to be taken over, and seek to protect itself through a white knight (a friendly company to take it over instead), a poison pill (allowing shareholders extra money if taken over) or a poisoned pot (allowing lenders extra money if taken over). The purchasing company can try to mitigate this through greenmail (buy shares before to sell at a profit if the bid fails).

In addition, capital market regulators try to ensure a level playing field through time limits, setting limits on shares held without a formal takeover bid, and requiring offers to minority shareholders on acquiring the company.

Short Term Financial Planning

This looks at the company's need for working capital over the next year or so. It translates sales and production plans into cashflow projections. It includes non-cash elements such as inventory policy, depreciation provision and delays before tax, interest and dividend payments.

One aspect is cash management - balancing the advantages of cash's liquidity (for example, no transaction costs to raise cash) against loss of income. For large organisations, this will take place daily to minimise interest loss.

Another aspect is float - money that logically belongs somewhere else. There is

Payment float - credit held while debits clear
Availability float - sums to be credited once receipts have been cleared
Net float - Payment float minus availability float.

If we add the net float to the logical (ledger) balance, we get the real (available) balan
'Playing the float' is sequencing payments to maximise net float and hence real balance

In order to get trade, you may have to advance credit. This is often the largest element of working capital. Credit analysis is consideration of how likely a company is to pay. There are several methods.

Commercial credit analysis providers
Financial statement analysis (current ratio and quick ratio)
Broad indicators (looking at price of company bonds)
Credit scoring

The analysis may be swayed by the relationship with the client

Dividend Policy

In an idealised world, the level of dividends is not relevant to a company's value, because low dividends are matched by an increase in share price. In the real world, there is an effect because of the following.

Tax Implications Different rates of tax on dividends and capital gains make dividends more or less desirable.

Capital Structure Low dividends decrease gearing, high dividends increase gearing. The rate of dividends is one of the few ways to manipulate this without rights issues.

Investor Beliefs Great store is placed on dividends as an indication of the company's financial position. The company will thus want to minimise the changes in dividend level now and in the future, targetting its long-run sustainable earnings.

Apart from the traditional cash dividend, there are several other types.

- Bonus Issues
- Share splits
- Share repurchases
- Scrip dividends
- Dividend reinvestment plans

Introduction to Investment

The main groups involved in investment are as follows

Private Individuals (Household)

These have a wide range of interests. Diversification is important, so they often invest though financial intermediaries.

Financial Intermediaries

These are in many different forms to meet the needs of investors. An important aspect is looking at their running and governance.

Corporations (Businesses)

These usually offer investment opportunities. However, they may invest for strategic reasons, or because they have surplus money needed later, or surplus money due to a need for, or to prove liquidity.

Foreign Investors

These fall into the above three categories.

One point to bare in mind is that investors are not necessarily rational. The field of behavioural finance examines this. Some of the examples are

- Question Framing - How the question is worded changes the answer
  - Anchoring - People base perception on past experience or 'expert opinion'
  - Effect of Options - This includes option order and number and a bias to the status quo
  - Prospect Theory - People are risk-adverse for gains but risk-seeking for losses.
- Mental Accounting - People separate events rather than aggregating them
  - Myopic loss aversion - People are less risk adverse with a repeated set of gambles
- Estimating Probabilities - Easy things to imagine are assigned higher probabilities
  - Overconfidence - People overestimate their own abilities, knowledge and skills

Investment Company Laws

Laws governing investment companies aim to ensure they

- Operate with integrity
  - Avoid conflicts of interest, or if unavoidable ensure fair treatment for customers
- Operate with skill, care and diligence
  - Have good internal organisation
- Follow any market codes
  - Deal openly and cooperatively with the regulator
- Communicate well with the customer
  - Seek information to better serve them
  - Give good information to help decision making
- Operate with financial probity
  - Ensure sufficient financial reserves
  - Arrange proper protection for customer assets

When drawing up an investment agreement, both parties should make sure there are

- Clear objectives
  - Guidelines for asset allocation
  - Explicit mandates
  - Appropriate benchmarks
- Good performance measurement
  - Regular reporting
  - Strategy on Activism
- Effective decision making
  - Expert advice
- Transparency

Further Investment Laws

Trust law covers where one party is the legal owner of assets and manages them, and the other is the beneficial owner and gets their benefits. The trustee has a fiduciary duty to manage the assets, within the provisions of the trust deed, in such a way that maximises the benefit to the beneficiary.

