CHAPTER 6

CONSUMING INTEREST AND CAPITAL

Summary: *A compensation model based upon consuming interest and capital it is a useful concept provided its limitations are borne in mind. Conditions of high inflation dictate that there is a `ballooning' of the original capital for many years before inroads into accumulated funds begin to be made. To test the consumable income from investing an award a court should ignore high nominal rates of return and look to rates closer to the real rate of return. The prudent investor will save for a retirement that extends well beyond the expiry of the expectation of life. The impact of tax on interest receipts is aggravated by high rates of inflation and renders such investments unattractive compared to growth investments such as shares and immovable property.*

[6.1] DEFINITIONS

In this chapter I examine some basic capitalization concepts which will be developed further under the chapter on the time value of money.[1]

[6.1.1] Multipliers: Much has been made of the proposition that:

> `When one is asked to assess a claim based upon an estimated loss of future earnings one is really required to arrive at such a sum presently payable as will give to a plaintiff a periodic payment, and the figure arrived at should be such that at the end of the period there would be no capital sum left'.[2]

There is a regular payment, a period over which it is payable and a rate of interest. The resulting sum is adjusted for `general contingencies'. Boberg[3] has aptly described this as the `gross multiplier method'. A `multiplier' is a period which has been reduced for risks and by a discount for interest. A `gross multiplier' has been reduced for interest and the contingency of early death but not for general contingencies.

In England the multipliers used by the courts include discounts not only for early death and interest but also for general contingencies and are for this reason described by Boberg as `net multipliers'.[4] The English net multipliers are determined on a `gut feel' basis coupled with regard for the multipliers used for previous awards.[5] Actuarial evidence as regards the value for a multiplier will not be tolerated by the

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[1]See 125 et seq.

[2]*Gillbanks v Sigournay* 1959 2 SA 11 (N) 15A.

[3]Boberg 1964 *SALJ* 194 204-5.

[4]Boberg 1964 *SALJ* 194 204-5.

[5]See, for instance, *Lim Poh Choo v C&IAHA* [1979] 1 All ER 332 (CA) (HL) 343h-j.

English courts because it is felt to introduce a misplaced impression of certainty.[6] Such fears may be appropriate when dealing with a jury but of dubious relevance when dealing with a highly educated judge.

A multiplier is expressed as a number of years regardless of what discounts have been applied. For this reason it is readily confused with a pure period of time unadjusted for risk. Thus, for example, if the normal retirement age is 65 years then for a man now aged 40 years the period of working life is 25 years. If allowance is made for early death the expected duration of working life reduces to 19,884 years.[7] If a discount for a net capitalization rate of 2,5% per year compound is then applied this reduces to 15,782 years. This duration, reduced for the discounts of risk and interest, is best described as a `multiplier' and not a period. The expectation of life includes a discount for early death and is thus not a true period but a rather a gross multiplier based on a nil discount rate of interest.

If the risk of death were to be wished away then the period of survival becomes infinity. For a mortal person the chances of survival beyond age 99 so small that the period may for practical purposes be terminated at age 99. For corporations with perpetual succession the mortality risk is eliminated and damages calculations should then be based on a perpetuity for which the relevant multiplier is calculated as the reciprocal of the discount rate of interest.[8]

A multiplier is but one example of a larger class of risk-adjusted measures generally known as expected values or `point estimates' which have been dealt with under the general discussion of utility.[9]

[6.1.2] The actuarial year-by-year method: This involves the year-by-year application of the principle of valuation of a chance:

> `In calculating the loss of future income, the actuaries discounted each year's loss to allow for the probability that Clive would not have been alive to earn the income'.[10]

This method gives the most accurate present lump-sum value for a risk-adjusted series of payments.

[6.1.3] Approximations: It has been noted in the previous chapter that the `gross multiplier' method provides a short-cut means for estimating the result of a year-by-year calculation.[11] The gross multiplier method gives fairly good results with simple

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[6]Owen & Shier 1985 *JIASS* `The actuary in damages cases'.

[7]See table 5 at 88.

[8]Thus for a discount rate of interest of 2,5% per year the multiplier for a perpetuity is 1/0,025 = 40 years.

[9]See 15.

[10]*Carstens v Southern Insurance* 1985 3 SA 1010 (C) 1024G-H. The word `probability' here clearly refers to the chance of survival the chance of death in each year being a possibility of less than 50%. For a calculated example see table 5 at 88.

