

Investments: An Introduction

Prof. Dr AP Faure



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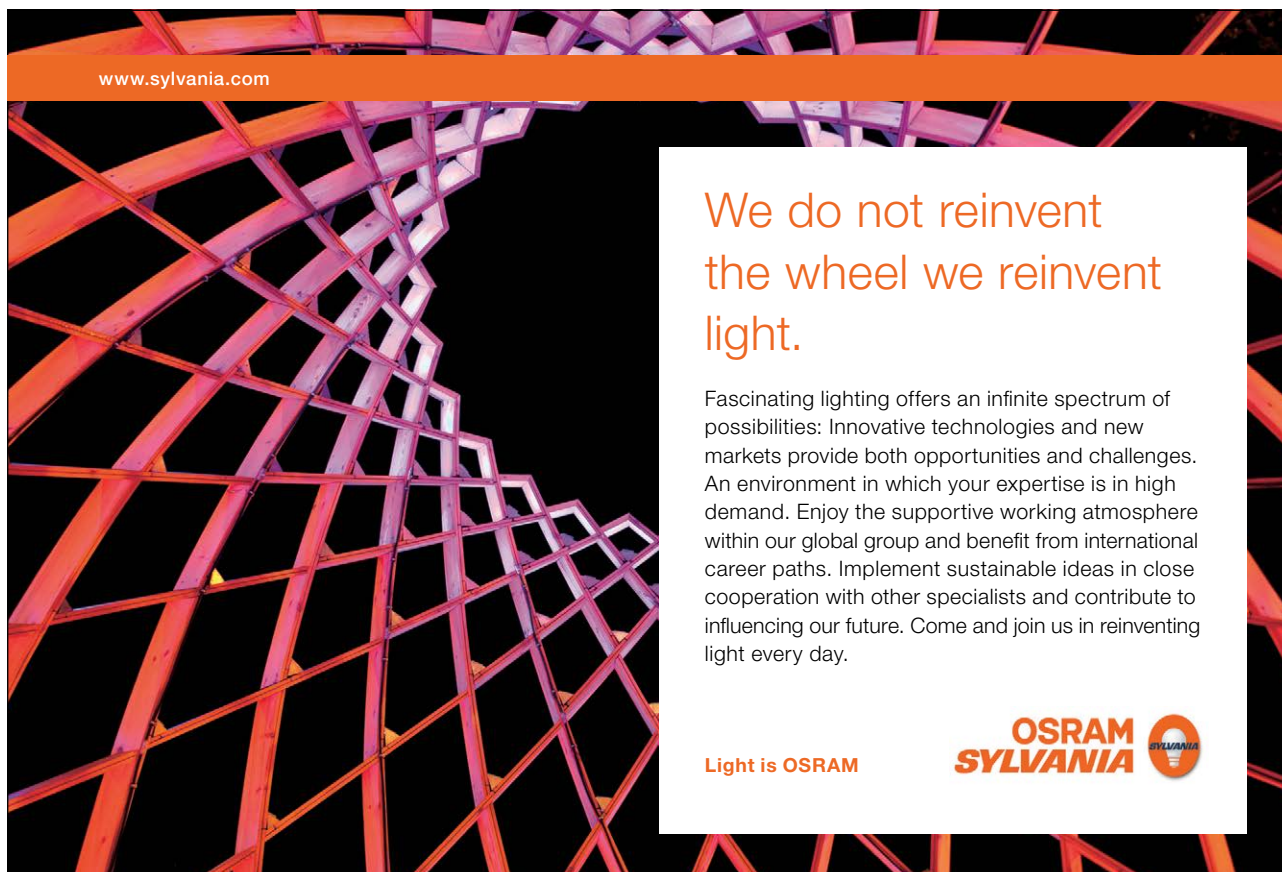
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1 Four phases of the life-cycle

1.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Describe the phases of the life-cycle of the individual.
2. Elucidate the codes / rules that pertain to each phase of the life-cycle.
3. Discuss the other codes / rules which apply throughout or during part of your life-cycle.

1.2 Introduction

In this text we present four main sections:

- Four phases of the life-cycle.
- The financial system.
- Investment instruments.
- Investment principles.

The following broad categories and subcategories of investments exist:

- Ultimate investment instruments:
 - Financial investment instruments (issued by ultimate borrowers):
 - Debt instruments.
 - Share (aka stock and equity) instruments.
- Real investments:
 - Property (also called real estate).
 - Commodities.
 - Other real investments (art, rare coins, antique furniture, etc.).
- Indirect investment instruments (issued by financial intermediaries):
 - Issued by banks: deposit instruments.
 - Issued by quasi-financial intermediaries: debt instruments.
 - Issued by investment vehicles: participation units/interests.

We will discuss them in some detail. As the majority of portfolios are made up of financial investments, we pay special attention to the financial system from which they spring. In the last main section, we discuss issues such as the objective of investments, the relationship between risk and return, and portfolio management. We also touch upon the investment theories and extract from them the tried and tested principles of investments, such as diversification, the valuation of assets, and so on.

The above is of little use if one does not have investments. Only a small percentage of people (some studies say 6–10%) reach their financial security goal (FSG), and are able to replace formal work with other activities. For this reason we present upfront a discussion on the life-cycle, i.e. the four phases of life and the “rules” of the four phases that should be followed in order to achieve your FSG at an appropriate age.

There is a body of literature labelled *life-cycle theory of consumption*. Its genesis was in the 1950s and its champions were Franco Modigliani and his student Richard Brumberg, as expounded in papers published in 1954 and 1980. In essence the theory postulates that individuals make intelligent choices on the volume of their spending at each phase of their lives, and this is constrained only by the financial resources available over their lifetime. They tailor their consumption to their needs over the phases, independently of their income, and in so doing build up and deplete a portfolio of assets during their lives enabling them to live the last part of their lives (“retirement”) sans recurring income from labour. This simple theory leads to important predictions about the broader economy.¹

The reality is that few individuals are able to reach their financial FSG, and the majority are dependent in the last phase of their lives on sources of income unrelated to themselves (usually their children / friends / government social security). We define “reaching your FSG” as building a portfolio of assets during the labour (income-earning) phases to a size that will sustain the individual and his/her dependent/s during the non-labour phase (“retirement”). Some individuals wish to reach their FSG early at, say, 40 years of age, while others wish to pursue an occupation until they are no longer able to.²

The above can be put another way: individuals have a life-long budget constraint and endeavour to spread income earned during the labour phases over their remaining lifetime. This means that part of consumption is deferred during the labour phases; and the degree of deferring affects *when* the FSG is attained. Financial assets represent the vehicles for transferring consumption to the future, and financial liabilities (loans) are the vehicles for transferring future consumption to the present.

Thus, there are many choice-variables over the life-cycle, and they include:

- Income from labour (how to maximise it; how to guard / insure against disability / death).
- Expenditure / consumption (how to minimise; shift part to the future).
- Saving and building a portfolio of assets (the above apply in terms of how quickly; how to mix risky and risk-free assets = asset allocation decisions in various phases; how to hedge against inflation and contingencies).
- Debt / loans (the extent to which one is able to fast-forward “consumption” – here meaning the purchase of an essential asset, a dwelling).

A well-known statistic (of a large life assurance company) is that less than 10% of individuals reach their FSG. The reasons for this poor state of affairs are many, and they relate to neglecting the obvious *codes* or *rules* of behaviour [financially and otherwise (which affects the former)] which should be followed over the phases of their lives.

This text does not expound on the life-cycle theory; rather, it endeavours to postulate the *codes* or *rules* of behaviour (financially and otherwise) to be adhered to over your life-cycle. This is followed, in subsequent texts, by various related subjects (such as *risk and return* and *asset valuation*) that form an introduction to investments. *Investments* are of course irrelevant if you do not follow the codes / rules, because you will not have a portfolio of assets. If you do, having an understanding of investments cannot be overemphasised, even if you outsource the management of your portfolio.

It will be evident that individuals require three forms of security:

- Personal security.
- Health security.
- Emotional security.
- Financial security.

The financial security goal (FSG) is at the forefront of people's minds (or should be), and can only be achieved by following the rule that income must *always* be greater than expenditure ($I > E$). Debt can be part of the equation but only to the extent that debt is undertaken for good reasons (such as the purchase of a home) and that debt servicing (i.e. interest payments) is incorporated into E such that the condition $I > E$ prevails. It will be evident that savings (S) is the outcome of $I > E$, and therefore that $I > E = +S$, and that the achievement of one's FSG at an appropriate or desired age is a function of maximising I and minimising E .

Because of our physiological and psychological hard-wiring and our environment, there is a pattern to our lives: we are born (0 years), nurtured and educated by our parents, expelled from home at 20+ years of age, undertake a career in order to survive, choose a life partner, have children who need nurturing and education (who are then ejected from the nest when we are 40–45), get too old to work effectively at 60+ years of age), and then depart for Heaven (some believe) at 80+ years' of age. We therefore have four phases to our lives:

- 0–20 Newborn to adulthood.
- 20–40 Adulthood to maturity.
- 40–60 Maturity to seniority.
- 60–80+ Seniority to exodus.

These phases are approximate because each person has a different life-script. Each phase has distinct characteristics / needs / desires and which need to be recognised, accepted and managed – especially in respect of our financial life – if you are to reach your FSG at a desired age.

Figure 1 portrays the ideal financial scenario for achievement of your FSG. It is self-explanatory. Below we discuss the “rules” of each phase.

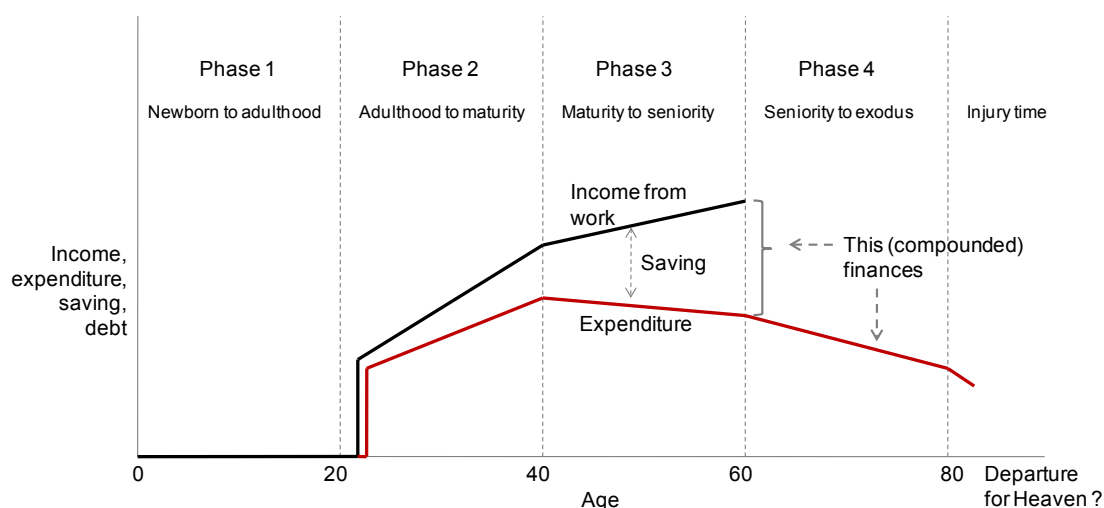


Figure 1: four phases of life

1.3 Phase 1: newborn to adulthood (0–20)

1.3.1 Introduction

This phase has been called “creating capacity”³ and “becoming somebody”⁴. It is the phase over which you have little control (except in the latter part). You cannot choose your parents, so hopefully you will have had good parenting. What is good parenting? It is providing the child with a solid foundation for the life s/he will build for himself/herself. What are the rules for providing children with a solid foundation? They can be summarised as follows:

- Read up on the cognitive development stages of offspring.
- Promote a rock-solid emotional backbone.
- Provide sound education inside and outside institutions of learning.
- Programme the child’s mind to be an inquiring one.
- Promote an ethos of sound money management.
- Drive home the philosophy that wealth has two legs: monetary and non-monetary.

1.3.2 Read up on the cognitive development stages of offspring

Raising one's offspring is centred on learning: from parents, the environment and institutions of learning. While the latter are the authorities on “when the child learns what”, the parent usually is not. Therefore, it is important to have an understanding of the cognitive development stages. Jean Piaget⁵, a development biologist, devoted much of his life to the cognitive (i.e. learning, in the widest sense) development of infants, children and adolescents. He identified four stages, now known as the four stages of Piagetian development:

- Sensory motor stage (aka Sensorimotor stage) (0–2 years).
- Preoperational stage (2–7 years).
- Concrete operational stage (7–11 years).
- Formal operational stage (11–adulthood).

Sensorimotor stage (0–2 years)

Infants are “ego-centric”: they are not able to consider others’ needs, wants or interests. They acquire knowledge about objects and the ways that they can be manipulated, and begin to understand how one thing can cause or affect another. They also begin to develop simple ideas about time and space.

Preoperational stage (2–7 years)

Children’s thought processes develop in this stage, although they are still considered to be far from “logical thought”, in the adult sense of the word. The vocabulary expands and develops during this stage, and they change from babies and toddlers into “little people”.

A characteristic of this stage is “animism”: when a person has the belief that everything that exists has some kind of consciousness. An example: when a child runs into a piece of furniture s/he will punish it, because it behaved badly in that it hurt them. They tend to assume that everyone and everything is like them; therefore, because they feel pain and have emotions, everything else does too.

Children start this stage as “ego-centric” but gradually a certain amount of “de-centering” transpires.

Concrete operational stage (7–11 years)

During this stage, the child’s thought process becomes more rational, mature and “adult-like”, or more “operational”, and often continues well into the teenage years. Belief in animism and ego-centric thought tends to decline (although remnants are often found in adults). They are able to evaluate the logic of statements by considering them against concrete evidence only.

Formal operational stage (11–15+ years)

In this stage adolescents are able to reason beyond a world of concrete reality to a world of possibilities, and to operate logically on symbols and information that do not necessarily refer to objects and events in the real world. They can focus on verbal assertions and evaluate their logical validity without making reference to real-world (concrete) circumstances.

1.3.3 Promote a rock-solid emotional backbone

The second rule is the promotion of a rock-solid emotional backbone⁶. It is reflected in a high level of self-confidence and self-esteem. Providing a child with this life asset is firmly in the hands of parents and is a result of many factors, including the frequent expression of unconditional love, acceptance of the child as s/he is, and creating a sense of personal security.

1.3.4 Provide sound education inside and outside institutions of learning

The third rule is to provide children with a sound education inside and outside institutions of learning. Outside of academia (i.e. at home) parents should promote / encourage:

- Achievable personal standards: encourage achievements to the best of the child's abilities, and not beyond. Do not compare the child to other children⁷.
- A strong sense of self-reliance and responsibility.
- A balanced life: exposure to sport and art, in addition to academics.
- A sound moral compass.

The latter is imperative, and includes the sound values of integrity and honesty. From a young age the child should know that integrity moulds ones personal brand, and that only the truth can be recalled (lies cannot).

1.3.5 Programme the child's mind to be an inquiring one

The fourth rule is to encourage children to have a life-long enquiring mind. Children need frequent parental contact and stimulation from birth. In the *preoperational stage* (2–7 years), usually at ages 3–5, a child's mind is developed to a stage where s/he is highly stimulated by his/her environment, as reflected in the rapid-fire numerous questions put to parents.

A life-influencing, crucial error made by many parents is to discourage the questioning (a result of possible irritation) or to provide meaningless answers. It is critical to answer questions well, to consult encyclopaedias when one does not know the answer (which must be done with the assistance of the child), and to encourage further questions.

Reading from an early age is to be strongly encouraged. It helps them to develop important language and communications skills, logical thinking, gain new ideas and concepts, and creates a predisposition for further learning.

1.3.6 Promote an ethos of sound money management

In the formal operational stage (11–15+ years), in the context of pocket money at this stage, begin to promote an ethos of sound money management, particularly $I > E = +S$, and that S means delayed consumption, creates possibilities, and gives one peace of mind.

1.3.7 Drive home the philosophy that wealth has two legs: monetary and non-monetary

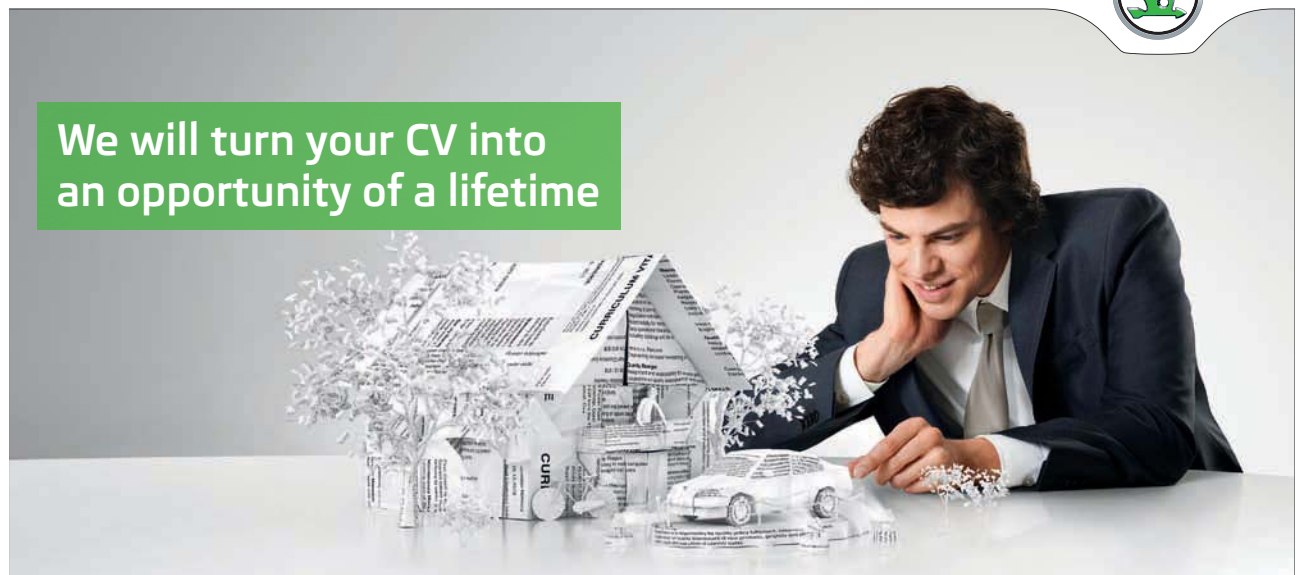
The sixth rule is to drive home the philosophy that wealth has two legs: monetary and non-monetary. Monetary wealth is obviously important, but so is its non-monetary companion. Non-monetary wealth is manifested in having close family and friends and in good general interpersonal relationships. This feeds into a successful career, which feeds into financial security (provided sound money management is in place) and this is an important input in the emotion happiness (aka subjective wellbeing).

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As the reader of this text is most likely a young adult, who had limited or no control of phase one, why do we mention the above here? The reasons are:

- You are partly in control. You decide on your education and the extent to which you prepare yourself in this regard for the next phases. Interpersonal relationships are also in your ambit of control. Also, you do have an “income” (usually a parental allowance), which enables you to get going on the ethos of sound money management ($I > E = +S$).
- You will most likely have children one day; in fact you are hard-wired to procreate, i.e. to propagate yourself and your partner. It is difficult to resist the urge despite the hardship and expense involved in raising children.
- Your success in your career and your personal finances in later life reflect your self-confidence and self-esteem built in this phase. If this life asset was not properly established in this phase, it is advisable to seek professional help from a psychologist.

A wealth management company, Citadel, recently undertook substantive life-phase research amongst their clients. The outcome was that all the clients taken on had been good-parented. Many of them grew up in financially modest circumstances, but were imbued with emotional security.⁸

1.4 Phase 2: adulthood to maturity (20–40)

1.4.1 Introduction

This phase has been called the “rollercoaster”⁹ and the “high-speed low-wisdom”¹⁰ phase. It could also be called the “make or break” phase of your life. Your personality is established and your basic education is in place. You will leave home and are now in control of your own life. You will almost certainly choose a life partner / spouse and have children. This is also the phase when your income rises at the fastest rate – provided you follow the tried and tested “rules of the game”. The “rules” are:

- Choose your career with care.
- Undertake one career and become accomplished at it.
- Undertake lifelong continuing education.
- Choose your life partner with care.
- Nurture your health and family life.
- Underspend.
- Insure your life only
- Take on debt, but with much thought.
- Do not bow to peer pressure.

1.4.2 Choose your career with care

Analyse your personality profile carefully (or have it done professionally), acknowledge your strengths and weaknesses, and match them with your career. A career is an employee-position (e.g. a bank employee), a profession (e.g. a lawyer) or a business (e.g. manufacturing plastic products, including vuvuzelas). Because this is probably the most important decision of your life, and it will occupy you for 40+ years, it *must* resonate with your passion/s.

1.4.3 Undertake one career and become accomplished at it

Assuming you have discovered your passion, undertake *one* career and have as a goal to be the best at it. Because you are not able to manufacture more time, and because you have one quantity of energy, focus all your attention on your one career and be jealous of your time. In this phase of your life you will be tempted to coach rugby and serve on the school board; these deserving activities divert your attention. Put them off until phase three when you will have the time.

If you are an entrepreneur with your own business, you are by definition a risk-taker. Take risk only in this phase because you can make up losses, a luxury which you do not have later in life.

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If your career is, for example, a bank employee, set your sights high because you can do exceptionally well financially as an employee. Remember the following:

- The job must accord with your abilities and personality.
- Do not for a moment think that you do not have risk; risk exists in that you can lose your employment.
- It is advisable to regard your job as a one-man (your) business and that your salary is the settlement of an invoice you issued to your employer for services rendered by you. This will make you serious about your job.
- Respect your owner-employer; s/he is the principal risk-taker in the business.
- Because you have to be at work in any case, work diligently, be punctual, go the extra mile, find solutions to problems, and be a team-player.

1.4.4 Undertake lifelong continuing education

Your education does not end with obtaining a first degree or diploma. Your career requires investment in all its aspects, in the form of formal (further degrees, diplomas) and non-formal education. The latter entails being a good listener of the opinions of others who are more experienced, reading and travel. Your goal should be to be the most informed of any person in the industry. General knowledge, gained from wide reading of non-fiction, makes you an engaging person, which is an essential ingredient of success in your business / job and your personal life.

Read only non-fiction in this phase (fiction can be enjoyed when you have achieved your FSG), i.e. stay up to date with developments pertaining to your career and with your country and world developments. Observe and understand your world. Engage in dialectical interaction. This means debating, which must always be non-confrontational: stating a thesis (hypothesizing), listening to an offered anti-thesis, and synthesizing a new thesis. This is true open-minded learning and makes you an engaging conversationalist.

1.4.5 Choose your life partner with care

You are “wired” with the emotion “love”, to be attracted to another person, to marry that person, and to have children (usually). With marriage, you sign the most significant and enduring contract of your life, and you live with this other person for 50–60 years. This other person is an individual who has opinions, passions and idiosyncrasies often different from your own. The divorce statistics indicate that most marriages fail.

An unhappy spouse and a divorce can affect your career, your finances and your offspring in a devastating fashion. In many cases divorce leads to a doubling of expenses (two homes) and a halving of income / assets. The consequences for your FSG can be profound.

Given the high price of housing and good education, it is more usual that both partners / parents are in employment / own businesses. It is therefore important to choose a life partner who is well educated. This is especially the case when one considers the possibility that one of the partners / parents may pass on or become disabled. This also has implications for life insurance (covered below).

1.4.6 Nurture your health and family life

This rule ties in with being jealous of your time. You only have a certain quantity and quality of energy. You need to undertake a life-long programme of maintenance of your energy level by participating in a physically-demanding sport. A fit person is a competent co-breadwinner / breadwinner.

Your career and sport take up time and what is left over should be devoted to your spouse (a good marriage demands effort) and children in their required nurturing. For these reasons avoid at all costs becoming a workaholic, because work can become addictive. A good balance between your career, sport and family life makes you a better spouse, parent, friend and colleague. A person who consistently spends eighteen hours a day at work is being irresponsible. It is incongruous that workaholics boast of this attribute.

1.4.7 Underspend

The personal finance equivalent of the property market's axiom "location, location, location" is "underspend, underspend, underspend" and this should become a lifelong mantra. While there are many demands on income, it is essential to start off this phase with an $I > E = +S$ approach. Underspending should become a persistent financial state because it facilitates attaining one's FSG at an earlier stage. The rule of thumb is save 20% of income. The condition $I < E$ leads to ruin.

1.4.8 Insure your life only

Part of underspending is to avoid overinsuring. Some insurance saleswo/men will pressure you to purchase many different policies, because they are usually remunerated on a commission basis and/or their bonuses are a function of their targets. There is a need for pure life/disability insurance, house insurance, house debt insurance, and possibly car insurance, but avoid the rest. Your priority in this phase (and the next phase) is to repay debt as quickly as possible (see next section).

As to the extent of life/disability insurance: you will have a spouse and children; insure against debt, and your life / your disability, for an amount that is sufficient to cover household expenditure until your spouse is able to provide for them. The latter is dictated by the ages of your children and the level of education of your spouse; your spouse may need to advance his/her education in order to better provide for the children and him/herself.

Pure life insurance is termed *risk life assurance* (RLA), and it is differentiated from policies which combine RLA and investment assurance. The reason for separating RLA and investments is that your investment and RLA requirements change as you age.¹¹ Generally, as you age and your assets increase your RLA needs decrease. It can be expensive to change combination policies, whereas there are no penalties for cancelling RLA policies.

There are various RLA policies, including¹²:

- Whole life assurance.
- Term assurance (increasing, decreasing, convertible).
- Credit life assurance (covers debt).
- Joint-life assurance.
- Disability assurance.
- Impairment assurance.
- Critical illness / dead disease assurance.
- Terminal illness assurance.

1.4.9 Take on debt, but with much thought

You need a home and a vehicle and you will need to incur debt to acquire these (see Figure 2). It is important to ensure that the debt service (i.e. interest) amount, which is part of E , is such that the condition $I > E$ is upheld.

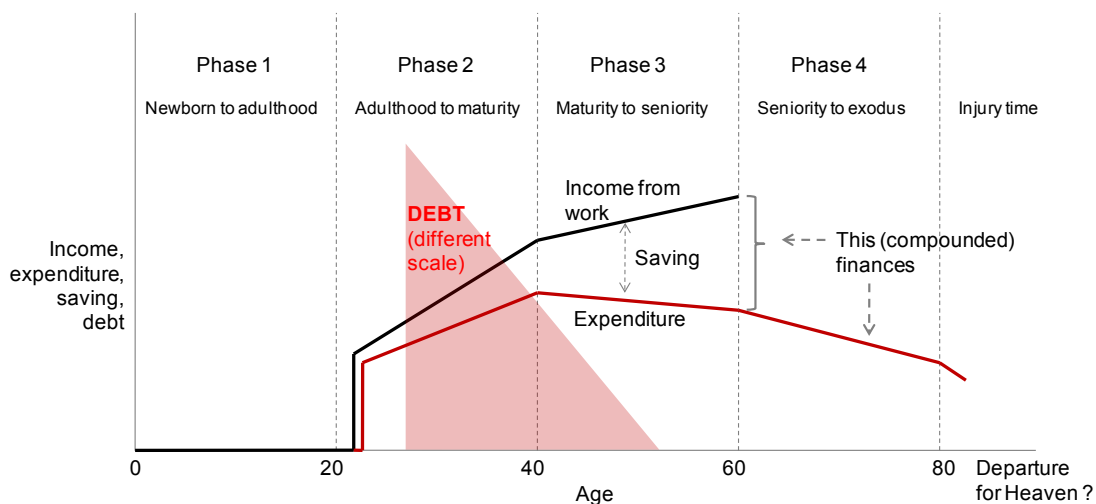


Figure 2: four phases of life

It is wise to live in a modest home and drive a modest car, because this keeps E at a low level. If there is a comfortable excess (S) over time, repay debt at a faster pace. If you have a business, borrow only if your business plan is sound, and reduce the debt asap. If you are an employee and are offered shares / options, sacrifice income or borrow if this is the way to buy the company shares or share options. However, only do so if you and your colleagues “believe” in the business. In these ways assets are built.

At all costs avoid buying lifestyle assets with borrowed money, even if E can accommodate the additional debt servicing cost. Rather repay your mortgage debt at a faster pace. Keep in mind that owning a boat or a holiday house is not wise; they can be hired and E will be lower and $S+$ higher.

1.4.10 Do not bow to peer pressure

Do not be influenced by your peers; in fact set the (modest) standard for your peers and friends. You will be surrounded by peers, and many of them will have impressive visible assets, such as a large home and expensive vehicles, as well as lifestyle assets such as a boat and a holiday house at the seaside. Many of them will also take their families on expensive overseas holidays. Keep in mind that the visible assets are the asset side of the balance sheet, and that the liability side, which funds the asset side, is invisible.



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Bowing to peer pressure is especially rife in the professional fraternity, and many of them are obliged to continue in their professions until a late age. This is not a pitiable situation (because it is advisable to remain active), but it is most satisfying to have the option to live off savings. By all means have a comfortable lifestyle, and acquire lifestyle assets, but only when you can comfortably afford them.

1.5 Phase 3: maturity to seniority (40–60)

1.5.1 Introduction

This is sometimes called the “consolidation”¹³ phase. It is the phase when the children leave home and, as shown in Figure 40, your expenditure falls while your income continues to increase, but at a lower rate. This is so because your business will most likely have reached maturity and is highly profitable by this stage, or you will have advanced well as an employee – in many cases to close to the top of the hierarchy.

This of course assumes that you followed the rules that pertain to phase 2. Consequently, it is the time when gap between *I* and *E* increases and you will be saving more than the amounts possible in phase 2. Your FSG is getting closer and you are in a position to ensure that you will reach it in this phase, provided you follow the rules that pertain to this phase:

- Nurture and exploit your personal brand.
- Aggressively repay debt.
- Cash out and separate business risk from personal assets.
- Invest assets wisely.
- Finance lifestyle assets with excess funds.

1.5.2 Nurture and exploit your personal brand

At the start of phase 3 you will have built a personal brand – either as a business person, a professional or an employee. It is the most valuable of all non-monetary assets and should be used to propel you to the top in your chosen career. This will ensure that *I* will continue increasing at a time when *E* is falling, and this will enable you to repay debt.

It is important not to fall into the trap of arrogance which could quickly destroy your brand and your wealth in phase 3. Success in phase 2 leads many people at age 40+ to believe too much in themselves (invincibility!); this arrogance affects decisions on risk-taking and expenditure detrimentally. Rather attempt to identify arrogant people with the purpose of avoiding them.

1.5.3 Aggressively repay debt

Higher I and lower E will put you in a position to repay debt at a faster rate (see Figure 2). It is likely that you enter this phase with a large outstanding mortgage bond. The highest return you can get on savings is in the share market: in the long term it delivers a *mean* return of over 12% pa; as you know this return is accompanied by risk (= variability of return around the mean). If your debt is costing you 12% pa and you apply all your savings to paying off your bond you are “earning” 12% pa *without any risk*. It is a superior deal. In fact, given the risks in the share market, it pays you to repay your bond even if the rate is 9.6% pa, because this can be called a *risk-adjusted rate* (RAR). If in the 12% share market the STD = 20%, the RAR = 9.6% pa.

This is also the phase when your parents pass on and leave you an inheritance (if they have not SKI'd¹⁴ it away). Regard this money as a windfall and use it to repay debt.

It should be a rule that at age 45–50, all debt should have been repaid. Given a sharp increase in net assets in this period there will be temptations (from the bank and peers) to buy lifestyle assets; avoid them.

1.5.4 Cash out and separate business risk from personal assets

During this phase your net worth will grow sharply and it is important to “cash out” a portion of your non-diversified assets and separate business risk from personal assets. How this is achieved in the different careers requires separate discussion.

If you are an employee with share options, cash out a portion and diversify (i.e. reduce risk) (more on this later). You should also be acutely aware in this phase that you are vulnerable. Downsizing of your employer-company in a recessionary period may lead to your retrenchment. This can be a serious setback to the timing of your FSG. You need to actively seek to expand the business of your employer by using your brand and wisdom, and recommending the employment of keen youngsters. The company owners will reward you with an extension of your working life. But you have to recognise that you must remain relevant. The company owes you a salary only if you earn it.

If you have a business or are a professional the separation of business risk from personal assets is achieved by, over time, identifying and handing the reins of the business over to youngsters with new expertise and energy. Your energy level will be lower than before and you need to recognise this upfront. Sell a portion of the business to them and sell more as you get older. Go back to your area of expertise in the company. The Bill Gates example is relevant; he handed over the reins and went back to his passion, software creation. The youngsters will respect you and most likely reward you with the chairmanship – but only if you have kept yourself relevant to the business. Thus, you will have prolonged your income-earning period.

1.5.5 Invest assets wisely

As you become a high net worth (HNW) individual and you have separated business risk from personal assets you will need to make decisions on investments. One of them is the choice of management of your money between self-management and external management. In the former case you will need to undertake extensive and ongoing research, which is extremely time-consuming. You should only consider this option when you have reached your FSG. However, the majority of persons who are successful in terms of their FSG use external management, which amounts to taking external advice. In this regard there are 2 options:

- Appoint a fund management firm (stockbroker or specialist firm).
- Invest in securities unit trusts (SUTs) and exchange traded funds (ETFs).

In the former case there are certain rules to follow, the most important of which is to choose the right manager, and this must be based on past performance. However, even excellent fund managers make bad decisions at times. For this reason it is good practice to implement the golden rule: diversification, i.e. choose 2–3 managers. The managers will in turn also diversify your investments. As you know this route takes advantage of low or negative correlations of return and reduces risk.



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1.5.6 Finance lifestyle assets with excess funds

Most HNW people are tempted to buy a large motor vehicle, a larger home, a boat, a holiday house at the sea and take long and expensive holidays. Only consider these if you have reached your FSG and have excess funds. However, consider the facts:

- A larger motor vehicle is expensive to run and insure, and it is difficult (emotionally) to downgrade if you have to.
- A holiday home restricts one's travel options because you feel obliged to use it every year.
- A holiday home is a non-earning asset, i.e. a poor investment even if you can afford it. It is wiser to rent a holiday home each year and it enables you to diversify your travel destinations.

1.6 Phase 4: seniority to exodus (60–80+)

1.6.1 Introduction

This phase has appropriately been called “the sunshine years”¹⁵. The age of 60 is probably a good target for attainment of your FSG, because it is the age when most people's energy levels begin to wane, and they get the urge to exit their job or business and to play a sport fulltime, or to start a new career. This phase only starts when you have reached your FSG. Some people will start it at 60, while others will start it at 65 or even later. The rules for this phase are:

- Choose this day carefully and prepare yourself emotionally.
- Continue to invest assets wisely.
- Resist the Indiana Jones temptation to make a comeback.
- Do not lend money to anyone.
- Undertake SKI holidays.

1.6.2 Choose this day carefully and prepare yourself emotionally

The age at which you start off this phase is dependent upon your success during the past two phases. As indicated in Figure 40 income ceases at the start of this phase. Thus, expenditure is financed from one source: your portfolio (retirement fund and/or personal portfolio). It is important to note that while expenditure falls over time, it does not fall sharply. This is a result of medical expenditure rising, while normal consumption expenditure falls. If your portfolio is able to sustain your partner and yourself comfortably (which includes travel) you have reached your FSG.

If you are fortunate to have achieved your FSG, which you will know before the start of the phase is reached, it is imperative that you prepare carefully for a new life in the form of hobbies, sport or a new career for which you have never had the time. In the case of a new career, it is liberating to not have to earn an income. One rewarding prospect is teaching, i.e. to give young people the benefit of your experience and wisdom. If you do not prepare for this, it is likely that you will become depressed and depart life prematurely. There is an undisputed link between depression and cancer.

If you have not reached you FSG at age 60+, you will need to keep yourself relevant or re-skill yourself in a field appropriate to your experience. To be avoided at all costs is to invest your portfolio in risky assets (including a new business, such as a coffee shop or a fishing tackle shop at the sea).

1.6.3 Continue to invest assets wisely

It is even more essential to focus on investing assets wisely and to allow for bear markets. As noted, it is wise to take objective advice and not be emotionally involved with your investments. However, if you are well-schooled in the investment industry it is likely that you will embrace self-management. In this case you will need to make the broad asset allocation, and choose the investments in each asset class.

