DIY Portfolio Management Programme

Manual Version 9

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Contents

Chapter 01: Getting Started

Framework

A planning process I have used most of my life before embarking on a project is: Crystallise, Organise, Prioritise and Strategise followed by Execute and Control (COPSEC). I highly recommend it.

Crystallise	Organise	Prioritise	Strategise
Mission	Mindset		Diagnose issues
Motivation	Resources		Seek solutions
Objectives	Environment		Evaluate options
Projects	Systems		Plan actions

We have applied this process to the DIY project for creating a store of wealth.

Crystallise

Mission

It is assumed that your mission is to develop a store of wealth on which you can rely when, or if, the need arises.

Motivation

Before embarking upon this project you should crystallise why you want to achieve it. Some examples could be to fund:

1. Your retirement
2. Education projects for yourself and/or your children
3. The support of your family or others in need
4. Donations to family members or charities
5. Travelling abroad
6. A legacy on your passing

Objectives

The objectives to be achieved are to:

1. Allocate your funds effectively
2. Select your counters with care
3. Manage your portfolio to achieve your return goal
4. Minimise your risk exposure.

If you follow the Enhanced Tracker style of portfolio construction, your goals will be to earn an alpha, i.e. a return above the market return, of, say, 3% p.a., to keep your costs to below 1% p.a. and to minimise risk.

If you follow the Traditional Balanced style of portfolio construction, your goals will be to earn a return unrelated to the market return, e.g. at least the after tax long term government bond rate plus inflation, to keep your costs to below 1% p.a. and to minimise risk.

The expenses investors incur are:

1. Withholding tax on dividends received (+/- 0.7% being 20% of an average dividend yield of 3.5%)
2. Transaction costs (you can limit these by avoiding unnecessary churn or choosing your broker wisely)
3. Platform fees (bank charges), not usually material

Trustee fees are not part of the cost of your portfolio but are the costs of collecting interest on your funds held with the JSE.

Projects

The projects to be embarked upon are to:

1. Educate yourself on the knowledge required to achieve your goal
2. Develop portfolio management skills
3. Develop a process to monitor the market
4. Develop a process to monitor potential investments
5. Create and build a portfolio
6. Develop a process to manage a portfolio

Organise

Mindset

Some of the attitudes needed to be an effective DIY portfolio manager are:

Proactive	Patience	Consistent	Meticulous
Confident	Optimism	Humility	Inquisitive
Resilient	Focused	Analytical	Detailed
Perseverance	Disciplined	Delivery	Positive

The obstacles to be avoided are:

Apathy	Inertia	Arrogance	Emotion
Egotistical	Greed	Impulsiveness	

Resources

You will need the following resources, other than the funds to invest:

1. Time
2. Money for fees (very little)
3. Access to Our Programme
4. Excel, Word and email programs

Environment

You should create an environment in which you can work and concentrate.

Systems

You will find that Our Programme provides you with most of the systems you will require. Examples are:

1. Portfolio construction
2. Decision making
3. Counter selection
4. Portfolio monitoring (Hedgehog)
5. Post-mortems

Prioritise

At present this is my second priority, after my health. As a younger person starting a career there may be higher priorities, e.g.:

1. Education
2. Career
3. Business
4. Relationships
5. Hobbies

Your priorities will change as you progress through life.

Strategise

Diagnose issues

Identify and analyse the problem/s or issue/s.

Seek solutions

Search for all possible solutions.

Evaluate alternatives

Evaluate the pros and cons of each potential solution together with the possible consequences and outcomes of each. Ensure that the solution chosen is in line with your policies.

Plan action

Plan the action necessary to solve the problems or address the issues.

When strategising, consider the following ideas:

1. When new information disproves past beliefs, throw past beliefs out.
2. Trying to predict the future is a fruitless exercise as there are many variables that can change it.
3. When planning the completion of a project, avoid over confidence: it is better to be a little pessimistic.
4. Focus on what you can control and leave the rest to chance.
5. Keep the process simple.
6. The first step in selecting counters for a portfolio is to narrow the options by knowing what to discard.
7. Be realistic when planning a project. Get your priorities right. Eliminate low value activities. Set targets and deadlines. Focus on achieving objectives and set aside sufficient time to complete them.
8. To achieve any worthwhile goal you need a thorough process (a detailed plan of tasks to be completed), to be organised and to have a clear mind. The process makes it possible - you make it happen.
9. Talent, hard work and luck all play a part in your success. But remember Gary Player's motto: "The harder you work (practise), the luckier you get."
10. Checklists should not be used to drive a process but should rather be used as a control measure to ensure that no step has been overlooked.
11. To become productive, clear the clutter and eliminate low payback activities to free yourself to focus on what is important.
12. Always think before you plan and plan before you act.

