

**PENILAIAN IMPAK
PROJEK/PERATURAN
MELALUI ANALISA KOS
FAEDAH**

Investment Appraisal Techniques

Used in both Government(public)and private sector

Investment Appraisal

What do you understand by the term Investment Appraisal?

Investment appraisal involves a series of techniques, which enable a business to financially appraise investment projects.

It is a techniques use to determine if a particular investment is worthwhile

Factors to consider in assessing investment

- The size of the investment.
- The phasing of the investment expenditure.
- The period between the initial investment and the asset actually generating revenues and profits for the business.
- The economic life of the project.
- The level of certainty regarding the projected cash flows.
- The working capital required.
- The degree of risk involved in the project.

Context and Control

- **Strategic planning**
 - Long term objectives
- **Management control**
 - Use of annual or longer plan cycles
 - Capital budgeting techniques to plan best allocation and use of current resources to achieve aims
- **Operational control**
 - Short term routines

Investment Appraisal



A fork lift may be an important item but what does it contribute to overall sales? How long and how much work would it have to do to repay its initial cost?

- Investment therefore assumes that the investment will yield future income streams
- Investment appraisal is all about assessing these income streams against the cost of the investment
- **Not a precise science!**

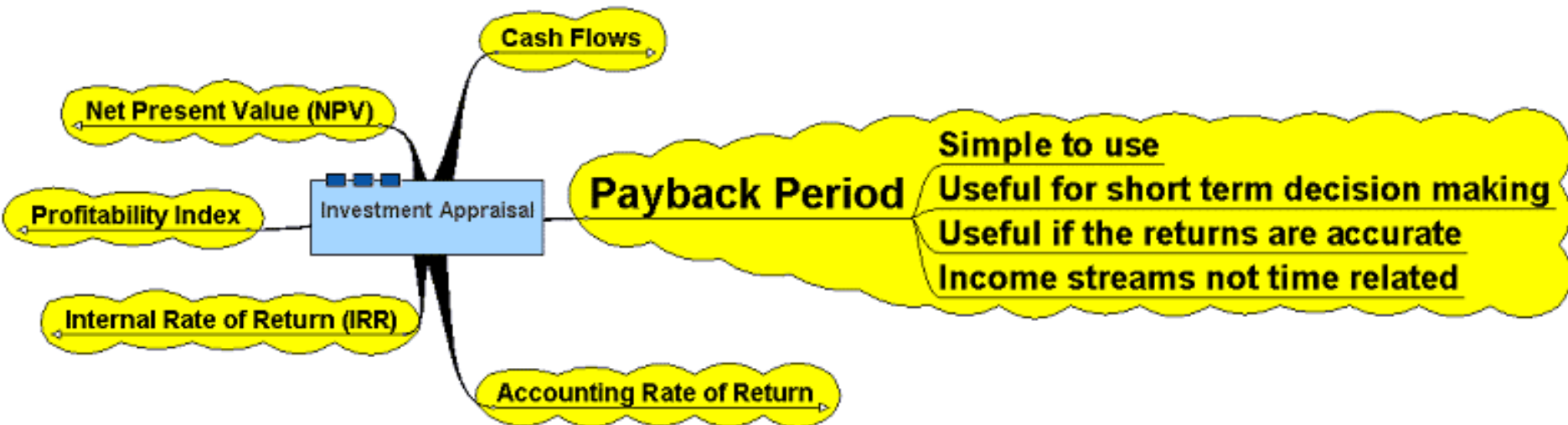
Investment Appraisal



What factors need to be considered before investing in equipment such as this?

- **Types of investment appraisal:**
 - Payback Period
 - Accounting Rate of Return (ARR)
 - Internal Rate of Return (IRR)
 - Net Present Value (discounted cash flow)
 - Cost Benefit Analysis

Payback Period



Advantages Payback

- 1. Simple to calculate.**
- 2. Quick screening tool for analysis.**
- 3. It places stress on early return, forecasts of which are likely to be more accurate.**
- 4. An early return is especially important when liquidity is more important than profitability.**