[11]See comparative values in Koch `Damages' 304 257-91.

cash flows but fails badly for more complicated situations.[12] The notion of consuming interest and capital over a fixed period is a useful aid to solving problems in discounting provided it is not slavishly adhered to and is seen in its proper perspective as an aid to thought. Flat maps provide useful guidance to navigating on a spherical earth. This does not mean that the earth is flat. By the same token use of the gross multiplier method as an aid to assessing damages does not mean that the claimant can then reproduce his future lost earnings by consuming interest and capital.[13]

[6.1.4] Interest and inflation: Under conditions of inflation the regular payment is assumed to increase over the years, usually in line with inflation. The expected rate of return on investments is itself inflated as investors demand a real rate of return over and above the rate of reduction in the buying power of their capital. The *nominal rate of investment return* \`I' offered to investors thus comprises an inflation component \`F' and a real rate of return \`R' with I=R+F. However, when inflation rates are high then one must work with the more accurate formula:

$$\boxed{\mathbf{1+I/100=(1+F/100)x(1+R/100)}}$$

Thus, for example, a rate of 16% per year comprises a real element of, say, 2,5% per year and an inflation element of 13,2% per year (1,16=1,132x1,025).

[6.1.5] Sinking funds: The notion of a sinking fund[14] is familiar to all persons who have taken out a mortgage bond on their home. There is a regular payment, a period and a rate of interest. If the interest rate remains unchanged and the payments are regularly made then at the end of the period the original debt will have been extinguished. It is against this background that the notion of consuming interest and capital would seem to have developed. With the advent since 1970 of relatively high rates of inflation[15] the identity between home loans and the compensation model of consuming interest and capital has become less and less apt. Under home loans the repayments are not regularly adjusted upwards to allow for inflation whereas compensation calculations take account of escalating payments.[16] The financial effect of this difference is illustrated in table 6[17] by modelling the outstanding capital in each year for a 20-year period. The calculation has been done using 3 different financial models:[18]

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[12]Typically promotions and retirement benefits.

[13]See *SA Eagle Insurance v Hartley* 1990 4 SA 833 (A) 838-9 for an example of misplaced \`flat-earth' reasoning.

[14]Donald \`Compound Interest' 82-3; Brigham \`Financial Management' 489-92.

[15]See tables in Koch \`Damages' 294; Corbett & Buchanan 3ed 105.

[16]*Southern Insurance v Bailey* 1984 1 SA 98 (A) 115-16.

[17]At 100.

[18]Just as one may model an aeroplane or ship or building so too may one construct logical models (these days usually on computer) to provide guidance as to the nature of financial events (Fama \`Finance' 11-12; Brigham \`Financial Management' 80n2).

TABLE 6 - 20-YEAR SINKING FUND MODELS

Yr	Model A D=2,5%pye Payment Rpy	 E=0%py Capital R	Model B D=16%py Payment Rpy	 E=13,2%py Capital R	Model C D=16%py Payment Rpy	 E=0%py Capital R	Yr
1	10000	159788	10000	159788	23234	159788	1
2	10000	153533	11317	173754	23234	158403	2
3	10000	147121	12808	188427	23234	156796	3
4	10000	140549	14495	203718	23234	154932	4
5	10000	133813	16404	219499	23234	152770	5
6	10000	126908	18565	235590	23234	150262	6
7	10000	119831	21010	251749	23234	147352	7
8	10000	112577	23777	267657	23234	143977	8
9	10000	105141	26909	282901	23234	140062	9
10	10000	97520	30453	296951	23234	135520	10
11	10000	89708	34464	309138	23234	130252	11
12	10000	81701	39003	318622	23234	124141	12
13	10000	73494	44140	324358	23234	117052	13
14	10000	65081	49954	325053	23234	108829	14
15	10000	56458	56533	319115	23234	99290	15
16	10000	47619	63979	304595	23234	88225	16
17	10000	38559	72406	279115	23234	75390	17
18	10000	29273	81942	239782	23234	60501	18
19	10000	19755	92734	183094	23234	43230	19
20	10000	10000	104818	104818	23234	23234	20
21		0		0		0	21

Model A: A fixed unvarying payment of R10000 per year discounted at a rate of 2,5% per year compound.

Model B: An increasing payment which commences at R10000 per year and which is increased at the end of each year by 13,2% per year compound. Discounting has been done at a nominal rate of 16% per year compound, that is to say an effective net capitalization rate of 2,5% per year compound has been used.

Model C: A fixed unvarying payment of R23234 per year discounted at a rate of 16% per year compound. The repayment of R23234 per year has been selected to give the same initial capital for all 3 models. This model reflects the repayment of a typical home loan.

Note that for all models payment has been assumed to be made in advance, at the beginning of each year. The outstanding capital balances shown in the table reflect the balance at the beginning of each year immediately before the payment for that year is made. D is the discount rate of return. E is the rate of escalation applied to the payments. Due to rounding errors the figures in row 20 do not exactly match the values indicated by calculations applied to row 19.