PCFR's mission

Our mission is to educate, inform and provide a database of information to assist those who choose to use equity shares listed on the Johannesburg Stock Exchange as part of or, as in my case, all of their store of wealth.

Chapter 02: Allocation Decision

Introduction

In the endeavour to create a passive store of wealth, the allocation decision is said to account for 80% of one's returns. When taking this decision, the following should be considered:

1. Alternatives available
2. Returns and risks of the various options
3. Experiences of others
4. Residential property investment problems

Alternatives available

The typical sources investors choose to create wealth are:

Monetary investments

These include money market, savings accounts, fixed deposits, government or corporate bonds and preference shares.

The features of these investments are that they produce a fixed or variable income depending on the nature of the investment, they generate no capital growth, the income is subject to taxes at varying rates, usually the risk of loss is lower than for non-monetary investments, liquidity varies depending on the conditions of the instruments or whether or not the instruments are listed and the acquisition and exit costs are usually low.

Had I invested my original seed capital of R10 000 in monetary investments in the late 1960's, it would be worth less than R100 000 today.

Non-Monetary Investments

These include fixed property, private equity, commodities and hobby type investments such as paintings, stamps, wine, etc.

Industrial and commercial property investments are excluded from this category as these are considered to be active investments, i.e. a business activity.

The income and capital growth of residential properties are unpredictable (usually low) taxes are payable on the income at full tax rates and on capital growth at CGT rates, the risk of capital loss is high especially if the property is geared, liquidity is poor and acquisition, maintenance and exit costs are high.

Private equity investments include either minority holdings in private companies or investments in private equity holding companies. The features of these investments are that income and capital growth are usually poor or non-existent (often investors are called upon to help bail such companies out), the risk of potential loss is high, liquidity is non-existent and costs can be exorbitant.

In 1981 an investor was advised by the Gold and Hard Asset Exchange that a 1953 SA Long proof set would be an exciting investment. He paid R665 for it. 21 years thereafter he was offered R1 000 for the set (a 2% p.a. return). Gold coin has earned an effective return of 6% p.a. over the past 45 years. If I had invested my original R10 000 in gold coin in the late 1960's, it would be worth less than R200 000 today.

Financial products

These include unit trusts, tracker funds, hedge funds, funds of funds, fixed or variable annuities, retirement annuity funds, pension funds, provident funds, preservation funds and other exotic instruments dreamt up by financial institutions to milk investors.

The features of these investments are that the income and capital growth are unpredictable, taxes are complex, the risks can be high and liquidity can be non-existent, or if the investor decides to pull out, there could be exorbitant penalties. Returns are, on average, far below what one could achieve in the long term on a well-managed portfolio of JSE equity investments.

Residential Properties

Young males often get hooked on residential property as a passive investment. I did! I could write a book on my experiences with tenants.

Before investing in a residential property consider the following:

1. It will be illiquid, i.e. will take months of time and effort to sell.
2. It will be expensive (and complex) to buy and sell (transfer duty, VAT, commission, legal fees, etc.).
3. It will generate low returns.
4. It will be leveraged: this is how you can swallow those low returns: if the value goes up a little, leverage will magnify this and you will convince yourself that it is a good investment, not realising that leverage increases the risk and could wipe you out.
5. It will be immobile, i.e. fixed to one geographical spot. You can be sure at any given time only a tiny group of potential buyers for it will exist.
6. It will be expensive to own, requiring an endless parade of repairs and maintenance without which it will crumble into dust.
7. It will be fragile and easily damaged by weather, fire, vandalism and the like, which could be covered by expensive insurance, which is unlikely to pay out.
8. It will be heavily taxed and as it goes up in value so will the taxes.
9. It will be at risk of squatters moving in when the tenants go on holiday. Tenants themselves could become squatters.
10. The only reason to buy a residential property is to live in it.

Listed equity investments

These investments include off-shore managed investments, off-shore do-it-yourself (DIY) investments, local managed investments and local DIY investments.

I have evaluated off-shore managed investments of workshop participants and some are good and some are poor. I have evaluated portfolios managed by some of our top banks and insurance companies in SA and was shocked to see the poor returns achieved.

Our Programme focuses only on JSE equity investments.