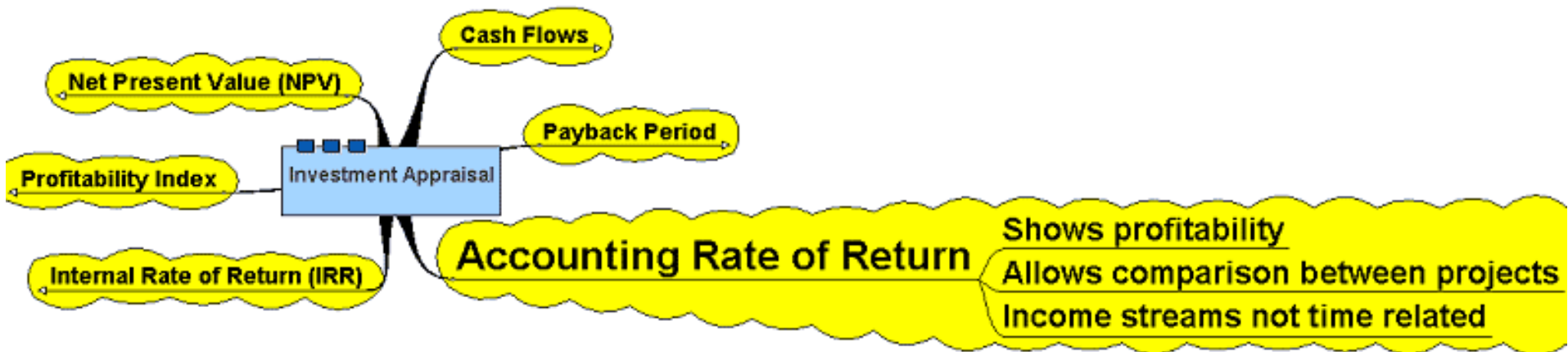
Disadvantages Payback

- 1. It disregards all cash flows beyond the payback period so fails to measure overall profitability.**
- 2. It ignores the time value of money.**
- 3. It discriminates against projects which involve a long payback period.**
- 4. It fails to recognise that revenue generated early in the payback period is more valuable than money received later.**

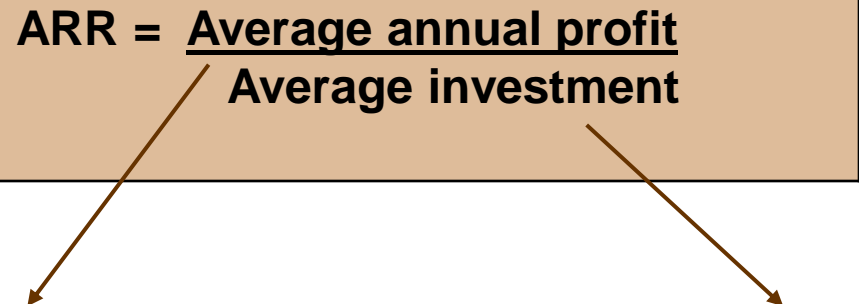
Accept or reject criteria for payback method

Accept the project	Reject the project
Payback period is less than that required by investors.	Payback period is greater than that required by investors.

Accounting Rate of Return



Accounting rate of return (ARR)

$$\text{ARR} = \frac{\text{Average annual profit}}{\text{Average investment}}$$
A central box contains the formula for ARR. Two arrows originate from the formula: one from the numerator 'Average annual profit' pointing down and to the left to a definition box, and another from the denominator 'Average investment' pointing down and to the right to another definition box.

Average annual profit

Total project profit after depreciation and before interest, tax and dividends, divided by the estimated life of the project.

Average investment

Initial investment, plus value of investment at project-end, divided by two.

Accounting Rate of Return (ARR)

Advantages

- It is quick and simple to calculate.
- It involves a familiar concept of a percentage return.
- Accounting profits can be easily calculated from financial statements.
- It looks at the entire project life

Disadvantages

- It is based on accounting profits rather than cash flows, which are subject to a number of different accounting policies.
- It is a relative measure rather than an absolute measure and hence takes no account of the size of the investment.
- It takes no account of the length of the project.
- Like the payback method, it ignores the time value of money

Accept or reject criteria for ARR method

Accept the project	Reject the project
Project ARR greater than the minimum required return.	Project ARR less than the minimum required return.