Let's examine an example: you believe that the economy is robust and that asset prices will increase. You have a mortgage-free home and do not think it wise to have any further investment in property (because property is an illiquid investment). You also wish to keep a proportion of your assets in bonds and in cash (= money market). You require diversification and liquidity. You decide upon a portfolio as presented in Table 1. (A note: the terms used here are probably unfamiliar; they are elucidated in some detail later.)

With this type of portfolio you have achieved the following:

- Diversification (across 85% of portfolio).
- Taken advantage of the highest return asset class which can be done at the start of the phase but should be changed as you get older.
- You have risk (in the share market) but it reduces as the investment horizon increases (you may have 20+ years ahead).
- Kept transactions costs low (ETFs instead of the shares/bonds underlying them).
- Liquidity (in all assets except property and other real assets).

Asset class	% allocation	Asset type	Diversification
FINANCIAL ASSETS			
Shares	65%	ETF: Top-40 Index	An ETF is diversified
Bonds	10%	ETF: GOVI Bond Index	An ETF is diversified
Money market	10%	3 money market SUTs & 3 bank deposits	SUTs are diversified; diversified across banks
REAL ASSETS			
Property	10%	Your home	No
Commodities	4%	Gold coins	No – because of limited options
Other real assets	1%	Antique furniture, art, rare books & stamps, etc	Yes, probably

Table 1: Example of portfolio

As one ages the risk profile of this portfolio will need to be changed: less in risky assets (shares) and more in risk-free assets (TBs and short-term government bonds).

1.6.4 Resist the Indiana Jones temptation to make a comeback¹⁶

There are many instances of people (wo/men of ego) who endeavour to “make a comeback” when retired. They have reached their FSG, and invest in one last venture, usually with the purpose of substantially boosting their HNW status and impressing their peers. Often this leads to financial disaster.

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1.6.5 Do not lend money to anyone

When you have achieved your FSG it is likely that you will be approached by people, including your children, to invest in a “fail-safe” venture. When this happens place it at the forefront of your mind:

- Your portfolio is sacrosanct.
- If you acquiesce your portfolio’s risk and return risk characteristics will change in the direction of higher risk.
- Moral hazard rears its ugly head: easy money is easily squandered, especially by family, because there is no pressing need to repay / service interest.
- If the venture is viable (and it should be reviewed), bank funding is available; this is the banks’ business, not yours.

1.6.6 Undertake SKI holidays

Spend the kids’ inheritance. After almost half a century of dedicated work (accompanied by stress), when you have not relaxed much, it is time to learn to relax. When you depart for Heaven (some believe) at 80–90, your children will be retiring and probably not need to inherit assets.

1.7 Other rules which apply throughout or during part of your life-cycle

1.7.1 Introduction

One is able to identify many other rules that should apply in one’s life. Here we list those we consider of major importance:

- Do not become dependent on the largesse of your spouse.
- Nurture relationships in business with like-minded people and avoid negatively-focussed people.
- Be quietly competitive.
- Be kind to people with humble stations (positions) in life.
- Read up on the undisputed “Out of Africa” theory.
- Pursue happiness.
- Have no regrets upon exodus.
- Undertake a lifelong love affair with macroeconomics and the political environment.

1.7.2 Do not become dependent on the largesse of your spouse

Many individuals become dependent upon their spouses in a financial sense and become enslaved – sometimes in an unhappy home. If your occupation is to nurture the children ensure that your marriage contract affords you equality in terms of the family assets. If you are career-orientated, resume your career asap or when the youngest child enters pre-school.

1.7.3 Nurture relationships in business with like-minded people and avoid negatively-focused people

Beware of arrogant and narcissistic people; they are usually intelligent, articulate and persuasive. They journey through life with the attitude that the world owes them a good living, and ultimately destroy their lives. The first sign to look for is that they are poor listeners and never enquire about you and your family.

1.7.4 Be quietly competitive

You are hard-wired to compete for position in the hierarchy of business and personal life. Do it without fanfare, and never burn bridges (except with arrogant and narcissistic people) because you are bound to meet previous colleagues in the future. Some of them may be in positions that can have a bearing on your business life.

1.7.5 Be kind to people with humble stations (positions) in life¹⁷

You will come across people almost every day that are not as fortunate as you may be. Be cognisant of the reality that they may not have had the opportunities you had to better themselves. These people are generally treated with contempt or obliviousness. Mentally project yourself into space and look down on earth; this will make you realise that we are all diminutive and make only a small contribution to society. You have no reason, even (or especially) if you are well on your way to, or have already achieved, your FSG, to feel superior. Kindness begets kindness, joy and helpfulness (humble stations are usually service positions).

1.7.6 Read up on the undisputed "Out of Africa" theory¹⁸

The Out of Africa theory postulates that a small group of Africans left Africa 70 000–80 000 years ago and populated the world. There is ample evidence [archaeological, mitochondrial (female) DNA, phylogeographic, palaeontological, etc.] that the small group left what is now Ethiopia / Djibouti and crossed the sea (then at a lower level) into what is now Yemen. From there they spread across the world. It has also been suggested that human skins became lighter in colder climes because of the less harsh sunlight and in order to produce the body's required amount of vitamin D (which is produced by the skin).

1.7.7 Pursue happiness

Happiness is a choice, a state of mind influenced by myriad factors of which financial health is a significant contributor. Self-actualisation is the ultimate human accomplishment (according to Maslow) and can only be achieved with a strong financial state of affairs. In the next section we present a synopsis of a body of research on the life-cycle of happiness.

1.7.8 Have no regrets upon exodus

This rule fits snugly with the pursuit of happiness. It may seem an obvious one. However, what is not so obvious is the principal regrets people have during their last days on earth. An Australian palliative care nurse, Bronnie Ware, recorded the five principal regrets people have in their last twelve weeks¹⁹:

- “I wish I’d had the courage to live a life true to myself, not the life others expected of me.” This is the most common regret of all, and is based on choices made resulting in many unfulfilled dreams.
- “I wish I hadn’t worked so hard.” Every male patient expressed this regret; they had missed out on their children’s youth and their partner’s companionship.
- “I wish I’d had the courage to express my feelings.” Most people suppress their true feelings in the interests of keeping the peace with others, i.e. do not reach their potential and thereby settle for a mediocre existence. The consequence can be bitterness and resentment and possible resultant ill health.
- “I wish I had stayed in touch with my friends.” Most people are so busy with their lives they lose touch with old friends; they miss these friends when dying.
- “I wish I had let myself be happier.” As we stated above, happiness is a choice. Most people worry about the future, have a fear of change and follow their old patterns and habits, i.e. remain in their “comfort zone”. This is reflected in their emotions and physical lives. They pretend to themselves and to others that they are content.

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1.7.9 Undertake a lifelong love affair with macroeconomics and the political environment

As stated often before, undertake a lifelong love affair with macroeconomics and the political environment. These disciplines provide the framework for investments. Investment returns are driven by earnings and earnings are driven by:

- Domestic demand (DD) [= consumption expenditure (C) *plus* fixed investment expenditure (I) = gross domestic expenditure (GDE)].
- Net foreign demand (NFD) [= foreign demand for local goods (exports: X) *less* local demand for foreign goods (imports: M) = trade account balance (TAB)].
- The above make up the expenditure on gross domestic product (GDP).

Thus, the macroeconomy (i.e. the economy seen broadly) is represented by:

$$DD = C + I = GDE.$$

$$NFD = X - M = TAB$$

$$GDE + TAB = GDP \text{ (expenditure on).}$$

1.8 Life-cycle of happiness²⁰

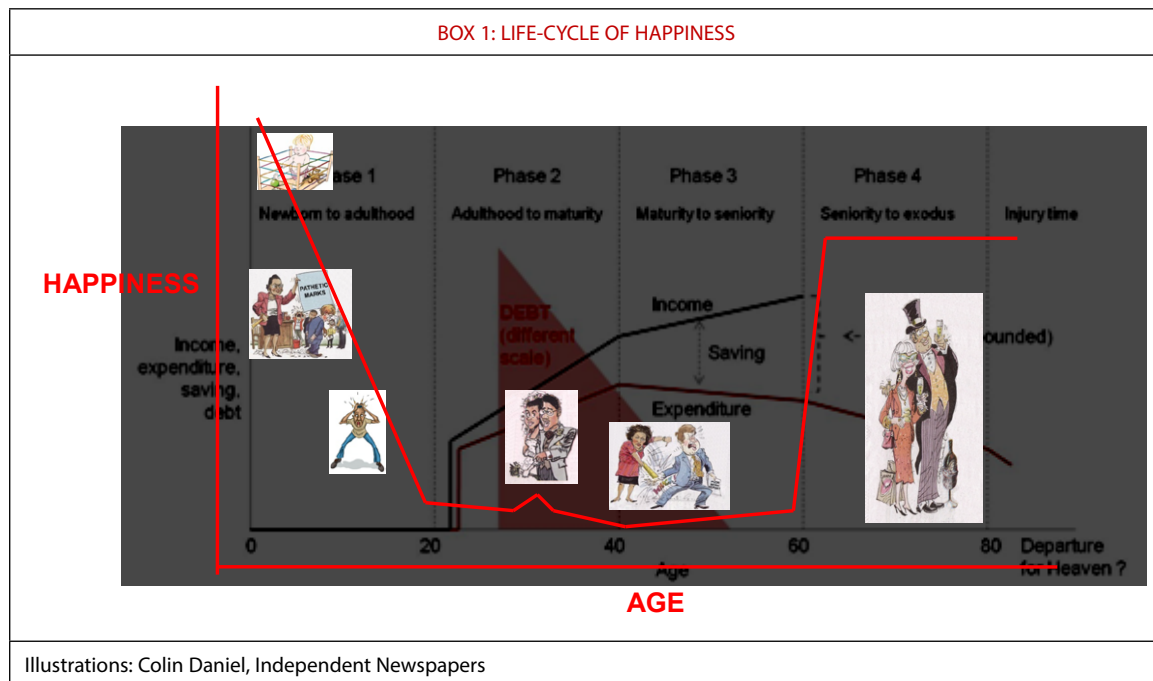
What is happiness? It is a state of being expressed in many ways, such as psychological well-being, life satisfaction, emotional well-being, subjective well-being, and so on.

Most adults regard “life” as a long and slow decline from birth to death. What they mean is that people are happy as carefree / responsibility-free toddlers and teenagers, and then their degree of happiness declines over time, reaching what is called a mid-life crisis between 40 and 50. The degree of happiness then declines further until it disappears entirely (= misery) as old age creeps up, and this is so because old age is accompanied by physical ailments such as painful joints, failing eyesight, memory-loss, etc., as well as the happiness-killing thought of dying soon.

This is not the case; rather, research indicates that the happiness life-cycle is U-shaped (see Box 1: happiness cycle superimposed on the four phases). According to research there are four factors that impact on happiness:

- Gender. Women are slightly happier than men, but are more susceptible to depression.
- Personality. There are many personality types, with the extremes being neuroticism and extroversion. The former tend to be unhappy, because they are prone to guilt, anxiety, and anger, and they tend to be gloomy, and alone. The extroverts are the most happy, because they form relationships easily, enjoy parties, and take pleasure in working in teams.

- Circumstances. This factor includes relationships (linking with the aforementioned), education, income, health and probably the major circumstantial factors: *stress* and associated *worry*.
- Age. As we will see, age is a major factor in happiness, and that stress and worry, the major happiness-inhibitors, are age-related.



In what follows an important assumption is made: people are emotionally secure, have a home, enough to eat, a good education, a career, good health, average income, and reach their FSG in their late fifties to early sixties. This leaves the main factors in happiness to be *age* and related *stress and worry circumstances*.

Certainly, babies, toddlers, and pre-teens are happy. This is because they have no responsibilities, except to pay attention later at school. Teenagers, however, have challenges and therefore stresses and worries: at school, at home, amongst peers, dating, at social events. Happiness declines under such pressures. This continues into early adulthood: at university or work.

Making a living can be rewarding emotionally, but it is usually associated with many stress and worry factors: competition for position, impacting on interpersonal relationships in and outside the work environment; postponing consumption to later (saving to reach the FSG); long working hours and associated tiredness; attending cocktail parties and entertaining (to remain part of the *network*); general anger at circumstances.

Happiness declines under these circumstances. However, there are events that give relief at the age of middle-to-late twenties: marriage, young children and friends. However, the children-factor pales after a while, as a result of the associated costs (largely unanticipated and therefore not planned for). This impacts heavily on savings. Children become teenagers, are generally angry, and challenge parents when they are at their most stressed-out stage: middle forties. Research indicates that the low point, sometimes called the *mid-life crisis*, is at median age 46.

Thereafter, stresses and worries remain constant for a while and ease later when the children grow up and leave home. This stage is associated with a higher disposable income and higher savings, bringing the FSG closer. The senior stage is reached thereafter.

As people move to senior years they lose vitality and mental sharpness, they have or will have ailments, and they lose their looks. They look grumpy, as a result of gravity which “pulls” the sides of the mouth down, and are therefore treated with disdain or are ignored by the young. Older workers are often placed in unventilated corners with their disregarded opinions. All these disadvantages are a recipe for unhappiness, but the reality is very different.

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At this stage happiness rises sharply, a result of many factors, including:

- Financial security.
- Enhanced ability to control emotions and find solutions to conflict.
- Better at accepting misfortune.
- Less prone to anger and less inclined to pass judgment.
- A live-for-the-present attitude as a result of a limited lifespan, i.e. a determination to make the best of the remaining years.
- Acceptance of strengths and weaknesses.
- The absence of ambition and competition for position.
- Grandchildren, without the responsibility of good parenting.

As a result of these factors, stress and worry give way to general cheerfulness and happiness. This more than compensates for the physical disadvantages that accompany old age referred to above. The net result is more productive older people, just at the time when they leave the work force.

Is the average person able to buck the trend? The answer is no, but it is possible to alleviate stress and worry in middle-age by being aware of the life-cycle of happiness and its contributing factors. Stress and worry management is key, and sufficient sleep, regular exercise, adequate saving and sound money management are parts of the key.

1.9 The life-cycle and investing

As we said upfront, the above exposition is of little use if one does not have investments. Only a small percentage of people (some studies say 6–10%) reach their financial security goal (FSG), and are able to replace formal work with other activities.

Achieving your FSG at an appropriate age (i.e. whenever you wish to) is in your hands. The rules to be followed in the four phases of life are straightforward, but the majority of individual do not follow them. The reason is to be found in behavioural finance: people are innately optimistic, meaning that they subconsciously believe that will “somehow” achieve their FSG. The reality is that one has to consciously plan one’s financial future. There are many hurdles (such as peer pressure and ill health) to achieving one’s FSG, and these must be in one’s consciousness and managed.

There is much pleasure in achievement, especially the achievement of one’s FSG, and there is much unhappiness resulting from having to rely on one’s children or the state for food and shelter. In general there are three assumptions to happiness in one’s advanced-age period:

- Financial health.
- Physical health.
- One’s children must be on the success treadmill (for this reason their education is paramount).

This section is followed by the sections:

- The financial system.
- Investment instruments.
- Investment principles.

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2 The financial system

2.1 Learning outcomes

After studying this text the learner should / should be able to:

- Elucidate the categories of investments.
- Describe the six elements that make up the financial system.
- Describe the financial instruments / investments in a broad sense.
- Know of the existence of the allied non-principal participants in the financial system.

2.2 Introduction

This section on “The financial system” follows the section “Four phases of the life-cycle” and precedes the sections:

- Investment instruments.
- Investment principles.



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The reason for this stand-alone main section is that 70–80% of most portfolios are comprised of financial assets, i.e. these assets are delivered by the financial system. As will be seen, the majority of financial assets held are shares. The reason is simple: return, compared with other asset classes.

One of the reasons for the general disinterest in investments, which leads to the majority not achieving their FSG, is that potential investors are confronted with a maze of terms relating to investments: hedge funds, alternative investments, money market investments, investment policies, bills, bonds, notes, ETFs, SUTs, PUTs, real assets, shares / stocks / equities, fixed-income / fixed-term assets, derivatives, collective investment schemes, and so on and so forth. Most people are confused by these examples of terminology and feel intimidated by the subject matter.

The confusing terminology will be demystified as we progress in this text. The first step is to outline the categories and subcategories of the *ultimate* investments. By *ultimate* is meant the *actual* investments that exist, i.e. investors invest in these either directly or indirectly via financial intermediaries. The *ultimate* investments are straightforward:

- Financial investment instruments:
 - Debt instruments.
 - Share (aka stock and equity) instruments.
- Real investments:
 - Property (aka real estate).
 - Commodities.
 - Other real investments (art, rare coins, antique furniture, etc.).

As will be seen in more detail later, financial investments are issued by *ultimate borrowers*. It will also be seen that financial intermediaries exist to facilitate financing in various forms. There are various types and they all hold *ultimate investments* and issue *indirect investments*, such as deposits and participation units (or interests), in order to finance the holding of the *ultimate* investment instruments. There are three categories of financial intermediaries and they issue *indirect securities* as indicated:

- Banks: deposit instruments (certificates).
- Quasi-financial intermediaries (QFIs): debt instruments.
- Investment vehicles: participation interests (PIs).

In summary, we have the following investments:

- Ultimate investments:
 - Financial investments instruments (issued by ultimate borrowers):
 - Debt instruments.
 - Share (aka stock and equity) instruments.
 - Real investments:
 - Property (also called real estate).
 - Commodities.
 - Other real investments (art, rare coins, antique furniture, etc.).
- Indirect investment instruments (issued by financial intermediaries):
 - Issued by banks: deposit instruments.
 - Issued by quasi-financial intermediaries: debt instruments.
 - Issued by investment vehicles: participation interests.

As we will see below, the *ultimate lenders* hold the ultimate investment instruments directly or indirectly via financial intermediaries. Also, some financial intermediaries hold the financial liabilities of other financial intermediaries. In what follows, keep in mind that we use the terms *investments* and *assets* interchangeably, and that these terms apply to financial and real assets. The terms *instruments* and *securities* apply to financial assets only. Keep in mind also that *asset* means “I own”, and that *financial assets* are the *financial obligations / liabilities* (liability = “I owe”) of ultimate borrowers and financial intermediaries, which may also be termed financial *claims on borrowers*.

The above may be a little confusing to those unfamiliar with the financial system and investments. These terms will be well understood as we progress in this text.

Generally speaking investment portfolios do not contain a large proportion of real investments. The reason is that real investments do not generate returns in the form of regular cash flows (the exception is one section of the property market = rental properties). Financial investments, on the other hand, generate interest and dividend income. All investments generate capital gains (small, though, in the case of the money market).

For these reasons, the majority of large portfolios (such as retirement funds) are comprised of financial assets – to the extent of around 90%. Individuals’ portfolios generally have a smaller proportion of financial assets, mainly because of the need to have a dwelling (property). Because of the dominance of financial assets in portfolios, we need to spend some time on the system that delivers financial assets: the financial system.

2.3 Six elements of the financial system

The financial system is primarily concerned with borrowing (issuing of debt and share securities) and lending and may be depicted simply as in Figure 1.

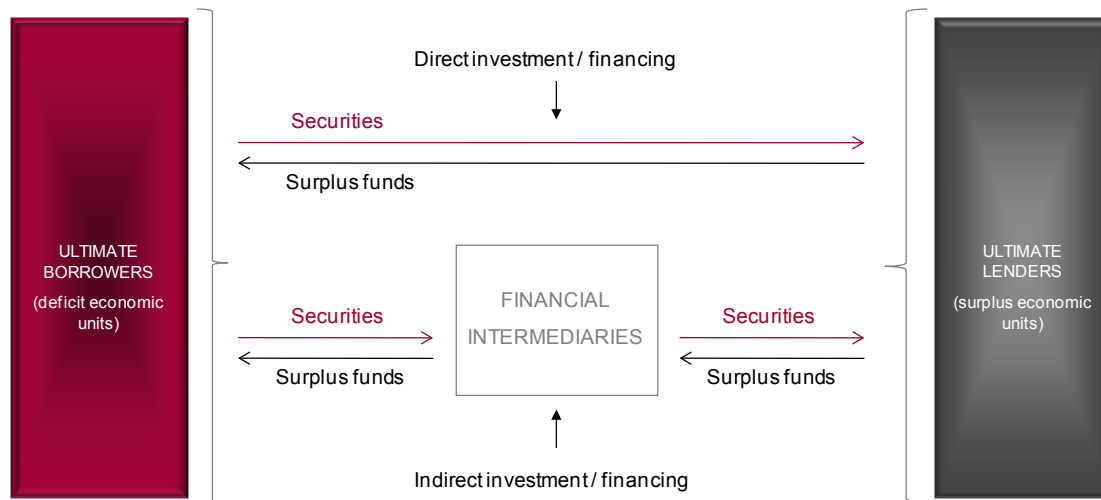


Figure 1: financial system (simplified)

The financial system has six essential elements:

- First: the *ultimate lenders* (= surplus economic units) and *borrowers* (= deficit economic units), i.e. the non-financial economic units that undertake the lending and borrowing process. The ultimate lenders lend to borrowers either directly or indirectly via financial intermediaries, by buying the securities they issue.
- Second: the *financial intermediaries* which intermediate the lending and borrowing process. They interpose themselves between the lenders and borrowers, and earn a margin for the benefits of intermediation (including lower risk for the lender). They buy the securities of the borrowers and issue their own to fund these (and thereby become intermediaries).
- Third: *financial instruments* (or *assets*), which are created/issued by the ultimate borrowers and financial intermediaries to satisfy the financial requirements of the various participants. These instruments may be marketable (e.g. treasury bills) or non-marketable (e.g. retirement annuities).
- Fourth: the *creation of money* (= bank deposits) by banks when they satisfy the demand for new bank credit. This is a unique feature of banks. Central banks have the tools to curb money growth.
- Fifth: *financial markets*, i.e. the institutional arrangements and conventions that exist for the issue and trading (dealing) of the financial instruments.
- Sixth: *price discovery*, i.e. the establishment in the financial markets of the price of money, i.e. the *rates of interest* on debt (and deposit) instruments and the *prices* of share instruments.

Each of these is given attention below.

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2.4 Element 1: lenders and borrowers

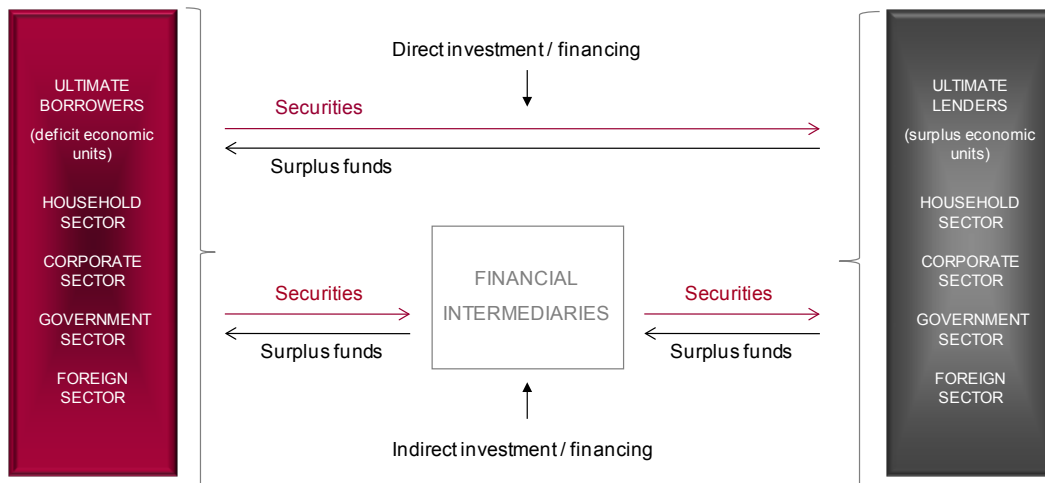


Figure 2: sectors of lenders & borrowers

The *ultimate borrowers* comprise the four broad sectors of the economy (see Figure 2):

- Household sector.
- Corporate (or business) sector.
- Government sector.
- Foreign sector.

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The same non-financial economic sectors appear on the other side of the financial system as *ultimate lenders*. The members of the four sectors are either lenders or borrowers or both at the same time. An example of the latter is government: the governments of most countries are permanent borrowers (usually long-term), while at the same time having short-term funds in their accounts at the central bank (and the private banks in some cases), pending spending. As noted before, borrowing and lending takes place either directly or indirectly via the financial intermediaries.

2.5 Element 2: financial intermediaries

Financial intermediaries exist because there is a conflict between lenders and borrowers in terms of their financial requirements (term, risk, volume, etc.). For example, members of the household sector as lenders generally have a need for current account deposits (i.e. essentially 1-day deposits), while government's borrowing needs range from 3 months to 30 years. Another example: a surplus company may wish to lend for 3 months, while a deficit company may wish to borrow for 2 years.

The financial intermediaries solve these divergent requirements by (for example) investing in the instruments of debt of government with the short-term funds of the household sector invested with them. They also perform many other functions such as lessening of risk for lenders, creating a payments system, the efficacy of monetary policy, and so on.

<p>MAINSTREAM FINANCIAL INTERMEDIARIES</p> <p>DEPOSIT INTERMEDIARIES</p> <ul style="list-style-type: none"> Central bank Private sector banks <p>NON-DEPOSIT INTERMEDIARIES</p> <p>Contractual intermediaries (CIs)</p> <ul style="list-style-type: none"> Short-term insurers Long-term insurers Retirement funds <p>Collective investment schemes (CISs)</p> <ul style="list-style-type: none"> Securities unit trusts (SUTs) Property unit trusts (PUTs) Exchange traded funds (ETFs) <p>Alternative investments (AIs)</p> <ul style="list-style-type: none"> Hedge funds (HFs) Private equity funds (PEFs) <p>QUASI-FINANCIAL INTERMEDIARIES (QFIs)</p> <ul style="list-style-type: none"> Securitisation / special purpose vehicles (SPVs) Development Finance Intermediaries (DFIs) Investment trusts / companies Finance companies Savings and credit cooperatives Micro lenders Buying associations

Table 1: Financial intermediaries

Financial intermediaries may be classified in many ways. A list of the financial intermediaries that are found in most countries, according to our categorisation preference, is as shown in Table 1. There are two broad categories: mainstream financial intermediaries and quasi-financial intermediaries. The former are straightforward: they have financial liabilities and assets (with the exception of PUTs), while the latter border on being financial intermediaries. A good example is the SPV (special purpose vehicle); it generally is created for a specific purpose (usually a specific activity such as securitising mortgages), and after this transaction is completed it is closed to further business.

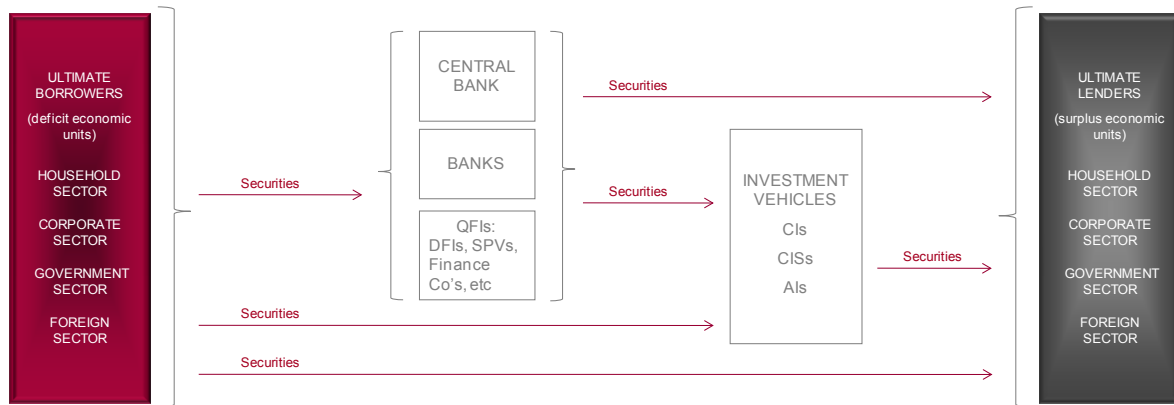


Figure 3: financial intermediaries

The main financial intermediaries (or categories) and their relationship to one another may be depicted as in Figure 3.

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2.6 Element 3: financial instruments

2.6.1 Introduction

As a result of the process of financial intermediation, and in order to satisfy the investment requirements of the ultimate lenders and the financial intermediaries (in their capacity as borrowers and lenders), a wide array of financial instruments exist. The instruments are either non-marketable (e.g. retirement annuities, insurance policies), which means that their markets are only primary markets (see later), or marketable (e.g. treasury bills, bonds), which means that they are issued in their primary markets and traded in their secondary markets (detailed later).

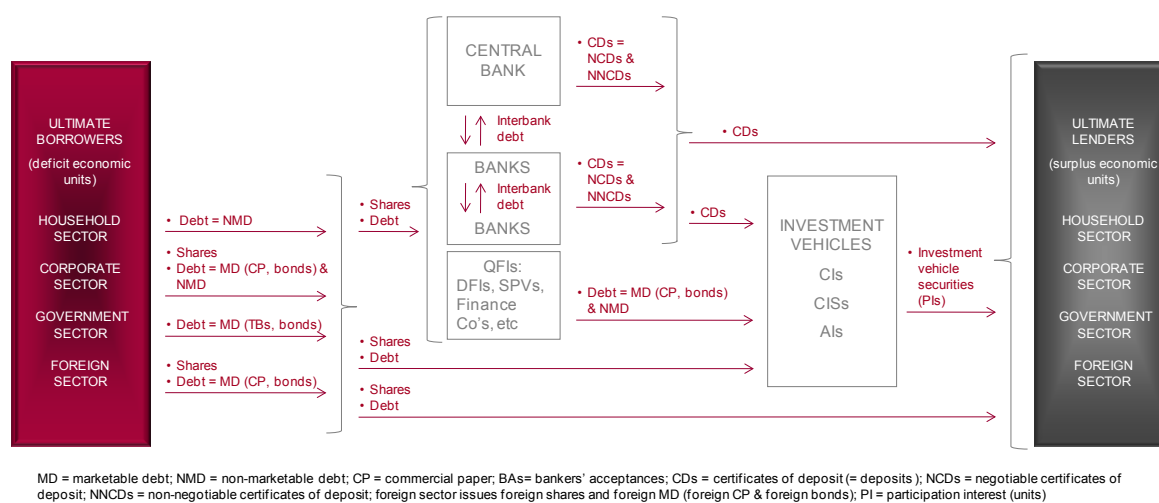


Figure 4: financial intermediaries & instruments / securities

As indicated in Figure 3, the instruments issued by borrowers are in a broad sense called securities (aka instruments and assets). They represent claims on the issuers / borrowers. Figure 4 presents the detail. As we have seen, the instruments issued by the ultimate borrowers (the ultimate investments) are twofold:

- Debt instruments.
- Share (aka equity and stock) instruments.

Debt and share instruments represent permanent or semi-permanent funds (aka capital) for the borrowers. Generally, debt instruments have a fixed term to maturity and thus represent semi-permanent capital for the borrower, and there are two classes of shares: ordinary shares which are shares in the capital of companies which have no maturity date (= permanent capital) and preference shares which generally have a fixed term to maturity (= semi-permanent capital).

There are variations on the themes, such as perpetual debt and perpetual preference shares (they both have no fixed maturity date) but, as they are rare, we will not cover them in this text. In summary, financial investments are:

- Debt instruments (fixed-term = semi-permanent capital).
- Share instruments:
 - Ordinary shares (no fixed-term = permanent capital).
 - Preference shares (fixed-term = semi-permanent capital).

Below we present the detail of the financial instruments issued by the ultimate borrowers and the financial intermediaries. Note that here we introduce the concepts marketable debt (MD) and non-marketable debt (NMD) (shares, whether listed or non-listed, are marketable).

2.6.2 The instruments (ultimate investments) of the ultimate borrowers

The instruments of debt and shares (ultimate investments) of the financial system and their issuers (the ultimate borrowers) are as follows:

The *household sector* issues:

- Non-marketable debt (NMD) securities:
 - Examples: overdraft loan from a bank; mortgage loan from a bank.

The *corporate sector* issues:

- Share securities:
 - Ordinary shares (aka common shares).
 - Preference shares (aka preferred shares).
- Debt securities:
 - Non-marketable debt (NMD).
 - Marketable debt (MD)
 - Usually only corporate bonds and commercial paper (CP).

The *government sector* issues:

- Marketable debt securities (in most countries MD only)
 - Treasury bills (aka TBs and T-bills).
 - Bonds (aka T-bonds).

The *foreign sector* issues (into the local markets):

- Foreign share securities (inward listings).
- Foreign debt securities (inward listings: usually bonds only).

2.6.3 The instruments of the financial intermediaries

As we have seen, there are three groups of financial intermediaries:

- Banks.
- Quasi-financial intermediaries (QFIs).
- Investment vehicles.

The *deposit financial intermediaries* (*central and private sector banks*) issue deposit securities:

- Deposit securities:
 - Central bank:
 - Non-negotiable certificates of deposit (NNCDs).
 - Negotiable certificates of deposit (NCDs) (central bank securities²¹).
 - Notes and coins²².
 - Private sector banks:
 - NNCDs.
 - NCDs.



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The *quasi-financial intermediaries* issue debt securities:

- Debt securities:
 - Non-marketable debt (NMD):
 - Example: utilised overdraft facility.
 - Marketable debt (MD):
 - Bonds, commercial paper (CP).

The *investment vehicles* issue securities to investors as follows:

- Contractual intermediaries (CIs):
 - Retirement funds (membership or participation interests – PIs).
 - Life insurers (endowment policies & annuities – they are actually PIs in the underlying insurer endowment and annuity funds of the insurers).
- Collective investment schemes (CISs):
 - Securities unit trusts (units, which we call PIs).
 - Property unit trusts (units, which we call PIs)
 - Exchange traded funds (PIs).
- Alternative investments (AIs):
 - Hedge funds (PIs).
 - Private equity funds (PIs).

Most individual investors do not invest in the ultimate financial instruments (the exceptions is shares). Rather, they invest in these ultimate financial instruments via the *investment vehicles*.

2.6.4 Summary

The above may be summarized as in Table 2.

ULTIMATE BORROWERS			
	Non-marketable debt (NMD)	Marketable debt (MD)	Shares (marketable)
Household sector	Loans from banks		
Corporate sector	Loans from banks	<ul style="list-style-type: none"> • Corporate bonds • Commercial paper 	<ul style="list-style-type: none"> • Non-listed ordinary shares* • Listed ordinary shares • Listed preference shares
Government sector	Loans from banks	<ul style="list-style-type: none"> • Govt bonds • Treasury bills 	
Foreign sector		Foreign bonds	Foreign shares (inward listing)
FINANCIAL INTERMEDIARIES			
	Non-marketable	Marketable	
Central bank (deposits)	Non-negotiable certificates of deposit	<ul style="list-style-type: none"> • Negotiable certificates of deposit ** • Notes & coins 	
Private sector banks (deposits)	Non-negotiable certificates of deposit	Negotiable certificates of deposit	
Quasi-financial intermediaries (debt)	Loans from banks	<ul style="list-style-type: none"> • Corporate bonds • Commercial paper 	
Investment vehicles	Participation interests		
OD = overdraft); CP = commercial paper; BAs = bankers' acceptances; PNs = promissory notes; Corp = corporate; NNCDs = non-negotiable certificates of deposit; NCDs = negotiable certificates of deposit. * Non-listed preference shares do exist but are rare. ** Central bank (CB) securities, which are akin to NCDs (we call them NCDs for the sake of simplicity).			

Table 2: Financial instruments / securities

As seen, these investment vehicle securities are referred to by various names but, in the interests of simplicity, we call all of them *participation interests* (PIs). As stated, generally, individual investors (lenders) don't buy TBs, CP or bonds, and the majority don't buy shares, directly. Rather, they buy PIs in the investment vehicles, which in turn invest in these (and other) instruments. In fact the investment vehicles (excluding most of the AIs) specialise in providing investments products for individuals.

2.7 Element 4: financial markets

2.7.1 Primary and secondary markets

All the instruments mentioned above are issued in so-called *primary markets*, and the already-issued marketable instruments of debt (including deposits) and shares are traded in *secondary markets*. Thus, as depicted in Figure 5, when a primary issue is made the issuer (= borrower) acquires new funds, whereas in the secondary market the seller gets the funds (not the issuer).