Returns and risks

The return and risk factors investors should consider when making passive investments are:

1. The nature of the income produced by the investment
2. Potential capital growth in income
3. Taxes on returns
4. Risk of potential loss
5. Liquidity (how soon you can liquidate it)
6. Costs (acquisition, management and exit)

Experiences

Living annuity

John worked in the printing industry for 40 years. When he retired at the age of 63, he had accumulated a nest egg of R850 000. He was approached by a financial advisor who took R802 000 of his capital and invested it in five funds, two being "high-income" bond funds and three being general equity investment funds. He received an annuity of R8 500 p.m. During the events leading up to the war in Iraq, the consultant advised him to withdraw his capital and place it in the money market. He asked me for my help. On investigation I found that the capital sum had shrunk to R569 000. The return he had earned on his investment worked out at 3.8% p.a. If he continued drawing R8 500 per month and continued to earn 0.67% p.m. in eight years he would be wiped out.

When he decided to retrieve what was left of his capital he was told that he could not touch it! This is what the industry calls a living annuity: it lives until the capital runs out and you have no control over it!

Another living annuity

A school teacher from East London, who had taught for thirty years, was retrenched. She received a lump sum of R650 000. She gave the amount to a cousin who worked for a finance company in exchange for a "life annuity" of R1 000 per month. At the time bond interest rates were 16% p.a. which would have given her annuity income of R8 666 per month. After three years the capital sum had reduced to R400 000.

Geared international indices product

A school teacher from Benoni received a donation from his father of R30 000. He was due to retire in two years. He approached one of the big four banks for advice. On 8 August 2000 the consultant placed the amount on fixed deposit and on 1 September 2000 the amount was invested in a "weighted basket of international stock market indices geared by 35% to give additional exposure to the performance of the indices with a guarantee that no loss would be incurred." On 1 September 2005, now retired, he received R30 000 back plus R202 interest for the 22 days before the policy commenced!

On enquiry it was found that his money had been invested as follows:

%	Index	Open	Close	Gain
25%	S&P	1 370	1 175	-14,2%
25%	Bonds	182	230	+26,4%
30%	Euro	4 840	2 999	-38,0%
20%	Nikkei	14 643	11 418	-22.0%
	R$ rate	$6,96	$6,24	-10,3%

So the experts at the insurance company took five bets and only got one right, which yielded a return of 4.75% p.a. (26.1% over the period). Had he invested the cash on our local stock exchange during this period, he would have achieved the following capital growth (before brokerage and dividends):

Index	Open	Close	Gain
All share	8 274	16 874	104%
Financial	9 917	15 750	59%
Industrial	8 955	14 786	65%
Resources	5 877	16 056	173%

My retirement annuity

In 1973 I bought a retirement annuity policy. This was the conventional wisdom at the time (still is). The annual premium was R430.86. The name of the insurance company was Anchor Insurance and the certificate number was 6734(B). For the first few years I received statements and paid the installments. Then the statements stopped arriving so I had to visit the company each year to obtain my tax certificate. In 1980 the insurance company unilaterally converted the policy to a paid up policy. The company issued a certificate stating that the sum payable on 1 December 2005 was to be R1 990 (after investing R3 447).

In 2007 I telephoned the company to find out why I had not received the R1 990. I was told that they had no record of this policy. Had I invested the R3 447 on the JSE it would have been worth R4m today.

Pension fund

The trustees of the Joint Municipal Pension Fund allocated a sum of money to an investment manager, Willie Morgan. He speculated on maize futures and lost over R1.5bn of the pension fund's assets.

Another pension fund

A businessman acquired control of a private company that had been contributing to a defined benefit plan for the benefit of its employees. He persuaded the pension fund administrators to hand him the pension fund assets, which he invested in another venture and lost the entire amount leaving the pensioners high and dry.

Managed portfolio

A 61 year-old woman asked a Registered Financial Advisor to form a portfolio for her retirement. She gave him R1.2m to invest. He "invested" 50% in a hedge fund, which has since been sequestrated, 25% in Wesizwe and 25% in a private company.

Another managed portfolio

After one of our workshops, a participant told me that he was now ready to take control of his own financial wellbeing. The next day he telephoned his advisor only to find out that the investment advisor had absconded with his entire wealth totaling over R50m.