Net Present Value (NPV)

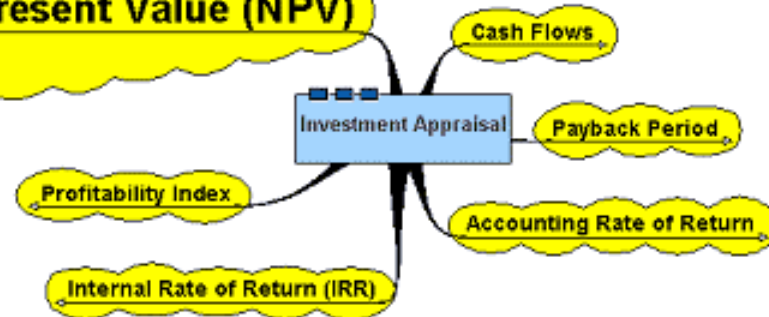


Takes account of changing value of money over time

Enables comparisons at different interest rates to be considered

Useful for comparing similar projects with same cost

Net Present Value (NPV)



Net Present Value (NPV)

This takes into account the time value of money. It is based on the principle that money is worth more than it is in the future. The principle exists for two reasons:

- Risk – money in the future is uncertain.
- Opportunity cost – could be in an interest account earning interest.

Net Present Value (NPV)

NPV = present value of cash inflows **minus** present value of cash outflows.

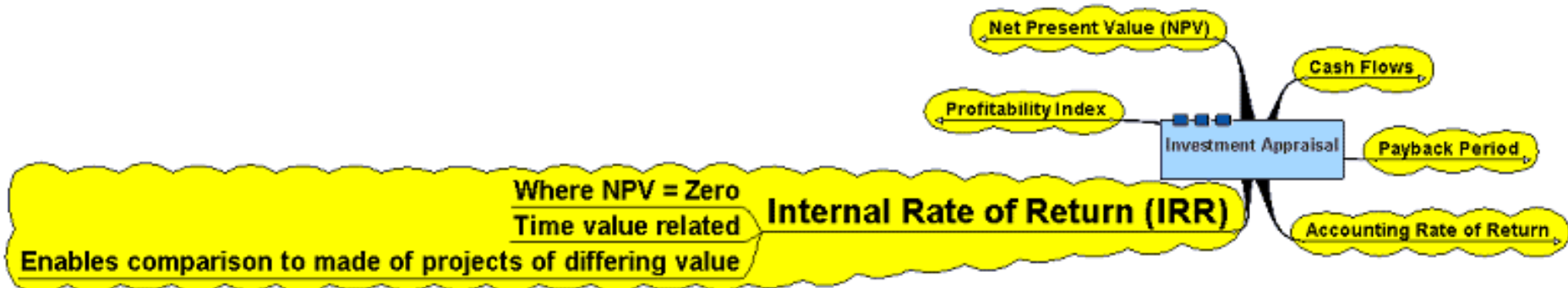
$$\text{NPV} = \text{PVCI} - \text{PVCO}$$

- If the **NPV is positive**, it means that the cash inflows from a project will yield a return in excess of the cost of capital, and **so the project should be undertaken.**
- If the **NPV is negative**, it means that the cash inflows from a project will yield a return below the cost of capital, and **so the project should not be undertaken.**
- If the **NPV is exactly zero**, the cash inflows from a project will yield a return which is exactly the same as the cost of capital.

Accept or reject criteria for NPV method

Accept the project	Reject the project
NPV is positive. <i>In choosing between mutually exclusive projects, accept the project with the highest NPV.</i>	NPV is negative.

Internal Rate of Return (IRR)