Statutory solvency legislation aims to ensure that companies hold sufficient assets to meet future demands. They may deem that only certain classes of asset are admissable, and thus strongly hint that companies hold high proportions of these asset

The Basel accord is one such agreement, and requires internationally active banks to hold capital equal to 8% of its assets, where capital has the following risk weightings

Cash	0%
Government fixed interest securities	0%
Mortgages to owner-occupiers	50%
Commercial loans	100%

Furthermore, capital is of two types - tier 1 is shareholders capital and disclosed reserves, and tier 2 is other reserves and subordinated debt. Half of the required capital must be tier 1 capital.

The Basel accord is going to be replaced by a less simplistic approach, called Basel This is expected to have three pillars

Pillar 1 - How much regulatory capital banks need
There will be two methods, a standardised one and a bank specific one, provided the banks can demonstrate a high quality of internal credit rating.

Pillar 2 - Supervisory issues
This checks that the banks monitor the amount of capital needed correctly

Pillar 3 - Disclosure requirements

Portfolio Management

There are a number of different portfolio management styles

- Active
  - Growth - Picking shares that will grow
  - Value - Picking shares that will retain value
  - Momentum - Doing what others are doing
  - Contrarian - Doing the opposite of what others are doing
  - Rotational - Switching between growth and value
  - Multi-asset - Invest across a lot of asset categories
  - Specialist - Invest in a specialist fund
- Passive
  - Index Tracking - Investing to match a specific benchmark.

Growth shares can be identified by certain factors, including sales growth, earning growth, forecast earnings growth, return on equity or earnings revisions. Value shares can be identified by certain factors, including book to price, dividend yield, earnings yield, cashflow yield or sales to price.

Portfolio managers will typically have several objectives, including

- Ensuring solvency and stability
- Achieve high level asset returns
- Ensuring a certain amount of liquidity

In order to meet these objectives, we typically follow a two stage process

- Identify an appropriate asset mix (the strategic benchmark)
- Implement this strategy by selecting managers.

Managing Portfolio Risks

Risks in a portfolio can be split into three areas

- Active - Managers returns differ from their benchmark returns
- Structural - The sum of individual benchmarks differs from the fund benchmark
- Strategic - The fund benchmark differs from the liabilities

Risk budgetting is the process of deciding how much and where risk should be taken to maximise return. The process of doing this allocates risk between different risk types, and then down into portfolios

To allocate risk, we have to know what it is. There are several definitions

Tracking Error	- The standard deviation from the benchmark
Downside risk	- This can be measured in several ways, including the semivariance of return.
Active money	- The proportion of money not copying the benchmark
Value at Risk	- The potential losses over a given period with a given degree of confidence.
Information Ratio	- The relative return divided by the tracking error.

Getting good data about the risk can be hard. The only sensible way is to observe the difference between the portfolio and benchmark, which is slow, gives information which is out of date, and relies on the market being correct (which you shouldn't believe if you're following an active strategy).

Credit Rating

When lending a company money, you should follow the canons of lending.

Risk vs Reward - The canons are about risk, and ensuring the rewards are high enough to justify taking it.
Character and Ability - The company's principles should be known, competent and trustworthy. References and introductions may be required.
Purpose - The loan should be for a defined purpose that preferably can be monitored. Risks due to countries, currencies, resources, technology should be looked into.
Amount - The amount should be reasonable, taking other investors into account
Repayment - Can the company service and repay the debt. How certain is the source, and what margin for error has been built in.
Security - What security is required depends on the nature of the borrowing, the creditworthyness, and what is available. Its value should be checked, and it should be collectable. Security is not an excuse for bad lending.