Unit trust

I was approached by a workshop participant to calculate what his return on an investment in a well-known unit trust was. Here are the details:

Invested 27 Feb 2008	1 112 029
Invested 14 Dec 2009	300 000
Invested 6 February 2010	1 500 000
Monthly drawings x 2	25 000
Thereafter monthly drawings	20 000
Balance 31 March 2012	2 271 713

I processed this information and discovered the following:

Loss over this period	110 316
Loss by not investing in JSE	1 148 481

Property investments

Property: Jeppe & Loveday Street, Johannesburg

I rented a one bedroom property in the center of Johannesburg to the friend of a senior partner of an auditing firm. He, the "friend":

- Ran a brothel and a shabeen from the property
- Rented it out to about twelve people as a place to sleep at night charging R500 p.m. per person
- Never paid me rent or the electricity bills
- Destroyed every plug, light fitting and plumbing accessory in the flat

The only way I could re-claim the property was to bring in some "heavies" to clear the place. A year later I repaired the property and gave it away. The complex owed R350k and the owners are jointly and severally responsible.

Property in Fairland

I leased a property to a married couple who subsequently divorced. The wife stayed on but started using drugs and mixing with other addicts and eventually started destroying the fixtures and fittings in the property.

Benoni complex

I appointed an agent to manage a property I owned in Benoni. A year later I was informed that the tenants had done a midnight flit and the property had stood empty for eight months incurring levies but not earning rent.

Santon off Catherine

I bought a beautiful investment property with a river running through it for R92k. The idea was to experience the tranquility of the sound of water. Every time there was a storm, the banks collapsed and a special levy had to be raised for reconstruction. 25 years after purchasing it I managed to sell it for R475k. My opportunity loss on this property ran into many millions of rand!

Close to UJ

A friend decided to go into the business of buying properties in the UJ area and renting them to students. Needless to say, the properties were vandalised, neighbours complained about the all-night parties and rent was not forthcoming. A year later he sold them at a loss.

Gearing property investments

An argument I often hear is that property investments can be geared which makes them attractive investments.

A Mr. Roux Shabangu bought a building in Pretoria for R220m. He raised a bond to finance it. He could not keep up with the bond payments (the bond escalated to R320m) and owed R16m for rates and taxes so Nedbank bought the building back for R66m. One deal like this in a lifetime can ruin you forever.

In conclusion

It is vital that you get the allocation decision right so consider it with care.

Our mission is to assist those who decide to allocate all or a part of their passive wealth to a portfolio of JSE equity shares. The remainder of this manual focuses on this passive investment.

Chapter 03: Decision Making

Introduction

Probably the most important activity you undertake during your daily routine is “decision making”. To take effective decisions one should have a sound decision making process. This Chapter sets out such a process together with some ideas and examples to improve this activity.

Process

The following is a suggested framework for taking decisions:

Step 1: Define the **issue**

Step 2: Identify the **objectives**

Step 3: Gather **evidence**

Step 4: **Evaluate** all the alternatives

Step 5: **Conclude**

Examples

The following are examples of decisions you may be faced with in Our Programme:

1. Which style of portfolio construction to adopt
2. Whether to select share A or B
3. Whether to pay off the bond on your house or invest the cash in your portfolio
4. Whether to invest locally or overseas
5. Whether or not to pay R30 p.m. for access to our database (a no brainer)
6. Whether or not to join Hedgehog at a cost of R125 p.m. (a no brainer)
7. Whether to be aggressive or risk adverse when constructing your portfolio

The following worked example illustrates the application of this process:

Issue

Should I stick to the traditional balanced (TB) style of investing or should I adopt the enhanced tracker (ET) style?

Objectives

My overall mission is to create a store of wealth by maximising the returns on my portfolio and minimising my risk.

Evidence

Obtain the following evidence:

1. Which produces superior returns in practice?
2. Which is cheaper to operate?
3. Which better minimises risks?

Evaluate

Once all the evidence is gathered, evaluate the alternatives, including those not identified under the first heading.

Conclude

Decide which style is, in your opinion, the superior one.

Ideas

The following ideas should be considered when taking decisions:

1. Use the same degree of objectivity when selling a share as you do when buying a share.
2. Your past losses should not impact on your current decisions.
3. Consider all the factors when making decisions.
4. Quality decisions usually result by taking them on your own and not as part of a group.
5. An upward trend does not always continue upwards nor a downward trend downwards.
6. Be wary of investing based on momentum: often prices in such situations lose touch with reality.
7. If you made a mistake, don’t deny it. Take action even if it means “taking a loss”.
8. Don’t guess. Get sufficient reliable current evidence from the source and do the sums.
9. When making a choice, in addition to focusing on the gains and benefits, also consider the obstacles, risks and problems.
10. One bad investment decision can eliminate the alpha achieved by all the other good decisions.
11. Be defensive when taking decisions.
12. Anyone who confidently predicts the future is a con artist - the future is unknown.
13. Know when to use intuitive thinking versus applying logical, evidence based analytical thinking.
14. Doing nothing is a conscious alterative and should be evaluated accordingly.
15. Avoid impulsive actions by allowing some time to lapse between the decision to act and the execution thereof. However, do not procrastinate.
16. Don’t allow the halo effect to cloud judgment – dig deeper with an open mind.
17. When taking decisions weigh up all the alternatives and their outcomes, i.e. think laterally.
18. The fear of looking stupid by taking the wrong actions results in procrastination. Don’t let your ego undermine your wealth.
19. Use sound evaluation models.
20. Eliminate emotions from the process.

21. Boring solid performers usually outperform the next best thing.
22. Open your mind to all the possible viable options when making choices – don't just focus on the obvious.
23. Don't get too close to the company in which you invest – you may lose your objectivity.
24. When searching for value, do not focus only on one aspect (e.g. the PEG ratio). Employ a holistic approach.
25. Once you have gathered sufficient evidence and evaluated it, give your sub-conscious time to assimilate it and your intuition a chance to be part of the process.
26. Understand the difference between noise (normal market movements), a blip (something that caused the market price to dip but will be immaterial down the line) and a disaster (something that will turn the company from a "must have" to a "don't even think about it").
27. If you would not buy a share you presently hold, what is it doing in your portfolio?
28. Challenge the experts (don't accept what they say without questioning them).
29. Predictors of doom have nothing to lose and everything to gain: if wrong no one remembers and if right they are heroes so take such predictions with a pinch of salt.
30. Be aware of how con artists frame assertions, e.g. "Gold coin grew by 3 000% over the past four decades." Actually, gold coin only grew by 8.9% p.a. The JSE grew by 14 500%!
31. When evaluating averages, assess their distribution and check for outliers.
32. Avoid analysis paralysis. Focus on the critical evidence to support your decision.
33. During the analysis process try to ignore the spin and focus on the facts, e.g. "Gold out of the ground is worth more than gold in the ground so gold shares are sound investments."
34. There are known knowns (things you know), there are known unknowns (things you know you don't know) and there are unknown unknowns (things you don't know you don't know). The latter makes trying to predict the future problematic.
35. If you are convinced about the future performance of a share, you are probably wrong as the future is uncertain.
36. Outcomes can only be predicted with a degree of confidence when probable outcomes can be estimated. Where uncertainty exists, this is not possible.
37. The default option may not always be the best option. Evaluate all options.
38. Buy the performance, not the story.

Chapter 04: Mindset

Introduction

A sound thought process is essential to taking effective investment decisions. Mindset embraces:

1. What you believe to be true (principles)
2. Who you are (characteristics)
3. How you think (attitudes)

Principles

There are certain investment principles (or truths) you should consider in your framework for taking investment decisions. The principles below are tried and tested. However, you may disagree with the odd one, or two or more.

1. No other passive investment has beaten a well-constructed portfolio of listed equity investments in the past. This pattern is expected to continue into the future.
2. There is little risk in investing in a well-diversified portfolio constructed using our strategy if held for more than five years.
3. Monetary investments such as preference shares, bonds and money market are high risk long term investments as they do not compensate for inflation.
4. Superior returns from a portfolio of listed equity shares are achieved over time.
5. Consistent profitable timing of the market is not possible in the short term. Statistically there is a 40% chance that a share price will increase and a 60% chance it will fall immediately after acquisition.
6. In most cases the price of a share fairly reflects its value based on all the information available at any one time. However, occasionally our valuation models highlight problems that can be avoided by selling or not buying a share.
7. Over time, 80% of your wealth is generated, not by capital growth, but by dividends reinvested.
8. It has been shown that the higher the risk inherent in an investment, the lower is the return.
9. Studies have shown that only a handful of new listings yield positive returns for long term investors who acquired the shares on or before listing.
10. To effectively build wealth one either needs an initial substantial lump sum or meaningful regular savings. However, once a portfolio reaches a certain level, savings may have little effect on your ultimate target. Momentum takes over.
11. Trying to be clever, churning and fiddling destroys wealth.
12. Volatility of returns, as measured by standard deviation, is not an element of risk in a long-term portfolio. Over time standard deviations reduce. Risk is the possibility of permanent loss of capital or not achieving your targeted return.
13. Just because the herd follows a share does not make it a winner.