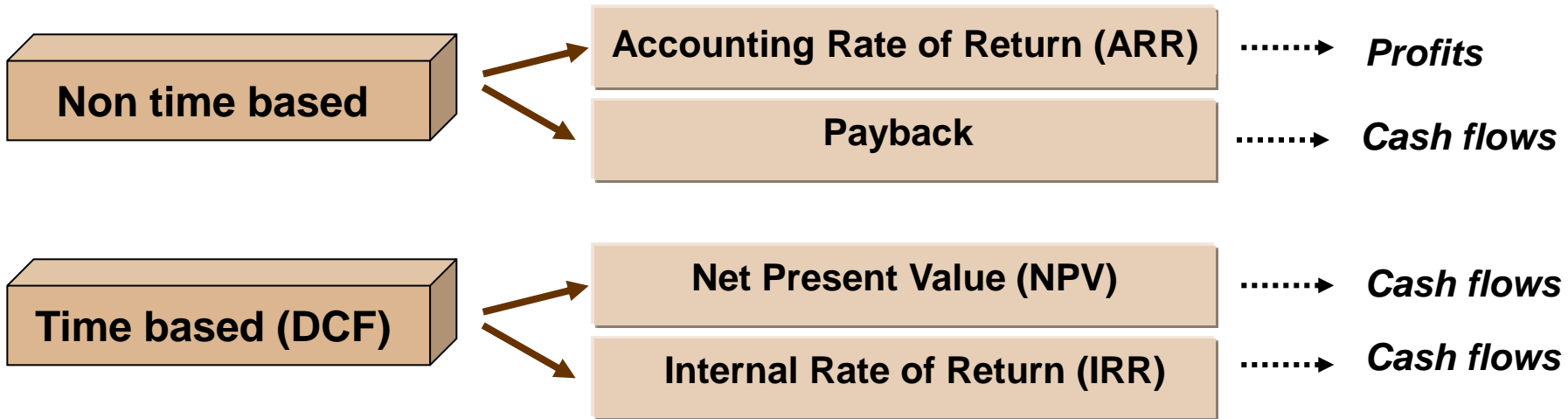
Internal Rate of Return

- Allows the risk associated with an investment project to be assessed
- **The IRR is the rate of interest (or discount rate) that makes the net present value = to zero**
 - Helps measure the worth of an investment
 - Allows the firm to assess whether an investment in the machine, etc. would yield a better return based on internal standards of return
 - Allows comparison of projects with different initial outlays
 - Set the cash flows to different discount rates
 - Software or simple graphing allows the IRR to be found

Accept or reject criteria for IRR method

Accept the project	Reject the project
IRR greater than the cost of capital.	IRR less than the cost of capital.

Appraisal methods



Appraisal methods

- Of the four appraisal methods presented, it is clear that the discounted cash flow methods (NPV and IRR) have a distinct advantage over the payback and accounting rate of return methods because they are cash based and they take the time value of money into account.
- **The NPV approach is considered superior** to the IRR because of the disadvantages associated with the IRR method.
- However it is clear that there is a place for all four methods, which inform judgement, not replace it.

Cost Benefit Analysis

- Much broader view than cash or profit based analysis, which are purely based on economics
- Seeks to assess the economic and social advantages (benefits) and disadvantages (costs) of a project, then quantifies in monetary terms
- **Major importance in public sector**

Assessing social benefits

- Not all easy to translate into monetary terms
- Broad view of stakeholders may be necessary, such as society as a whole
- Costs and benefits arise at different times
- Which discount rate to use?
- Specialist area, under much debate

GRP Reporting and Compliance Engine (GRACE)