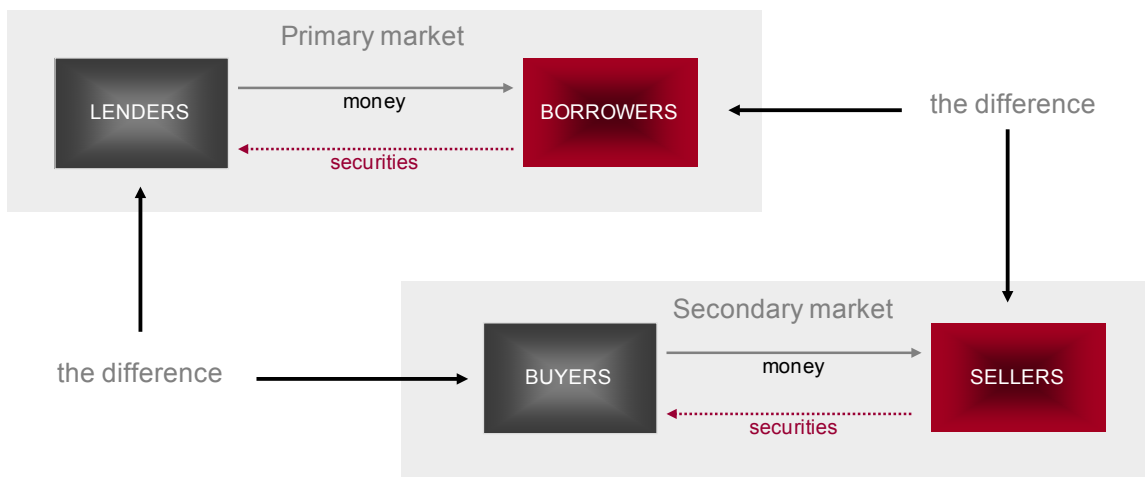


Figure 5: Primary and secondary markets

2.7.2 OTC and exchange-driven markets

Secondary financial markets evolved to satisfy the needs of lenders (investors) to buy and sell (exchange) securities when the need arises. Some markets naturally exist in a safe (i.e. low risk) environment, while for others a safe environment has been created. The former markets are called over-the-counter (OTC) markets, and the latter the formalised (or exchange-driven) markets.

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By and large, the foreign exchange and money markets of the world are OTC markets, and they essentially are the domain of the well-capitalised banks, while the share and bond²³ markets are exchange-driven markets. Derivative instruments fall under both categories.

2.7.3 Debt market

The debt market is the market in which debt instruments are issued and exchanged for funds. Interest is paid on debt instruments (hence the other name: interest-bearing market), as opposed to dividends that are paid on shares. The debt markets are also called the fixed-interest markets, but this is a misnomer because interest may be floating, i.e. reset during the life of the instruments. The debt market is comprised of:

- Short-term debt market (STDM, which is a major part of the money market, the other part being deposits).
- Long-term debt market (LTDM, the marketable part of which is called the *bond market*).

The dividing line between the STDM (money market) and the LTDM is determined according to the term to maturity of the debt instruments, and is arbitrarily set at one year. Thus, the STDM (money market) is defined as the market for the issue and trading of securities with maturities of less than one year, and the LTDM as the market for the issue and trading of securities with maturities of longer than one year.

The securities referred to are marketable (e.g. a treasury bill and bond) or non-marketable (e.g. a non-negotiable certificate of deposit – NNCD – of a bank), and the markets are wholesale markets (i.e. large denomination securities) or retail markets (i.e. small denomination securities). In this respect the money market differs from the bond market.

Thus the money market is the entire STDM (plus the deposit market) and can be defined as follows:

The primary market for the issue of short-term retail and wholesale securities, and the secondary market for the trading of short-term wholesale marketable securities.

The definition of the bond market is:

The primary market for the issue, and the secondary market for the trading, of long-term wholesale marketable securities.

The reason for including retail and non-marketable securities in the definition of the money market is that the retail money market is as large as the wholesale money market, and that it also encompasses large markets such as the call money (i.e. on-day term) deposit markets (which do not have secondary markets). It also includes the significant *interbank market*, which encompasses the bank-to bank interbank market, the short-term lending operations of the central bank to the banks at the repo rate for monetary policy purposes, and the reserve requirement (bank deposits with the central bank).

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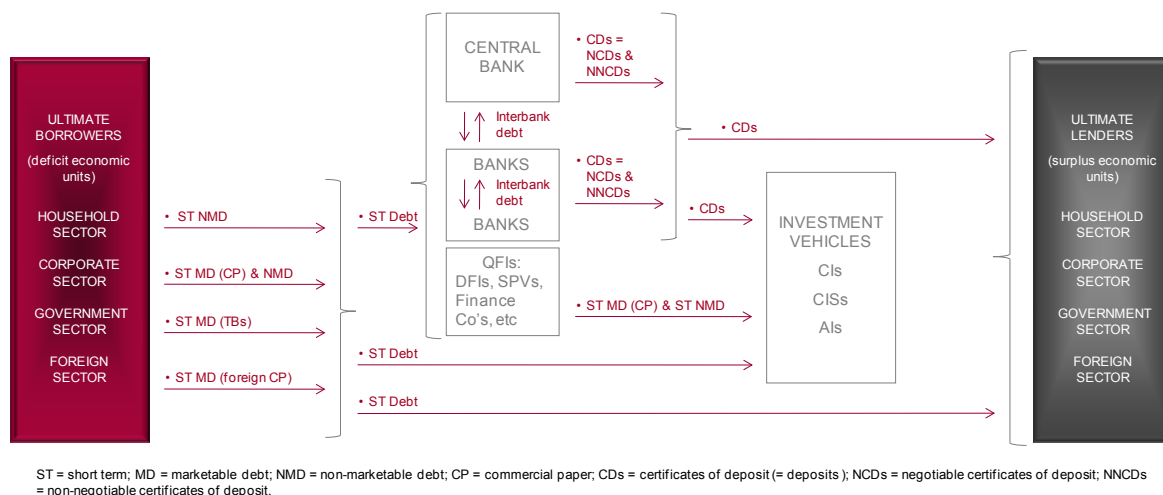


Figure 6: money market

The latter sentence informs that monetary policy is played out in the money market. The essence of monetary policy is that the central bank undertakes transactions in this market in the form of open market operations (OMO) in order to establish a certain desired “liquidity shortage”. This is a managed level of “borrowed reserves” (i.e. short-term central bank loans to the banks). These borrowed reserves are provided at the central bank’s *accommodation rate*, called the *repo rate* in many countries and other names in others (bank rate, base rate, key interest rate, discount rate and so on).

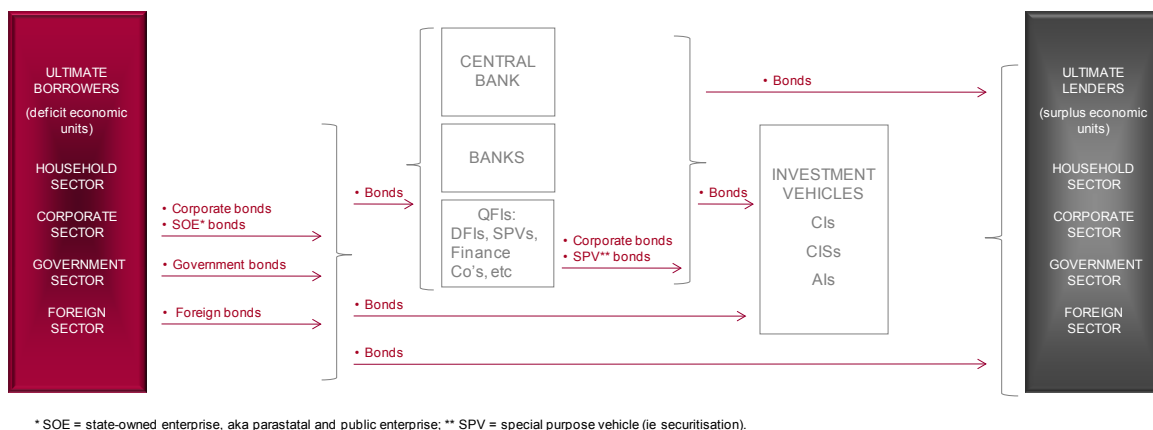


Figure 7: bond market

In summary, the money market encompasses the following markets (ignoring the money market derivative markets):

- Markets in the short-term securities of ultimate borrowers.
- Markets in the short-term securities of financial intermediaries (mainly bank deposits).
- Interbank markets between private sector banks and between the central bank and private sector banks.

This detail on the money market is mentioned here because of the critical importance of money creation and monetary policy which play out in the money market. Also, money market rates, as we shall see, form the foundation of all other financial markets. The money market is depicted in Figure 6 and the bond market in Figure 7.

2.7.4 Share market

The share market (also called stock market and equity market) is the market for the issue and trading of shares. As we have seen, there are two varieties of *shares*:

- Ordinary shares, the outstanding amount of which makes up the permanent capital of a company, because this instrument has no maturity date.
- Preference shares, the outstanding amount of which makes up the long-term capital of a company, because this instrument usually has a maturity date, i.e. is redeemable.²⁴

The share market and the long-term debt market (of which the bond market is a part) together are often referred to as the *capital market*, because these markets provide for the long-term capital needs of the corporate sector (and government – bonds only in this case). The share market is depicted in Figure 8.

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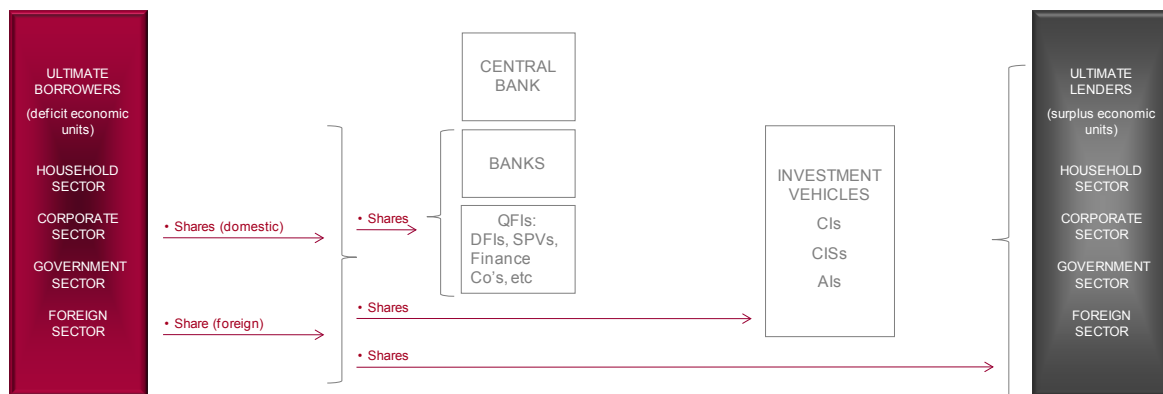


Figure 8: share market

Ordinary shares are permanent capital also in the sense that they represent a share in the ownership of a company (meaning they don't actually represent borrowing – but we, for the sake of simplicity, regard them as representing borrowing). Preference shares are named as such because, in the event of the liquidation of the company, they enjoy preference over ordinary shares [and creditors (e.g. bond holders) enjoy preference over preference shares], in terms of ownership of the assets of the company.

2.7.5 Foreign exchange market

The foreign exchange (forex) market is the market for the exchange of one currency (e.g. corona or LCC²⁵) for another (e.g. US dollar or USD). An example of an exchange rate is USD / LCC 7.35. Almost all currencies are referenced against the USD (for the sake of convenience), and in an exchange rate the USD is the *base or vehicle currency* (= 1 unit) and the other is the *variable currency* (= number of units per 1 USD).

The exchange of one currency for another is effected in central bank *notes* at bureaux de change or in *bank deposits* (which is why the forex market is often termed the *international money market*). The latter is the wholesale forex market, and the former the retail forex market, and the latter dwarfs the former.

Box 1: LC exporter (LCC millions)			
Assets		Liabilities	
Goods (exported)	-100		
US bank deposit (USD 10) (earns)	+100		
US bank deposit (USD 10) (sells in fx mkt)	-100		
LC bank deposit (receives)	+100		
Total change	0		

Box 2: US banking system (USD millions)			
Assets		Liabilities	
		US importer deposit (pays for imports)	-10
		LC exporter deposit (earns)	+10
		LC exporter deposit (sells in fx mkt)	-10
		LC importer deposit (buys in fx mkt)	+10
		LC importer deposit (pays US exporter)	-10
		US exporter deposit (earns)	+10
		Total change	0

Box 3: LC importer (LCC millions)			
Assets		Liabilities	
Goods (imported)	+100		
US bank deposit (USD 10) (buys in fx mkt)	+100		
LC bank deposit (pays for fx)	-100		
US bank deposit (USD 10) (pays)	-100		
Total change	0		

Box 4: LC banking system (LCC millions)			
Assets		Liabilities	
		LC exporter deposit (earns)	+100
		LC importer deposit (pays)	-100
		Total change	0

Box 5: US importer (USD millions)			
Assets		Liabilities	
Goods (imported)	+10		
US bank deposits (pays)	-10		
Total change	0		

Box 6: US exporter (USD millions)			
Assets		Liabilities	
Goods (exported)	-10		
US bank deposits (earns)	+10		
Total change	0		

An example will make this clear (see boxes 1–6; assumption USD / LCC 10.0). A Local Country (LC) exporter sells goods to a US importer and is paid USD 10 million by a deposit in its name at a US bank. At the same time a LC importer receives goods from a US exporter and needs to pay the US exporter USD 10 million. The LC exporter sells the USD 10 million deposit in the forex market (made by the large banks) in exchange for LCC 100 million, while the LC importer buys USD 10 million in the forex market, and pays LCC 100 million for the USD 10 million. He then pays the US exporter USD 10 million.

In this example the supply of and the demand for forex are equal, and the exchange rate will not have changed. There are other sources of supply and demand. You will recall from our depiction of the financial system shown earlier that one of the four sectors that make up the ultimate lenders and borrowers is the *foreign sector*. This is where the other part of the forex market fits in. The foreign sector is able to supply funds to LC, domestic institutions are able to lend to the foreign sector, and the foreign sector is able to borrow funds in the local market (i.e. issue securities in the local market).

Thus the forex market, essentially (it is more complex, but this is the essence), is made up of the:

- *supply* of forex forthcoming from:
 - foreign lenders (as depicted) (i.e. foreign investors),
 - local institutions borrowing offshore, and
 - exporters, and the
- *demand* for forex forthcoming from:
 - foreign borrowers issuing foreign securities locally,
 - local institutions lending / investing offshore, and
 - importers.

Thus, it will be apparent that in order for a forex market to function there needs to be a demand for and a supply of forex. *Demand* is the demand for, say, USD, the counterpart of which is the *supply* of LCC. This cannot be satisfied without a *supply* of USD, the counterpart of which is a *demand* for LCC. The forex market brings these *demanders* and *suppliers* together, and the exchange rates of the LCC against foreign currencies (the USD and others via the cross rates), is the outcome of these forces of supply and demand.

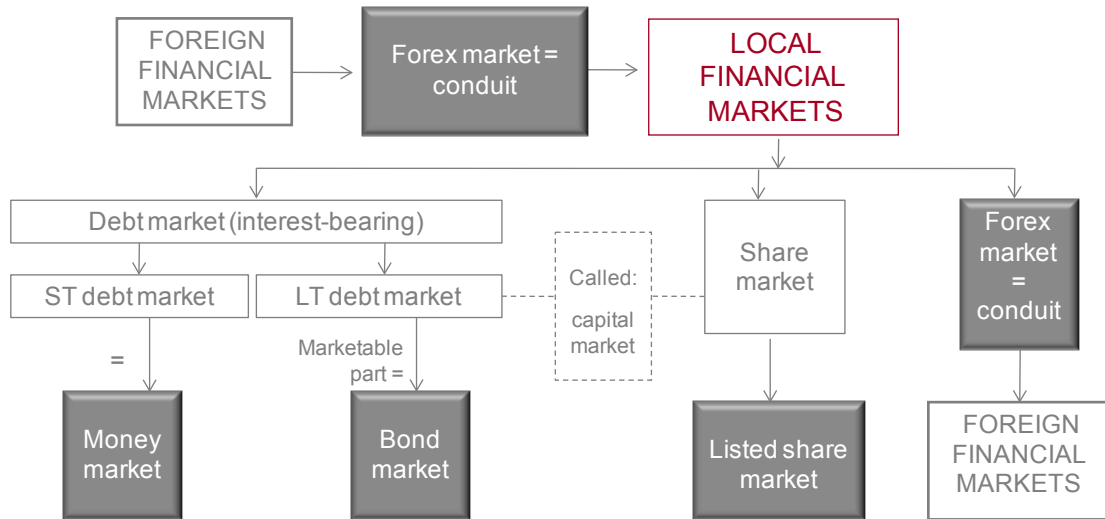


Figure 9: financial markets

In terms of investments, the forex market should be seen as a conduit for foreigners to the local financial markets and for locals to the foreign financial markets. The markets discussed thus far may be depicted as in Figure 9.



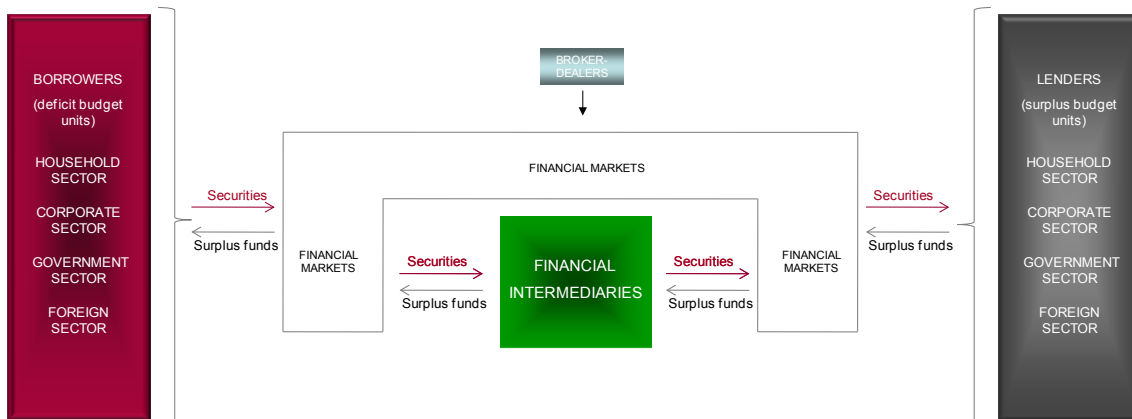


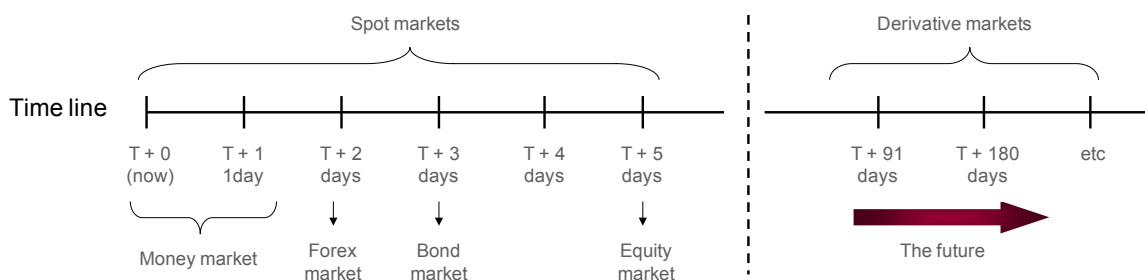
Figure 10: financial markets

In terms of the lending and borrowing process, the financial markets (spot) can be depicted as in Figure 10. All lending and borrowing (and forex transactions) takes place via financial markets.

2.7.6 Spot and derivative markets

When a financial market transaction is effected today (T+0) and settled asap, it is settled on T+0 or T+ a few days from T+0. For example, in the money market deals are settled on the day of the transaction (T+0), or the next day (T+1). In the bond market settlement takes place on T+3 and in the share market on T+5 (some on T+3). These are termed *spot market* or *cash market* deals (see Figure 11).

Spot deals, which are settled asap (T+0 to T+5), are differentiated from *derivative market* deals. They are deals done on T+0 and settled on specific days in the future *other than on spot settlement days* (T+0 to T+5). Derivative markets are also sometimes called *forward markets* (even though there are *forwards* as part of the derivatives group). The derivative markets are depicted in Figure 12.



Spot market = cash market = deal settled asap

Derivative markets = deal settled in future at prices determined NOW

Figure 11: settlement in spot / cash markets & derivative markets

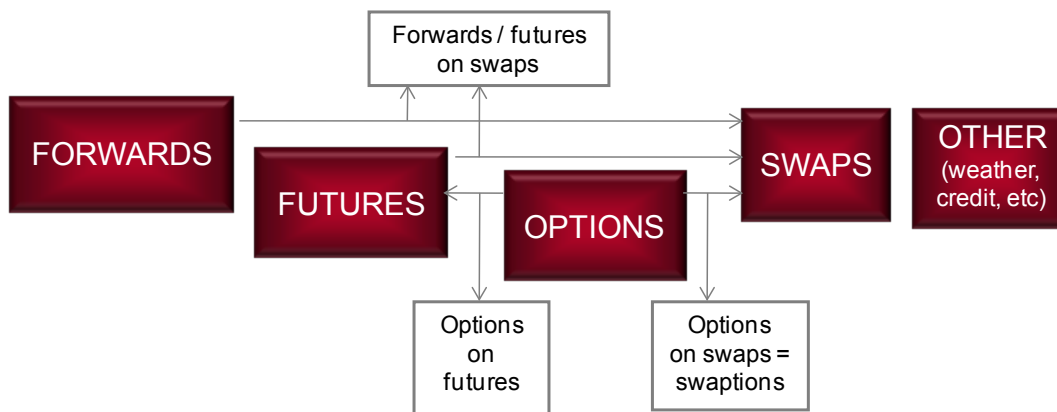


Figure 12: derivative instruments / markets

The derivative markets are mentioned here for the sake of completeness and also because two of the group, futures and options, can be used, and are used, as substitutes for the instruments of debt and shares. We will return to this issue.

2.8 Element 5: money creation

Money creation is an integral part of the financial system, and a significant part of the investment environment in terms of new financial instrument (debt) creation, inflation and interest rates. Interest rates are important for many reasons, including being a target / reflection of monetary policy actions and the valuation of financial instrument (debt and shares) and income-property assets.

Money is *anything that is generally accepted as a means of payment*. In the distant past money has been many different objects, but stuck in our financial psyches are gold and silver coins. Today, money has two components:

- central bank notes and coins (N&C) and
- bank deposits (BD)

held by the local non-bank private sector (NBPS). The outstanding amount of these (measured monthly in most countries) is therefore the amount of money in circulation (AMIC or just M, also called the money stock²⁶). There are many different measures of money; for the sake of simplicity we use M3, which encompasses all deposits of the NBPS plus its holdings of notes and coins (but from hereon we call it M):

$$M = \text{N\&C} + \text{BD of the NBPS.}$$

One of the oldest theories in economics is the quantity theory of money of Irving Fisher. In slightly amended form it can be expressed as:

$$\Delta M \times \Delta V = \Delta P \times \Delta \text{RGPD}$$

where Δ denotes change over a period, M = money, V = velocity of circulation of M , P = price level, $RGDP$ = GDP in real terms (i.e. after adjusting for P). It will also be evident that $P \times RGDP$ = nominal GDP (NGDP).

Given that V is stable in the long-term, ΔM translates approximately into $\Delta RGDP$ and ΔP . In a particular country²⁷, for example, over the past 40 years (roughly):

$$\begin{aligned}\Delta M &= + 14\% \\ &= \Delta P (9\%) + \Delta RGDP (5\%).\end{aligned}$$

It is argued that an increase in $RGDP$ cannot take place without an increase in M , and that if M growth is higher than the economy's ability to adjust to the increased demand underlying the change in M , inflation results and growth suffers. In other words, if the growth rate in M is kept to a level consistent with the economy's ability to adjust to the increased demand for goods and services, growth will increase with little impact on P . Thus, monetary policy endeavours to "control" the increase in M to a level consistent with the economy's ability to accommodate increased demand.

What makes up GDP? It is:

$$\begin{aligned}C + I &= GDE \\ GDE + X - M &= GDP \text{ (expenditure on)}\end{aligned}$$



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where C = consumption expenditure of the private and government sectors, I = investment of the private and government sectors, X = exports, M = imports. It may also be seen as follows:

$$C + I = \text{GDE} = \text{domestic expenditure} = \text{domestic demand.}$$

$$X - M = \text{trade account balance (TAB)} = \text{net foreign demand.}$$

In many countries $C + I$ = about 70–80% of GDP. How does this fit with money creation? It fits with how money is created. New money = a new bank deposit held by the NBPS (we’ll ignore N&C because it is a minor part of M), is created by a bank making a new loan to the NBPS or government. Allow us to present an example.

Company B borrows LCC100 million from a bank through the issue to it of LCC100 million securities (debt instruments such as bonds) with the purpose of purchasing LCC100 million goods from Company L. The bank credits Company B’s current account with LCC100 million and Company B pays Company L LCC100 million by internet transfer (i.e. electronic funds transfer – EFT). Company L thus becomes a surplus economic unit (new bank deposit), while Company B becomes a deficit economic unit (bank loan via the issue of bonds to the bank).

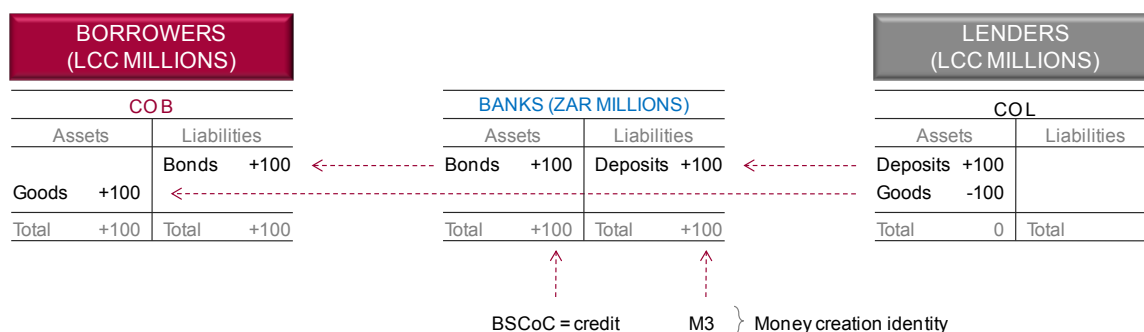


Figure 13: money creation

As shown in Figure 13, the banking sector has a new asset (+LCC100 million bonds of Company B = a new loan) and a new deposit liability (+LCC100 million deposits of Company L = new money). Thus, M has increased by LCC100 million and the *balance sheet cause of change* (BSCoC) in M is the *loan by the bank* (in the form of the purchase of new bonds issued by Company B and purchased by it). The purchase by the bank of bonds is new credit (loan) creation.

Money was created by balance sheet entries, but, and this is crucial knowledge, underlying it was a “demand” for bank credit (loan), and underlying the demand for credit was an economic activity = a demand for goods / services. If the “goods” are a new factory to be built, investment (I) increases; if the “goods” are consumption goods, C increases. It was made possible by money creation.²⁸

In the light of this revelation, what is monetary policy? It is about controlling the growth rate in M creation. As we saw, underlying money creation is the increased demand for goods and services ($\Delta C + I$). How does the central bank (CB) do this? It implements monetary policy by creating a permanent liquidity shortage (LS). This means that it forces, via open market operations (OMO), the banks to borrow from it on an overnight but permanent basis an amount of money (called *reserves* – R) at the CB's Key Interest Rate (KIR) (also called repo rate, basis rate, discount rate, and so on). This KIR directly influences the interbank lending rate, the call deposit and other deposit rates of the banks, and, via the bank margin (the margin that the banks endeavour to earn between what they pay for deposits and what they earn on assets = credit extended), bank lending rates. The bank lending rate best known is the prime rate (PR); it is a benchmark rate, i.e. some borrowers will pay, for example, $PR - 2\%$ while others will pay $PR + 1\%$.

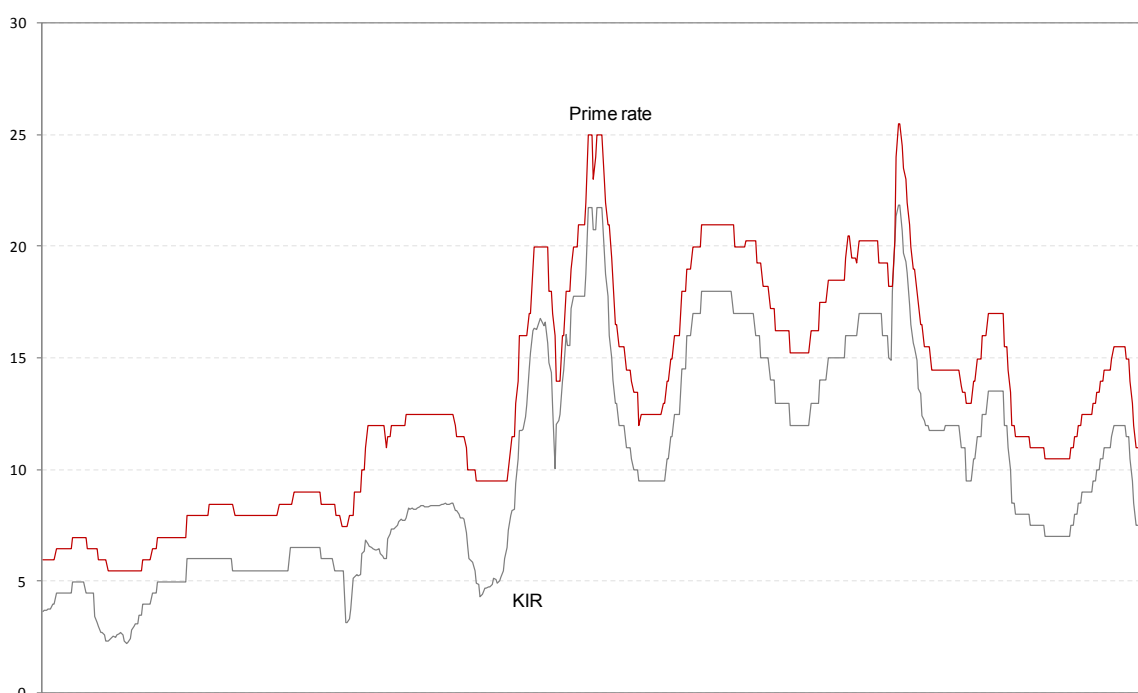


Figure 14: KIR & prime rate (month-ends over 50 years)

The ultimate aim of the policy is to influence the growth rate in bank lending, i.e. the demand for credit. As you now know, additional bank lending is the counterpart of money growth and underlying bank credit growth is increased demand for goods and services ($\Delta C + I$). It will be evident that purpose is to harmonise the additional demand for goods and services with the economy's ability to satisfy the additional demand.

Figure 14 shows the relationship between the banks' PR and the KIR over a period of almost 50 years for a particular country. It will be seen that in this case a change in the KIR is immediately translated into an equal change in PR. This can only be achieved if the CB has control over bank liquidity, and makes the KIR effective by engineering a permanent LS.

2.9 Element 6: price discovery

The prices of debt (= interest rates, from which prices are derived) and shares (= prices, influenced by interest rates) are discovered in the financial markets, by the interplay of demand and supply. Or are they – when the supply of credit is unlimited (in the sense that credit is supplied if the individual borrower is creditworthy or the corporate project is viable)?

Given such a monetary system, it is evident that a referee (a CB) is required and that interest rates cannot be “free to find their own levels”. The reason is clear: because the CB uses interest rates to influence the growth rate in the demand for loans / credit and therefore in M . Thus, the CB in essence “sets” the lower point of the yield curve²⁹ (see Figure 14) and this point becomes the reference point for all interest rates. Even rates for 20 to 30-year investments are affected by the short-term rates.



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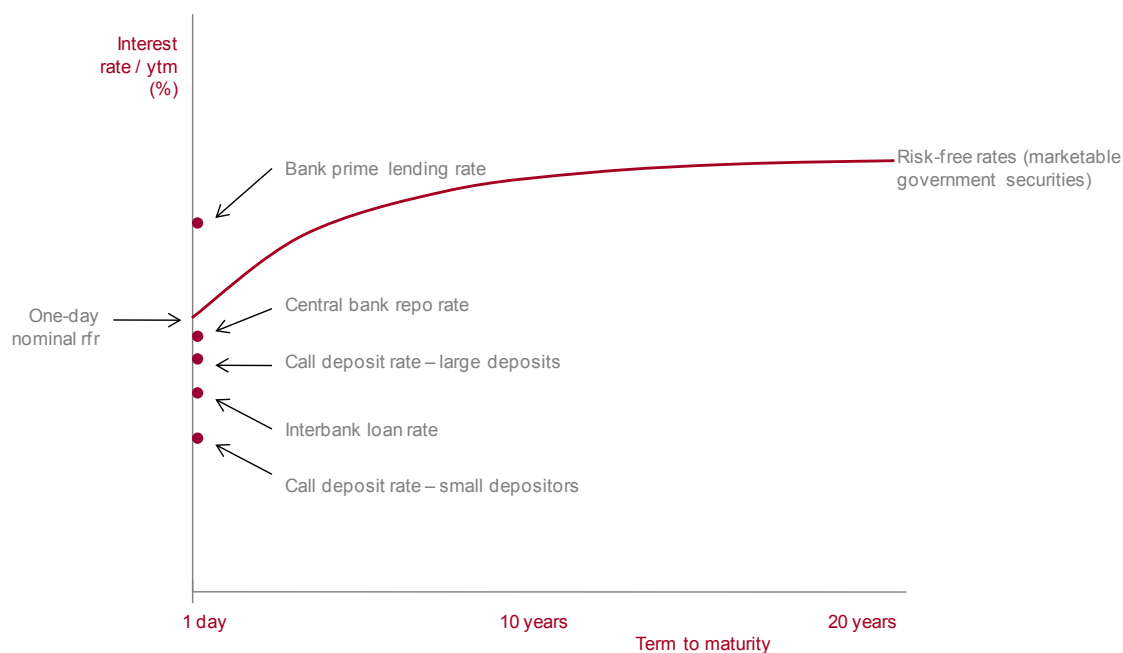


Figure 14: short-term banking rates & yield curve for government securities

A yield curve is a snapshot” of interest rates and is differentiated from a time series of interest rates, which is a specific rate/s / prices over a period of time. Figure 15 is an example of the latter [in this case rates (ytm) over a period of 50 years].

Interest rates are also a major input into the valuation of shares as we shall see later. While interest rates and share prices are fundamentally tied to the KIR, in the share market the outcome of supply and demand (share prices) can be different, and substantially so, from the fair value prices (FVP) dictated by interest rates and company profits. This vital issue later is taken further later.

2.10 Allied participants in the financial system

From the above discussion it will be evident that there are a number of allied participants on the financial system. By this we mean participants other than the *principals* (those who have financial liabilities or assets or both). As we now know, the principals are:

- Lenders.
- Borrowers.
- Financial intermediaries.

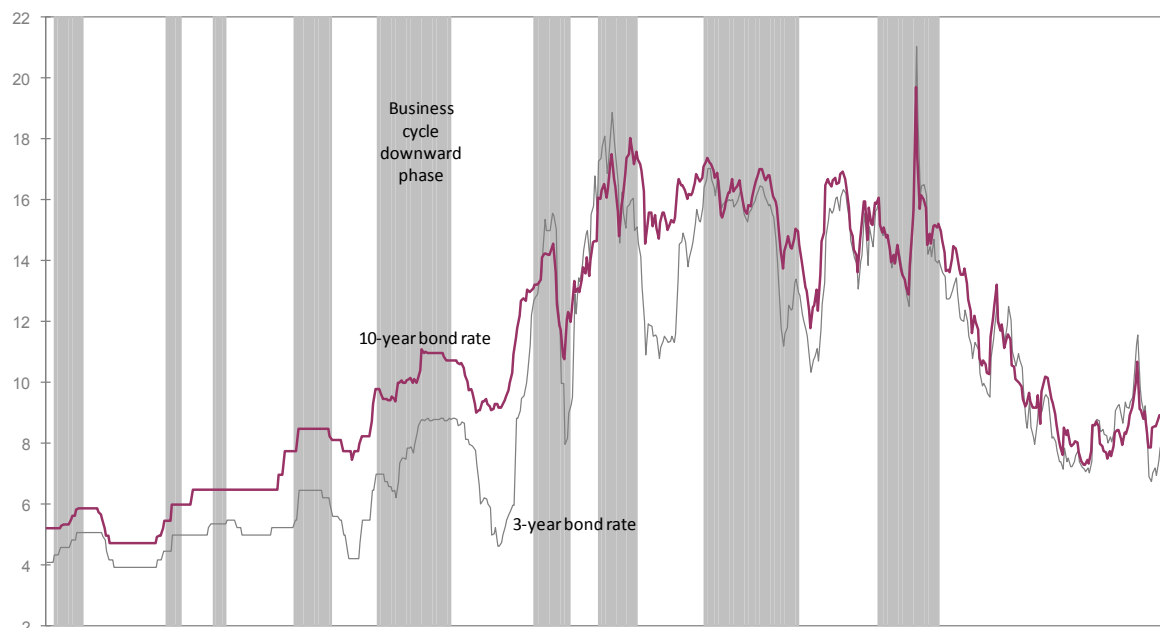


Figure 15: 3-year and 10-year bond rates

The allied participants, who play a major role in terms of facilitating the lending and borrowing process (the primary market) and the secondary markets, are the financial exchanges and their members. Also we need to mention the fund managers, who are actively involved in sophisticated financial market research and therefore play a major role in price discovery, and the regulators of the financial markets. Thus, the allied non-principal participants in the financial markets are:

- Financial exchanges.
- Broker-dealers.
- Rating agencies.
- Fund managers.
- Regulators.