Characteristics

To ensure sound decision making you need to:

1. Be confident in your ability to understand the process, to take sound investment decisions and to manage your portfolio going forward. By keeping the process simple and by narrowing your choices to a select number of possible investments, anyone with no prior knowledge or qualifications can handle this task. In fact there appears to be a negative correlation between prior knowledge of the investment process and outcomes.
2. Develop **common sense and clarity of thought**: Muddled thinkers blow the process.
3. Be **analytical**, i.e. be able to assess the performance of shares, companies, sectors, the market and your portfolio.
4. Be **driven**: if you are not driven or motivated to create wealth, it will not happen.
5. Have **perseverance** and **patience**: Building wealth requires many years of sticking to it before real results are seen. Giving up should not be an option.
6. Be **disciplined** and be able to **focus**: You cannot take your eye off the ball. You cannot put your portfolio in the bottom drawer and hope it will grow without it being nurtured. At least once a month you should evaluate its performance to ensure that it is still within the strategic framework you designed. However, don't fiddle for the sake of fiddling.
7. Be **alert**: You need to keep in touch with your environment and identify opportunities and potential threats.
8. Be **proactive**: It is essential to take action as soon as a decision has been made and giving your sub-conscious mind time to think about it.. Large losses can result from procrastination.
9. Be **humble**: We do not know it all. There are always things waiting to be discovered. Be prepared to listen and learn from your mistakes.
10. Be **meticulous**: When making decisions you need to be a master of detail, i.e. take care that you have evaluated all the evidence to support your decision.
11. Be **consistent**: Stick to your plan. Do not become random. Chopping and changing undermines your wealth.
12. Be a little **computer literate**. As the programme is computer driven, a basic knowledge of computers is necessary (open and save a file and enter information into a spread sheet).

Attitudes

As in the achievement of any goal, the right attitudes are essential to success. An attitude is a habit of mind and good attitudes can be developed over time by using positive affirmations (self-talk). The following attitudes are essential for creating passive wealth:

1. **Positive**: Negative people can only see the downside so tend to stay out of the market.
2. **Optimistic**: One needs to be optimistic about the future but, at the same time, be realistic.
3. **Disciplined**: Discipline is essential to the execution of your strategy. This attitude is the opposite of apathy, the biggest obstacle to wealth creation.
4. **Inquisitive**: You need to keep asking the right questions about each aspect of the market, your portfolio and your investments.
5. **Recognise limits**. Stick to your circle of competence. If you don't know, say so.

Chapter 05: Measuring Returns

Introduction

The following techniques are explained in this Chapter:

1. How to measure capital growth
2. How to measure total return
3. How to separate the total return into capital growth and dividend return

Measuring capital growth

To calculate the capital growth of a share over time, use the formula:

g = (E/B) ^ (1/t) – 1 where:

E is the end price

B is the beginning price

t is the time period

For example, Capitec's share price was R538.56 at 31 December 2015 and R1 446.18 at 31 December 2019. What was the annual capital growth in the share price p.a. during this period?

g = (1 446.18 / 538.56) ^ (1/4) - 1 = 28.0% p.a.

Exercise: Measuring a share's capital growth

The market price of Famous Brand's shares was R156.51 at 31 December 2016 and R39.48 at 30 June 2020. Calculate the annual capital growth during this period.

Answer:

g = (39.48/156.51) ^ (1/3.5) – 1 = -32.5% p.a.

Exercise: Measuring an index's capital growth

The Indi 25 index at 31 December 1994 was 6 472. At 31 December 2019 it was 69 304. Calculate the annual capital growth as a percentage during this period.

Answer:

g = (69 304/6 472) ^ (1/25) – 1 = 10.0% p.a.

Measuring total return

To calculate the total return of a share over time use the above formula where E is the value of the share assuming dividends were re-invested and B is the equivalent.

For example, the value of a Capitec share at 31 December 2015, assuming dividends were reinvested from 31 December 2009, was R616.98 and the equivalent at 31 December 2019 was R1 767.56 (see CPI's file, prices).

Calculate the total annual return during this period.

r = (1 767.56/616.98) ^ (1/4) – 1 = 30.1% p.a.

One can conclude that the dividend return from Capitec during this period was 30.1% - 28.0% = 2.1% p.a.

Exercise: Measuring a share's total return

The market price of Famous Brand's shares, assuming dividends were reinvested from 31 December 2009, was R183.00 at 31 December 2016 and R47.21 at 30 June 2020 (see FBR's file, prices).

Calculate the annual total return during this period.

