

Rule of thumb

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Correlation of hotel room cost and rate

For every 1,000 monetary units of total capital investment per key (including ff & e) the room rate should be 1.00 monetary unit per night eg R1,000,000 of total capital investment per key equates to a room rate of R1,000 per night

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Doubling of original capital

Divide 72 with the interest rate per annum to calculate the period in years which it takes to double the original capital

$$72 \div 10 = 7.2$$

$$72 \div 12 = 6.0$$

$$72 \div 5 = 14.4$$

For example:

$$R22.00 \quad @ \quad 10\% \text{ per annum over} \quad 7.2 \text{ years} = \quad R43.73$$

$$R22.00 \quad @ \quad 12\% \text{ per annum over} \quad 6.0 \text{ years} = \quad R43.42$$

$$R22.00 \quad @ \quad 5\% \text{ per annum over} \quad 14.4 \text{ years} = \quad R44.43$$

This is a useful tool to roughly determine the current value of a future expense or *vice versa*

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IRR over 20 years

To roughly determine the internal rate of return (IRR) over 20 years, based on a terminal value of 100% of the original capital investment, add the net return (%) for the initial year of operation to the escalation (%) per annum

I R R (internal rate of return) (rough estimate)

Net return for first year of operation % pa	Escalation per annum % pa	IRR over 20 years	
		Rough calculation % pa	Actual effective rate %pa
9.00	10.00	19.00	17.50
10.00	12.00	22.00	20.89
11.00	9.00	20.00	19.50
12.00	7.00	19.00	19.00

The following combinations of initial net return (%) for the initial year of operation and the escalation (%) per annum results in approximately the same IRR:

Rate of return IRR (equivalent IRR)

Net return for first year of operation % pa	Escalation per annum % pa	Effective IRR over 20 years % pa
9.00	13.00	20.29
9.50	12.00	20.13
10.00	11.50	20.41
10.50	10.50	20.20
11.00	11.00	20.45
11.50	9.00	20.21

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Effect of inflation

The following is not a “rule of thumb’ but is merely an illustration of the effects of inflation

Purchasing power of a monetary unit of 1 million at different inflation levels

Years	Inflation 5% pa Monetary unit	Inflation 10% pa Monetary unit	Inflation 15% pa Monetary unit
10	613,913	385,543	247,185
20	376,889	148,644	61,000
30	231,377	57,309	15,103
40	142,056	22,095	3,733
50	87,204	8,519	923

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Mortgage instalments (effect of interest rate)

The following is not a “rule of thumb” but merely an illustration of the effects of high and low interest rates

Monthly instalments on mortgage of monetary unit of 100,000 (interest compounded monthly)

Over:	5% per annum Monetary unit	10% per annum Monetary unit	15% per annum Monetary unit	20% per annum Monetary unit	25% per annum Monetary unit
5 years	1,887	2,125	2,379	2,649	2,935
10 years	1,061	1,322	1,613	1,933	2,275
15 years	791	1,075	1,400	1,756	2,136
20 years	660	965	1,317	1,699	2,098
25 years	585	909	1,281	1,678	2,088
30 years	537	878	1,264	1,671	2,084
Drop in monthly payment from 5 years to 30 years repayment period	71.5%	58.7%	46.9%	36.9%	29.0%

The higher the interest rate the less advantage to spread the instalments over a longer period eg at 20% per annum there is very little difference in the instalment spread over 15 years as compared to it being spread over 30 years

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Effect of contract price adjustment

The effect of contract price adjustment compensation may be illustrated as follows (projects under construction in the period 1976 to 1985):

CPAP as percentage of final construction cost

n	Building period	CPAP median as % of final construction cost*
56	Not exceeding one year	4.6
82	Exceeding one and not exceeding two years	10.1
16	Exceeding two and not three years	16.1
4	Exceeding three years	30.6
158	All periods	8.2

* The final construction cost excluded CPAP

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Pareto principle (80-20 rule)

For many events, roughly 80% of the effects come from 20% of the causes. For example 20% of the bills of quantities or estimate of construction cost items probably constitute 80% of the value

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