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3 Investment instruments

3.1 Learning outcomes

After studying this text the learner should / should be able to:

- Elucidate the categories of investments.
- Distinguish the investments of the financial system.
- Differentiate the non-financial investments.
- Describe the investments of the investment vehicles and their underlying investments.
- Elucidate the asset classes.

3.2 Introduction

This main section on “Investment instruments” is preceded by the main sections:

- Four phases of the life-cycle.
- The financial system.

It is followed by the main section “Investment principles”. In the preceding main sections we differentiated the two categories and the subcategories of investments:

- Ultimate investments:
 - Financial investments instruments (issued by ultimate borrowers):
 - Debt instruments.
 - Share (aka stock and equity) instruments.
 - Real investments:
 - Property (also called real estate).
 - Commodities.
 - Other real investments (art, rare coins, antique furniture, etc.).
- Indirect investment instruments (issued by financial intermediaries):
 - Issued by banks: deposit instruments.
 - Issued by quasi-financial intermediaries: debt instruments.
 - Issued by investment vehicles: participation interests.

Investors hold the *ultimate investments* either directly or indirectly by holding the securities of financial intermediaries. This of course means that while they invest in the securities of the financial intermediaries, they ultimately are holding the *ultimate investments*. The financial intermediaries essentially facilitate this, for example by accepting small amounts of funds from individuals; they also offer diversification in the investment, a vital principle in investments (i.e. a risk management tool as we shall see later).

Many individuals do hold ultimate investments in the form of shares. Almost all individuals hold bank deposits. However, the majority of individuals hold the majority of their assets in the securities [recall that we refer to their securities or products collectively as “participation interests” (PIs)] issued by the investments vehicles (ignoring property for a moment). The investment vehicles are as follows:

- Contractual intermediaries (CIs):
 - Retirement funds.
 - Life insurers (note: only endowment policies & annuities are investments).
- Collective investment schemes (CISs):
 - Securities unit trusts (SUTs).
 - Property unit trusts (PUTs).
 - Exchange traded funds (ETFs).
- Alternative investments (AIs)
 - Hedge funds (HFs).
 - Private equity funds (PEFs).

As noted, PIs are the liabilities of the investment vehicles; they are the instruments which are held by the individual investors. On the asset side of the investment vehicles’ balance sheets are the ultimate investments. The investment vehicles exist to facilitate the investment by individuals (and some retirement / other funds) in the ultimate investments. They reduce transactions costs (which are high with ultimate investments) and manage investments on behalf of investors in PIs.

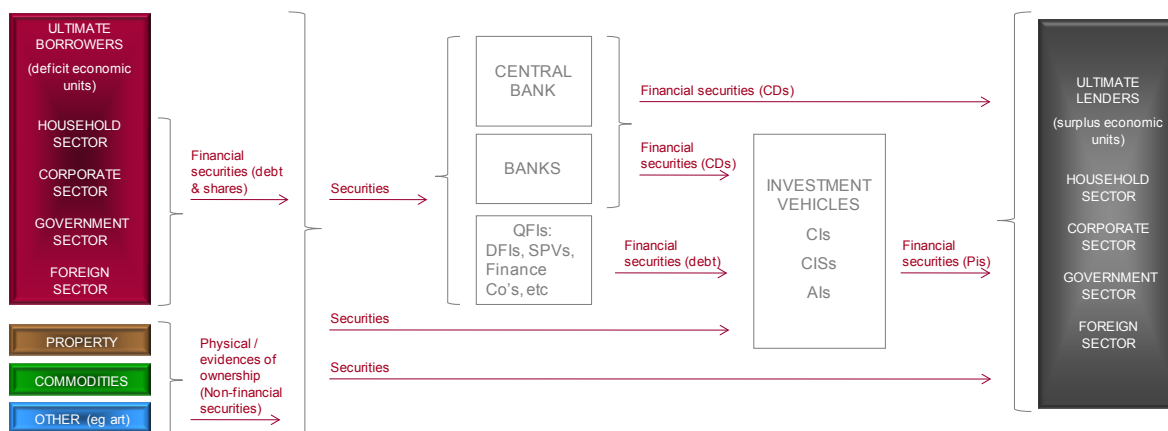


Figure 1: financial intermediaries & instruments (securities) (simplified)

We also differentiated the financial markets of the financial system as follows:

- Short-term debt market (STDm + the deposit market = money market).
- Long-term debt market (LTDM ; marketable part = bond market).
- Shares (listed shares = share market; unlisted shares).
- Forex market (no lending and borrowing; therefore no investment instruments).
- Derivative markets (futures and options can be used as substitutes for investments).

All the investments instruments can be depicted as in Figure 1.

We have given the financial system and its markets most of the attention thusfar – because they deliver the investments most favoured. In this main section we cover the detail of these investments, as well the detail of the real investments, which are held to some degree by investors. We cover them under the following sections:

- Time value of money.
- Money market instruments.
- Bond market instruments.
- Share market instruments.
- Derivative market instruments: futures and options.
- Real investments.
- Investment vehicles.
- Foreign investments.
- Asset classes.

3.3 Time value of money

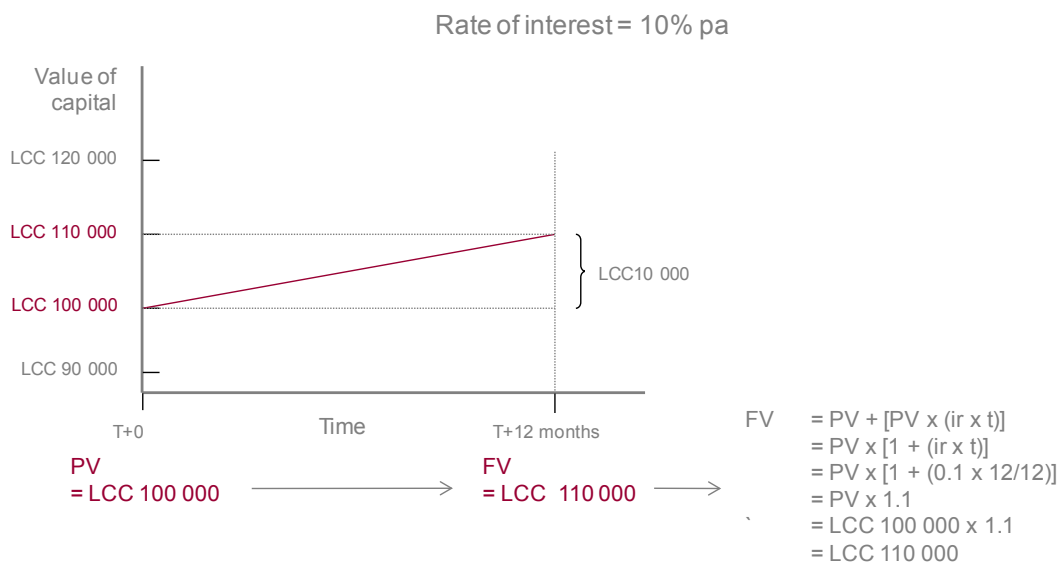


Figure 2: time value of money (PV to FV)

Before we begin with the investment instruments an essential principle needs to be understood: the time value of money (TVM). This is a fancy term for *interest* and the concepts of present value (PV) and future value (FV). The rate of interest for the relevant period is applied to the PV in order to calculate the FV. Figure 2 depicts the TVM.

This simply means that if an amount of LCC³⁰ 100 000 (= PV) is invested now for a year at a rate of 10% pa it will have a FV of:

$$\begin{aligned}
 \text{FV} &= \text{PV} + [\text{PV} \times (\text{ir} \times \text{t})] && (\text{ir} = \text{interest rate for period; t} = \text{term}) \\
 &= \text{PV} \times [1 + (\text{ir} \times \text{t})] \\
 &= \text{LCC } 100\,000 \times [1 + (0.10 \times 12/12)] \\
 &= \text{LCC } 100\,000 \times 1.10 \\
 &= \text{LCC } 110\,000.
 \end{aligned}$$

Conversely (see Figure 3), if an investment has a FV of LCC 110 000, and the applicable interest rate (now called *discount rate*) is 10% pa, it has a PV of:

$$\begin{aligned}
 \text{PV} &= \text{FV} / (1 + (\text{ir} \times \text{t})) \\
 &= \text{LCC } 110\,000 / [1 + (0.10 \times 12/12)] \\
 &= \text{LCC } 110\,000 / 1.1 \\
 &= \text{LCC } 100\,000.
 \end{aligned}$$

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The TVM principle applies in all the financial markets, in respect of valuation of financial instruments, as we will see shortly and again later.

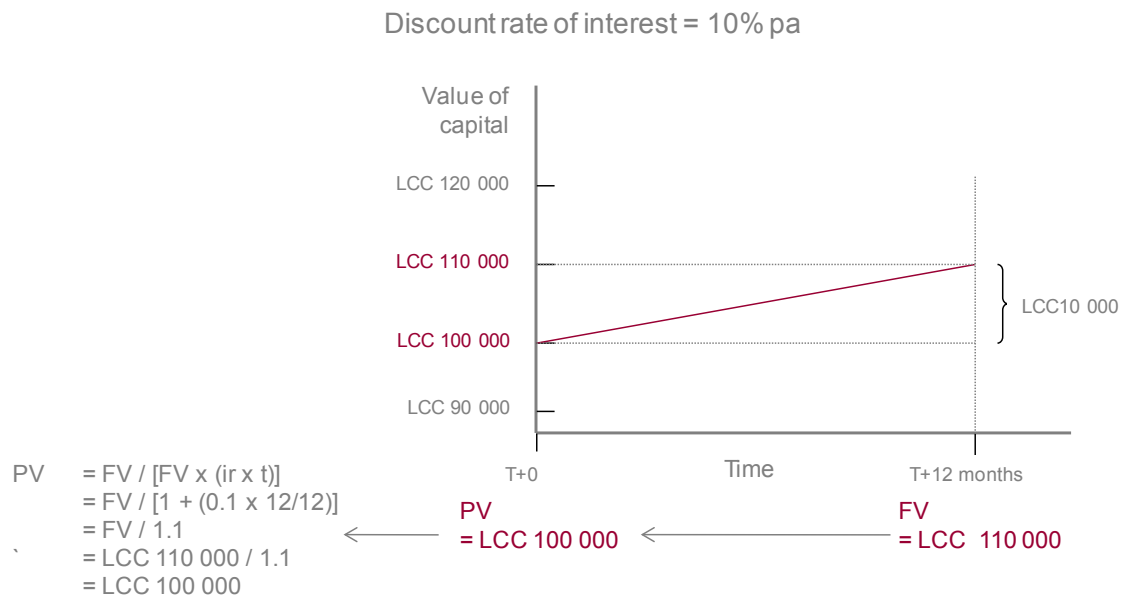


Figure 3: time value of money (FV to PV)

3.4 Money market instruments

A reminder of the money market and its instruments is presented in Figure 4.

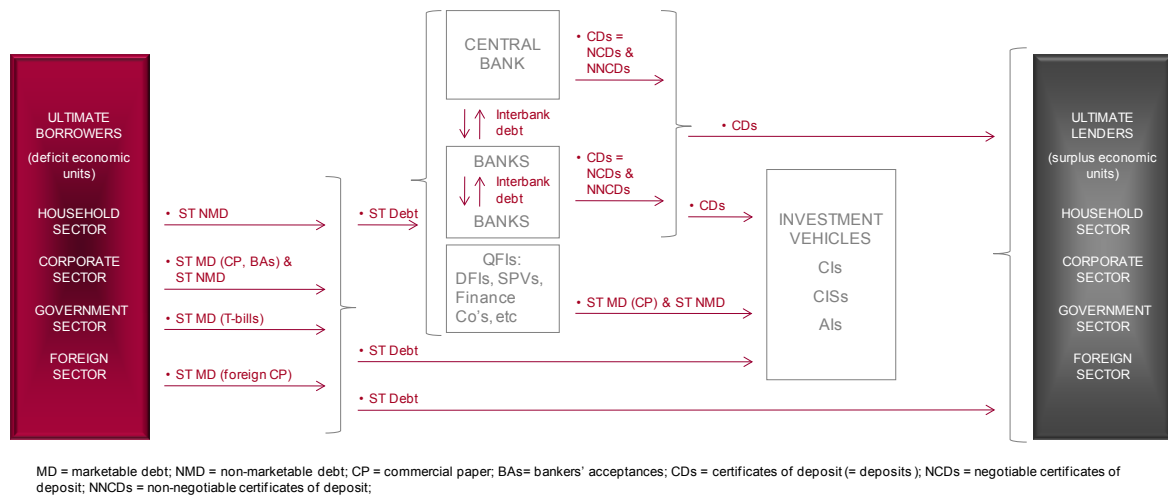


Figure 4: money market

This information may also be presented (more elucidatory) as in Table 1.

	Short-term non-marketable debt (STNMD) & deposits	Short-term marketable debt (STMD) & deposits
ULTIMATE BORROWERS		
Household sector	Loans from banks	X
Corporate sector	Loans from banks	CP (also BAs, PNs in the past)
Government sector	Loans from banks (local authorities & provinces)	TBs (central government only)
Foreign sector	X	Foreign CP
FINANCIAL INTERMEDIARIES		
Central bank	NNCDs	NCDs*, notes & coins
Private sector banks	NNCDs	NCDs
Quasi-financial intermediaries	Loans from banks	CP
CP = commercial paper; BAs = bankers' acceptances; PNs = promissory notes; NNCDs = non-negotiable certificates of deposit; NCDs = negotiable certificates of deposit. * Central bank (CB) securities, which are akin to NCDs.		

Table 1: Money market instruments / securities

The household sector will not be familiar with all these money market investments (or will not invest in them). In general, the household sector will tend to invest in bank deposits in the form of NNCDs, and some may purchase small-denomination TBs.

As is well known, bank deposits yield interest, and here the PV-FV concept applies. If you deposit LCC 100 000 (= PV) with a bank at 10% pa for 180 days the bank will present you a NNCD that states you will get back an amount of LCC 104 931.51 (= FV) after 180 days, calculated as follows:

$$\begin{aligned}
 FV &= LCC\ 100\ 000 \times [1 + (0.10 \times 180 / 365)] \\
 &= LCC\ 100\ 000 \times 1.0493151 \\
 &= LCC\ 104\ 931.51.
 \end{aligned}$$

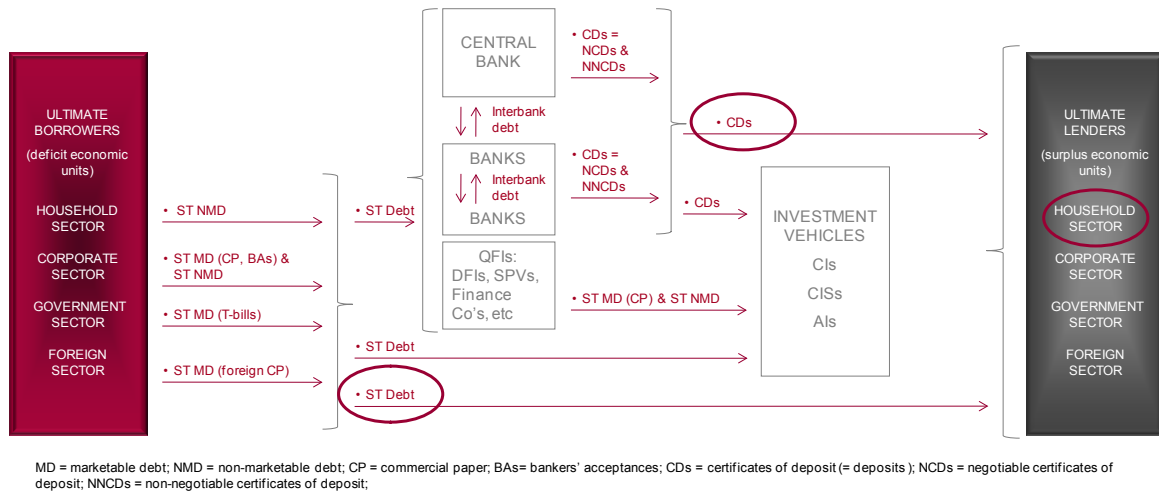


Figure 5: money market investments for the individual investor

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BOX 1: TREASURY BILL



TBs and some other money market instruments work a little differently. They pay back a round amount (called the nominal or face value) at maturity (= FV). If the nominal value is LCC 100 000 (= FV), the term is 180 days and the discount rate is 10% pa, you pay for the TB (= PV):

$$\begin{aligned}
 PV &= \text{LCC } 100\,000 / [1 + (0.10 \times 180 / 365)] \\
 &= \text{LCC } 100\,000 / 1.0493151 \\
 &= \text{LCC } 95\,300.26
 \end{aligned}$$

You will earn LCC 100 000 – LCC 95 300.26 = LCC 4 699.40 on the investment. An example of a TB is presented in Box 1.

3.5 Bond market instruments

A reminder of the bond market and its instruments is presented in Figure 6 and Table 2 (for interest Table 2 also lists LTNMD). From these it will be seen that there are 5 categories of bonds issuers:

- Corporate sector (private).
- Public enterprises (which are incorporated).
- Government sector (central & local).
- Foreign sector (called foreign bonds).
- Special purpose vehicles (called SPV bonds).

	Long-term non-marketable debt (LTNMD)	Long-term marketable debt (LTMD) (bond market)
ULTIMATE BORROWERS		
Household sector	Mortgage loans from banks	X
Corporate sector	Mortgage & other LT loans from banks	Corporate bonds
Government sector	X (not usually)	<ul style="list-style-type: none"> • Central government (& local authority) bonds • State-owned enterprise (aka public enterprises) bonds
Foreign sector	X	Foreign bonds
FINANCIAL INTERMEDIARIES		
Central bank	X	X
Private sector banks	X	X
Quasi-financial intermediaries	LT loans from banks	Corporate bonds, SPV bonds
SPV = special purpose vehicles.		

Table 2: Bond market instruments / securities

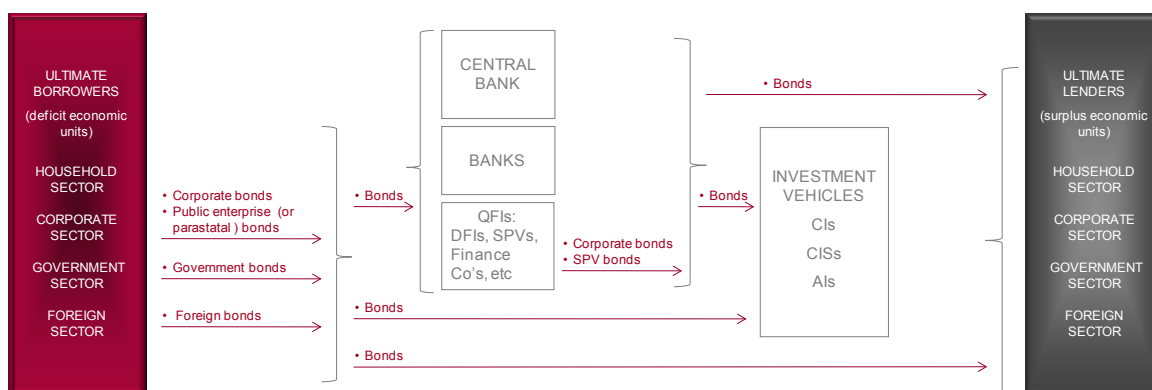


Figure 6: bond market instruments

Worldwide, there is a wide variety of bond-types as follows:

- Plain vanilla bonds.
- Bearer bonds versus registered bonds.
- Perpetual bonds versus fixed-term bonds.
- Floating rate bonds versus fixed-rate bonds.
- Inflation-linked bonds.
- Zero coupon bonds versus coupon bonds.
- Call bonds.
- STRIPS.
- Convertible bonds.
- Exchangeable bonds.
- Bonds with share warrants attached.
- General obligation bonds.
- Revenue bonds.
- Serial bonds.
- Catastrophe bonds.
- Asset-backed bonds.
- Senior, subordinated, junior and mezzanine bonds.
- Junk bonds.
- Guaranteed bonds.
- Pay-in-kind bonds.
- Split coupon bonds.
- Extendable bonds.
- Islamic bonds.
- Foreign bonds.
- Eurobonds.
- Global bonds.
- Retail bonds.³¹



Figure 7: example of plain vanilla bond (3-year maturity; nominal value LCC 100 000; coupon 10% pa)

The most common bond is the first-mentioned: the *plain vanilla bond* (PVB). Probably 95% of bonds are of this variety. It has a fixed maturity date and pays a fixed rate of interest called a *coupon*. This is the bond that the household sector will tend to invest in because it is available in small denominations. The PVB bond issued by government will be favoured because the rate earned is called the risk-free-rate (rfr). It is called this because government has the power to tax and raise revenue to repay these bonds (and the coupon rate). A simplified example is called for (see Figure 7 and Box 2):

Nominal / face value:	LCC 100 000
Term to maturity:	3 years
Coupon:	10% pa
Interest payable:	annually in arrears.



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If you buy this bond you will be paid interest pa of LCC 10 000 (= 10% pa on LCC 100 000), irrespective of the rate at which the bond trades in the secondary market after issue. Just like in the case of shares, bonds are bought and sold and price (rate) discovery takes place in the secondary market which is a function of supply and demand [and of course the central bank's (CB's) key interest rate (KIR) which determines the start of the yield curve]. Two issues need to be elaborated upon here:

- The term *rate of interest* does not apply in the case of bonds. Rather, because of multiple cash flows in the future (all are FVs), the secondary market rate that applies here is an *average rate* earned over the life of the bond, which is called the *yield to maturity* (ytm).
- It will be evident that if you buy the bond at an ytm of 10% pa (which equals the coupon of 10% pa, the price of the bond will be 1.0 (i.e. you will pay LCC 100 000 for it). However, if you sell the bond in the secondary market at an ytm lower than the coupon rate (remember it is fixed), then the price of the bond will be higher than 1.0, and you will make a capital gain. Conversely, if you sell the bond are an ytm higher than the coupon rate, the price will be lower than 1.0, and you will make a capital loss.

In this way, bonds are similar to shares. The holding period return (HPR) on a PVB over a will be (P_0 = purchase price of bond; P_1 = selling price of bond):

$$HPR = (P_1 - P_0) \times \text{nominal value of bond.}$$

Any coupon income is incorporated in the valuation formula, as we will see later.

BOX 2: EXAMPLE OF PLAIN VANILLA BOND



3.6 Share market instruments

As we saw earlier there are two types of shares:

- Ordinary shares.
- Preference shares.

The latter are similar to PVBs in that they have a fixed maturity date (in most cases), a nominal / face value and a coupon (called a dividend). As these instruments are only available in large-denominations only the high net worth (HNW) members of the household sector invest in them (and in fact only a few of them).

Ordinary shares, on the other hand, are the bread of investors, small and large. The small investor may either hold shares directly or via investment vehicles (covered later).

An example of a share is presented in Box 3. The company had a share capital of £ 200 000 and each share had a nominal value of £ 1.0, meaning there were 200 000 shares issued. Thus, when the company was formed and its shares were subscribed for, its balance sheet presented as indicated in Box 4.



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BOX 3: EXAMPLE OF ORDINARY SHARE



BOX 4: INITIAL BALANCE SHEET OF
BLAAUWBANK UNITED GOLD MINING COMPANY LIMITED (£)

Assets		Capital and liabilities	
Bank deposit	200 000	Share capital	200 000

If the company invested its cash assets (= bank deposit) in a sound mining venture and made say a £ 40 000 after-tax profit the first year, and paid out dividends of half this, i.e. £ 20 000, each shareholder would receive a dividend of £ 0.10 per share (assume 100 pence per £) (£ 20 000 / £ 200 000). Mr de Villiers, the holder of the share certificate in Box 3, i.e. the holder of /investor in 100 shares, would have received a dividend of £ 10 (£ 0.1 × 100 shares). This equals a return of 10% over the period the shares were held (£ 10 / £ 100 × 100).

As we know, shares trade in the secondary market where price discovery takes place, and capital gains and losses can be made. Assuming the “market” (i.e. investors in general) reacted positively to the performance of the company and the dividend paid [= a dividend yield of 10% (£ 20 000 / £ 200 000 × 100)], the share price would have risen. If the “market” was expecting the share market norm for mining companies of a dividend yield of 5%, the share price could have risen to £ 2 per share. For new investors, the new share price delivers, based on the “historical dividend paid” (HDP), a dividend yield (DY) of 5%:

$$\begin{aligned}
 \text{DY} &= \text{HDP per share} / \text{share price} \times 100 \\
 &= £ 0.1 / £ 2 \times 100 \\
 &= 5\%.
 \end{aligned}$$

Thus Mr de Villiers' HPR per share (P_1 = selling price of share; P_0 = purchase price of share; D = dividend per share) is:

$$\begin{aligned} \text{HPR} &= [(P_1 - P_0) + D] / P_0 \\ &= [(2 - 1) + 0.10] / 1 \\ &= (1 + 0.10) / 1 \\ &= 1.10 \\ &= 110\%. \end{aligned}$$

As we will see later, while the share market delivers superior returns over the long-term, it is accompanied by a high level of risk. There is an immense variety of shares: Table 3 demonstrates the vast categories of shares internationally, according to industry, supersector, sector and subsector.

Industry	Supersector	Sector	Subsector		
Oil & gas	Oil & gas	Oil & gas producers	Exploration & production		
			Integrated oil & gas		
		Oil equipment & services	Oil equipment & services		
			Pipelines		
Basic materials	Chemicals	Chemicals	Commodity chemicals		
			Specialty chemicals		
	Basic resources	Forestry & paper	Forestry		
			Paper		
	Industrial Metals			Aluminium	
				Nonferrous metals	
				Steel	
				Mining	Coal
					Diamonds & gemstones
					General mining
	Industrials	Construction & materials	Construction & materials	Building materials & fixtures	
				Heavy construction	
Industrial goods & services		Aerospace & Defence	Aerospace		
			Defence		
General industrials			Containers & packaging		
			Diversified industrials		

Industry	Supersector	Sector	Subsector
		Electronic & electrical equipment	Electrical Components & Equipment
			Electronic Equipment
		Industrial engineering	Commercial vehicles & trucks
			Industrial machinery
		Industrial transportation	Delivery Services
			Marine Transportation
			Railroads
			Transportation Services
			Trucking
		Support services	Business support services
			Business training & employment agencies
			Financial administration
			Industrial suppliers
			Waste & disposal services
Consumer goods	Automobiles & parts	Automobiles & parts	Automobiles
			Auto Parts

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Industry	Supersector	Sector	Subsector
			Tyres
	Food & beverage	Beverages	Brewers
			Distillers & Vintners
			Soft Drinks
		Food producers	Farming & fishing
			Food products
	Personal & household goods	Household goods	Durable household products
			Nondurable household products
			Furnishings
			Home construction
		Leisure goods	Consumer electronics
			Recreational products
			Toys
		Personal goods	Clothing & accessories
			Footwear
			Personal products
		Tobacco	Tobacco
Healthcare	Healthcare	Health care equipment & services	Health care providers
			Medical equipment
			Medical supplies
		Pharmaceuticals & biotechnology	Biotechnology
			Pharmaceuticals
Consumer services	Retail	Food & drug retailers	Drug retailers
			Food retailers & wholesalers
		General retailers	Apparel retailers
			Broadline retailers
			Home improvement retailers
			Specialised consumer services
			Specialty retailers
	Media	Media	Broadcasting & entertainment
			Media agencies
			Publishing
	Travel & leisure	Travel & leisure	Airlines


Industry	Supersector	Sector	Subsector
			Gambling
			Hotels
			Recreational services
			Restaurants & bars
			Travel & tourism
Telecommunications	Telecommunications	Fixed line telecommunications	Fixed line telecommunications
		Mobile telecommunications	Mobile telecommunications
Utilities	Utilities	Electricity	Electricity
		Gas, water & multiutilities	Gas Distribution
			Multiutilities
			Water
Financials	Banks	Banks	Banks
	Insurance	Nonlife insurance	Full line insurance
			Insurance brokers
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Industry	Supersector	Sector	Subsector
		Life insurance	Life insurance
	Financial services	Real estate	Real estate holding & development
			Real estate investment trusts
		General Financial	Asset managers
			Consumer finance
			Specialty finance
			Investment services
			Mortgage finance
	Investment instruments	Equity investment instruments	Equity investment instruments
		Non-equity investment instruments	Non-equity investment instruments
Technology	Technology	Software & computer services	Computer Services
			Internet
			Software
		Technology hardware & equipment	Computer Hardware
			Electronic Office Equipment
			Semiconductors
			Telecommunications Equipment
Basic data obtained from: www.jse.co.za			

Table 3: FTSE / DOW Jones industry classification system (industry classification benchmark – ICB)

3.7 Derivative market instruments: futures and options

We said earlier that futures and options can be seen as substitutes for outright investments. These terms may appear intimidating, but the instruments are not. If on T+0 you buy a futures contract that expires on T+180 on 1 000 shares of Blaauwbank United Gold Mining Company Limited (BUGMIC) at £ 2.20 (when the share is trading at £ 2.0), it means that you have an *obligation* to buy 1 000 BUGMIC shares on T+180 at the stipulated price of £ 2.20, i.e. you *have to* pay £ 2 200 for the shares on T+180. In the meantime (on T+0) you only need to pay a “good faith deposit” (called a *margin*) of around 5% of the value of the contract = £ 110 ($0.05 \times 1\,000 \times 2.2$).

You will buy the future because you believe on date T+0 that the price of BUGMIC shares will be higher than £ 2.20 on T+180. If you are right, and the price on T+180 is £ 2.50 per share, you will take delivery of 1 000 BUGMIC shares on T+180 and pay £ 2.20 per share for them. You will then be able to sell them at the market price of £ 2.50 per share, and make a £ 0.30 profit per share, i.e. a £ 300 profit (£ 0.3 × 1 000). You get the margin back plus interest.

The principle will be clear: you have a choice of buying the futures contract or borrowing funds at the going interest rate for 180 days and buying the shares outright. In other words, the FVP of the futures contract will be equal to the spot price of the share, escalated by the rate of interest of 180 days, less any dividends. If it is not, arbitrage opportunities exist. If it is, then it makes no difference to you to buy the future on BUGMIC shares or the shares themselves. We will return to this.

Another example of a futures deal is presented in Figure 8. It is self-explanatory. Note that the 90-day futures contract was sold and bought via the exchange at LCC 1 100, when the spot price was LCC 1 000. The latter is important for determining the futures contract price (discussed later), but becomes irrelevant once the deal is done. The wheat is delivered at LCC 1 100 on T + 90 (in this example when the spot price is much higher – see chart in Figure 8). The deal gave both parties price-certainty, but the flour miller gets the better deal (with hindsight).

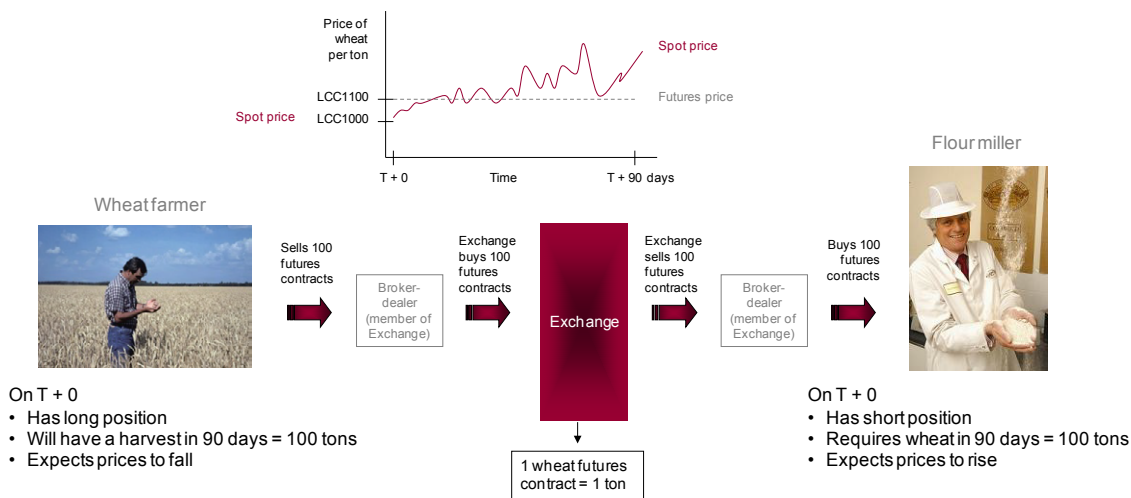


Figure 8: example of future contract

Options are similar to futures, the difference being that you have the option (*not the obligation*) to buy (call option) or sell (put option) the shares between now (T+0) and expiry of the option contract (T+90). You will only exercise the option if it pays you to do so. You pay a price (called a *premium* as in the case of an insurance contract) for this right to buy or sell at a price determined on T+0.

Futures and options contracts are written on most of the instruments covered here, and retail-sized futures and options are also found in many markets. In many countries individuals can buy / sell futures and options on all the main currencies and many of the shares.

3.8 Real investments

3.8.1 Introduction

As we have seen, real investments are usually categorised into:

- Property.
- Commodities.
- Other (art, antiques, rare coins, rare stamps, etc.).

There are of course many subcategories to be found under each (see below). Real investments have many characteristics that differentiate them from financial assets such as:

- Zero recurring return (with exception of commercial property).
- Inflation hedge.
- Inefficient (illiquid) markets.
- High transactions costs.
- Insurance and storage (in the case of commodities and “other”).
- High price volatility.
- Tangibility and pleasure (art, rare books, antiques).

3.8.2 Property Of the real investments, property is the most significant investment for the retail investor (individual), and it usually makes up a large percentage of the portfolio (when young – because the individual is obliged to have this asset). However, in the case of wholesale investors such as retirement funds, property makes up a small proportion of assets (in most countries around 3–5%).

There are many forms of property investment:

- Undeveloped land (zoned residential, industrial, office, etc.).
- Developed farm (fruit, cattle, game, etc).
- Residential (home).
- Multi-residential (block of flats).
- Retail (shopping centre, sectional title retail outlet).
- Office building.
- An office (sectional title).
- Industrial building.
- Leisure and tourism (hotel, resort, golf course, theme park).³²

Undeveloped land is purchased either to:

- Benefit from a price appreciation that is higher than the risk-free rate (i.e. the minimum guaranteed return) after taxes that may be levied on the property transaction (e.g. capital gains tax).
- Improve the property with the purpose of selling the improved property for a capital gain that is higher... (the statement above applies here also). An example is the building of a block of flats with the purpose of selling them under sectional title. (In fact often the developer will only start building once a certain number of flats have been sold – to lessen risk)
- Improve the property with the purpose of deriving a recurring rental income into the future. Examples are the building of a block of flats and the building of a shopping centre.

With the exception of a residential home, the rest of the forms of property investment are held with the objective of rental income (or income in the case of a farm) in the main. Capital gain is usually a secondary motive, unless the economic environment is one of high inflation. Then, capital gain becomes the primary objective of investment.

As we will see later, the valuation of income-generating property is related to interest rates, i.e. the income on interest bearing assets, the domain of the financial system's money and bond markets.