Answer:

g = (47.21 / 183.00) ^ (1 /3.5) – 1 = -32.1% p.a.

Capital growth v dividend returns

The pre-tax return earned on a share can be split between the pre-tax returns from dividends and from capital growth:

r = DR + g

For example, assume that an investor bought a share for 1 000 cents. The previous dividend per share was 30 cents, which the investor did not receive. She sold the share for 1 200 cents some time later having received a dividend of 33 cents before selling the share.

The total return earned from this investment was (200 + 33) / 1 000 = 23.3% before withholding tax.

The dividend return was 3.3% and the capital growth was 20%.

We analyse pre-tax returns on shares, on the market and on portfolios. Withholding tax is treated separately as an expense.

Chapter 06: Reality Measures

Introduction

This chapter explains the following price/valuation reality measures:

1. Dividend yield
2. Price earnings ratio
3. Price book ratio
4. Imputed growth
5. Sustainable growth

It also explains how the first three measures above can be assessed to determine whether or not they are reasonable by applying the appropriate formulas.

Dividend yields, PE ratios and PB ratios

There is confusion about what these three measures mean in the investment and media communities.

The uninformed believe that:

1. High dividend yields are "good things" as they will improve the returns on investments. Many service providers list high dividend yielding shares to assist investors in picking shares for their portfolios.
2. Price earnings ratios reflect the number of years an investor will have to wait before recovering his or her investment.
3. All companies in the same cluster should have similar price book ratios.

Dividend Yield

This measure reflects the following elements:

1. The return required by the market taking risks into account
2. The withholding tax payable on dividends
3. The expected growth in projected dividends

The dividend yield calculator, number 3, in the Reality Checks Application folder refers. Play with it using the examples below.

Element	1	2	3	4	5
Required return	10.0%	12.0%	10.0%	9.0%	10.0%
Withholding tax	20%	20%	20%	20%	20%
Predicted growth	6.9%	6.9%	5.0%	5.0%	8.0%
Dividend yield	3.6%	6.0%	6.0%	4.8%	2.3%

From the above one can conclude that:

1. High dividend yields reflect either high risk or low growth or both – not the kind of investment you want in your portfolio
2. Low dividend yields reflect either low risk or high growth or both

In other words if a share has a low dividend yield it is highly rated by the market, exactly the opposite of what many asset managers and many in the media believe.

Price Earnings Ratio

This measure is a reflection of the following elements:

1. The return required by the market taking risks into account
2. The withholding tax payable on dividends
3. The dividend pay-out percentage
4. The expected growth in projected dividends

The price earnings ratio calculator, number 4, in the Reality Checks Applications folder refers. Play with it using the examples below.

Element	1	2	3	4	5
Required return	10%	12%	10%	9%	10%
Withholding tax	20%	20%	20%	20%	20%
Dividend payout	59%	60%	60%	60%	60%
Predicted growth	6.9%	6.9%	5.0%	5.0%	8.0%
PE ratio	16.3	10.1	10.1	12.6	25.9

The PE ratio of the Alsi was 16.3 at 31 December 2019.

From the above one can conclude that:

1. Low price earnings ratios reflect either high risk or low growth or both – not the kind of investment you want in your portfolio
2. High price earnings ratios reflect either low risk or high growth or both

If a company has a high price earnings ratio it is highly rated by the market, exactly the opposite of what many asset managers believe.

Price Book Ratio

This measure is a reflection of the following elements:

1. The return required by the market taking risks into account
2. The return the company achieved on closing equity
3. The withholding tax payable on dividends
4. The dividend pay-out percentage

The price book ratio calculator, number 5, in the Reality Checks in the Applications folder refers. Play with it using the examples below.

Element	1	2	3	4	5
Required return	10%	12%	10%	9%	9%
Return on equity	10%	11%	15%	8%	20%
Withholding tax	20%	20%	20%	20%	20%
Dividend payout %	60%	60%	60%	60%	60%
Price book ratio	0.8	0.7	1.8	0.7	9.6

From the above one can conclude that:

1. When the required return and the return on equity are equal, the price book ratio should be 0.8. Before the advent of withholding tax it was 1.0. However, SARS now "expropriates" 20% of dividends from shareholders, hence the 0.8.

2. If the return on equity is lower than the required return, the price book ratio should be less than 0.8.
3. If the return on equity is higher than the required return, the price book ratio should be above 0.8.

A major problem with the price book ratio is that the accounting policies of a company may affect the equity of the company which can affect the return on equity. For example, if the company does not revalue its fixed property the equity of the company may be understated and the return on equity may be overstated.