[6.1.6] Discussion of model A: This model in table 6 shows the reducing of capital under a sinking fund scheme at a rate of 2,5% per year.[19] It will be noted that the calculation requires yearly payments that ostensibly do not increase over the years. This does not mean to say that such payments will not be increased but it does emphasise that for purposes of the calculation the increases are ignored. In England this is known as the `Diplock approach':

> `In estimating the amount of the annual dependency in the future, had the deceased not

[19]Nominal rates were at this level for a while after the 2nd world war (see table in Koch `Damages' 297).

been killed, money should be treated as retaining its value at the date of the judgment, and in calculating the present value of annual payments which would have been received in future years, interest rates appropriate to times of stable currency such as 4% to 5% should be adopted'.[20]

[6.1.7] Discussion of model B: This model in table 6 shows the effect of making explicit allowance for inflation in conjunction with a high nominal rate of interest.[21] The initial capital sum is the same under both models A and B, as too is the net capitalization rate of 2,5% per year compound. For model A the net capitalization rate is introduced explicitly while under model B it is introduced implicitly by the difference between 16% per year and 13,2% per year.[22] Under model A the notional capital balance reduces steadily from its initial value to nil at the end of 20 years.[23] Under model B the initial interest receipts exceed the required payments. The excess interest is capitalized and the capital balance **increases** over the years. It is only in the 14th year that the payments increased for inflation overtake the interest receipts and then rapidly consume interest and capital to nil during the last seven years. This is a very different cash flow from that pictured by analogy with the simple home loan. The expression `**balloon effect**' aptly describes this swelling of the capital that is required to meet inflation-adjusted payments in the distant future.

In *Bailey*'s case[24] the appellate division approved the actuarial practice of making explicit separate allowance for inflation. In doing so it did not emphasise that such an allowance is appropriate only in conjunction with a high nominal discount rate of interest.[25] This was unfortunate because the need to use a correspondingly high nominal discount rate is not always obvious to those untrained in financial mathematics.

[6.1.8] Discussion of model C: This model in table 6 has been included to show a comparable capital reduction pattern for a modern home loan based on high rates of interest. It deserves note that notwithstanding the very high repayments (R23234 per year compared to R10000 per year) the rate of capital redemption is very much slower than under a home loan at 2,5% per year. In other words **higher bond rates not only mean additional interest on the current outstanding balance but also a more substantial and prolonged state of indebtedness**. This consideration is important when placing a value upon bond subsidies provided by an employer. Consider a bond subsidy[26] of R13234 per year (R23234 less R10000) towards repayment of a

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[20]Following *Mallet v McMonagle* [1969] 2 All ER 178 (HL) 190H-I.

[21]This should not be confused with the standard actuarial year-by-year technique which not only makes explicit allowance for interest and inflation but also allows for the risk of mortality on a yearly basis.

[22]By rearranging formula 1 above we have the calculation 1,025=1,16/1,132.

[23]Strictly speaking at the beginning of the 19th year. This example reflects payments in advance.

[24]*Southern Insurance v Bailey* 1984 1 SA 98 (A) 115-16.

[25]See paragraphs 6.1.4 and 8.1.7.

[26]One that remains constant in rand terms, that is to say is not escalated for inflation.

loan at commercial rates of 16% per year.[27] This apparently has the same value as an employment benefit as a bond at a low rate of 2,5% per year.[28] However, the rate of capital redemption is much faster for the bond at a low rate of interest. The employee who wishes to repay the bond prior to full term is at an advantage if he has the benefit of a low-interest bond. One might say that a subsidy by way of a low rate of interest has the higher utility. In practice the capital repayment advantage of a low interest rate is often offset by the granting of extremely long repayment periods.

[6.2] CONSUMABLE INVESTMENT INCOME

[6.2.1] Preservation of capital: In an utopian economy with a nil rate of inflation an investor may consume all interest earned on his money and at the end of the day have capital with a constant and unchanged buying power. Under conditions of inflation the investor who wishes to preserve his capital will capitalize that portion of his investment income which is needed to maintain the buying power of his capital and restrict his consumption to the net real rate of return. The real rate of return may then be consumed with equanimity in the knowledge that as long as the buying power of the capital is maintained the buying power of the real rate of return derived from such capital will also be maintained. For some people such a scheme may well have attractions, a utility superior to that of any other investment strategy. The capitalization of investment returns would usually be achieved through investments offering substantial capital growth, such as mutual fund units, immovable property and life insurance plans.