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3.8.3 Commodities

As we have seen, “commodities” is the term for real assets / investments such as precious metals, grain, base metals, etc. These assets produce no recurring income, and are invested in for capital gains only. There are many ways in which to categorise commodities, such as³³:

- Hard commodities (non-perishable products or non-consumables)
 - Metals
 - Precious metals
 - Gold
 - Platinum
 - Palladium
 - Silver
 - Non-precious metals
 - Base metals
 - Ferrous metals
 - Alloys
 - Minerals
 - Phosphates
 - Coal
 - Oil
 - Gas
- Soft commodities (perishable products or consumables)
 - Agricultural products
 - Crops
 - Vegetables
 - Fruits
 - Grain
 - Oilseeds
 - Livestock
 - Grazing
 - Poultry
 - Pigs
 - Products from livestock
 - Wool
 - Leather
 - Meat
 - Fishing products
 - Fish
 - Crustaceans.

Generally speaking investment portfolios do not contain a large proportion of commodities. The reason, as noted, is that commodities do not produce an income³⁴. Also, it is rare that *commodity* portfolios contain consumable products³⁵. Where investment portfolios contain commodities, the commodities are usually of the precious metal variety, particularly gold, platinum, silver and so on.

Precious metal investments take on many forms such as bullion, but the norm is coins, because of the convenience (compared with bullion). As noted, commodities do not yield a recurring return, only capital gains. Precious metals are also notably volatile at times; gold, for example, is a popular investment in time of unrest and uncertainty.

Often, investment in commodities takes the form of investment in investment vehicles, such as securities unit trusts (SUTs) and exchange traded funds (ETFs) (to be discussed later), mining shares and so on.

3.8.4 Other real investments

“Other real investments”, as we have briefly seen, include investments in items such as:

- Art of masters (such as Rembrandt).
- Antique furniture.
- Rare stamps.
- Rare books.
- Rare coins.

Generally speaking, investments in these items, and in certain commodities (such as gold and diamonds), are not undertaken by the large investors such as retirement funds, but by high net worth individuals and reflect motivations such as:

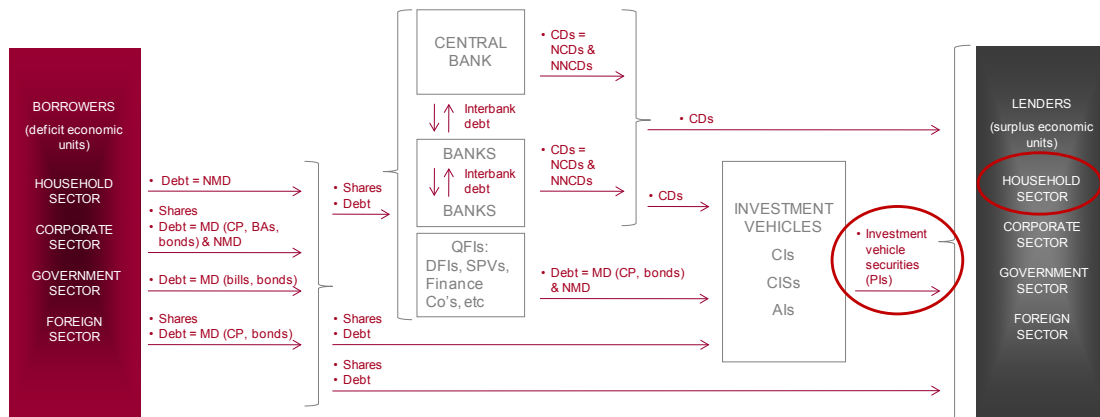
- The desire for diversification of personal investments.
- Personal satisfaction (aesthetic value).
- Survival (as in times of war).
- Inflation hedging.

To this category one can add other investments that do not have an aesthetic value, such as “tank containers”. These investments have currency hedging and tax advantages

Generally, investors expect capital gains from all real assets, and a return only on certain non undeveloped properties in the form of regular rental income. Many individual investors regard their residential property as their sole investment in real assets, because it generally makes up a large proportion of their assets.

3.9 Investment vehicles

3.9.1 Introduction



MD = marketable debt; NMD = non-marketable debt; CP = commercial paper; BAs = bankers' acceptances; CDs = certificates of deposit (= deposits); NCDs = negotiable certificates of deposit; NNCDs = non-negotiable certificates of deposit; foreign sector issues foreign shares and foreign MD (foreign CP & foreign bonds); PI = participation interest

Figure 9: financial instruments / securities: participation interests



The financial system is again presented in Figure 9. The securities issued by the three investment vehicle categories (which we call participation interests – PIs) are highlighted, as well as the household sector (as the main lenders) which is our interest here. The institutions under each category are:

- Contractual intermediaries (CIs):
 - Long-term insurers (LTIs).
 - Retirement funds (RFs).
- Collective investment schemes (CISs):
 - Securities unit trusts (SUTs).
 - Property unit trusts (PUTs).
 - Exchange traded funds (ETFs).
- Alternative investments (AIs):
 - Private equity funds (PEFs).
 - Hedge funds (HFs).

As can be seen, the investment vehicles jointly are holders of the securities issued by the ultimate borrowers and other financial intermediaries [debt (and deposits) and shares]. Not shown here is that certain of the investment vehicles also hold certain real assets.

3.9.2 Long-term insurers

In most countries the statute covering life companies (long-term insurers / assurers) makes provision for the following different *classes of life business*. The insurers are obliged to register under one or more of these classes:

- Assistance
- Disability
- Fund
- Health
- Life
- Sinking fund

The products of these classes are called *policies*, for example, assistance policies, life policies, and so on. Figure 10 illustrates the classes of business and indicates that the only products which can be regarded as investment products are *life insurance / assurance policies*³⁶. Life policies are classified into two categories:

- Endowment policies.
- Annuity policies.

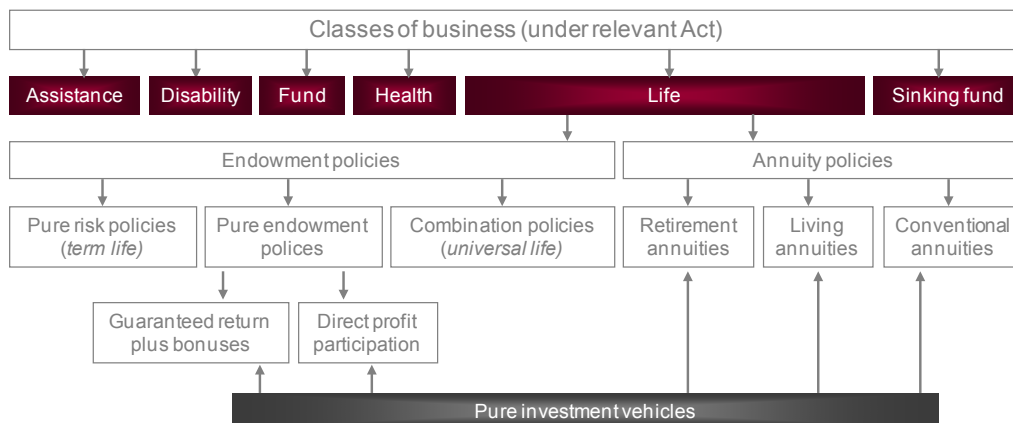


Figure 10: life company business

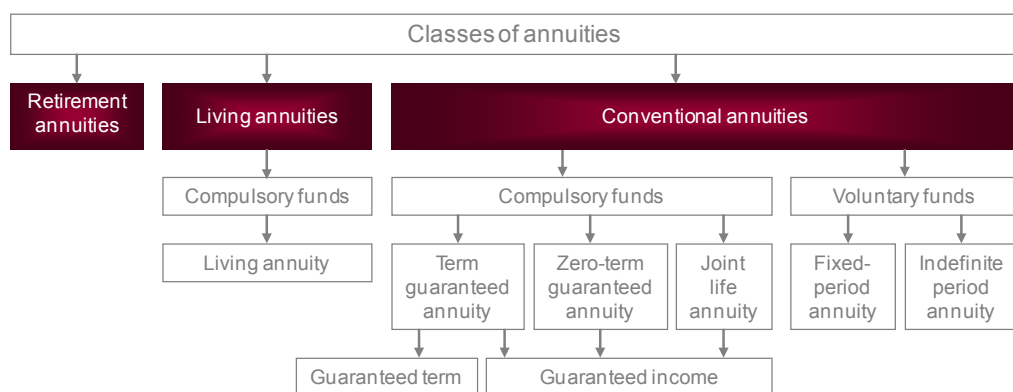


Figure 11: classes of annuities

The *endowment policies* that apply to individuals are:

- Pure risk policies (called *term life* and *risk life assurance* policies).
- Pure endowment policies.
- Combination policies (called *universal life* policies).

Of the endowment policies the *pure endowment policy* is the only one which is a pure investment vehicle.

There are two broad categories:

- Guaranteed return plus bonuses.
- Direct profit participation.

All *annuity policies* are pure investment vehicles; there are three types:

- Retirement annuities.
- Living annuities.
- Conventional annuities.

Figure 11 illustrates the various types of annuities.

3.9.3 Retirement funds

Retirement funds (RFs) are the best-known investment vehicles. By retirement, most individuals' share of the fund of which they are a member (called member's interest, undivided share, participation interest) represents their largest asset; usually the next largest asset in terms of value is their residential property.

Retirement funds are *contractual savings institutions*, and they are akin to savings plans. Persons employed (the participants or members) and/or their employers contribute a certain amount of funds per time period (usually monthly) to the fund. This usually takes place during the working lifetime of the members, the *purpose being to provide financially for retirement*.

There are three types of retirement fund:

- Pension fund (also called defined benefit fund – rules of the fund provide for a specified benefit at retirement).
- Provident fund (also called defined contribution fund – rules of the fund do not commit the fund to a particular benefit; the company and the employee contribute a specified amount to the fund).
- Preservation fund (a “parking” fund until retirement required by statute when a retirement fund participant leaves employment).



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3.9.4 Securities unit trusts

The most popular investment vehicle for individuals is the securities unit trust (SUT). The structure of a SUT is straightforward (see Figure 12). Put simply, the SUT issues PIs (units) (say 100 000) to investors at a price (say LCC 100 per unit) and with the funds purchases the listed shares, bank deposits etc to the value of the total funds available (LCC 10 000 000). If the value of the shares, etc. increases to LCC 12 000 000 (which is easily measured because the instruments are listed) a month later, each PI (unit) is now worth LCC 120 (minus the costs of managing the SUT).

There is a wide variety of SUTs; the broad categories are:

- Asset allocation flexible funds
- Asset allocation prudential high equity funds
- Asset allocation prudential low equity funds
- Asset allocation prudential medium equity funds
- Asset allocation targeted absolute return funds
- Equity value funds
- Equity financial and industrial funds
- Equity financial sector funds
- Equity general funds
- Equity growth funds
- Equity industrial funds
- Equity large cap funds
- Equity resources and basic industrial funds
- Equity smaller companies funds
- Equity varied specialist funds
- Fixed interest bond funds
- Fixed interest income funds
- Fixed interest money market funds
- Fixed interest varied specialist funds
- Foreign equity general funds
- Foreign equity varied specialist funds
- Foreign fixed interest bond funds
- Foreign fixed interest varied specialist funds
- Foreign asset allocation flexible funds
- Real estate (see below)
- Worldwide asset allocation flex funds
- Worldwide equity varied specialist funds
- Worldwide equity technology funds

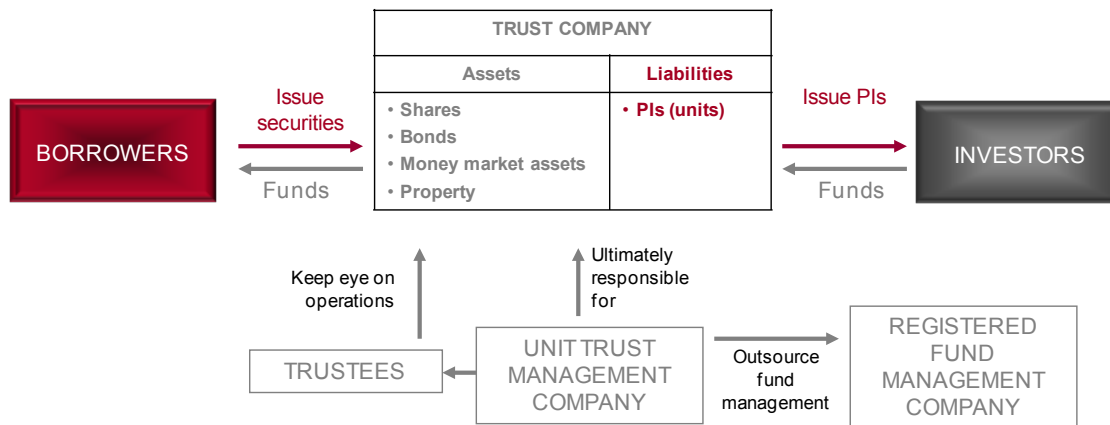


Figure 12: operational structure of securities unit trust (SUT)

Within all or some of the categories there are:

- Specific SUTs.
- Funds of funds (FoFs) (SUTs that are comprised of other SUTs).
- Multi-managed funds (multi-managed SUTs – MMSUTs).
- Multi-managed FoFs (comprised of selected MMSUTs).

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3.9.5 Property unit trusts

Property unit trusts (PUTs) are similar to SUTs in every respect except (mainly) in the nature of the asset portfolio (property) and the fact that they are listed. The purpose of a PUT is to provide smaller investors easy (i.e. small-amount) access to the property investment market, diversity in the property investment market, and professional management of the portfolio.

3.9.6 Exchange traded funds

An exchange traded fund (ETF), also called a *tracker fund*, is a fund set up to track a particular index. It is a type of investment company whose investment objective is to achieve the same return as a particular market index. It invests in the securities of companies / government / commodities that are included in a particular market index. This means that the fund has liabilities in the form of PIs (also called shares and securities) which are listed on an exchange, and assets in the form of the specific shares / fixed-interest securities / commodities that make up the relevant index according to their weightings in the index.

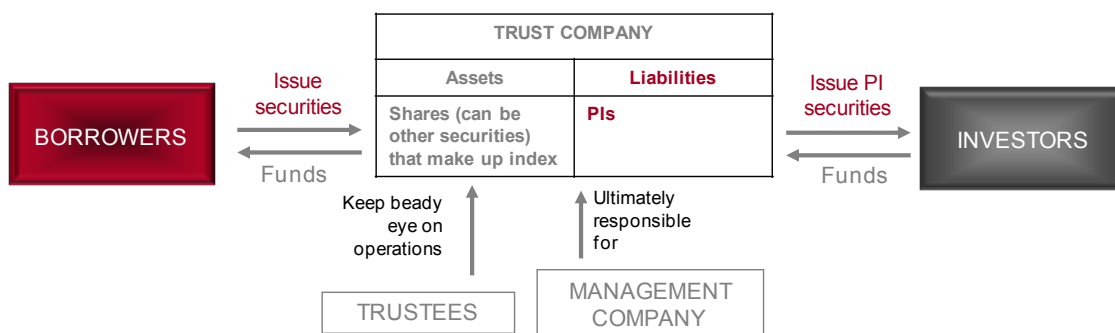


Figure 13: structure of an ETF

An investment in a share index ETF is an inexpensive way of gaining exposure to relevant segment of the share market, i.e. exposure is gained without having to purchase the individual shares that make up the index. Dividends are also payable to the holders of the shares of the ETF. The structure of an ETF is shown in Figure 13.

It may be useful to present a few foreign definitions / explanations of ETFs; The US Securities and Exchange Commission (SEC – the watchdog of the US securities industry) defines an ETF as:

“...a type of investment company whose investment objective is to achieve the same return as a particular market index. An ETF is similar to an index fund in that it will primarily invest in the securities of companies that are included in a selected market index. An ETF will invest in either all of the securities or a representative sample of the securities included in the index. For example, one type of ETF, known as Spiders or SPDRs, invests in all of the stocks contained in the S&P 500 Composite Stock Price Index.”

The American Stock Exchange (Amex)³⁷:

“Exchange Traded Fund(s): are open-ended registered investment companies...which have received certain exemptive relief from the SEC to allow secondary market trading in the ETF shares. ETFs are index-based products, in that each ETF holds a portfolio of securities that is intended to provide investment results that, before fees and expenses, generally correspond to the price and yield performance of the underlying benchmark index.”

Examples of ETFs in the US are shown in Table 4.

			INDEX TRACKED
Share ETFs	Broad market ETFs		Russell 3000
			Wilshire 5000
	Major index-tracking ETFs		Dow Jones Industrial Average
			S&P 500
	Market sector ETFs	US domestic sectors	Dow Jones US Financial
			Dow Jones US Industrial
		Global sectors	S&P International Industrial
			International Technology
	Style ETFs	Large-cap ETFs	Russell 1000
		Mid-cap ETFs	S&P MidCap 400
		Small-cap ETFs	S&P SmallCap 600
	International ETFs	Country ETFs	MSCI Australia
		Regional ETFs	S&P Europe 350
		International theme ETFs	MSCI Emerging Markets
Commodity ETFs	Agricultural ETFs		Rogers International Commodity
	Energy commodity ETFs		Rogers Energy
	Industrial commodity ETFs		Dow Jones-AIG Copper
	Precious metals ETFs		COMEX Gold Trust
Bond ETFs			Barclays 7–10 Year Treasury
Real estate ETFs			Dow Jones US Real Estate
Leveraged & short ETFs	Short ETFs		Short Dow 30
	Leveraged ETFs		Ultra NASDAQ-100
	Leveraged short ETFs		Dow 30 ProShares

Table 4: Examples of US ETFs

3.9.7 Private equity funds

Private equity fund (PEF) means a pool of funds that is available for investment in or are already invested in unlisted companies. The motivation for the formation of PEFs is usually to provide funding for entrepreneurial-type businesses that are highly regarded and to profit from the listing of these unlisted companies at some stage in the future. This institution is mentioned here for the sake of completeness. Individuals rarely invest in PEFs.

Private equity has become a separate asset class (some would say “becoming”), and in most countries where private equity funds exist so do industry associations. Private equity is associated with venture capital in that venture capital is seen as a form of private equity (start-up capital for the smaller companies). In most (if not all) cases the industry associations include this term. For example, the South African industry association is called the South African Venture Capital and Private Equity Association (SAVCA), the European one is named European Private Equity and Venture Capital Association (EVCA), the Italian one is called Italian Private Equity and Venture Capital Association (AIFI), and so on.

It should be evident that private equity funds are akin to investment companies on the liability side of their balance sheets, whereas their assets are comprised of investments in non-listed companies only, as opposed to investments in listed shares and other investments such as bonds and money market instruments in the case of CISs.

3.9.8 Hedge funds

A hedge fund (HF) is akin to a pooled fund such a unit trust and a retirement fund in that it takes in funds from investors and invests the funds on behalf of them in financial assets. However, it differs in that it has: less of the statutory limitations of the other collective investment schemes (i.e. pooled funds), a large relatively proportion of funds taken in is forthcoming from the management company and the fund managers and, apart from being a “normal” investment vehicle (i.e. a “long only” investment vehicle), it is able to:

- Use leverage (i.e. borrow funds – apart from the funds of investors).
- Go “short” of securities.
- Engage in derivative transactions.

This institution is mentioned here for the sake of completeness. Individuals rarely invest in HFs.

3.10 Foreign investments

Foreign assets are comprised of the same asset classes as local assets. This is obvious because asset classes are the same worldwide. The difference between the asset classes in smaller countries and those in the larger economies is that the variety of assets in the larger economies is vast; in fact so vast that small country fund managers tend, in their foreign asset class selection, to rely on the expertise of foreign fund managers or invest in these markets via foreign investment vehicles.

There are many considerations in foreign investment selection, the most significant of which are currency risk and the diversification opportunities: individual investors would be wise to spread their foreign investments among a number of currencies in order to reduce risk.

3.11 Asset classes

We have briefly covered all the investment assets that are available to investors. A summary is provided in Figure 14 (showing that international asset groupings are the same as local assets groupings), and a different perspective is presented in Figure 15. In the institutional investment industry, fund managers refer to “asset classes”. They are as shown in Table 4.



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Financial assets:	Notes:
Shares	Held directly (with some exceptions): <ul style="list-style-type: none"> • Ordinary shares • Preference shares
Bonds	Held directly (with some exceptions): <ul style="list-style-type: none"> • Government bonds • State-owned enterprise (SOE) bonds • Corporate bonds • SPV bonds • Foreign bonds
Money market	Held directly (with some exceptions): <ul style="list-style-type: none"> • Treasury bills • Commercial paper • NCDs & NNCDs
Hedge funds & private equity funds	Held directly
Real assets:	Notes:
Property	Held directly: <ul style="list-style-type: none"> • Commercial buildings Held indirectly: <ul style="list-style-type: none"> • Mainly PUTs
Commodities	Held directly: <ul style="list-style-type: none"> • Mainly precious metals Held indirectly: <ul style="list-style-type: none"> • Commodity ETFs

Table 4: Asset classes of institutional investors

As indicated earlier, the asset classes are held in different proportions, and generally in the order indicated in Table 4. Note that foreign assets are a proportion of the local asset classes, and generally apply to shares and bonds.

Note the addition of hedge funds and private equity funds in Table 4, which are regarded by some as a separate asset class, and the absence of “other real assets”, i.e. art, rare stamps, antique furniture, etc (there are exceptions to the rule).

What is the “institutional investment industry” and who are the “fund managers”? The terms are synonymous, and refer to companies (they are not financial intermediaries, but are robustly-regulated) that manage funds on behalf of the *large investing institutions*, which are the *investment vehicles*. A reminder (see also Figure 15):

- Contractual intermediaries (CIs):
 - Retirement funds.
 - Life insurers (note: only endowment policies & annuities are investments).
- Collective investment schemes (CISs):
 - Securities unit trusts (SUTs).
 - Property unit trusts (PUTs).
 - Exchange traded funds (ETFs).
- Alternative investments (AIs)
 - Hedge funds (HFs).
 - Private equity funds (PEFs).

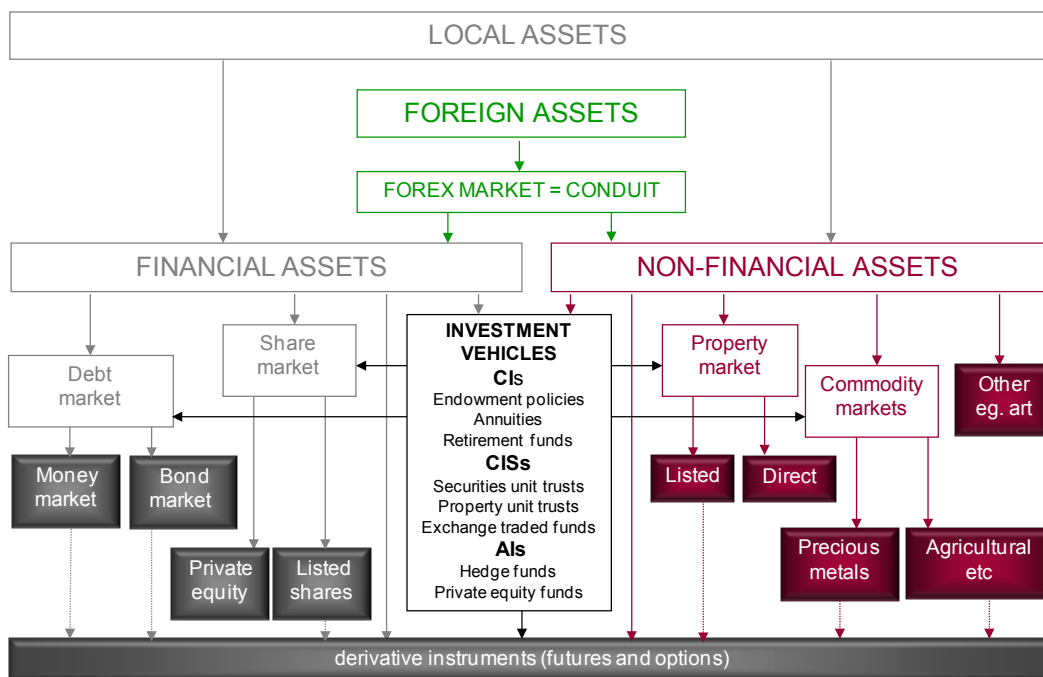


Figure 14: investments

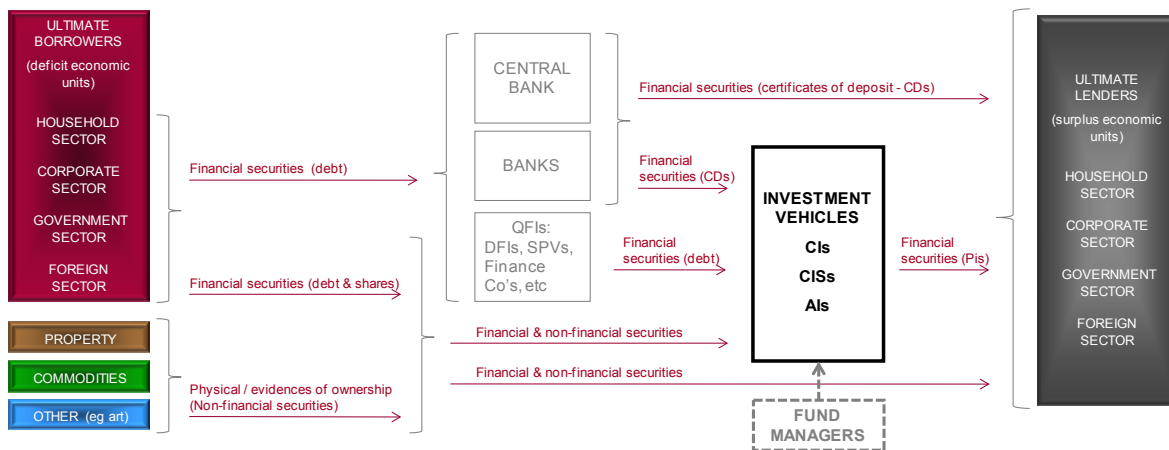


Figure 15: investments in broad groupings

As indicated, the “investment vehicles” essentially hold assets (the ultimate investments) on behalf of the holders of their liabilities, which we have termed PIs (indirect investments).

For individual investors, the asset classes are the same as above with the exception of hedge funds and private equity funds, and the addition of “other real assets” (see Table 5). The asset classes in Table 5 are not in order of funds allocation. It will be evident that individuals’ holdings of the asset classes change over the life-cycle (which is discussed in more detail later).

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Financial assets:	Notes:
Shares	Held in directly via CIs and CISs: <ul style="list-style-type: none"> • Ordinary shares • Preference shares Held directly (in the case of HNWI ¹) <ul style="list-style-type: none"> • Ordinary shares
Bonds	Held indirectly via CIs and CISs: <ul style="list-style-type: none"> • Government bonds • State-owned enterprise (SOE) bonds • Corporate bonds • SPV bonds • Foreign bonds Held directly: <ul style="list-style-type: none"> • Government bonds (retail bonds)
Money market	Held in directly via CIs and CISs: <ul style="list-style-type: none"> • Treasury bills • Commercial paper • NCDs & NNCDs Held directly: <ul style="list-style-type: none"> • NNCDs
Real assets:	Notes:
Property	Held in directly via CIs and CISs: <ul style="list-style-type: none"> • Mainly commercial buildings Held directly <ul style="list-style-type: none"> • Own residential property • PUTs
Commodities	Held directly: <ul style="list-style-type: none"> • Precious metals (gold coins) • Cattle (in some countries)
Other real assets	Held directly (by HNWI): <ul style="list-style-type: none"> • Antique furniture • Rare stamps and books • Art, etc.

Table 5: Asset classes of institutional investors

The above exposition was designed to provide the reader with an introduction to the investment instruments and asset classes, not to provide the detail. It should be seen as a broad overview.

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4 Investment principles

4.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Distinguish the ultimate investments of the financial system and real economy and the investment vehicles which intermediate them and the investors.
2. Define the objective of investment.
3. Explain the investment environment and the research levels.
4. Demonstrate an understanding of, and the relationship between, risk and return.
5. Appreciate the existence of investment theories and the lessons drawn from them that are relevant to investments.
6. Describe the principle underlying the valuation of investments.
7. Explain the essence of portfolio management.
8. Describe asset class allocation of the course of the life-cycle.



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4.2 Introduction

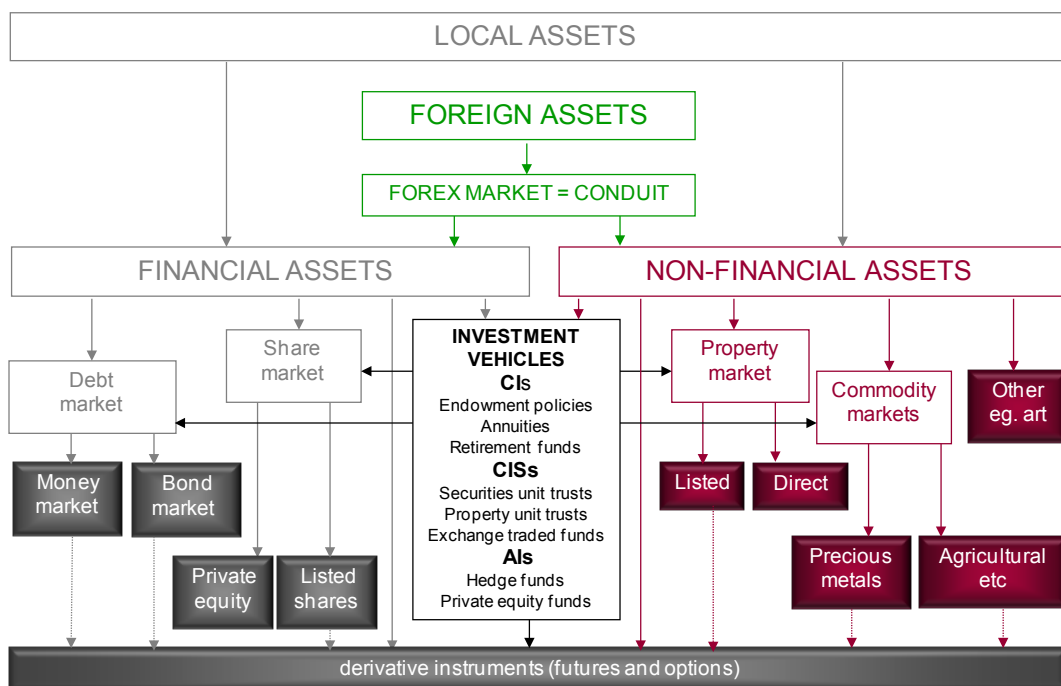


Figure 1: investments

Thus far in this text on lifecycle investing, we have covered prudent lifestyle conduct (in order to reach your FSG as early as is possible), the financial system (from which three of the asset classes spring), the detail of the ultimate financial investments, real investments, and the investment vehicles (which have as assets the two aforementioned), the liabilities of which (PIs) are the main investment form for individuals. A summary of the above is provided in Figure 1.

A reminder of the asset classes, and the extent to which they are held directly or indirectly, is presented in Table 1, for the institutional investors (i.e. the investment vehicles – managed by fund managers) and the individual investors.

Financial assets:	Institutional investors:	Individual investors:
Shares	Held directly (with some exceptions): <ul style="list-style-type: none"> • Ordinary shares • Preference shares 	Held in directly via CIs & CISs: <ul style="list-style-type: none"> • As on left Held directly (HNWI) <ul style="list-style-type: none"> • Ordinary shares
Bonds	Held directly (with some exceptions): <ul style="list-style-type: none"> • Government bonds • State-owned enterprise (SOE) bonds • Corporate bonds • SPV bonds • Foreign bonds 	Held indirectly via CIs and CISs: <ul style="list-style-type: none"> • As on left Held directly: <ul style="list-style-type: none"> • Government bonds (retail bonds)

Money market	Held directly (with some exceptions): <ul style="list-style-type: none"> • Treasury bills • Commercial paper • NCDs & NNCDs 	Held in directly via Cis and CISs: <ul style="list-style-type: none"> • As on left Held directly: <ul style="list-style-type: none"> • NNCDs
Hedge & private equity funds	Held directly	Not held
Real assets:	Institutional investors:	Individual investors:
Property	Held directly: <ul style="list-style-type: none"> • Commercial buildings Held indirectly: <ul style="list-style-type: none"> • Mainly PUTs 	Held in directly via CIs & CISs: <ul style="list-style-type: none"> • As on left Held directly <ul style="list-style-type: none"> • Own residential property • PUTs
Commodities	Held directly: <ul style="list-style-type: none"> • Mainly precious metals Held indirectly: <ul style="list-style-type: none"> • Commodity ETFs 	Held directly: <ul style="list-style-type: none"> • Precious metals (coins) • Cattle (in some countries)
Other real assets	Not held	Held directly (by HNWI): <ul style="list-style-type: none"> • Antique furniture • Rare stamps and books • Art, etc

Table 1: Asset classes of institutional investors & individual investors

This main section is concerned with the principles of investments. It is important to have a clear idea of the objective of investment and to differentiate it from speculation and gambling. It is essential to have an understanding of the context / environment of investments: the macroeconomy and its drivers, and the substance of the four levels of research. It is essential to be cognisant of the risk inherent in most investments and appreciate that there is a positive relationship between risk and return.

Because of the significance of investments to all individuals, many theories on and related to investments have been proffered. While not all are of pragmatic employ, many of them extrude useful practical lessons. An important principle is that financial and real asset markets discover prices which do not necessarily align with fair value (given the level of risk-free and other interest rates); thus, it is important to appreciate the principle underlying the valuation of investments. It is also important to understand the essence of portfolio management.

These issues are addressed under the following headings:

- Definition and objective of investment.
- Risk-free rate.
- Investment environment.
- Risk and return.
- Investment theory: practical lessons.
- Valuation of investments.
- Portfolio management.

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4.3 Definition and objective of investment

The term *investments* refers to a portfolio of assets purchased with available funds that provides a return in the form of periodic cash flows and/or a gain (or loss) in the amount of the original amount invested (the capital). This tells us that there are two parts (either or both) to a return on an investment:

- a periodic cash flow
- a change in the value of the original investment (capital value), which may be positive or negative.

Flowing from this, the *objective* of investment is to *increase* the amount of the original investment by:

- earning a periodic cash flow and/or
- earning a gain in the value of assets (making a capital gain).

Assets need to be managed. Fund / portfolio management is the practice of asset allocation, i.e. the ongoing decision-making in respect of the allocation of funds between risky and non-risky assets, as well as choosing specific assets within asset classes. It is a balance between risk and return. The asset allocation function is based on in-depth asset market research.



Investment is not gambling. Gambling is a game of chance in which the probability of loss (= risk) is high. With investments the probability of loss can be small because there are methods of investment management to reduce risk and enhance returns.

Investment is also not speculation. Speculation is investing own and/or borrowed funds for short-term periods (often intra-day), and the probability of profit is substantially higher than with a gamble. This is so because it is founded on research (technical and/or fundamental). However, the risk is lower than in gambling and higher than in long-term investing.

4.4 Risk-free rate

The risk-free rate (rfr) is a concept that occupies centre-stage in investments / finance. It is a concept that some scholars have difficulty in defining (some have even said that it does not exist). In our view there is not one rfr, but a series stretching from the one-day treasury bill (TB) rate to the 30-year rate (ytm) on government bonds; “it” is simply the rates on government securities (treasury bills and government bonds), which are available daily (in efficient money and bond markets) and you can choose whichever rate you require as a benchmark for an investment.

What does this mean? It means that the rfr is the lowest rate that can be earned with certainty, and that you (when considering an investment for 5 years, for example) should regard the current 5-year bond rate as the minimum return you are willing to accept. It follows that every non-government, i.e. *risky*, investment should deliver a return [call it your *required rate of return* (rrr)] equal to the rfr plus a risk premium (rp):

$$rrr = rfr + rp.$$

This simple formula should be the starting point when consideration is given to any investment.

What does risk-free mean? It means that if you purchase a government security, the rate at which it is bought is *certain to be earned*, and this is because governments don't default³⁸ (since they have the authority to borrow and tax in order to repay and service their debt).

Thus, there are two broad investment categories: risk-free and risky assets / investments³⁹. *Risk-free* assets are government securities which deliver certain but lower returns. *Risky assets* are non-government securities (shares, corporate bonds, property, etc.) which deliver uncertain but higher returns (depending on the holding period). As we will show later, there is a positive relationship between return and risk.