These canons are followed by rating agencies when credit rating a company's bonds. Different ratings may apply to different bonds. Considerations include

- Financial Strength
  - Financial structure
  - Liquidity
- Operating Performance
  - Management structure
  - Future cashflow and profitability
  - Revenue composition
- Market Profile
  - Status of Industry
  - Position in Industry
  - Exposure to specific events

Asset Modelling

A good model should have the following characteristics

- Representativeness
- Economic Interpretation
- Parsimony (simplicity while keeping key features)
- Transparency (ease of understanding)
- Evolvable (capable of development and refinement)
- Multiple methods of implementation

It will typically have the following outputs

- Price and wages growth (to drive inflation)
- Equities - dividends and dividend yield
- Bonds - long and short term rates
  - index linked yields

When constructing models, we want to ensure the output has expected features. For example, looking at equities, we might expect

Negative skew
Fat tails
Volatility and its evolution over time
Mean reversion

When the model is complete, we typically use the following output

Median or mean values
Standard deviation
Correlation coefficients

Asset and Liability Models

By simultaniously modelling both assets and liabilities, we can find how well the liabilities are met in a range of scenarios. The stages are usually as follows.

Identify key objectives (future solvency levels, contribution rates, etc)
Determine suitable assumptions
Collect data to carry out the projections
Do a broad brush analysis of the liabilities (nature, maturity, etc.)
Project the scheme's future progression
Try out different asset mixes to assess risks and returns
Summarise and present the results
Use the results to choose an appropriate strategy to follow.

Another use is asset-liability mismatch reserving. After modelling the emerging position of assets and liabilities, we can set up supplementary reserves to cover the possible shortfall.

Miscellaneous

Hedging

A hedge is a trade to reduce market risk. It does not necessarily improve the overall outcome, but at least makes it more certain.

A problem with hedging is basis risk - the risk that your hedge and your liabilities are not matched. The optimal hedge ratio is

$$h = \text{correlation of security and future} * \frac{\text{standard deviation of security}}{\text{standard deviation of future}}$$

Liability hedging is the process of choosing assets that act exactly like the liabilities. There can be considerable basis risk where liabilities are not known due to time lag, or just general uncertainty.

Dynamic liability hedging is an intermediate position between static benchmark and full liability hedging. Here, the benchmarks given to the investment manager are varied as the liabilities change.

Cointegration

Two time series processes are cointegrated if there is a non-zero vector α, β such that $\alpha X + \beta Y$ is stationary.

Two time series are difference stationary if their first differences are stationary.

Debt Portfolios

When you have a portfolio of debt, you have the following risks

- Counterparty risk - Doesn't honour obligations / pulls out of deal early.
- Credit or settlement risk - When you have paid but not received the goods
- Liquidity risk - Being unable to sell enough bonds to raise cash.
- Concentration risk - Having high exposure to a sector.

Asset Pricing Models

These are used to find 'wrong' prices, and determine unobservable prices.
The equation can be summarised as

$$\text{price} = E(\text{asset payoff} \times \text{stochastic discount factor})$$

For example consumption models use a stochastic discount factor based on utility - $\beta \frac{u'(c_{t+1})}{u'(c_t)}$, multifactor models use $a + b'f_{t+1}$, CAPM uses $a + bR^w_{t+1}$, etc.

Characteristics of Asset Prices

Asset prices have the following properties

- Distributed roughly normally, but more peaked and with fatter tails.
- Non-independant increments, due to mean reversion
- Parameters such as volatility vary over time.

This should be born in mind when modelling.

Investments

Currencies

In the long run, the value of a currency reflects that countries productivity. Thus the value of passive investment is nil. However, because many participants have no direct profit motive (international corporations hedging currency risk and central banks damping currency fluctuations), active traders can spot trends and thus make money.

Currency trading leads to exchange risk and political risk (not being able to trade back at all).