[6.2.2] Retirement funding: However, most persons will take the view that life does not go on forever. For them it is attractive to consume more than the real rate of return. The buying power of their capital will then diminish despite substantial `ballooning' in nominal terms. If they plan to consume all their capital over the expectation of life they are faced with a 50% chance of living out old age with no money at all. For this reason the prudent investor will reduce expenditure and target for adequate capital well into old age. Although income may only accrue up to say age 65, living expenses will continue long beyond that age. It would be foolish indeed to follow judicial directives about consuming interest and capital over the expected term.[29] Firstly part of the capital should be retained as provision for a retirement. Secondly substantial `ballooning' of capital is necessary, that is to say plough back of investment returns, if the income to be drawn from the capital is to increase adequately in years to come.

One does find instances a court teste the adequacy of an award by reference to the income which can be derived from investing that award.[30] Such cases as there are have tended to focus upon a high nominal rate of interest. This is clearly incorrect for it fails to have regard to the considerations described above. A suitable testing rate would be above a real rate of return of about 2,5% per year, but much less than

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[27]This is typical of the bond subsidies provided to civil servants and teachers.

[28]Such as are commonly provided to the employees of banks and insurance companies. Compare models A and C under table 6 above.

[29]See, for instance, *Gillbanks v Sigournay* 1959 2 SA 11 (N) 15A.

[30]*Kloppers v Rondalia Assurance* 1972 2 C&B 289 (W) 296 (injury claim); *Waring & Gillow Ltd v Sherborne* 1904 TS 340 350 (claim by dependants).

the nominal rate of, say, 16% per year. The precise level to be used should have regard to the desired level of living expenses and the extent to which provision is to be made for old age, including above-average longevity.

[6.3] TAXATION

[6.3.1] Taxable and tax-free investments: Some forms of investment income, particularly interest payments, are subject to taxation.[31] For this reason the net rate of return obtainable by a plaintiff on his award may be less than the full nominal market rate. The courts require that the discount rate of interest be determined by reference to an investment return net of taxation.[32] In South Africa this has, for various reasons, proved to be an impractical directive given lip service but little financial application. Not the least reason being that there substantial opportunities for avoiding tax on investment returns. In practice the discount rate is with few exceptions determined without regard for the particular tax circumstances or investment abilities of the plaintiff. More of this later.[33] For the moment let us consider the effect of taxation on a sinking fund of the sort illustrated in table 6, model B with the `ballooning' of capital.[34]

[6.3.2] Estimating future tax rates: Before performing calculations we need to identify some basis on which to estimate future tax rates. The usual approach used in South Africa[35] and in England[36] is to assume that current tax rates will be maintained in real terms, ie the proportion of a man's earnings paid by way of tax will remain constant in time if his gross earnings are adjusted over the years in line with inflation.[37] For present purposes I have used the tax tables applicable to the tax year 1989/90 for married persons with no dependants.

In order to assess the effect of income tax on investment income not only is an assumption as to future tax rates required but also an assumption as to the extent to which investment income will be taxable. A few investments provide tax-free interest, but at rates that are generally too low to deserve serious consideration.[38] Growth investments produce tax-free capital growth plus largely tax free dividends, or rents which are taxed on the excess over expenses. There are numerous interest-bearing investments providing taxable interest, the first R2000 being tax

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[31]Capital gains are presently tax free providing the investor does not actively trade his investments.

[32]*Oberholzer v Santam Insurance* 1970 1 SA 337 (N) 342E; *Pitt v Economic Insurance* 1957 3 SA 284 (D) 287sup; *Dorfling v Bazeley* 1961 1 C&B 128 (E) 132inf; *Sigournay v Gillbanks* 1960 2 SA 552 (A) 568. See too footnote 44.

[33]See 140.

[34]See 100.

[35]Milburn-Pyle & Van der Linde 1974 *TASSA* 292 305-6.

[36]In *BTC v Gourley* [1955] 3 All ER 796 (HL) 806H `No one can foresee whether tax will go up or down, and I advise you not to speculate on the subject but to deal with it as matters are at present'. The English multiplier system is based on model A in table 6 above, ie no explicit allowance for inflation in the calculation. This has the same financial effect as assuming that tax rates will be adjusted in future in line with inflation. See too Boberg `Delict' 543 who describes the Gourley approach as the one generally favoured by commentators.

[37]There are minor variations on this basic approach which need not concern us here.