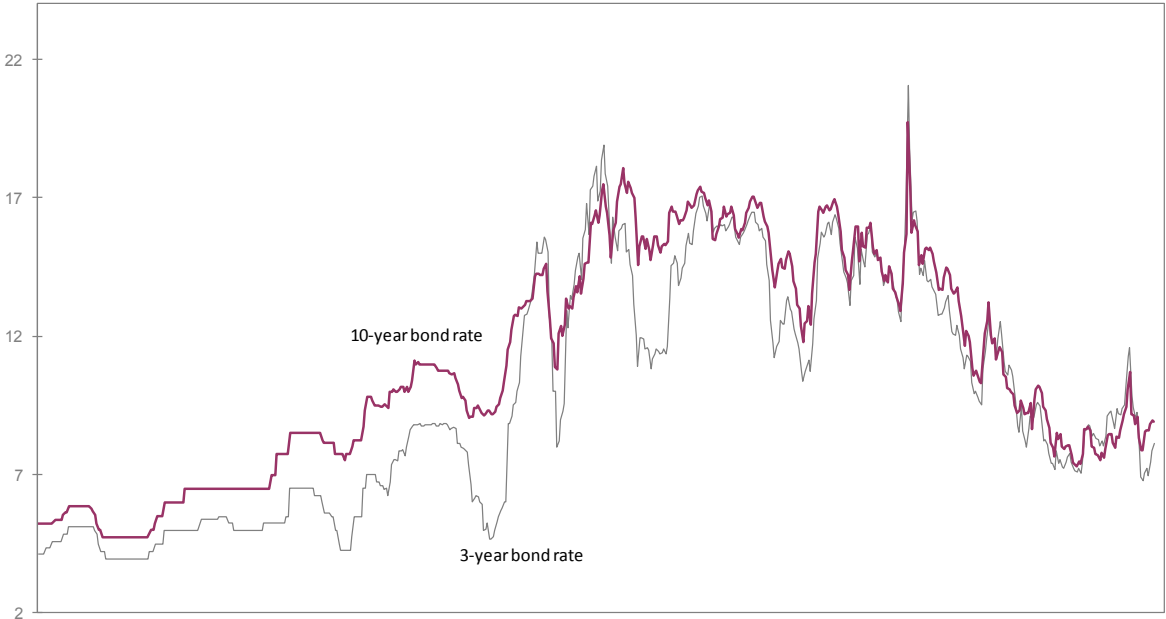


Figure 2: 3-year and 10-year bond rates

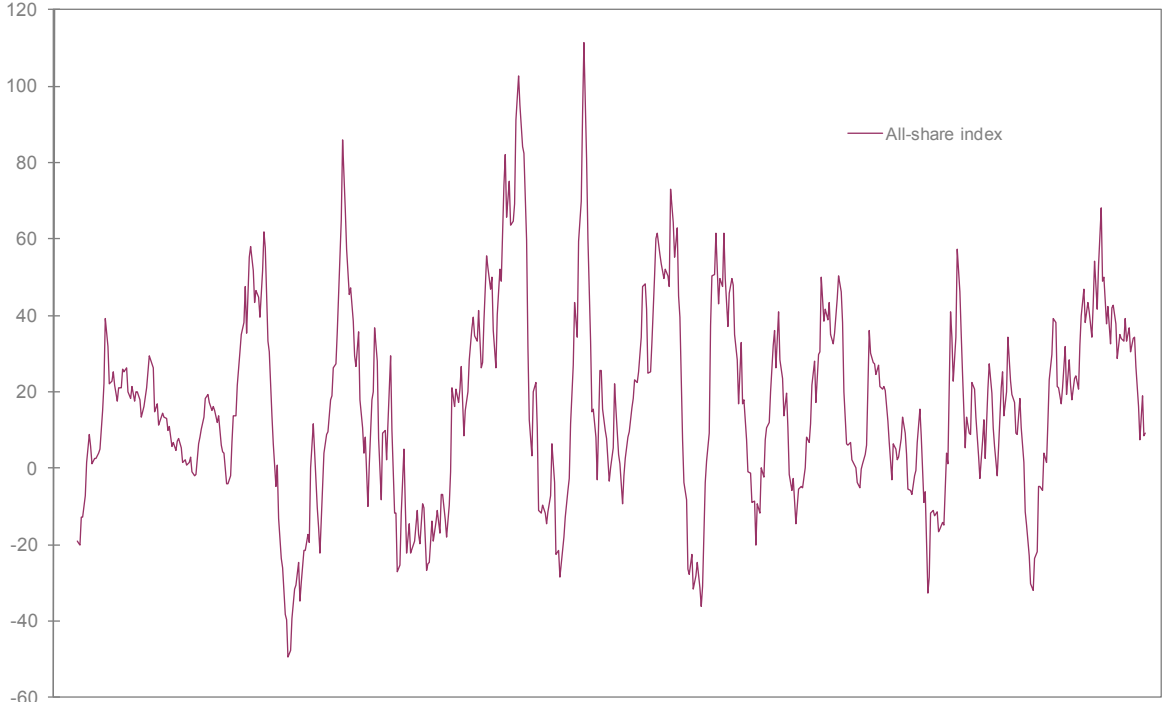


Figure 3: share prices (over 50 years)

However, it is important to mention that risk-free assets are only *credit-risk-free* – as said, because government has the power to tax and borrow funds. They are not *market-risk-free* if they are sold before maturity. What does this mean? It means that the return is only certain if the asset is not traded in the secondary market. Market prices are opposite to market rates, and if the market rate rises to a higher level than the purchase rate, the price will be lower, and a capital loss will be made. However, this is irrelevant in the sense that the *r_f* just acts as a benchmark return.

4.5 Investment environment

Market prices / rates are volatile and this is the chief risk faced in financial / real asset markets and this takes place in the investment environment. Figure 2 illustrates the 3- and 10-year government bond rates over a 50-year period in a particular country. Figure 3 illustrates the year-on-year changes in share prices over the same period

What is the investment environment? The investment environment is the international economy and the domestic economy, developments in which have an effect on the values (prices) of the assets of the asset classes. It is well known that the prices of financial assets, particularly shares, can be extremely volatile (see Figure 3), and this introduces the element of risk in financial markets. Investment risk is broadly defined as *volatility* in asset prices and it is measured in these terms (see later).



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Ultimately, gross domestic product (GDP) growth is the major driver of asset prices, and asset price changes (positive and negative) are often exacerbated by the irrational behaviour of participants in the investment arena (known as the “herd instinct”). GDP is driven by gross domestic expenditure (GDE) and the trade account balance (TAB). GDE is driven by the consumption expenditure (C) and investment expenditure (I) of the private and government sectors, such that $C + I = GDE$. This is domestic demand. Foreign demand for local products is reflected in exports (X) while imports (M) reflect domestic demand for foreign goods. So, $X - M = TAB = \textit{net foreign demand}$. The “big picture” (the entire economy) is complete:

$$\begin{aligned} C + I &= GDE \\ GDE + TAB &= GDP \text{ (= the total of expenditure on GDP)}. \end{aligned}$$

GDP is the total of net domestic production in a year, also called aggregate demand.

Interest rates are a significant factor in the economy (see Figure 4; period of over 50 years) and therefore the financial markets: they are the counterpart of certain asset prices (debt assets) and a significant input into the pricing of dividend-yielding shares (see Figure 5; period of over 50 years) and rent-yielding property. Short term rates (the lower end of the yield curve), as we have seen, are under the “control” of the central bank, the guardian of financial stability. They are the main instrument of central bank monetary policy, and exert a powerful influence on the bank lending rates, and therefore on the borrowing behaviour of the private sector, which drives money creation and GDP (see Figure 6; period of over 50 years).

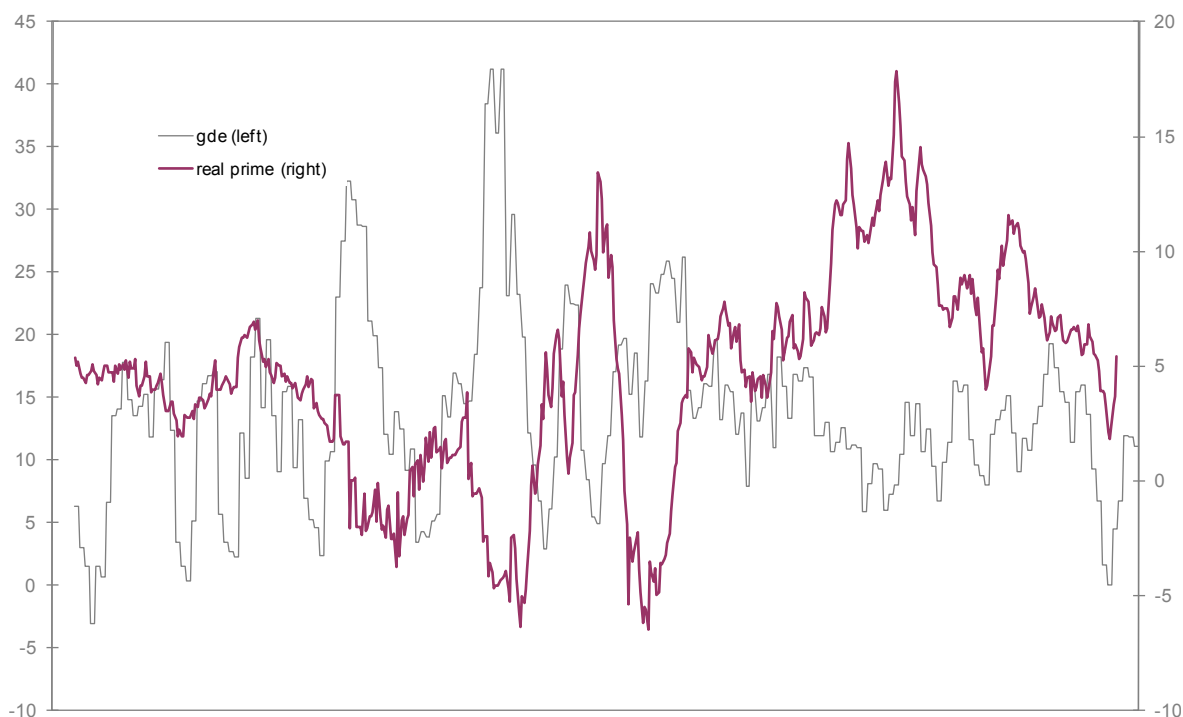


Figure 4: current GDE (yoy %) & real prime (adv 12 months)

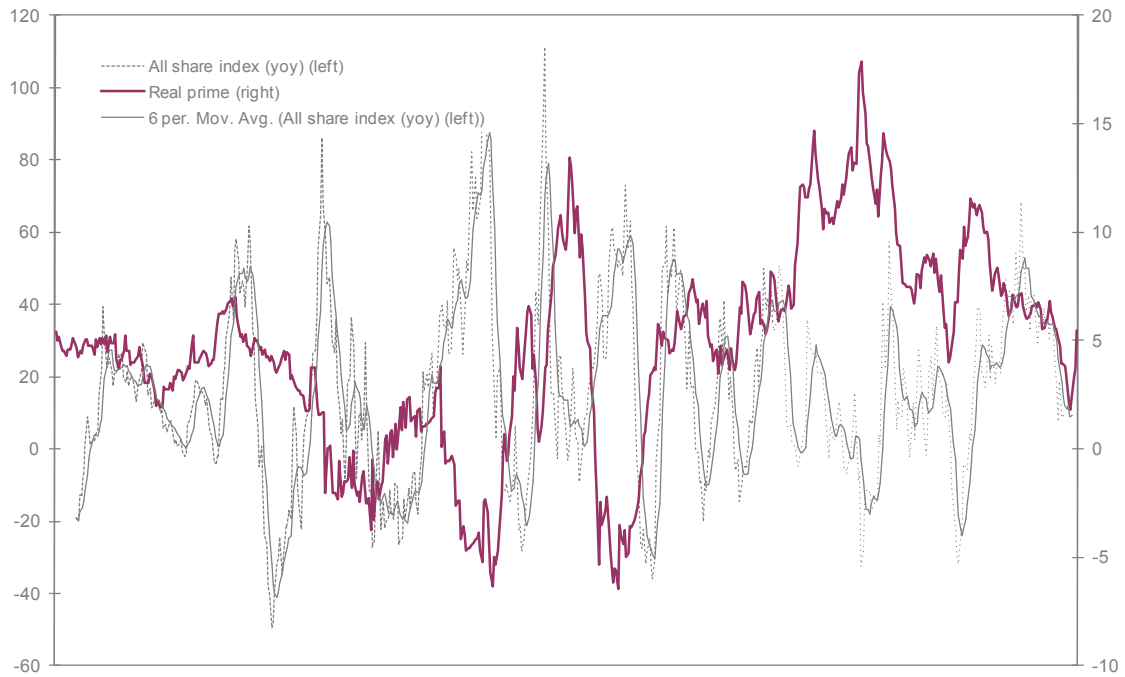


Figure 5: all share index (yoy) & real prime

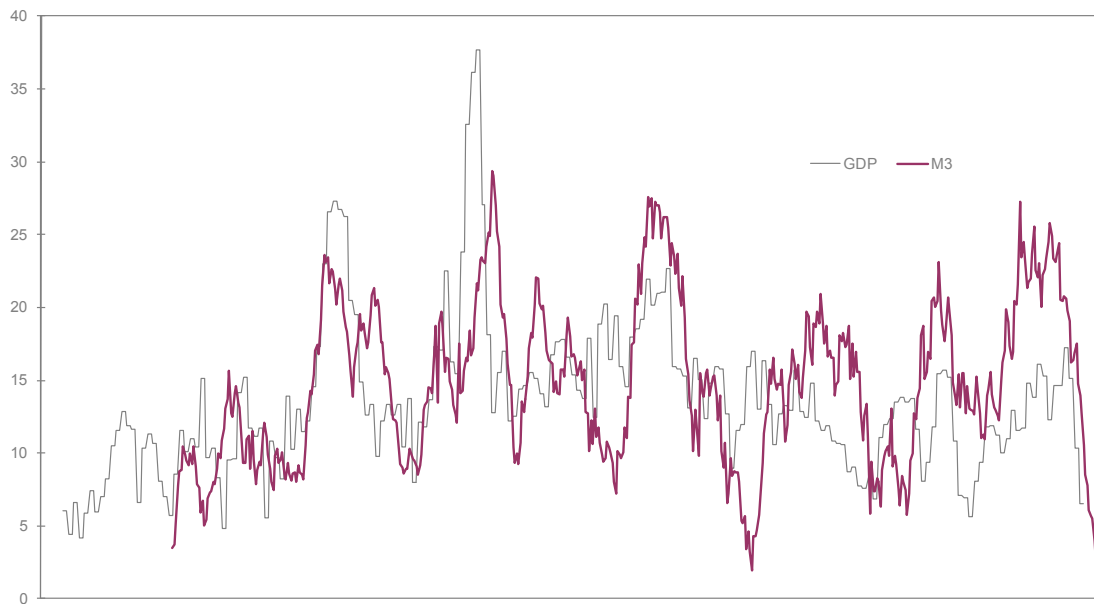


Figure 6: GDP & M3 (yoy %)

Money (M) = bank deposits (in the main; a small part is notes and coins), and changes (which largely are increases) in M (ΔM) are overwhelmingly caused by increases in domestic bank credit (DBC) extended (= the purchase of local financial assets) and the purchase of foreign financial assets (= foreign bank credit extended = FBC). Thus, ΔM is caused by the balance sheet causes of changes (BSCoC) as follows:

$$\Delta M = \Delta DBC + \Delta FBC^{40}.$$

Underlying the BSCoC is a multitude of factors, including the actual demand for credit (DfC), interest rates which affect the DfC, the state of the economy and expectations regarding it, etc.

Money creation $\Delta M+$ is a critical factor in GDP growth (ΔGDP) (Figure 6) and according to the adjusted Fisher quantity theory of money (QTM) [V = velocity of circulation of money (generally a stable number); R = real = adjusted for inflation (P)]:

$$\Delta M + \Delta V = \Delta P + \Delta \text{RGDP}.$$

This significance embodied in the QTM is that money growth is an essential ingredient in GDP growth, and that it is maximised if P is kept low (= a low and stable = predictable inflation environment) and this can only be achieved if the change in the demand for goods and services (= the demand side of GDP) (which underlies ΔM) is managed (inter alia by interest rates) at a level that can be satisfied by supply (= the production side of GDP).



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So far we have touched upon almost all of the essential elements of the investment environment. To them must be added the financial activities of government (= essentially the budget deficit), which results in borrowing in the financial sector. There are two main sources of funds: the holders of investment money [mainly the “institutions” (= retirement funds, insurers, SUTs and ETFs) and money creation by the banks]. To the extent that the institutions’ funds are accessed, the government “crowds out” the private sector, and to the extent that the banks buy government securities, money is created ($\Delta M+$).

In summary, the essential elements of the investment environment = the macroeconomy, are the following:

- $\Delta(C + I)$.
- ΔTAB [expanded into the current account of the balance of payments (CaBoP) which includes other flows such as services payments/receipts, and its counterpart, the financial account of the BoP, the FaBoP].
- ΔM .
- Budget deficit.
- Interest rates (dominated by the central bank in the money market).

Why are shares the most volatile of all asset classes? It is because companies take on more risk (versus money market and bonds) in doing business (new projects, they are subject to the business cycle, etc.). Higher risk (measured as higher volatility) equates with higher return in the long term. Therefore history has generated data that demonstrates that shares have outperformed the other asset classes, and that the asset classes have delivered returns in the following (descending) order:

- Shares (including hedge & private equity funds).
- Property.
- Bonds.
- Money market.

For this reason, shares are the most sought-after financial asset, making this asset class subject to intense scrutiny (in the form of industry and company analysis), and susceptible to the herd instinct (captured in the new discipline “behavioural finance”). These influences make shares highly volatile in terms of price changes.

Figure 7 (period = over 50 years) presents the all share index together with GDE in year-on-year growth terms. It will be clear that the share market generally anticipates GDE growth changes, and always overreacts (up and down) to a substantial degree. It is notable that over the period, GDE and the all share index growth rates were similar (1.1% per month). This indicates two main phenomena: the share market is representative of the economy and the share market always reverts to its mean growth rate (= GDE/GDP growth in nominal terms).

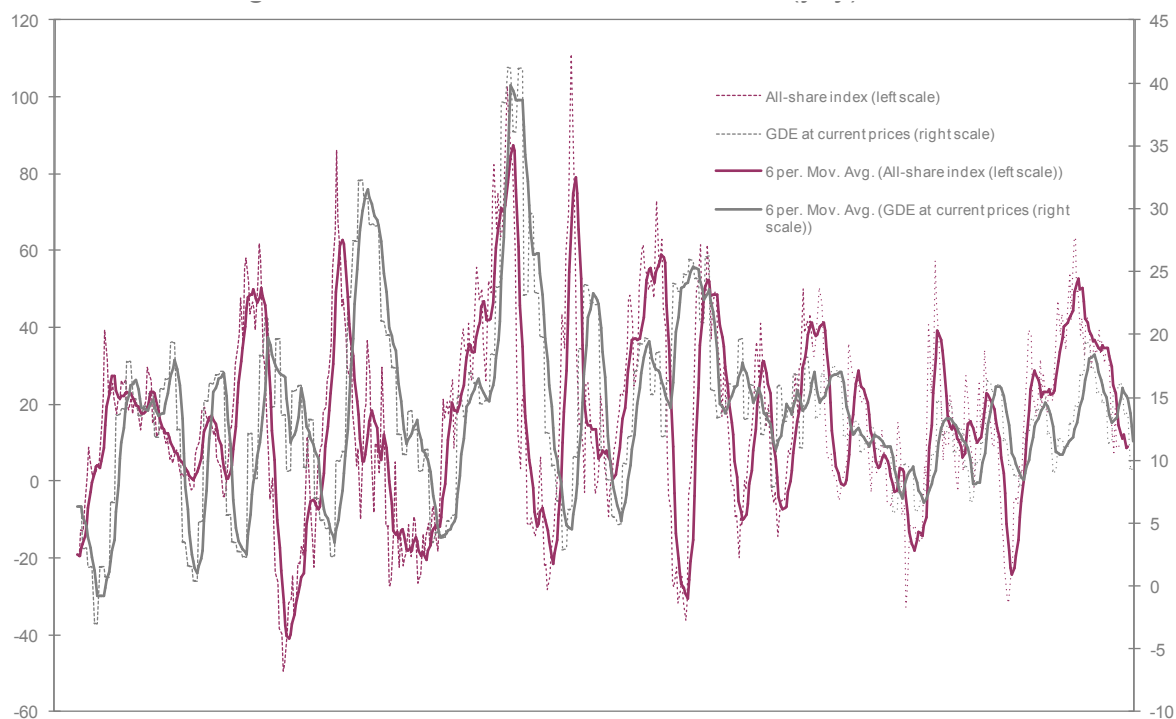


Figure 7: current GDE & all-share index (yoy)

Given asset price volatility, fund managers (or “investment houses”) and broker-dealers (who service the fund managers) employ the services of investment analysts and specialist economists to anticipate future asset price developments. The investment analysis process they undertake has four parts, as presented in Figure 8.

It is a well known fact that asset class allocation is the most critical decision made in asset management. It is responsible for a significant proportion of asset / portfolio performance (some analysts say up to 80%). Asset class allocation is critically based on macroeconomic (domestic and international) analysis. In this regard we conclude with a relevant view of an asset manager⁴¹:

“All investment decisions, particularly those relating to asset allocation, implicitly or explicitly rest on some forward-looking macro-economic assumption. Any change to the macro-economic assumption will inevitably influence the intrinsic or fair value of that investment or asset class. For example, a decision to buy long-term government bonds is based on some assumption about future inflation; if the investor assumed low future inflation and the outcome is high inflation, the value of such an investment would turn out to be dramatically lower than anticipated.

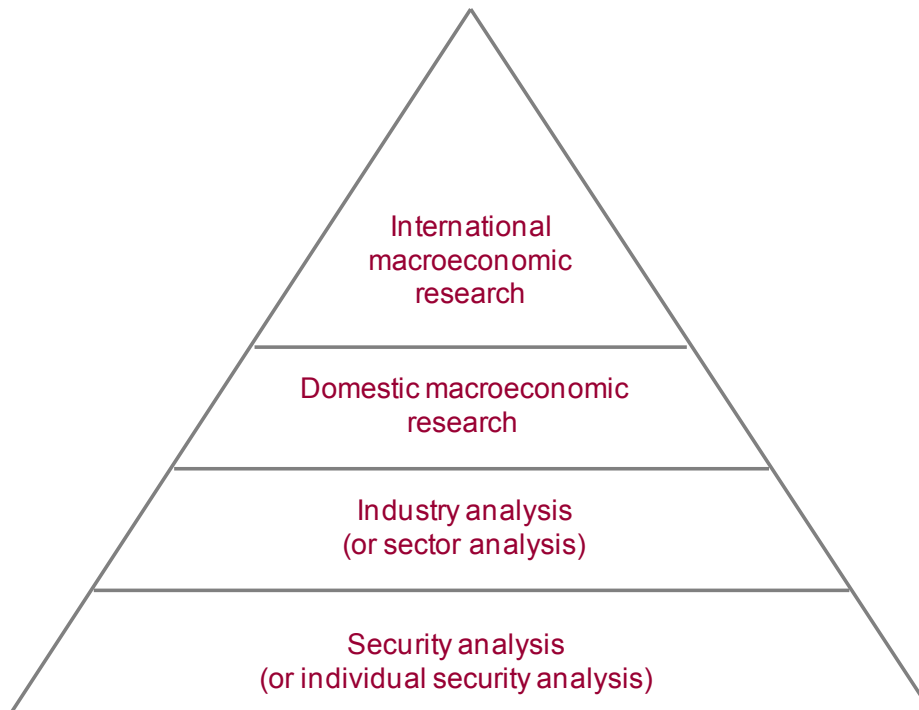


Figure 8: investments analysis: four steps

“One pillar of our investment philosophy is the recognition that the economic future could easily turn out to be very different from the assumptions. Overconfidence in their ability to read the future is a classic mistake made by investors. We guard against this risk by incorporating more than one economic scenario into our investment strategy.

“We consider as wide a range of potential economic scenarios as possible. From these possibilities we typically choose two or three scenarios that we believe cover a significant range of potential outcomes. In this way we acknowledge and mitigate the risk attached to an uncertain, and often unpredictable, future.

“For each economic scenario we make assumptions about short and long-term interest rates, and about economic growth and inflation, both locally and internationally. Using these economic assumptions as our basic input, we estimate the intrinsic or fair value of each asset class that we explore.

“The scenarios have a strong international flavour. In a globalising world, with integrated financial markets, we believe international influences will dominate over time. The scenarios are projected over rolling five-year periods, a time frame typically used by most successful long-term investors.

“We attach probabilities to each scenario. The use of probabilities skews the macro-economic input in the direction that we believe is the most likely outcome. This means that our investment strategy is based on a core macro-economic view, although the element of future surprise is minimised through the incorporation of various scenarios.

“Another pillar of our philosophy is diversification across a range of asset classes. Diversification also hedges our investment strategy against the potential for the future to surprise.”

The last mentioned, i.e. diversification, is one of the pillars of asset management; it is given some attention in a later following section.

4.6 Risk and return

4.6.1 What are risk and return?

We like return and dislike risk, but risk is ever-present in all financial markets, and there is a positive relationship between risk and return. In other words risk and return are opposite sides of the same coin.

We know what return is: *capital gains / losses + income* (dividends or interest), and it is usually measured as holding period return⁴² (HPR):

$$\text{HPR} = [(P_1 - P_0) + I] / P_0$$

where: P_0 = buying price; P_1 = selling price; I = income.



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If annualised (AHPR):

$$\text{AHPR} = (1 + \text{HPR})^{1/n} - 1$$

where: n = years or fractions of a year.

But what is risk? It is the risk of the investment losing value (capital loss) or it not yielding an income or both. This possibility is encapsulated in a measurable concept:

The probability of the actual return (HPR) on an investment being different from the expected return (ER).

There are two broad sources of risk (that contribute to the probability of HPR being different from ER):

- Security-specific risk (aka unsystematic risk).
- Market risk (aka systematic risk).

Security-specific risk arises from the activities of the specific companies, and the industry of which they are a part, and may be seen as the *major factors* that affect the *income flows* of companies. Analysts generally categorise this risk-type into *business risk* (examples: prolonged labour strike, arrival of serious competition from offshore, harmful management decisions, changes in product / service quality); *financial risk* (when debt is utilised as a source of capital, and is used injudiciously by the company); and *liquidity risk* (the risk of the segment of the share market in which the relevant share is being illiquid so that fair market value cannot be obtained).

Market risk is made up of the risks that are inherent in the financial and/or economic *system*. This risk affects all markets and little can be done about it. Examples of this type of risk are: tax changes, upward changes in interest rates (interest rate risk), political instability (country risk), the declaration of a war (country risk), a major change in the exchange rate (exchange rate risk), a change in inflation (inflation risk).

4.6.2 Measuring risk and return

Measuring historical risk and return is straightforward, and it is best elucidated with an example using annual figures. Return over a year is HPR, and risk is the *standard deviation* of returns. This is a measure of the *dispersion around the average return* (= the arithmetic mean) in percentage terms. The formula is:

$$\sigma^2 = \sum_{i=1}^n (X - M)^2 / n - 1$$

where

σ^2 = variance of a set of values

X = each value in the set

M = mean (i.e. arithmetic average) of the set (mean return)

n = number in the set

σ = $(\sigma^2)^{1/2}$ (i.e. square root of σ^2) = standard deviation.

Table 2 shows the hypothetical HPR returns on a share for the years 1 to 4, and the relevant calculations.

Year	HPR (%) X	X - M		(X - M) ²	
1	25	16.25		264.06	
2	15	6.25		39.06	
3	0	-8.75		76.56	
4	-5	-13.75		189.06	
	M = 8.75		$\Sigma (X - M)^2 =$	568.74	
			$\sigma^2 =$	568.74 / 3	= 189.58
			$\sigma =$	$(189.58)^{1/2}$	= 13.77%

Table 2: Calculation of historical standard deviation

This particular share has a *mean return* (M) of 8.75% and a *standard deviation* (σ) of 13.77%. It will be obvious that the higher the standard deviation, the higher the percentage dispersion around the mean, and therefore the higher the riskiness of this share.

4.6.3 Relationship between risk and return

Figure 9 demonstrates the relationship between risk and return, and it is evident that the relationship is positive, i.e. the return required increases as risk increases. This is so because investors are *risk averse*. The relationship is represented by what is termed the *capital market line* (CML which is used extensively in portfolio literature). If investors were *risk seeking* (which would indicate a mental problem), the CML would be negatively sloped. The slope of the CML depicts the extent of additional return expected / required for additional each unit of risk assumed.

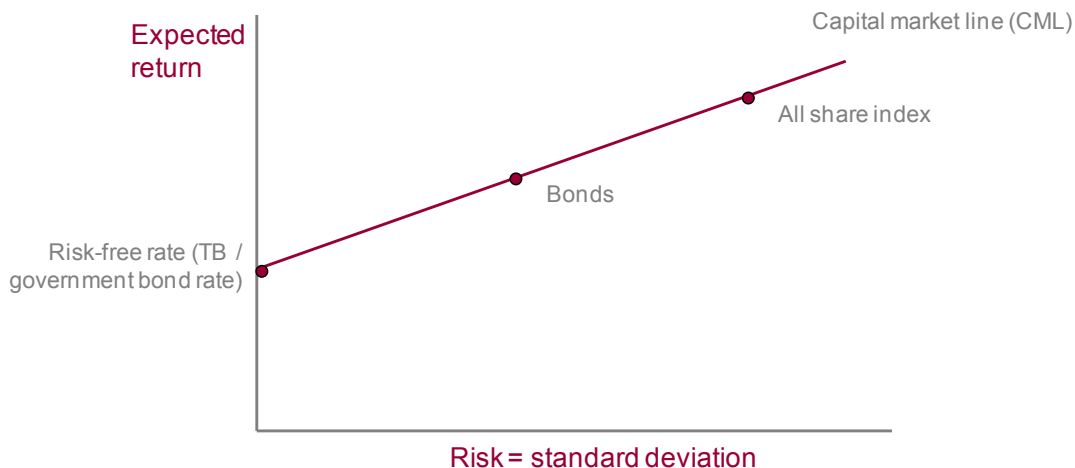


Figure 9: relationship between risk and return

There is ample empirical evidence this relationship: money market at bottom left, bonds in the middle and shares top right. This is covered next.

4.6.4 Risk and return: the record

Fortunately, data is readily available on the risk and return relationship of the three main asset classes: shares, bonds and cash (i.e. money market).⁴³

Figure 10 shows the average annual returns and the standard deviations of the asset classes for a period of over 100 years for South Africa. The evidence is indisputable: higher returns are accompanied by higher risk (= dispersion around the mean return).

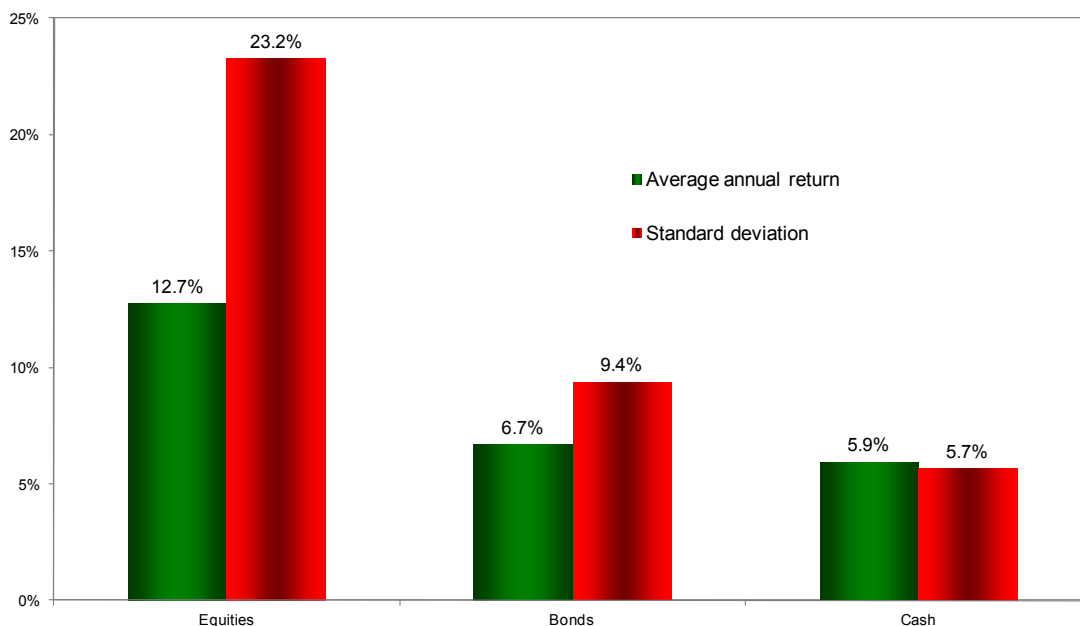


Figure 10: RSA: average annual returns & STD (108 years)

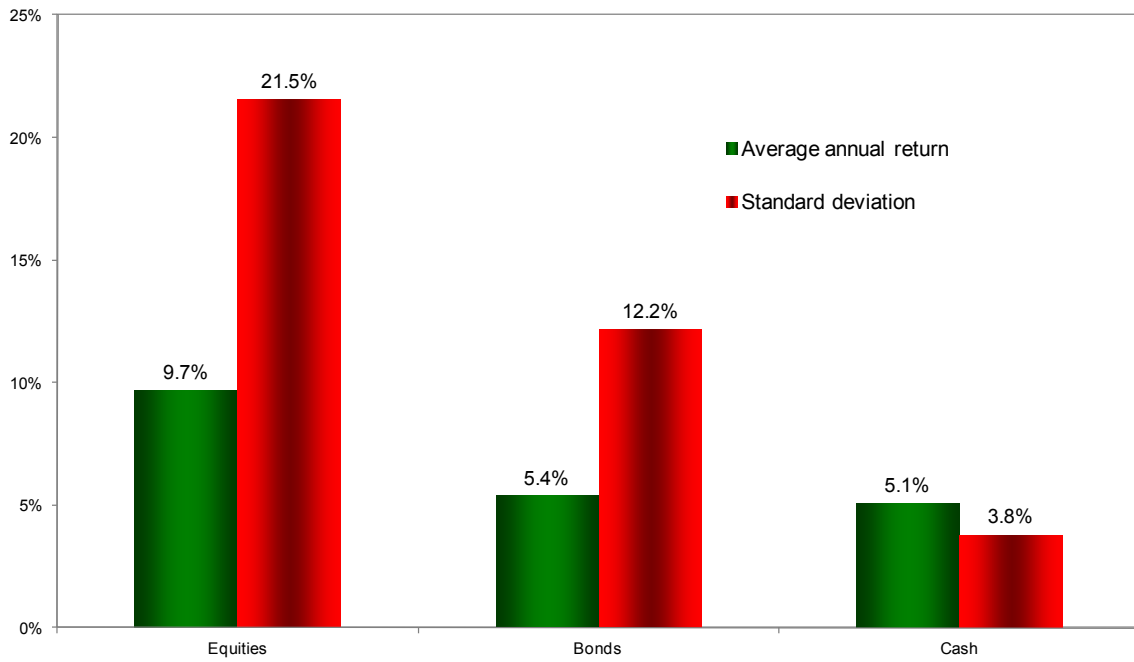




Figure 11: UK: average annual returns & STD (108 years)

Similar numbers are recorded for the UK and the USA (Figure 11 and Figure 12).


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It will be understood that when these average numbers are disaggregated into higher frequency numbers the variability of returns (risk) is revealed. Figure 13 shows the annual average returns for shares and Figure 14 shows the same for cash. Note that the scales are the same.