Commodities

These are standardised futures contracts specifying type, quality, date, quantity and prices of agricultural goods and natural resources.

They are concerned with short-term supply and demand and short term risk. They are useful as real assets (thus protected against financial problems) and for diversification benefits.

Money Market Instruments - Lending

These include:

Treasury bills - Government short term borrowing
Commercial paper - Company bearer document offered at discount
Repos - Buy bills with an agreement to sell them back
Government Agency Securities - Similar to treasury bills
Bank time deposits and certificates of deposit - Negotiable time deposits
Bankers acceptances and eligible bills - Negotiable time deposits guaranteed by bank.

Investments

Money Market Instruments - Borrowing

These include

- Term loans
- Evergreen credit - like an overdraft
- Revolving credit - evergreen credit with a fixed term
- Bridging loans - advances until long term finance is obtained

Private Debt

This is a way to raise money without the expense of getting a credit rating. It is often used as an alternative to refinancing loans from banks. It will usually be marketted to 6 to 12 interested 'buy and hold' investors. Investors tend to be very focussed on covenant protection due to illiquid markets.

Private Equity

Private equity investment comes in several forms

- Venture capital
- Leveraged buyouts
- Development capital
- Restructuring capital

It is useful for business owners where

- Risk profile unsuitable for public
- Valuation is hard in the public arena
- Want cheap capital.

Investors like it due to high returns and diversification.

Investments

Private Equity Funds

These usually have a 8-12 year life. Following 3-6 months fundraising, the fund starts. The investment manager may call down committed cash at short notice to invest. All purchases will be made at the end of the investment period. This will happen after about three years. The manager is paid with a fee, and with a share of profits over a certain level.

Hedge Funds

These are also private funds with limited availability to investors. They have fewer legal restrictions, say on borrowing and what they may trade in, which allows a much wider range of strategies. They will typically hold a mix of assets designed so that most market movements cancel, except the expected positive return.

Types of hedge fund include

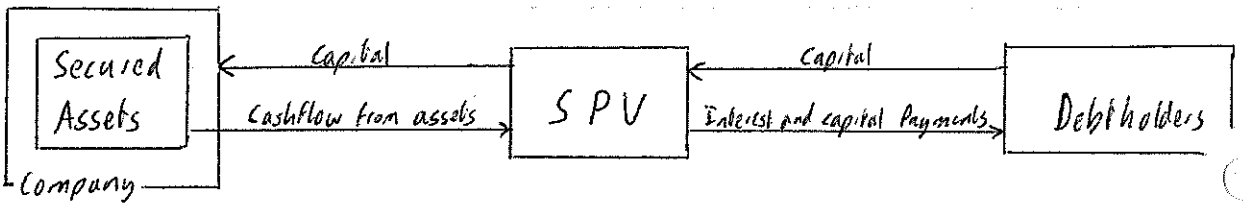
- Global - Concentrate on economic changes in the world.
- Event Driven - Buy securities in firms where events (like mergers) will take place.
- Market Neutral - Equal proportions of longs and shorts so unaffected by market.

Hedge funds are hard to assess the risk of due to survivorship bias, selection bias and unmarketable assets leading to underreporting of volatility. In addition, the distribution of returns is strange compared to most assets.

Securitisation

This is the process of selling bonds which are serviced and paid exclusively out of a defined element of future cashflow owned by the insurer.
These include mortgages, credit card receipts, collateralised loans, etc.
Securitisations are typically over collateralised because they are sub-investment grade

The structure is through a special purpose vehicle.



The borrowings are usually in multiple tranches and may include

Senior Debt - AAA rated fixed coupon bond
Mezzanine Tranche - BB rated fixed coupon bond paid after senior debt
High yield speculative bond - claim on residual cashflows

The evaluation of assets depends on the predictability and sustainability of cashflo
Factors such as degree of competition and barriers to entry may need to be assesse
and certificates concerning assets, cashflows, etc may need to be provided.