[38]See table in Koch `Damages' 296.

free.[39] For illustrative purposes I have in table 7 worked with three models all based on an income of R30000 per year net after tax.[40]

TABLE 7 - TAXED SINKING FUNDS

Yr	Model B 0% taxable Net yield = 16%py Payment Rpy	 Capital R	Model D 2,5%py taxable Net Yield = 15,95%py Payment Rpy	 Capital R	Model E 16%py taxable Net Yield = 11,50%py Payment Rpy	 Capital R	Yr
1	30000	479334	30000	480020	30000	693350	1
2	33951	521227	33951	521698	33951	731714	2
3	38422	565240	38422	565528	38422	770472	3
4	43482	611109	43482	611252	43482	809264	4
5	49209	658447	49209	658492	49209	847650	5
6	55690	706716	55690	706718	55690	885054	6
7	63024	755190	63024	755192	63024	920734	7
8	71324	802913	71324	802915	71324	953766	8
9	80717	848643	80717	848646	80717	983088	9
10	91347	890794	91347	890798	91347	1007335	10
11	103377	927359	103377	927363	103377	1024953	11
12	116992	955819	116992	955824	116992	1034030	12
13	132400	973039	132400	973045	132400	1032435	13
14	149837	975141	149837	975148	149837	1016741	14
15	169571	957353	169571	957361	169571	983446	15
16	191904	913827	191904	913836	191904	927396	16
17	217178	837431	217178	837441	217178	842216	17
18	245780	719493	245780	719505	245780	719815	18
19	278149	549507	278149	549521	278149	549469	19
20	314781	314781	314781	314781	314781	314781	20
21		0		0		0	21

Model D: Investment in growth assets which provide tax-free capital growth of 13,2% per year plus a fully taxable real rate of return of 2,5% per year.

Model E: Investment in interest bearing investments the income from which is fully taxable. A taxable rate of return of 16% per year has been assumed.

Model B: As illustrated in table 6 at 100 above. This model assumes a tax-free rate of return of 16% per year.

For each model a net yield has been calculated, this being the internal rate of return (see 128 below) needed to relate the original capital to the actual net payments expected. The tax table for the 1989/90 tax year for married persons has been used.

[6.3.3] Effect of tax on present value: When provision is made under model D for tax on a real rate of return the additional capital required is a negligible 0,1%, one thousandth of R479334. When provision is made for tax on interest earnings under model E the additional capital required is 23% of R479334. A substantial reduction in present value can thus be achieved merely by adopting a sensible investment strategy. Can a plaintiff be required to mitigate his damages by choosing a growth

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[39]In terms of tax legislation for the 1992/93 tax year (ss10(1)(i)(xv) and (xvi) of Income Tax Act 58 of 1962 (as amended).

[40]Roughly R39000 per year before tax for a single person in the 1989/90 tax year.

investment strategy (model D)? I will return to this topic later.[41]

An alternative approach to taxation is to ignore its effect both on the earnings which have been lost and the interest income which will now accrue.[42] A net-of-tax income of R30000 per year implies gross earnings of roughly R39000 per year. Taxation on the salary earnings is then 23% of R30000. The additional capital required to offset the tax on the interest income per model E is 23% of the capital required under model B. Tax on earnings and tax on interest thus largely cancel one another out. The offset works quite well but, as I shall now demonstrate, only at this level of earnings.

For yearly salary earnings of R10000 tax liability is negligible but the add-on for tax on interest is 7,7%. The offset thus does not work so well at this low level of income.

Yearly earnings of R90000 net of tax require a before-tax income of roughly R145000. Tax in this instance is 61% of the net income. This is substantially in excess of the 33% needed to offset tax on interest income.

The above calculations reveal that it is not generally valid to assume that the present value of tax on notional expected earnings can be equated to the tax on notional expected interest income.

A substantial increase to the damages for tax on interest income is only justified if heavily taxed fixed-interest investments are the only investment medium available to the claimant. In practice in times of high inflation the prudent investor may be expected to seek growth investments which yield tax-free capital growth.[43]

[6.3.4] Net capitalization rates: Under model B in table 7 above the discount rate of interest which gives a result equal to the initial capital sum is 16% per year. Under model D the rate is 15,95% per year, only marginally different. Under model E the rate required to produce the capital sum of R693350 is 11,50% per year. The rate of inflation is 13,2%. This implies a net capitalization rate of *minus* 1,5% per year to allow for tax on investment income.[44]

[6.4] CONTINGENCY FUNDS

The discussion thus far has focused on a gross multiplier obtained by discounting over the expectation of life, or working life, or joint life. We now examine an alternative financial device, the contingency fund. This enables an individual to provide for uncertain past or future financial contingencies without resorting to the purchase of a life annuity.[45]

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[41]See 125.

[42]*Sigournay v Gillbanks* 1960 2 SA 552 (A) 568.

[43]See 139.