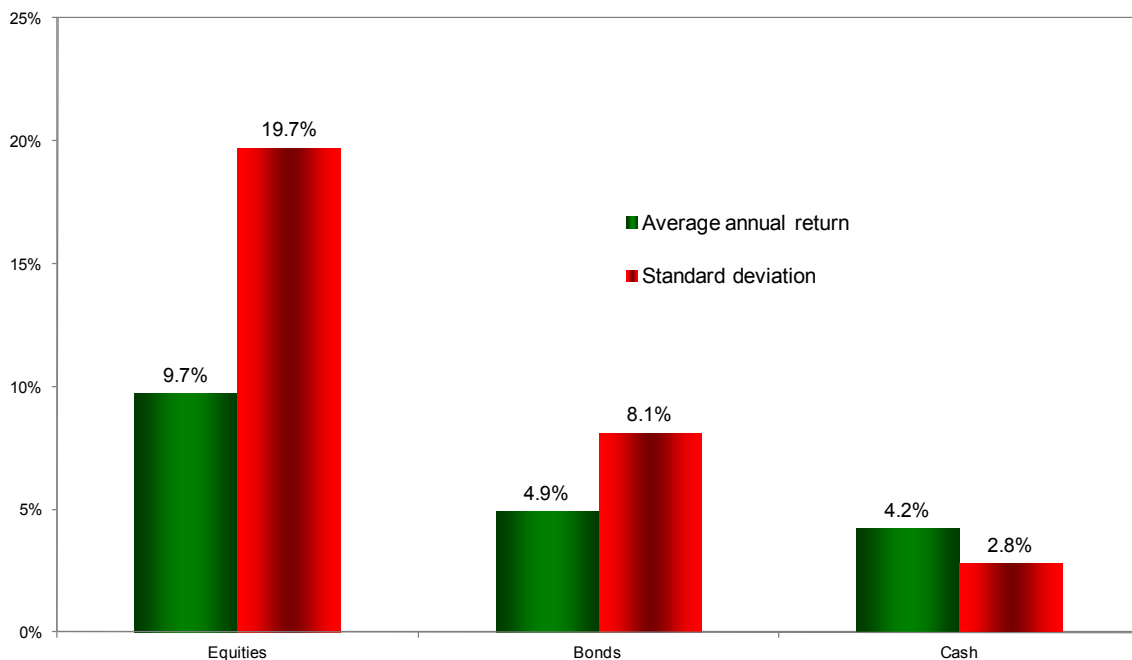


Figure 12: USA: average annual returns & STD (108 years)

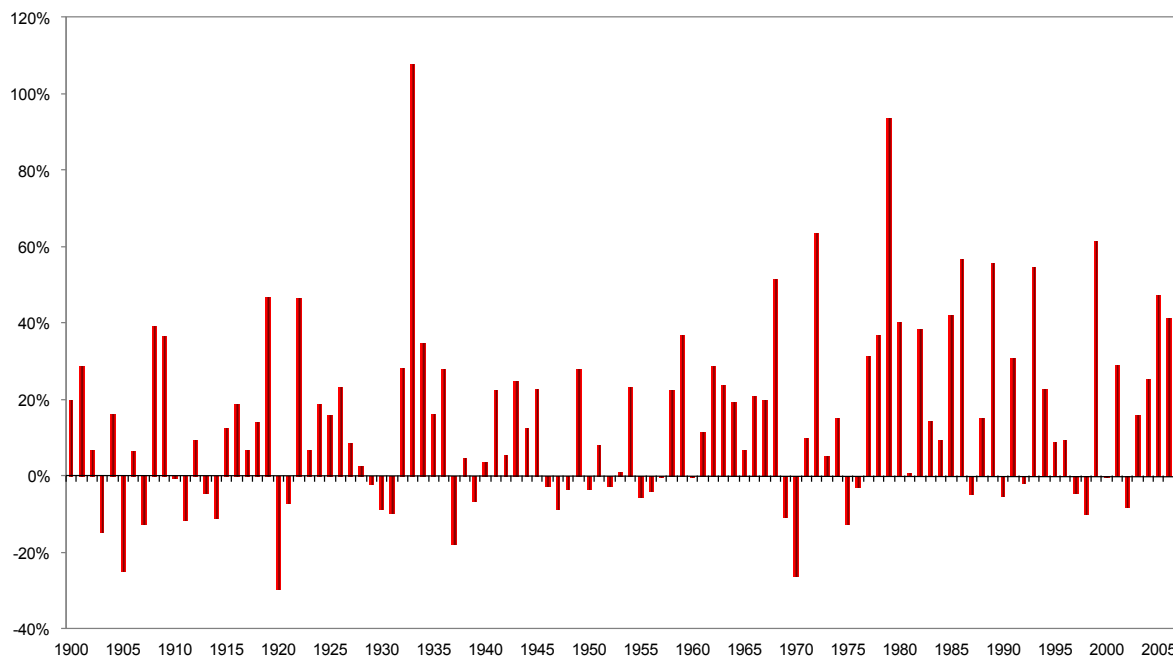


Figure 13: SA shares: annual returns (108 years)

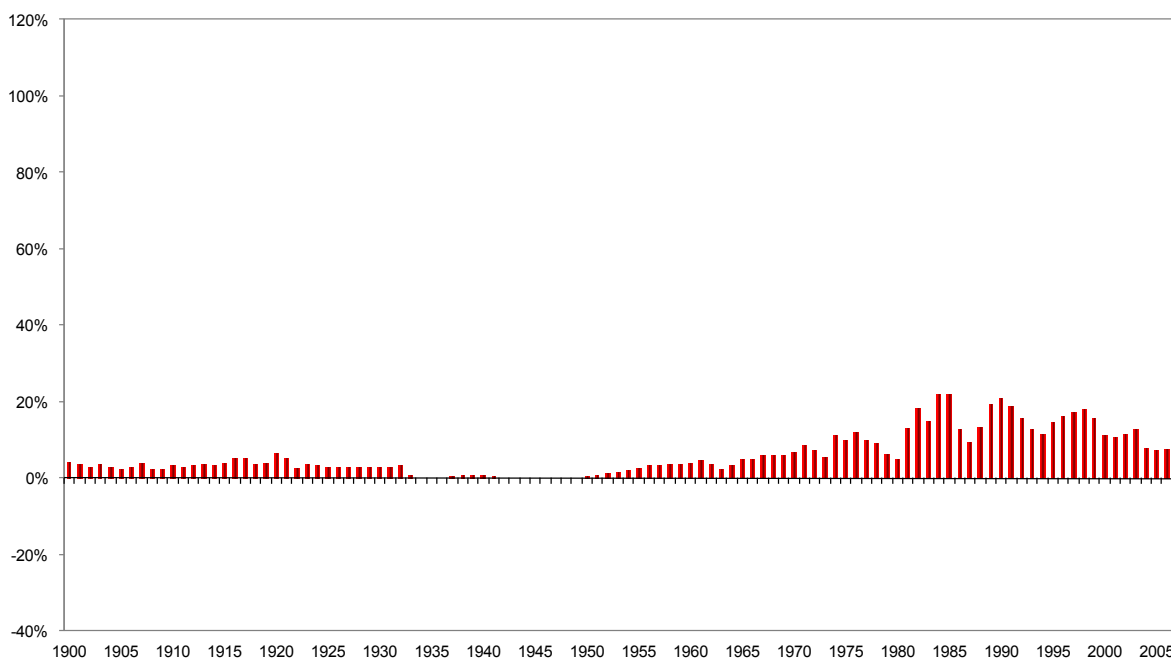


Figure 14: SA crash: annual returns (108 years)

4.7 Investment theories and maxims

4.7.1 Introduction

Individuals have over millennia attempted to improve their wealth and this activity is an innate instinct of humankind. As we have seen, risk is forever inherent in investments, and rational humans endeavour to invest in a manner that maximises return and minimises risk. This desire had given rise to many theories related to investments and maxims (i.e. not quite theories) that revolve around particular investment styles and strategies.

Following is a list of some of the investment-related theories and maxims:

- Top-down investing (the big picture; emphasis on the economy and asset class allocation first and share analysis last).
- Bottom-up investing (share analysis first and de-emphasis of the big picture).
- Value versus growth investing (certain ratios indicate value and growth companies and the former outperform the latter).
- Buy-the-rumour and sell-the-fact (buy shares when positive rumours abound and sell them when the facts are known).
- Castle-in-the-air theory (similar to aforementioned and the opposite of firm foundation theory).
- Fundamental analysis (aka firm foundation theory) (emphasises intrinsic value; similar to bottom-up investing); aka security-valuation.

- Cybernetic analysis (mathematically based systems that allegedly predict share price movements).
- Technical analysis (price patterns of the past are detected that foreshadow future price patterns).
- Prospect (or loss-aversion) theory (investors view gains and losses differently and therefore base investment decisions on perceived gains rather than on perceived losses).
- Expectations / market segmentation theories (theories explaining the shape of the yield curve).
- Moral hazard theory (a person insulated from a risk behaves differently than s/he would have being exposed to the risk).
- Principal-agent problem (a special case of moral hazard).
- The 10% rule (do not hold more than 10% in any asset).
- Life-cycle consumption theory (personal financial planning consists of transferring consumption / saving across life-cycle / stages).
- Efficient market hypothesis.
- Markowitz modern portfolio theory.
- Capital asset pricing model.
- Behavioural finance theory.

Some of these theories and maxims deserve more attention. This is provided below. We will not discuss the *life-cycle consumption (and saving) theory* further, as the first main section of this text covered our version of this theory.

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4.7.2 Efficient market hypothesis

The *efficient market hypothesis* (EMH) declares that financial markets are *informationally efficient* and this means that investors cannot consistently achieve returns in excess of average market returns, because all investors have and act on the same information.

The EMH is largely ignored in modern investment theory, and its remaining practical usefulness lies therein that the participants in the market who act on new information and expected future information, including the speculators, all contribute to *price discovery* (EPD), and *market liquidity* (ML, which contributes to EPD). ML is important in that investors can buy or sell shares with ease, meaning with no or little effect on market prices.

However, price discovery does not mean *efficient price discovery* in the sense of prices being “correct”. There are vast differences at time between value and market prices, as we shall see later. Mr Dave Foord⁴⁴, of Foord Asset Management, has the following views on the EMH:

“...we do not believe they are efficient at pricing securities. For evidence of this, look how often the forward interest rate curve is wrong. Also, prices on some multi-billion dollar companies change by more than 5% in a day with little or no material news flow. That is greater than the annual return on US dollar cash in a single day!

“It’s important to understand that individual market participants have different time horizons. Probably because of this, they have different valuations. Prices are set by the last seller and buyer. Often their motivations have nothing to do with valuation. In fact, the majority of trade is for speculative purposes and not for investment. Therefore the majority of trade does not take any account of the long-term value of the asset. Why then should the price set by the marginal buyer and seller be correct for all?”

4.7.3 Modern portfolio theory

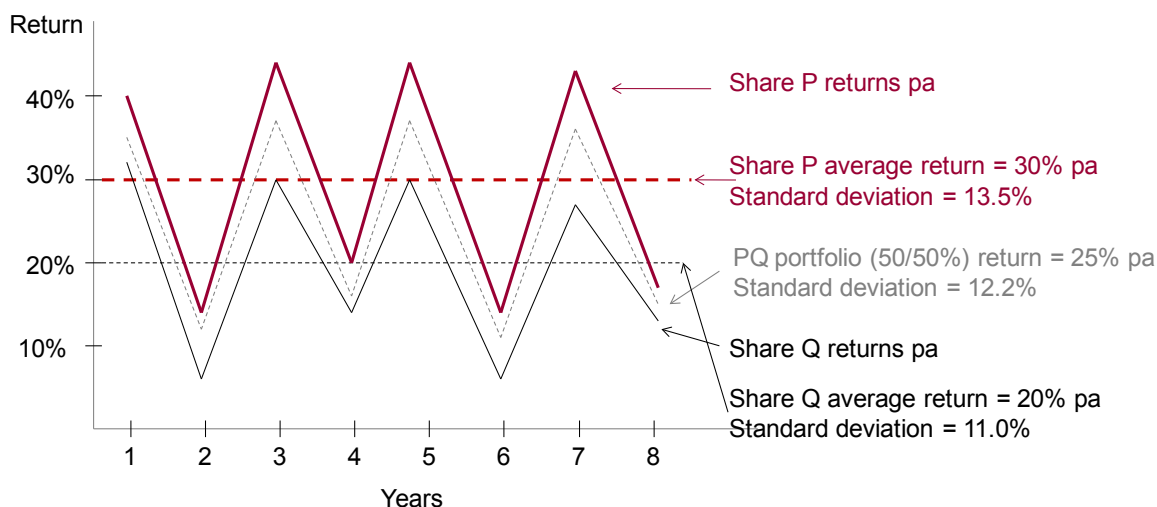


Figure 15: two-asset portfolio: near perfect positive correlation: COR = + 0.98

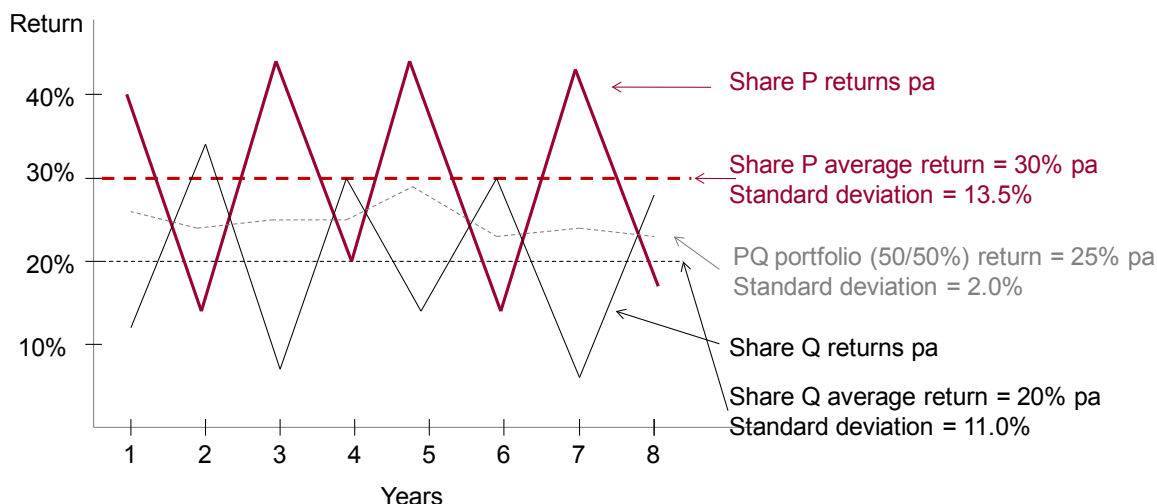


Figure 16: two-asset portfolio: near perfect negative correlation: COR = -0.97

Modern portfolio theory (MPT) was presented by Prof Harry Markowitz in a paper of 1952 and it remains relevant. In a nutshell it postulates that each share has an expected return and risk (measured by standard deviation), and by investing in a number of shares the investor can garner the benefit of diversification, and the benefit is a reduction in the riskiness (standard deviation) of the *portfolio*. MPT measures the benefit of diversification in the form of a lower standard deviation for the portfolio than the average for the shares that make up the portfolio. The benefit of diversification rests on the *relatedness* of the returns of the shares (i.e. the correlations).

Figures 15 and 16 demonstrate the principle. We have a two-asset portfolio made up of Share P and Share Q. In Figure 15 their returns are positively correlated (correlation coefficient – COR = +0.98). The average return is 25% pa and the standard deviation (STD) of the portfolio is 12.2%. In Figure 16 the shares' returns are negatively correlated (COR = -0.97). Note that the average return remains at 25% pa, but the STD is now 2.0%. This is because the volatility of the average return around the mean return (25% pa) is lower.

According to the MPT it is possible to construct an *efficient frontier* of optimal portfolios that offer the maximum possible expected return for a given level of risk, or the least risk for a given level of return. The benefit of diversification is intuitive and is known in general parlance as “not putting all your eggs into one basket”. This is a significant principle in investments.

4.7.4 Capital asset pricing model

The *capital asset pricing model* (CAPM) is an extension of MPT. It is a model that describes the relationship between risk and expected return (positive as we have seen) and is used in the pricing of risky securities. It says that investors in risky assets need to be compensated by two components (the total of which is called the *required rate of return* – rrr): the time value of money in the form of the risk-free rate (rfr) and a premium for risk (rp). The latter is calculated by a risk measure [beta, which is a measure of how the share has performed relative to the return in the market (rm) of which it is a part] times the rp:

$$\begin{aligned} \text{rrr} &= \text{rfr} + \text{rp} \\ &= \text{rfr} + \beta(\text{rm} - \text{rfr}). \end{aligned}$$

As we have said (and will further elucidate later), the CAPM formula is used in the valuation of shares (i.e. risky assets).

4.7.5 Behavioural finance theory

Behavioural finance theory (BFT) proposes psychology-based influences to explain share market incongruity [divergence between fair value prices (FVP) and market prices]. Conventional theories such as EMH and CAPM assume that investors behave rationally, and emotions and other exogenous influences do not influence investors. In other words, the conventional theories can explain rational behavior in the financial markets, but the real world proves to be one in which participants often behave irrationally and unpredictably.

BFT fills the gap, and it assumes that, in addition to market information, the personal characteristics of participants (investors, speculators and arbitrageurs) influence their investment decisions and therefore market outcomes – which cannot be explained by the EMH and CAPM. A manifestation of BFT is the expression “herd behavior”.

4.7.6 Fundamental analysis (aka firm foundation theory) (security valuation)

4.7.6.1 Introduction

Fundamental analysis (aka the *firm foundation theory*⁴⁵) was mentioned earlier, and it postulates that investment assets have an *intrinsic value* (i.e. a *fair value price* – FVP) which is founded on the time value of money (TVM) concept (i.e. interest rates, which is encapsulated in the PV-FV concept).

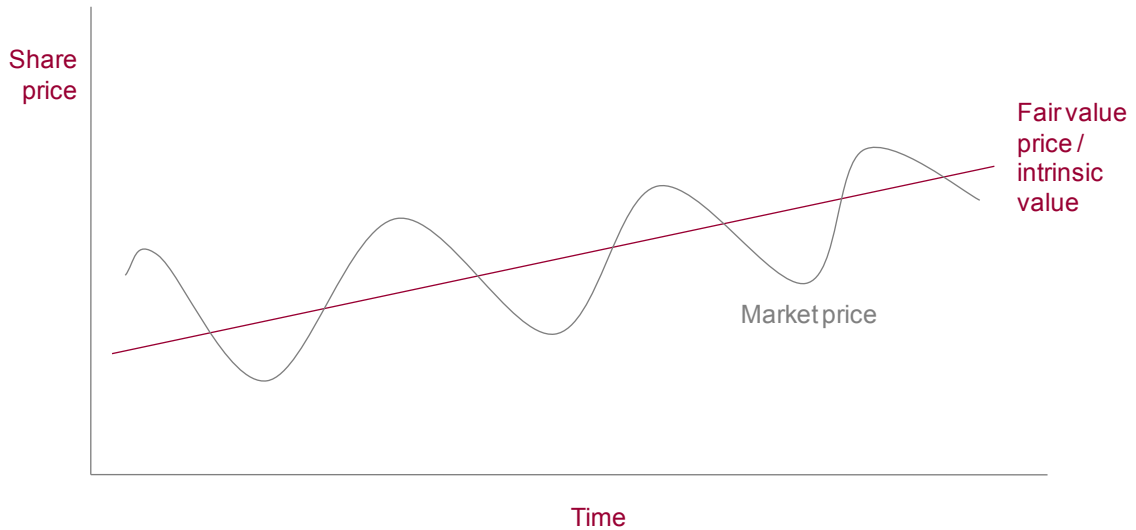


Figure 17: market price (MP) versus fair value price (FVP)

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Figure 17 portrays the real world in respect of the asset markets: the market prices of assets (and this applies especially to shares) much of the time are not equal to their FVP, but are related to this underpinning factor, and generally reflect FVP on average over time. As we saw there are a number of theories that describe this phenomenon of deviation from FVP, including the castle-in-the-air theory and behavioural finance theory (BFT).

As said, the principle underlying asset valuation is the familiar FV-PV concept. A reminder is presented in Figure 17. The asset has a cash flow in the future (FV) and is discounted to PV, which is the value of the security now. The figure indicates just one interest payment in the future. When more are involved, compounding enters the picture, and the formula changes slightly to [cp = compounding periods pa (annually = 1, semi-annually = 2); y = number of years]:

$$PV = FV / (1 + ir/cp)^{y \cdot cp}$$

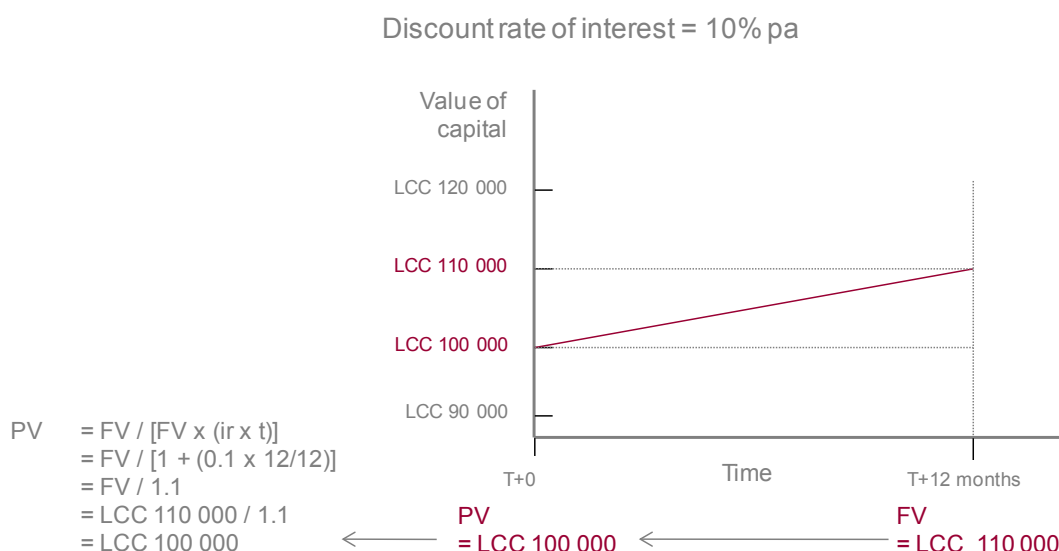


Figure 18: time value of money (FV to PV)

In this section we cover:

- Valuation of shares.
- Valuation of fixed-interest securities.
- Valuation of futures and options.
- Valuation of income-producing property.
- Valuation of commodities.
- Valuation of other real assets.
- Valuation of participation interests.

4.7.6.2 Valuation of shares

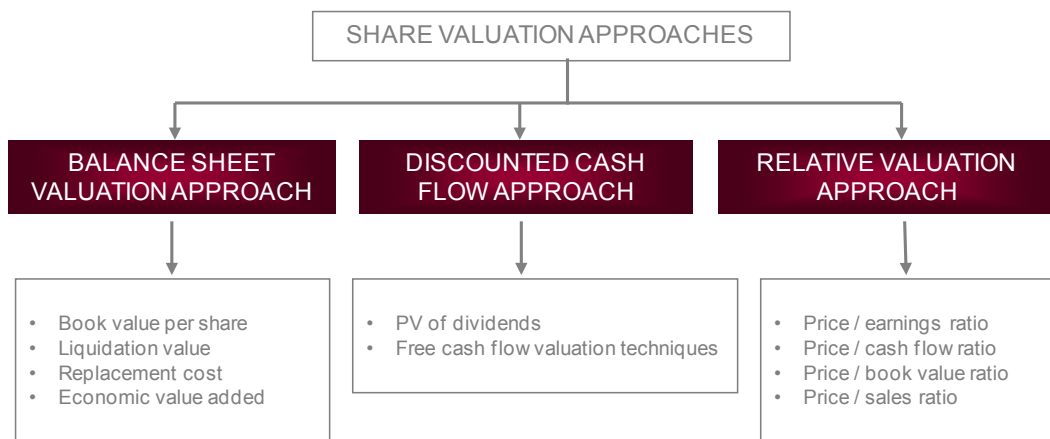


Figure 19: approaches to share valuation

There are a number of valuation techniques for shares, as indicated in Figure 19. The *balance sheet valuation* methods provide information on the *replacement / liquidation value* of a company, and the *relative valuation* methods are used for comparisons, but they do not provide the FVP of shares (except to the extent that comparisons can be made). This is left to the discounted cash flow methods. In these the futures cash flows (dividends and free cash flows, which are recurring = FVs) are discounted to PV using appropriate discount rates.

In the case of the discounting of dividends (ordinary shares), the pricing formula may be written as (D = dividend):

$$PV = [D / (1 + rrr)^1] + [D / (1 + rrr)^2] + [D / (1 + rrr)^3] + \dots \infty$$

Because the dividend flows are perpetual, the formula simplifies to [recall that rrr is the required rate of return from the CAPM: $rrr = rfr + \beta(mr - rfr)$]:

$$PV = D / rrr.$$

The shares that have a constant annual rate of growth in dividends (D_g) are the easiest to value and the formula becomes:

$$PV = D / (rrr - D_g).$$

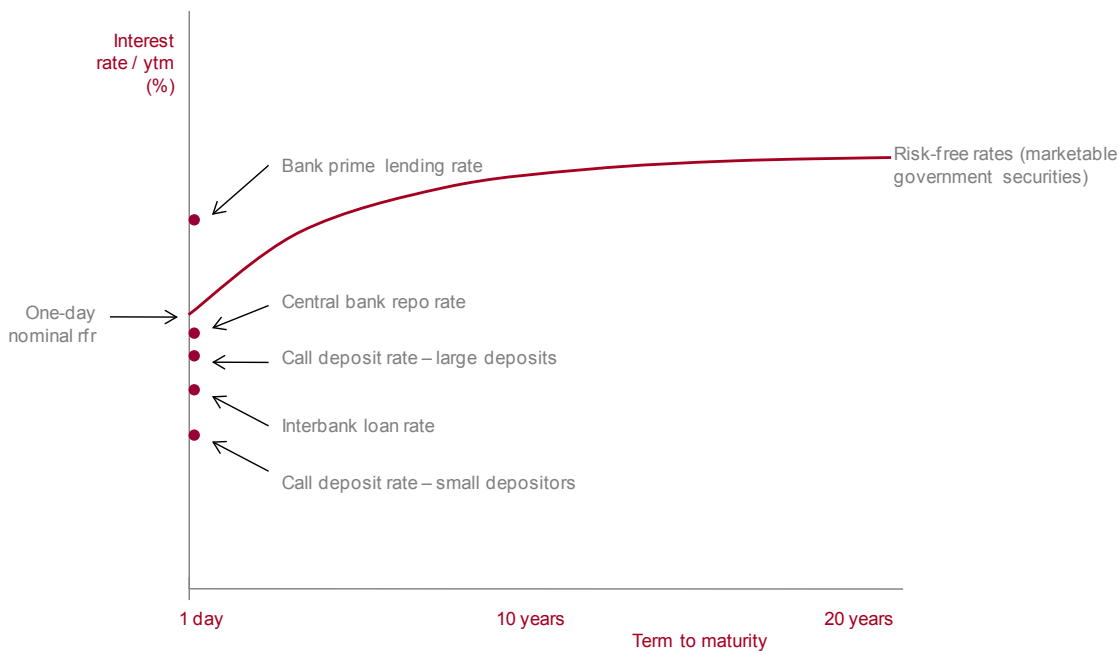


Figure 20: short-term banking rates & yield curve government securities

In the case of fee cash flow (FCF), assuming a constant growth rate in FCF (FCF_g) the formula is (WACC = weighted average cost of capital):

$$PV = FCF \times (1 + FCF_g) / (WACC - FCF_g).$$

Note the significance of the money market in the valuation of shares: the rfr. Figure 20 provides the context of the rfr: it is all the points of the curve and the curve (called the *yield curve* and the *term structure of interest rates*) is a representation of the relationship between the many rfr on the curve and term to maturity at a specific time (i.e. it is like a snapshot). In the valuation of shares the 3-month rfr is usually used.

4.7.6.3 Valuation of fixed-interest securities

Money market assets have less than a year to maturity and one interest payment. In this case the well known formula applies (assumptions: $t = 91$ days to maturity, $ir = 8.0\%$ pa) (price per unit of 1.0):

$$\begin{aligned} PV &= FV / [1 + (ir \times t / 365)] \\ &= 1.0 / (1 + (0.08 \times 91 / 365)) \\ &= 1.0 / 1.0199452 \\ &= 0.9804448. \end{aligned}$$

As we saw above, when we have periods of a year and more than a year (and multiple interest payments apply), compounding interest comes into play. The formula for each cash flow is [cp = compounding period (annually = 1, semi-annually = 2); y = number of years]:

$$PV = FV / (1 + 0.08/cp)^{y \cdot cp}$$

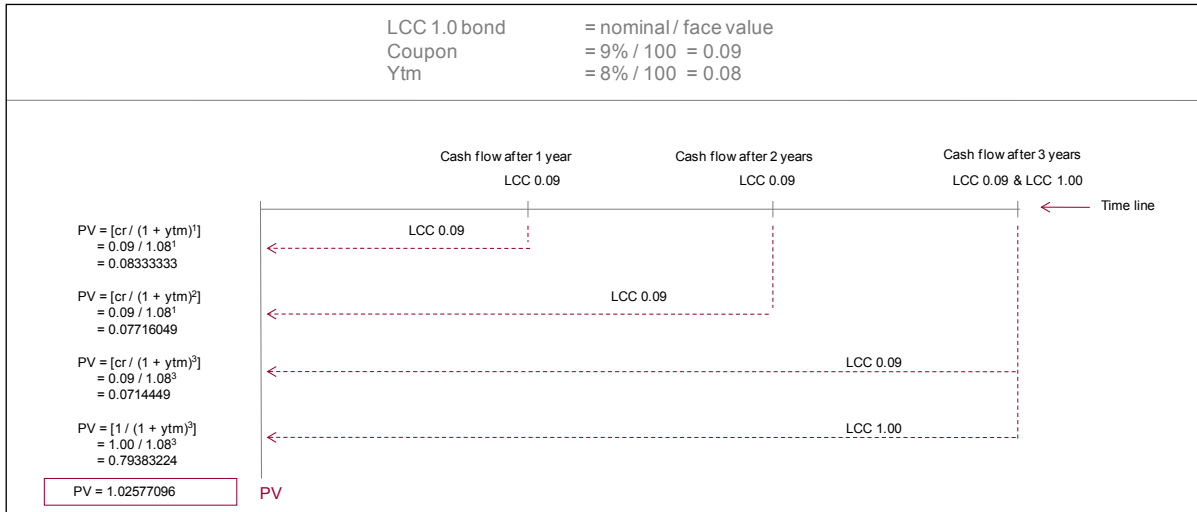


Figure 21: valuation of fixed-interest securities (FV to PV): multiple periods: fixed-rate bond

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For a 3-year bond (coupon payment = 1 = compounding period) the calculation is (coupon rate = cr = 9.0% pa; market rate = ytm = 8.0% pa) (price per unit of 1.0):

$$\begin{aligned}
 PV &= [cr / (1 + ytm)^1] + [cr / (1 + ytm)^2] + [cr / (1 + ytm)^3] + [1 / (1 + ytm)^3] \\
 &= (0.09 / 1.08) + (0.09 / 1.166400) + (0.09 / 1.259712) + (1 / 1.259712) \\
 &= 0.08333333 + 0.07716049 + 0.0714449 + 0.79383224 \\
 &= 1.02577096.
 \end{aligned}$$

This is illustrated in Figure 21 (keep in mind that ytm = yield to maturity = the correct name for the market rate in the case of bonds).

4.7.6.4 Valuation of futures and options

The TVM also applies in the case of futures. The FVP of a futures contract is equal to the spot price (SP) of the underlying asset, plus the cost-of-carry or carry cost [financing cost (usually the risk free rate⁴⁶ is used here) plus other costs (OC) such as insurance and storage] (CC) less any income earned (I) (CC – I = net carry cost, NCC) expressed as a proportion of the SP. This may be written as follows (t = remaining term of contract in days / 365):

$$\begin{aligned}
 FVP &= SP + \{SP \times [(CC - I) \times t]\} \\
 &= SP + [SP \times (NCC \times t)] \\
 &= SP \times [1 + (NCC \times t)].
 \end{aligned}$$

Options pricing is more involved [because of the rights of the option holder (and no obligation), and the term to expiry date] but one of the main inputs is the TVM.

4.7.6.5 Valuation of income-producing property

In the case of rental property, rental income after tax (FV) is discounted to PV at the so-called capitalisation rate. The latter = rfr + an appropriate risk premium.

4.7.6.6 Valuation of commodities

Because commodities do not have a recurring income (FVs), valuation is irrelevant. Their value is the market prices at which they trade, and these are available at all times in the case of most commodities.

4.7.6.7 Valuation of other real assets

It will be recalled that “other real assets” includes real assets other than property and commodities, for example antique furniture, rare stamps, rare books and art. The above comments apply, except that it is not easy to establish prices, and this is so because the markets for them are not efficient, i.e. price discovery is inefficient. The prices for these assets are usually established at auctions.

4.7.6.8 Valuation of participation interests

As discussed, most individuals hold a large proportion of their assets in the form of their dwellings and PIs in retirement funds (an investment vehicle). To the extent that they hold other financial investments, these are usually in the form of the other investment vehicles, such as SUTs and ETFs. It will be recalled that investment vehicles hold assets in the form of the ultimate investments: shares, bonds, money market and real assets, and they issue PIs which are held by individuals in the main. The valuation of PIs reflects the market prices of the ultimate investments mentioned. As these are usually available at all times, the valuation of PIs are available at all times. Good examples are SUTs and ETFs.

4.8 Lessons from the theories and maxims

4.8.1 Introduction

The plethora of investment-related theories and maxims is evidence of the importance attached by scholars to investments. While some of the theories have little empirical relevance, many of them have elements that do. The following sections cover the useful elements of the theories and maxims (in our view):

- There is no simple formula to make you wealthy.
- Top-down investing is wise.
- Diversification is critical.
- Base investment decisions on their FVP.
- Never fall in love with an investment.
- Do not be led by technical analysis.
- Be cognisant of behavioural finance (the psychology of the market).
- Appreciate market liquidity.
- Appreciate the life-cycle consumption theory.
- Appreciate the significance of the risk-free rate.
- Be aware of the principal-agent dilemma.
- Leave investing to the professionals.
- Understand macroeconomics and mean reversion.

4.8.2 There is no simple formula to make you wealthy

The only way to reach one's FSG at a desired age is to ensure that $I > E$, i.e. to save and to invest wisely over a long period. Dave Foord in this regard states: "To be successful at [investing] you need patience and a long time horizon. And few investors have either."

There are many examples of people investing in one company's share based on the "hot tip" of another person and its price falling sharply or to zero. Investing in one company is only wise if the company is your company and you manage the company successfully over a long period, or if you are an employee of a company which you believe utterly will succeed in the long-term. For the employee without a share incentive scheme, the first paragraph applies.

Mr Warren Buffett is often cited as "the world's most successful investor". This is so because managing investments is his full-time occupation. He only invests in businesses that he has a deep understanding of and can analyse and value. He is a *value* investor (seeks value in the long-term, i.e. healthy future cash / dividend flows and discounts them at the rfr – as described above) as opposed to a *growth* investor (past high returns will continue in the future). In the early history of Berkshire-Hathaway Mr Buffett managed the invested-in companies either directly or indirectly.

In this regard Dave Foord⁴⁷ states: "The first lesson that all prospective investors should learn is that there is no simple formula to make you rich. The markets certainly do not exist to make you rich. On the contrary, there is a friction, a cost or vigorish⁴⁸ against you."

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4.8.3 Top-down investing is wise

Many fund managers are of the opinion that if you get the “big picture” right, i.e. accurately analyse and forecast the international and domestic economic situation, and allocate funds to the asset classes in appropriate slices, overall performance will be higher than the market average return.

A number of fund managers are of the opinion that up to 80% of performance is forthcoming from accurate asset allocation. The proviso is that prime assets that offer value are bought.

4.8.4 Diversification is critical

As we have seen, appropriate diversification reduces risk. Diversify locally and internationally with the emphasis on local. The reason for only allocating a small proportion (say 10–20%) to foreign investments is that one’s liabilities are in the local currency. In this statement we assume a sound local currency.

In this regard Dave Foord⁴⁹ states: “Diversification means reducing risk of loss by investing in a variety of assets. A diversified portfolio as a whole will often display less risk than the least risky of the component investments. Diversification is the only ‘free lunch’ available to investors. It is critically important in risk reduction. Use it as often as possible, but not as much as possible, because too much diversification reduces return (“diworsification”). Note that the more conviction you have, the less diversification you need. Again, it comes down to one’s judgement of when and how much diversification to use.”