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GRACE Application



Web enable and Real time and interactive Application

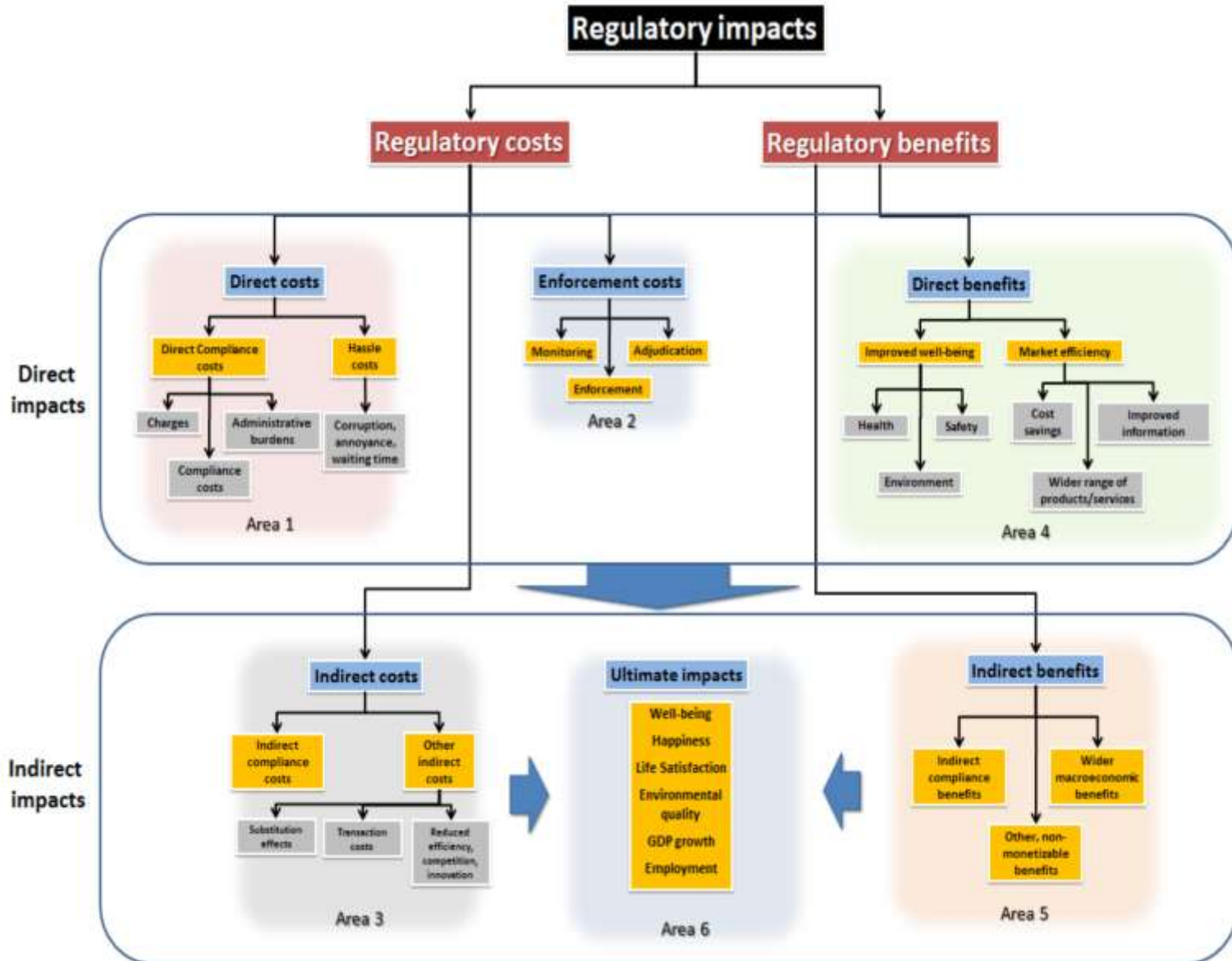
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19	CadanganMendapatkan Garis Panduan dan mengenakan Caj keatas akses sumber-sumber biologiikal dan pergekalan Taman Biodiversity Negeri Kelantan.	Undertaking RIA	rc 1	Bahagian Pengurusan Teknologi Maklumat	Delete
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A map of regulatory costs and benefits



**PENILAIAN IMPAK
PROJEK/PERATURAN
MELALUI ANALISA
KOS FEADAH**

	Regulatory Costs	
Direct Impact		Indirect Impact
Direct Cost		Indirect Cost
Direct Compliance Costs		Indirect Compliance Costs
Charges		Substitution effect
Compliance Cost		Transaction cost
Administrative Burdens		Cost saving
Hassle Cost		Other Indirect Costs
Corruptions annoyance, waiting time		Reduce efficiency
Enforcement Cost		Reduce competition
Monitoring		Reduce innovation
Adjudication		
Enforcement		
	Regulatory Benefit	
Direct Benefit		Indirect Benefit
Improve wellbeing		Indirect Compliance Benefit
Health		Wider Macroeconomic benefit
Safety		other monetizable benefit
Environment		
Market efficiency		
Cost saving		
Improved Information		
Wide range of products/Services		
	Ultimate Impact	
	Wellbeing	
	Happiness	
	Life Satisfaction	
	Environmental Quality	
	GDP Growth	
	Employment	

Investment Appraisal

- **Key considerations:**

- Ease of use/degree of simplicity required
- Degree of accuracy required
- Extent to which future cash flows can be measured accurately
- Extent to which future interest rate movements can be factored in and predicted
- Necessity of factoring in effects of inflation