[44]1,0152=1,132/1,115. See 145 for discussion of net capitalization rates. Pearson (Cmnd 7054 1978) in England recommends (vol 1 147 table II) net capitalization rates of +1% 0% -1,5% -2% per year depending on the level of earnings lost; by way of contrast the official actuarial tables issued by the Government Actuary in England (1984) make allowance for positive real rates of return only of 1,5% to 5% per year.

[45]See 113.

[6.4.1] Definition: I use the expression `contingency fund' to describe a fund established to provide for the income and outgo of uncertain future events. The degree of uncertainty may vary quite widely. Thus, for instance, an accountant may set up a provision for taxation, a contingency fund to cover the tax liability of a company pending final assessment by the revenue authorities. A major actuarial responsibility is the determination of proper reserves, contingency funds, to ensure that life offices and pension funds will be able to meet their future contingent liabilities under life policies as and when these arise. Boberg states that `besides granting regular maintenance the court may order the creation of a "contingency fund" to provide for expenses of an extraordinary nature connected with a child's health'.[46] I use the expression `contingency fund' to embrace the entire fund set aside and not just the additional amount referred to by Boberg. The most important characteristics of a contingency fund are:

* The prospect of making an uncertain payment or payments at some future time. The uncertainty may relate to the size of the payment or whether or not it will be made at all.
* The prospect of a reversion to the original provider of any surplus remaining in the fund once it has fulfilled its purpose.
* The prospect that the provider may have to make further payments to meet excess liabilities.[47]

I will now examine in greater detail three examples of contingency funds:

[6.4.2] Provision for taxation: A contingency fund set up by an accountant for a trading company is concerned with an open-ended liability by the company for errors in its estimate of tax liability. If the contingency fund proves inadequate the company will have to make additional payments. Such additional payments may cause financial embarrassment. An excessive provision may unduly inhibit dividend payments and perceptions of the enterprise's ability to accept profitable business risks.[48] The accountant can be expected to make a reasonably accurate provision, neither too large nor too small.

[6.4.3] Reserves of a life office: These are calculated by actuaries with considerable accuracy using past statistical experience as a guide to the future claims and premium payments of a large number of policyholders. It is well known that deviations from the averages do occur and life offices normally retain an `estate', an additional contingency fund which ensures financial stability even in extreme circumstances.[49] The liability is open-ended. If the reserves prove inadequate the estate, the

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[46]Boberg `Law of Family' 288.

[47]As a general rule there is always some limitation to the liability of the provider. A company generally has limited liability. The courts will lay down limits of liability (*In re Estate Visser* 1948 3 SA 1129 (C) 1139 (£1000)).

[48]See, for example, the risk-management techniques described in *The Economist* April 10-16 1993 16-20.

[49]With-profit policies have further flexibility due to the removal of some contractual guarantees. The profits earned on the estate are generally distributed to with-profit policyholders, or used to pay dividends to shareholders who provided the surplus funds in the first place.

contingency fund in Boberg's sense, must bear the burden. If the reserves prove more than adequate the estate will be swelled and there will be profit distributions to with-profit policyholders, and to shareholders, if any. If reserves are too large this can affect the competitive position in the market due to inadequate profit distributions to policyholders. If the reserves are too small there is a risk of insolvency due to adverse fluctuations. The art and science of the actuary is the determination of accurate reserves, neither too large nor too small.

[6.4.4] Support from a deceased estate: If a breadwinner dies under circumstances which do not give rise to an action for damages by his dependants then his dependent child has the right to claim support from his estate. This is not a claim for damages but a new compensating duty of support which comes into being after the death. This claim interacts with the claim for damages,[50] and, due to its superficial resemblance to a damages claim, needs to be discussed in the present thesis, quite apart from its relevance as an example of a contingency fund.

Unlike the defendant in a damages claim the estate of the deceased is not bound to provide the same level of support as was enjoyed by the dependants prior to the death. It is only bound to provide what it can afford.[51] The interests of the heirs will not be ignored.[52] For this reason one may anticipate that the courts will place reasonable limits upon the funds available from a deceased estate for the provision of support.[53] A second important difference from damages claims is that the money set aside serves as a provision, a contingency fund to ensure payment of the required maintenance. If the child suffers an early death the balance remaining in the contingency fund, unless otherwise agreed, is repayable to the estate.[54] If the contingency fund is depleted while the child is still dependent then the child may seek further funds from the heirs to the estate. The prodigal son who wastes the money given to him for his support may always return and demand to be supported.[55] It is conceivable that such a claim may be brought against the heirs after an estate has been wound up.

[6.5] FUNDING CRITERIA

[6.5.1] 50% risk of ruin: The ideal funding level for a contingency fund is that which

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[50]See 285%.