4.8.5 Base investment decisions on their FVP

Continually do your homework on the FVP of shares, buy the fairly-priced and underpriced assets and sell the overpriced assets in the portfolio. Buy value shares as opposed to growth shares. *Earnings* are the most significant element in investments: a number of the valuation techniques take earnings into account.

In this regard Dave Foord⁵⁰ states: “All the valuation methods are good and should be used. They provide a one dimensional number or valuation that can then be compared to the market price and a ranking table of alternative investments. But this is not nearly enough. Two crucial aspects must be taken into consideration. First, the quality of the business and its life expectancy should be used to judge the quality of earnings. Second, the ability of management should not be overlooked. The range of management ability is wider than most people think and these people are the custodians of the wealth of those who invest in the company. Management needs to be trustworthy and capable of handling the risks and identifying and acting on opportunities. Good judgment is required to make good investment decisions.”

4.8.6 Never fall in love with an investment

Allied to the aforementioned is the important maxim “never fall in love with an investment”. If an investment is performing poorly, sell it, and remember the well-used maxim: “the first loss is the best loss”.

According to Dave Foord⁵¹: “We all make mistakes. Investment mistakes are expensive. Stubbornness is not a good personality trait in this situation. In investing, the errors come fast and furiously, which is strange, really, in a binary environment (there is only buy or sell and up or down). So you need to be able to recognise mistakes early and then act to limit the damage. ‘Pay and the pain goes away’ is a good motto that has often worked for us in these situations. We believe that a major part of Foord’s success has come from risk management and, in particular, managing the risk of being wrong. How you manage your mistakes will have a big impact on your investment result.”

4.8.7 Do not be led by technical analysis

Successful long-term investors do not rely on technical analysis (TA) as an analysis tool. TA can be relied on for short-term gain only, because in the long-term intrinsic value (FVP) counts. TA only works because of the existence of other technical analysts, who generally come to the same conclusions and act on them. It is self-fulfilling in the short-term.

4.8.8 Be cognisant of behavioural finance (the psychology of the market)

Be cognisant of the fact that markets over-react and under-react to FVP (mean reversion: see below). This can be taken advantage of, and is by the investments professionals. Individual investors should only take advantage of this phenomenon if they are full-time investors. Full-time investors develop a “feel” for the psychology of the market.

In this regard Dave Foord⁵² states: “Long before it became in vogue, it was evident to us that human behavior made markets irrational and inefficient. If more than 75% of people believe they are above average at a particular task, then a third of those people are wrong. So study human behaviour. Change is a constant in the markets and people resist change; the older people get, the more they resist change. One path to success is to be ahead of the curve of change. This is often a solo achievement as teams and committees tend to resist change.

4.8.9 Appreciate market liquidity

Market liquidity refers to the extent of turnover in a share (or a market), i.e. the extent of buy and sell orders in a share, and price discovery is linked to it. Never invest in a market or share that has low liquidity, i.e. poor price discovery, because of the lack of ease of buying and selling when desired. Small deals can have major price-effects in low liquidity markets. There is a reason for a share having low liquidity: the share does not have the attention of the professional investors.

4.8.10 Appreciate the life-cycle consumption theory

Be cognisant of the life-cycle consumption (and saving) theory, because reaching your FSG at a desired age depends on adhering to the codes / rules of the four phases. As you are aware, this was given much deserved attention in the first main section. It is mentioned here again because it is so significant (and for the sake of completeness).

4.8.11 Appreciate the significance of the risk-free rate

An investment in government securities presents you with a return that is certain⁵³ (the rfr). It is not wise to accept a return on a risky asset that is equal to or lower than the rfr. Your required rate of return (rrr) on a risky investment should be ($rp = \text{risk premium}$):

$$rrr = rfr + rp.$$

You need to decide on the rp , and it depends on the perceived risk.

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4.8.12 Be aware of the principal-agent dilemma

Any institution that has a portfolio (i.e. a principal) cannot offer objective advice, because its advice is coloured by its portfolio. There are a number of examples of investment banks that sold shares to individuals from their own portfolios, based on recommendations by them, because they wanted to disinvest from them. In at least one case a class action against the bank was undertaken and won, leading to reimbursement.

Thus, a bank or an insurer, for example, cannot give objective advice. The same applies to a broker-dealer which has a portfolio, unless the broker-dealer is acting as an agent or is undertaking transactions itself (dealing as a principal) that are proposed to you, and you are advised of this. Fund managers generally do not hold their own assets, and if they do, they are prohibited from transacting in these assets with clients.

4.8.13 Leave investing to the professionals

Successful investing requires in-depth research, which is undertaken in-house by fund managers or provided to them by broker-dealers in exchange for business (buy and sell deals for commission). Individuals rarely have the resources to undertake the research.

If one does decide to invest oneself, it should be a full-time occupation, and deals should be conducted through a broker that provides good research. The individual should also have a deep understanding of macroeconomics and research this area of economics continually (see next section). There are many individuals who are successful investors; all of them have a long-term investment horizon and undertake in-depth research.

There are also many individuals who are content to “earn the market”, premised on the fact that few fund managers are able to outperform what the overall market delivers in returns. Individuals can do so by investing in investment vehicles, specifically ETFs which track the all-share (or similar) index.

4.8.14 Understand macroeconomics and mean reversion

As said in the preceding section, if one undertakes investing oneself, security analysis and a deep study of macroeconomics are important. We do not have the space to discuss macroeconomics here, and present instead the essence of macroeconomics (elucidation of the acronyms was presented earlier):

- $C + I = GDE$
- $GDE + X - M = GDP$ (expenditure on).
- $X - M = TAB = \text{part of current account of BoP (CA-BoP)}$.
- Counterpart of CaBoP \approx financial account of BoP (FaBoP).
- Forces of CaBoP and FaBoP = Δ exchange rate.
- $\Delta MV = \Delta P \times \Delta RGDP$.
- $\Delta M = \Delta DBC + \Delta FBC$.
- Government expenditure > revenue = deficit (to be financed).
- $\Delta \text{nominal GDP} \approx \Delta \text{company profits} \approx \Delta FVP$.
- Monetary policy and interest rates, which reflect and cause cycles.

Macroeconomics teaches us that there are economic cycles; they are innate and therefore inevitable. They are caused by the interplay of the above-mentioned. On cycles Dave Foord⁵⁴ offers: “You should be aware that cycles do exist – they are a natural part of life, like the seasons, like the tides and like breathing in and out. Economic cycles also exist and it is important that you recognise this as fact. We find it surprising how many people still deny this. Standing in the way of market cycles, you will not only suffer the ignominy of a King Canute but you will do yourself serious financial harm. Market cycles are driven by interest rate cycles (valuation impact) and the business cycle (earnings impact). These two cycles are interconnected, but not exclusively so.”

The cycles are anticipated by markets, and markets over-react and under-react, depending on many factors already mentioned, including human behaviour (mentioned before under the section on behavioural finance), as shown in Figure 22. The cycles in the share market are clear, as is the fact that share prices are extremely volatile in relation to nominal GDP. Notable in this chart is the average growth pa line: it is the average growth in *both* GDP and the all share index. This indicates what is called *mean-reversion*: in the long-term investment returns are linked to GDP growth (in nominal terms).

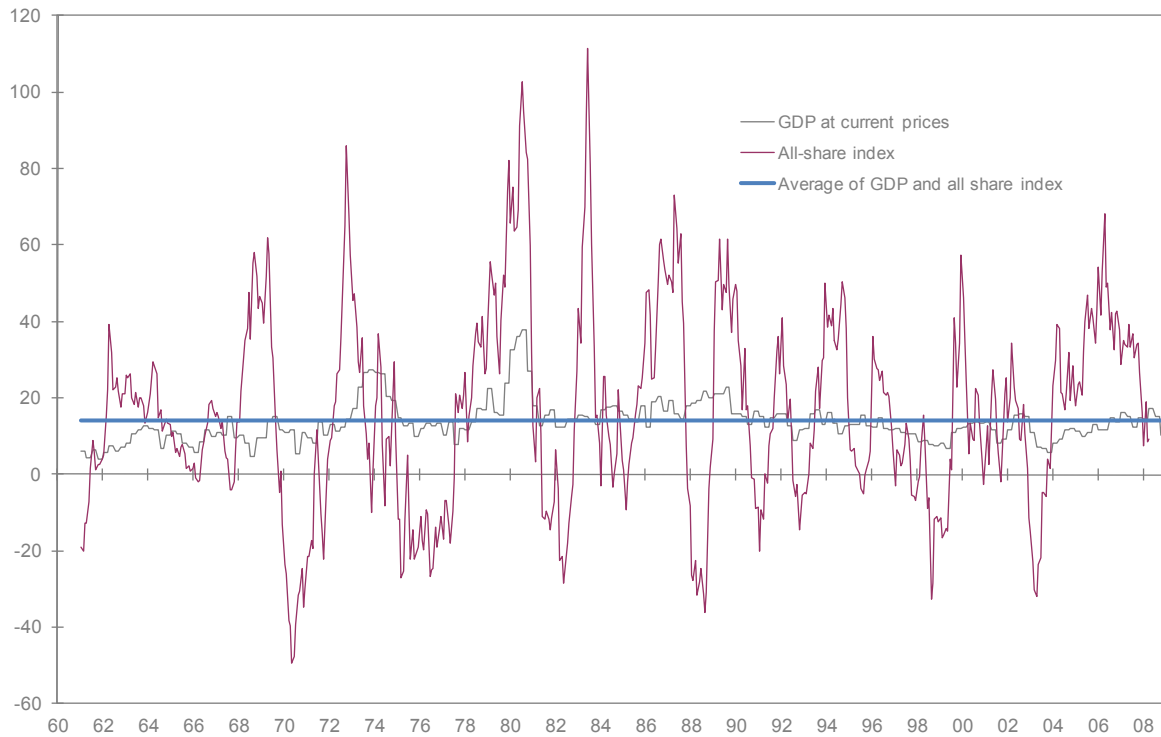


Figure 22: current GDP & all-share index (yoy)



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Dave Foord⁵⁵ in this regard says: “All investors should understand the concept of mean reversion...it refers to the assumption that both the high and low points in a variable’s time series are temporary and that the variable will tend to move towards the long run average over time. Mean reversion is not only mathematically true (it has to be, in fact) but it can be used to good effect by investors. Because variables often take a long time to revert, it provides time and opportunity to take advantage of mispricing evident in the market.”

4.9 Portfolio management

There are many different types of portfolios / funds, some with legal constraints (such as the requirements of the statute applying to retirement funds) and some without, and each requires a different style of management. Examples are:

- Liability and asset portfolios
 - Banks
 - Insurers
 - Hedge funds
- Liability portfolios
 - Government
 - Company (when borrowing)
- Asset portfolios
 - Securities unit trusts
 - Money market funds
 - Bond funds
 - Share funds (various)
 - Property unit trusts
 - Retirement funds
 - Individuals.

As we know, in the case of financial asset portfolios, the asset classes are money market, bonds and shares. There are various strategies that can be employed in the three markets, as indicated in figures 23–25. (Unfortunately we do not have the space to detail them.)

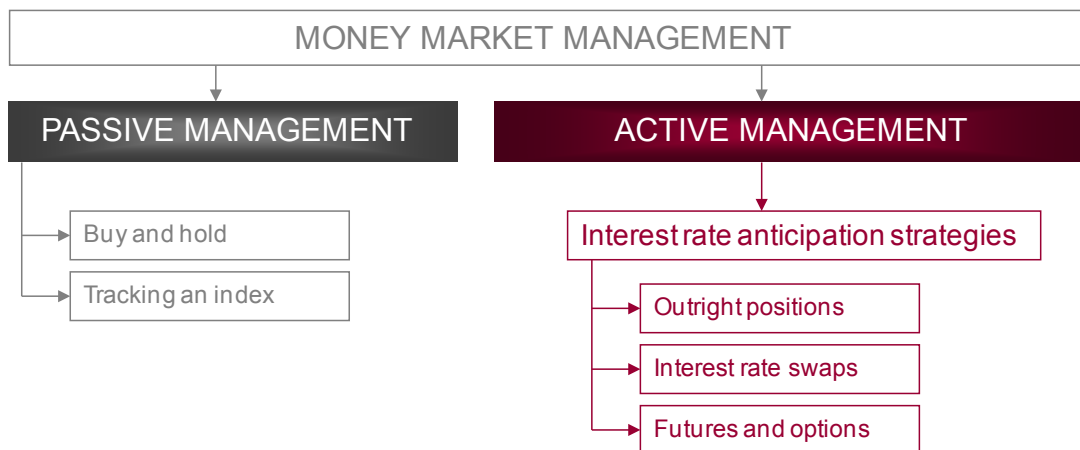


Figure 23: portfolio management: money market

However, they can all be summarised into a choice of three strategies, and this also applies to individuals:

- Passive management.
- Active management (undertake self or outsource to a fund manager).
- Hybrid management.

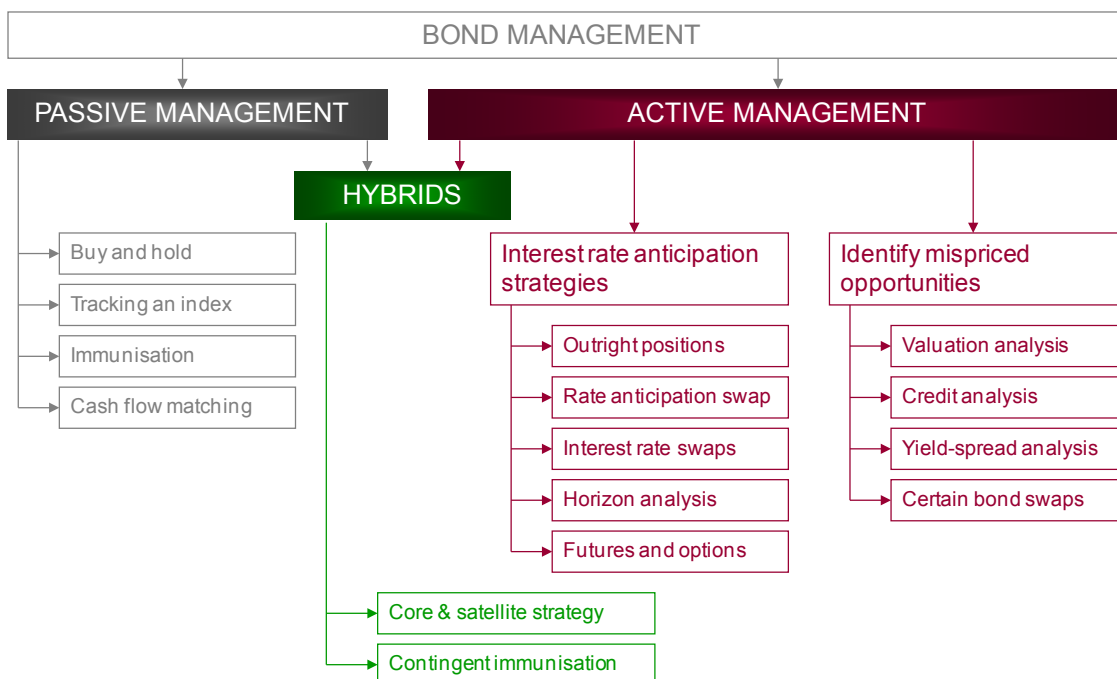


Figure 24: portfolio management: bonds

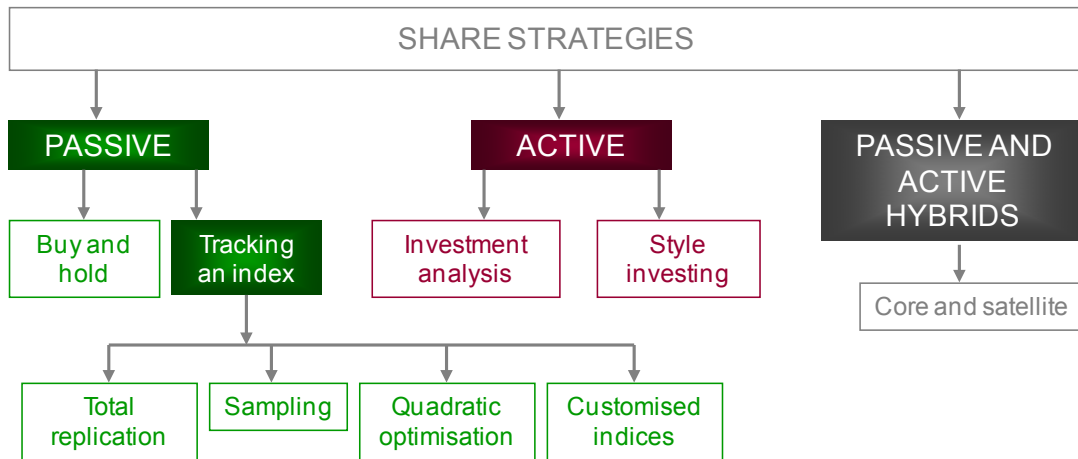


Figure 25: portfolio management: shares

Passive management involves one or both of two management styles:

- Buy and hold. This is a style that involves buying chosen securities when funds are available and holding them throughout bull and bear markets.
- Track an index. This amounts to buying ETFs and holding them, and is founded on the premise that “the market knows better” or “I will not do better than the market”.

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Active management involves the undertaking of the three levels of research, as indicated in Figure 26, and allocating funds, and buying and selling securities, according to the outcomes of the research. This can be done by oneself or outsourced to a fund manager.

Hybrid management, also known as the “core and satellite” approach, involves the belief that “the market knows better” for most of the time and therefore buying an overall market index (e.g. an all share index ETF) with say 80% of funds, and allocating 20% oneself.

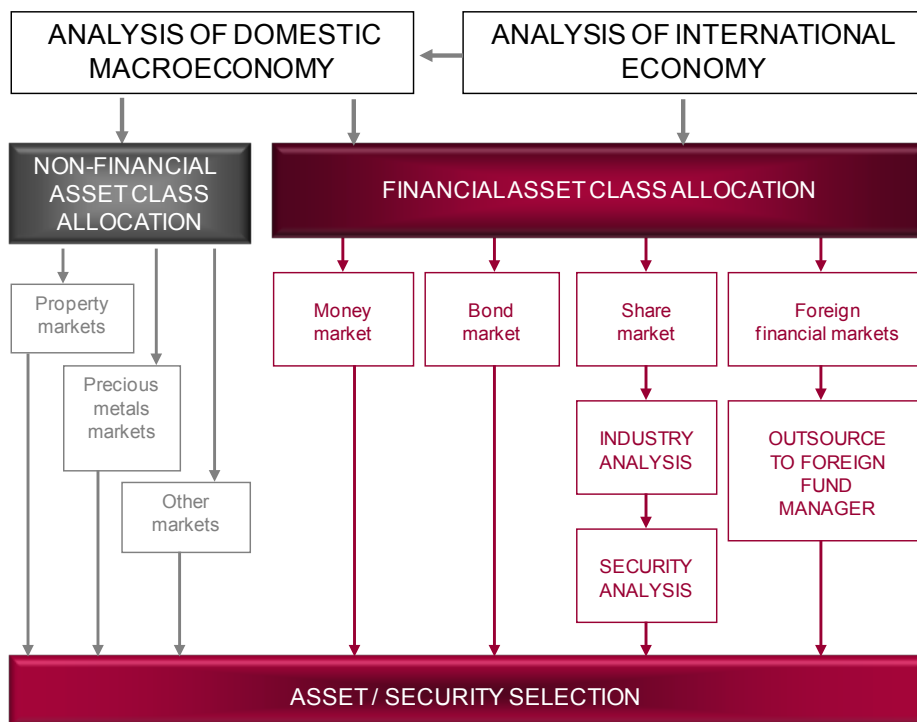


Figure 26: investment analysis

A final word: the objective of investing is to achieve one’s FSG as soon as possible, and this entails much more than just investing soundly. It involves conducting one’s life with recognition of the rules / codes that apply to the four phases of the life-cycle., and allocating assets wisely over the life-cycle.

4.10 Asset allocation over the life-cycle

4.10.1 Introduction

There is a body of literature called *life-cycle investing*. It holds that asset allocation should reflect one's age, i.e. that one should assume more risk at a young age (because risky assets furnish the highest returns, and one has time to recover from poor decisions), and reduce risk as one ages. There is much truth in this, but one should keep in mind that the time after reaching your FSG can be long indeed. Below we present our views on asset allocation over the four phases of the life-cycle (assumption: the individual is a successful employee or has a successful small business, and follows the rules expounded earlier). We present Figure 27 as a reminder of the trends in income, expenditure, saving and debt over the life-cycle.

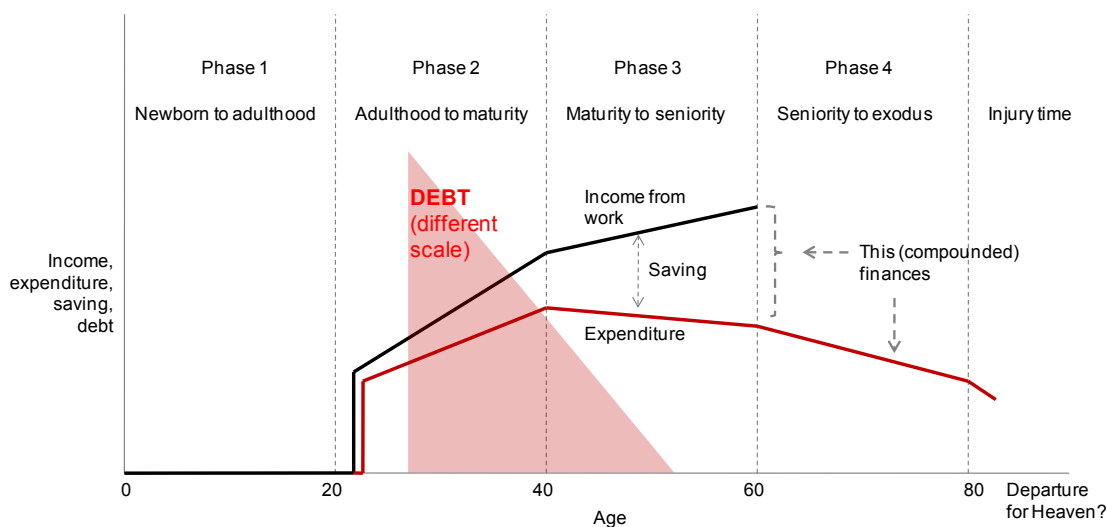


Figure 27: four phases of life-cycle

4.10.2 Phase 1: 0–20

In phase 1 the individual will usually have zero investment assets, except perhaps a bank account (money market) in the latter part of this phase with minimal funds. Parents may have purchased a motor vehicle for the individual, but this not an investment asset; it is a necessary lifestyle asset.

4.10.3 Phase 2: 20–40

Early in this phase the individual will be expelled from the nest, be employed, and income will rise vertically from zero, reflecting the first salary. Expenditure will also rise vertically, but by less than income, reflecting the contribution to a retirement fund (usually a defined contribution fund; not a defined benefit fund). The contributions to these funds are tax deductible in most countries, and are taxed on receipt of income upon retirement.

As the individual progresses through the phase:

- Income will rise sharply.
- S/he will be married and have children.
- If both partners employed, income will rise to a higher level.
- Debt will be incurred for the purchase of a dwelling (a mortgage bond), which is the largest debt the individual / family will incur.
- Expenditure (including debt service) will also rise, but less so, reflecting the contribution to the retirement fund, as well as additional savings later on in the phase.

The additional savings may be invested as follows:

- In the asset class that delivers the highest return: shares. Risk is higher, but one has time on one's side: volatility is inversely proportional to the investment horizon (and the horizon is long).
- To accelerate repayment of the mortgage (assuming the mortgage agreement permits): it will reduce the period of the mortgage. This is a particularly wise investment when interest rates are high and share returns are low (taxation laws may influence the decision).
- In one's own business, but only if one is a true entrepreneur. One has time to recover from mistakes, which does not apply in the subsequent phases.

Asset class	Indirectly via retirement fund (% allocation)	Own investment / debt	Notes on own investment / debt
FINANCIAL ASSETS			
Shares	75%	10%	Indirect: ETFs and / or SUTs
Bonds	10%	0%	Zero in this phase
Money market	8%	4%	Direct: funds in bank account
REAL ASSETS			
Property	5%	85%	Direct: own dwelling
Commodities	2%	0%	Zero in this phase
Other real assets	0%	1%	Direct; small in this phase
DEBT	Zero	Large	± 60% of value of dwelling
NET ASSETS	Positive	Positive	

Table 3: Example of portfolios: end of phase 2

Table 3 presents the approximate state of the portfolio of the individual at the close of Phase 1. Note the following:

- The asset allocation of the retirement fund: this represents their approximate norm. The proportional allocations are amended at times, depending on market views, albeit marginally.
- The family's investment in shares: they do not have the time to analyse shares and rely on the expertise of the fund managers of the SUTs and / or ETFs.
- The dwelling: some scholars are of the opinion that the dwelling should not be part of investment assets, because one needs a dwelling throughout life. This is partly true. To a degree it represents an investment, because it can be disposed of in Phase 4 in favour of a smaller dwelling, thus releasing funds for investment.

4.10.4 Phase 3: 40–60

In Phase 3 income continues to rise, but it does so at a lower rate. Expenditure reduces mainly because in this phase:

- The children leave the nest.
- The mortgage debt is repaid.



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Consequently, the savings gap ($I > E = S$) widens sharply, allowing for a substantially higher level of own (non-retirement fund) investment. At the end of Phase 3, the approximate portfolio of the family could be as indicated in Table 4.

Asset class	Indirectly via retirement fund (% allocation)	Own investment / debt	Notes on own investment / debt
FINANCIAL ASSETS			
Shares	75%	40%	Indirect: ETFs and / or SUTs
Bonds	10%	5%	Indirect: bond SUTs
Money market	8%	5%	Direct: funds in bank account Indirect: money market SUTs
REAL ASSETS			
Property	5%	40%	Direct: own dwelling
Commodities	2%	5%	Direct: gold coins
Other real assets	0%	5%	Direct: antique furniture, art, rare books & stamps
DEBT	Zero	Zero	Zero
NET ASSETS	Positive	Positive	

Table 4: Example of portfolios: end of phase 3

Note the following:

- The asset allocation of the retirement fund is unchanged.
- The family has diversified its own investments between asset classes to a degree, but the majority of financial assets are in shares. This is because the family continues to have a long investment horizon.
- The proportion of property in the own portfolio, although still high, has fallen sharply, a result of the allocation of savings to the other asset classes.
- The family's investment in financial assets (exception = bank account): as in Phase 2, they do not have the time to analyse shares and rely on the expertise of the fund managers of the SUTs and ETFs.

4.10.5 Phase 4: 60–80+

We assume that the two breadwinners decide to cease their active occupations at the start of Phase 4 and to pursue other interests, without income from these interests. They base this on having achieved their FSG. This in turn is based on an analysis of their total portfolio, as indicated in Table 5. Here we assume that the value their participation interest (PI) in the retirement fund is LCC 5 million and that the value of their own portfolio is also LCC 5 million. Given these numbers, their total portfolio's asset allocation is as shown in the last column (ignore the bracketed figures).

Asset class	Indirectly via retirement fund (% allocation)	Own investments	TOTAL
FINANCIAL ASSETS			
Shares	75%	40% (60%)	57.5% (67.5%)
Bonds	10%	5%	7.5%
Money market	8%	5%	6.5%
REAL ASSETS			
Property	5%	40% (20%)	22.5% (12.5%)
Commodities	2%	5%	3.5%
Other real assets	0%	5%	2.5%
TOTAL	100%	100%	100%

Table 5: Example of total portfolio: start of phase 4

According to the retirement fund statute, they are obliged to purchase an annuity from a life insurer. There are two main types: the traditional *guaranteed annuity* (which guarantees an income for life, but has zero value at death) and the *living annuity* (which is subject to the vagaries of the markets, but has a value at death which can be passed on to the children). As they have substantial assets, and wish the children to inherit assets, they choose the living annuity. The statute obliges the annuitant to accept a minimum annual income rate of 2.5% and a maximum rate of 17.5%. They choose 5%, because at this rate, assuming a return on the portfolio of 10% pa, the income will only start reducing after 33 years. They expect to live for another 25 years (to age 85), so they have a margin of safety. The living annuity provides a taxable annual income of LCC 350 000 (assume LCC 245 000 after tax).

Age	Annual annuity dividend	Implied yield (annuity / LCC 5 million × 100)
60	LCC 479 940	9.60%
70	LCC 553 440	11.07%
80	LCC 634 140	12.68%
85	LCC 675 080	13.5%

Table 6: Annual guaranteed annuity dividends and implied yield at various ages

They also find comfort from being able to switch to a *guaranteed annuity*, which generates a higher income as one gets older (because life-expectancy falls, as indicated in the numbers provided by the life assurer (see Table 6⁵⁶).

What decisions do they need to make in respect of their own private portfolio? Firstly, as their dwelling, valued at LCC 2 million, is now too large for them, they sell it and purchase a smaller dwelling for LCC 1 million. Secondly, the saving of LCC 1 million is allocated to the share market, bringing about a change in the asset allocation as indicated in brackets in Table 5.

The question arises: why did they allocate the LCC 1 million to the share market when they already had almost 58% in this market. The answer is straightforward: 25 years is the investment horizon, and it is a long period over which to be denied the higher return on shares.

If the average return on their own portfolio is a conservative 7% pa (assuming no dividend or capital gains tax and a low tax rate on interest), the income is approximately LCC 320 000 pa. This amount together with the annuity income gives a total annual income of about LCC 565 000. Given annual expenditure of approximately LCC 480 000 (LCC 40 000 per month), the financial situation is comfortable, without impairing capital (depending on inflation). If inflation is high or rises, there is comfort in the availability of the capital.

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However, the closer one gets to exodus, asset allocation shifting and timing become important. For example, if one has 5–10 years to exodus, and the share market has had a good run for a few years, it may be wise to shift the portfolio in the direction of low risk assets (bonds and money market assets). Alternatively, if the share market has been low for an extended period (and one did not make a portfolio shift before this period), it may be wise to keep the portfolio as is. It is a personal choice, and it makes pertinent the study of macroeconomics, especially the interest rate cycle. The money market interest rate is the denominator in security valuation calculations.

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Endnotes

1. See Deaton, 2005.
2. There are many examples of individuals pursuing an occupation until over 90 years of age. In fact, there is evidence to suggest that these individuals reach advanced ages *because* they have an occupation.
3. A term used by Marais in Marais, 2003.
4. A term used by Fourie in Fourie, 2004.
5. This section benefited much from: <http://www.knowledgesutra.com/forums/topic/64677-4-stages-of-child-cognitive-development/> and <http://www.telacommunications.com/nutshell/stages.htm>. [Accessed March 2012].
6. A term used by Marais in Marais, 2003.
7. Sue Grant-Marshall (in Fourie, et al., 2002:128) mentions the actions of a teacher who lined up school children at the end of term according to grades. The emotional effect on the child (in terms of self-esteem) who came last was devastating: “Imagine the psychological effect of that physical manifestation of ‘failure’, one about which the teacher never failed to make a comment.”
8. Fourie, et al., 2002:131.
9. Fourie, et al., 2002:149.
10. Marais, 2003.
11. Note: this does not apply to everyone; there are cases where combination policies are appropriate.
12. Personal Finance, 2010. *Buying the right risk life assurance*. Cape Town: Independent Newspapers. 20 November.
13. Fourie, et al., 2002.
14. “Spend kids’ inheritance”, a favourite pastime of most parents, and so it should be. This means do not have ambitions to become a trustafarian.
15. Fourie, et al., 2002:205.
16. Terminology used by Marais, 2003.
17. Inclusion suggested by Mega Parathyrus.
18. Oppenheimer, S, 2003. *Out of Africa’s eden*. Cape Town: Jonathan Ball Publishers.
19. Ware, B, 2011. *Have no regrets: a life transformed by the dearly departing*. Bloomington, IN: Balboa Press.
20. See *The Economist*, 2010:33-36. This publication refers to the NBER Working Paper: *Subjective well-being, income, economic development and growth*.
21. Examples are Reserve Bank of Malawi bills, Bank of Botswana certificates, and South African Reserve bank debentures. They can be regarded as a type of deposit security, hence the term negotiable certificates of deposit (NCD) we use here for them. It is also done in the interests of simplicity.
22. In most countries this is so. In some, notes and/or coins are issued by the central government. Notes are bearer deposit securities. We regard coins in the same light in the interests of pedagogy.
23. Many countries’ bond markets are OTC markets.
24. This differs from country to country. In most countries preference shares are redeemable at the option of the issuer. Some countries have perpetual preference shares. Note that the term *shareholders’ funds* refers to ordinary and preference shares plus the retained profits of the company.

25. LCC is the currency code for fictitious country, Local Country (LC). The monetary unit is corona.
26. Also erroneously called the money *supply*. As we will see BD creation is the *consequence* of new bank loans made. Therefore, a supply of bank loans exists, but not a “supply” of BD.
27. South Africa in this case.
28. The so-called cash reserve requirement (RR) does enter the picture here, but is ignored because not all countries have a RR. The RR is often misconstrued / misused and confuses the process of money creation. There is also little space to discuss this important issue here.
29. A yield curve is interest rates (called yield to maturity – ytm – in the case of bonds) on securities running from one day to the longest term government bond, at a specific time. In other words, it is the relationship between interest rates and term to maturity at a specific point in time.
30. A reminder: LCC is a fictitious currency: the “corona” of “Local Country”.
31. Please note that there is much overlap in this list, i.e. each bond is not necessarily a separate bond. For example, a plain vanilla bond can be a registered bond or a bearer bond, a senior bond can also be a registered bond or a bearer bond, a retail bond can be a plain vanilla bond, and so on.
32. The latter point benefited from Bradley, Higgins and Abey, 2000.
33. The classification is from Faure, AP, 2005. **The commodity derivative markets**. Cape Town: Quoin Institute. It represents a personal view.
34. Except when they are used to cover a short sale (e.g. gold).
35. Because they cannot be held for long periods, and are subject to insect infestation – such as grain – which increases the risk attached to the investment.

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36. In terms of which “contractual” amounts are paid (also lump sums); this is why insurance companies are referred to as *contractual intermediaries* – CIs.
37. <http://www.amex.com/?href=/etf/Glossary/Gloss.htm>
38. Defaults do occur, but they are rare. Perhaps a better term is least-risky-rate (lrr).
39. We use these two terms interchangeably.
40. Actually on a “net” basis, but we are keeping it simple here. $\Delta M = \Delta DBC + \Delta FBC$, should be: $\Delta M = \Delta \text{net}DBC + \Delta \text{net}FBC$, i.e. after the deduction of government deposits in the case of DBC and foreign deposits/loans in the case of FBC.
41. From an e-letter of Citadel Investment Services, “Think”, of 2 November 2006 to clients, entitled “The future will surprise...again!”
42. There are also other measures: arithmetic mean return, geometric mean return, internal rate of return.
43. Source: Citadel.
44. Mr Dave Foord and Mr Liston Meintjies founded Foord Asset Management (FAM) in 1981. FAM has achieved average returns of over 20% pa for clients over longer than 30 years. Mr Dave Foord is regarded as one of the foremost authorities in the field of investments. See Foord, D, 2011.
45. It and its opposite, the *castle-in-the-air theory*, were originally postulated by Keynes.
46. In most derivatives’ formulae the risk free rate (rfr) is used, and this is so because it is a well known and easily accessible rate. There is no standard definition for the rfr but most analysts / academics apply this term to the 91-day treasury bill rate.
47. Foord, D, 2011.
48. The amount that bookmakers charge for their services is known as the vigorish. It is the amount they would earn irrespective of the outcome of their wagers. The word is Yiddish slang and has its origins in the Russian term for winnings, vyigrysh.
49. Foord, D, 2011.
50. Foord, D, 2011.
51. Foord, D, 2011.
52. Foord, D, 2011.
53. As we said before perhaps the rfr should be called the least-risky-rate (lrr). “Certain” applies if the asset is held to maturity; otherwise market risk applies.
54. Foord, D, 2011.
55. Foord, D, 2011.
56. This text benefitted from: <http://www.iol.co.za/business/personal-finance/news/how-to-choose-between-a-guaranteed-annuity-and-a-living-one-1.998729> [Accessed on 16 February 2012].