[51]Boberg `Law of Family' 288n40.

[52]*Couper v Flynn* 1975 1 SA 778 (R) 780A.

[53]Boberg `Law of Family' 288n41.

[54]Contra Bouwer `Bestorwe Boedels' 318 `Die voog en eksekuteur kan in 'n gegewe geval ooreenkom dat die minderjarige se eis vir toekomstige onderhoud gedelg word met 'n enkele uitbetaling in volle en finale vereffening van die eis. Die minderjarige word dan reghebbende t.o.v. die geld. As hy die dag mondig is, word die ongebruikte gedeelte daarvan aan hom uitbetaal. Sterf hy voor mondigwording, is dit deel van sy boedel wat onder sy erfgename vererf'. The master's office in Natal does not follow Bouwer. For practical purposes the wording of the relevant agreement or court order will be decisive. The heirs do, it seems, have the right to demand that a reversion clause be included in the agreement.

[55]Voet 25.3.5; *Schierhout v Union Government* 1926 AD 286 (B) 291; *Cross v Cross* 1922 EDL 224 232; *Greathead v Greathead* 1946 TPD 404 411.

TABLE 8 - CONTINGENCY FUNDING CRITERIA

Measure	**Risk %**	**Expiry age (years)**	**Contingency reserve R**	**%ge increase**
Expected age at death	56%	76,75	242000	-
Median	50%	78,79	250000	3%
Quartile	25%	85,86	275000	14%
Decile	10%	90,86	290000	20%
One percentile	1%	98,81	310000	28%

SALT79/81 white female mortality.

ensures sufficient money no matter what happens. Such absolute protection requires inordinately large amounts of money. In practice financial resources are limited to a greater or lesser degree and some risk must be accepted. The big question is `How much risk'. The major issue in this text is the provision of sufficient funds for an injured plaintiff or a needy widow.[56] The expectation of life provides an indication of the age up to which 50% will survive from a group of persons now living of the same age and sex. An accountant whose tax provisions were inadequate 50% of the time would probably lose his job. The same applies to an actuary. Therefore if a meaningful contingency fund is set up the expectation of life should not be used as a funding criterion. Something better is needed. The purchase of a life annuity is one option, but not without problems.[57] Another option, which we now examine more closely, is for the victim to retain control of the capital, but with funding based on a risk of inadequate funds of less than 50%:

[6.5.2] Deciles & quartiles: We could fund on the basis of survival to age 99, the limit of life. There are, however, intermediate funding levels with definable levels of risk, the median, quartile and decile ages. For a white woman now aged 40 these ages are illustrated in table 8 above.[58] The median is the age at which exactly 50% of such women alive now are expected to die. The quartile reflects the age at which 25% are still alive, a 25% risk of inadequacy, the decile a 10% inadequacy risk. The contingency fund is calculated to provide R10000 per year escalating in line with inflation over the relevant period.[59] It is entirely valid in this context to speak of consuming interest and capital subject to the `balloon' phenomenon that arises with escalating payments. The main point to be observed in able 8 is that lower the risk of running out of money, the larger is the contingency fund required.

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[56]I shall ignore for present purposes the dependent child, for whom considerations of utility values and contingency criteria tend to lead to very much the same amounts.

[57]See 113.

[58]SALT79/81 white females.

[59]Using a net capitalization rate of 2,5% per year.

[6.5.3] Even-handed justice: The is one major objection to using a contingency fund to compensate a plaintiff is the need to be equally as fair to the defendant who provides the money. If the plaintiff dies while funds still remain then these funds should revert to the defendant.[60] By reason of this reversionary interest the defendant could quite reasonably demand that the funds be placed in trust and that there be some modest financial reporting. There would also need to be stipulated restrictions as to the use which can be made of the money lest it be dissipated on luxuries and other expenditure for which the defendant could not reasonably be held liable. The potential administrative complications make it clear that a defendant is better off paying compensation by instalments and thereby retaining possession of the funds.[61]

[6.5.4] Unfettered use of compensation money: The lump-sum once-and-for-all rule has a corollary which states that the court may not place any restrictions on what an adult plaintiff in sound mind does with his money.[62] A court is thus, it seems, prevented from making its award subject to a reversionary trust, such as is necessary to achieve fairness with an overfunded contingency fund.

[6.5.5] Optimal expenditure criteria: Overcompensation can arise with allowances for future medical expenses at the maximum possible cost, without regard for the actual extent to which the plaintiff will in fact incur the expense. The courts are clearly aware of this problem and one thus finds today substantial deductions for `general contingencies' from the capitalized value of expected expenditure.[63]

[6.5.6] No general solution: Contingency funds provide no general solution to the compensation problem, **but do give important insight into the nature and problems of a compensation model which purports to consume interest and capital over the expectation of life**. When compensation is assessed as the sum which will reproduce the lost income by consuming interest and capital over the expectation of life we are dealing with a contingency fund with a 50% chance of inadequacy.

***[6.5.7] `Another bite at the cherry'***: One may summarize the above considerations by saying that a contingency fund has the important characteristic that one may `have another bite at the cherry', may claim more money, if one's original estimates prove incorrect. It is this characteristic that distinguishes a contingency fund so sharply from a once-and-for-all lump-sum payment. It is the absence of the opportunity to revise the payment that gives to a once-and-for-all lump-sum the character of price, `value in exchange', `verkeerswaarde'.[64] This is not to suggest that one can make a `silk purse from a sow's ear'. The point is, however, that the prohibition on the revision of a once-and-for-all lump-sum payment, for all its warts, identifies the

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[60]*Pallas v Lesotho National Insurance* 1987 3 C&B 705 (ECD) 713 provides an example of a contingency fund of 100% of the cost for a 75% risk. No provision was made for a reversion to the defendant who was here clearly prejudiced by the decision.

[61]*In re Estate Visser* 1948 3 SA 1129 (C) provides an excellent example of contingency funding based on a mortgage bond. The provider of the funds was thus not needlessly deprived of his assets.

[62]*Malgas v Guardian Assurance* 1960 1 C&B 158 (A).

[63]*Kriel v Administrator-General, SWA* 1986 3 C&B 539 (SWA), 1988 3 SA 275 (A); *Ncubu v NEG Insurance* 1988 2 SA 190 (N) 198B.

[64]Van der Walt `Sommeskadeleer' 280-1.

payment as a particular type of financial phenomenon, `value in exchange', something with which we are all intimately familiar. It has formed the subject of intense study by economists. For the more frequently traded goods there may be an established market which provides direct evidence of value in exchange without the need to resort to indirect valuation procedures. With many of the simpler valuation problems a contingency-fund approach and a value-in-exchange approach lead to much the same numerical result. It is when the problems become more complex that the distinction needs to be borne in mind.

[6.5.8] Add-on for risk: In table 8[65] I have calculated the percentages by which the contingency funds based on the reduced risk criterion exceed the fund based on the expectation of life. These percentages illustrate an important feature of a contingency fund, namely that the prospect of risk requires an addition to the fund based upon an average. A risk averse person[66] will demand considerably more than value based on the average as compensation for the anticipated risks of living off a lump-sum payment. We know, however, that the courts, almost without exception, make a *deduction* for general contingencies.[67] **A deduction for risk is a feature of value in exchange.**[68] The fact that the courts persist in making deductions suggests that, whatever they may say they are doing, in practice they apply an intuitive notion of value in exchange, not a contingency fund.[69] The assessment process is eclectic, drawing on an variety of financial models, not all consistent with one and other.

[6.6] CONCLUSIONS

The concept of consuming interest and capital in times of high rates of inflation requires a massive `ballooning' of the original capital for many years. The prudent investor will save for a retirement that extends beyond his expected age at death, that is to say will refrain from consuming all interest and capital by the time of the expiry of the expectation of life. Investment in fixed-interest investments in times of high inflation will lead to an intolerable tax burden that renders tax-free growth investments far more attractive.

The relevance of contingency funds to claims by children for support from deceased estates deserves particular note. These are not claims for damages and are subject to different assessment principles.

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[65]At 109.

[66]Friedman & Savage 1948 *JPE* 279.

[67]See tables in Koch `Damages' 334-8; Newdigate & Honey `MVA Handbook' 295-301. See too 149 below.

[68]In share market analysis one finds reference to the `beta adjustment' which is an upward adjustment to the discount rate of interest, ie a downward adjustment to the capitalized value (Weston & Brigham `Managerial Finance' 267-8; Brigham `Financial Management' 137-8). The discount rate of interest used to value a transaction comprises a basic return plus a premium for long periods of time plus an allowance for risk (Pepper 39 [1984] TFA 145 146-7; Weston & Brigham loc cit). The higher the discount rate of return the lower the present capitalized value.

[69]Critics of the contingency deduction seem to have a contingency fund in mind (Boberg `Delict' 598-9; Boberg 1988 *BML* 11 12). Considerations of utility require that `there should be a further scaling down for the advantages of a lump sum as compared with the prospect of a long series of future and therefore uncertain payments' (Pearson Cmnd 7054 1978 vol 1 155 para 716; see too Pearce `Cost-Benefit Analysis' 2ed 79).