Imputed Growth Rate (IGR)

In real life the wild card in the valuation model is the predicted rate of growth in future dividends.

If you assume that the market value is the fair value of a share, you can derive "g", i.e. the imputed growth rate:

g = (r – DY x (1 – WT)) / (1 + DY x (1 – WT))

The imputed growth rate of a share is the growth rate in projected future dividends that the market players knowingly or unknowingly used to arrive at the market price of the share. The advantage of this measure is that it is easy to interpret, e.g. if the imputed growth rate in the future dividends of a share is 9% and the company has never come close to growing dividends at this rate in the past and is unlikely to be able to do so going forward, the price of the share is probably overstated. This measure can be used in conjunction with the sustainable growth rate. I used this analysis a while back to correctly predict that Curro was hopelessly over-valued. The share price has since fallen from R50 a share to R17.

To calculate the imputed growth rate of a share, use calculator 6 in Reality Checks in the Applications folder.

This model can also be used to determine the imputed growth rate embedded in an index. Play with it using the examples at 30 September 2020 below:

Information	**Alsi**	**T40**	**Indi**	**Fini**	**Resi**
Index	54265	50042	73187	10072	53383
DY%	3.64%	3.25%	2.04%	7.93%	3.15%
"Dividend"	1975	1626	1493	799	1682
Bond rate	7.9%	7.9%	7.9%	7.9%	7.9%
Tax rate	45.0%	45.0%	45.0%	45.0%	45.0%
Risk rate	5.0%	5.0%	5.0%	5.0%	5.0%
Req. ret.	9.35%	9.35%	9.35%	9.35%	9.35%
IGR	6.26%	6.58%	7.59%	2.83%	6.66%

It is not necessary to understand the mathematics behind the calculations as long as you can apply the app and understand what the outcome means. For example, can you see why I am hanging onto my financial counters?

Sustainable Growth Rate

The sustainable growth rate should not be confused with the imputed growth rate. The imputed growth rate is the rate that the market price reflects assuming a fair required rate of return for that share. The sustainable growth rate, on the other hand, is what the company should be able to grow its dividends by if it maintains its current return on opening equity and its dividend payout percentage.

If, for example, a company can maintain a return on equity of 18% p.a. and a dividend payout percentage of 60%, dividends should grow by 18% x (1 – 60%) = 7.2% p.a. Clearly things are not this simple in practice so a company's sustainable growth rate should only be used as a rough guide. (See the Applications in the database for proof of the formula.)

Exercise: Sustainable growth rate

A company's return on opening equity is 15% and its dividend payout percentage is 40%. Calculate its sustainable growth rate.

SGR = 15% x (1 – 40%) = 9% p.a.

Ratios based on market prices

Dividend yield percentage

The dividend yield (DY) is the dividend per share (DPS) divided by the market price per share (MPS):

DY% = DPS / MPS x 100

Price earnings ratio

The price earnings ratio (PE) is the market price per share (MPS) divided by the headline earnings per share (EPS):

PE = MPS / EPS

Price book ratio

The price book ratio (PB) is the market price per share (MPS) divided by the book value of the share (BVS):

PB = MPS / BVS

Exercise: Price reality ratios

A company's share data at 31 December 2018 was:

Market price per share	R189.76
Earnings per share	R7.35
Dividend per share	R1.62
Book value per share	R95.85
Required return	12% p.a.

From this information calculate the share's:

1. Dividend yield
2. Price earnings ratio
3. Price book ratio
4. Dividend pay-out percentage
5. Return on opening equity
6. Sustainable growth
7. Imputed growth

Results:

Dividend yield: 1.62/189.76	0.85%
Price earnings ratio: 189.76/7.35	25.8
Price book ratio: 189.76/95.85	2.0
Dividend payout percentage: 1.62/7.35	22%
Return on opening equity: 7.35/(95.85-7.35+1.62)	8.2%
Sustainable growth: 8.2% x (1 – 22%)	6.4%
Imputed growth: Calculator 6 Reality Checks	11.2%

Ratios based on fair values

The formula for fair value is:

$V = (D \times (1 + g) \times (1 – t)) / (r – g)$

From this formula one can derive a fair dividend yield, a fair price earnings ratio and a fair price book ratio for a share, given certain of the elements in the formula.

Fair dividend yield

If the required return (r), the withholding tax rate (t) and the growth rate (g) are available, one can derive the fair dividend yield for a share, i.e. what the dividend yield should be:

$FDY = (r – g) / ((1 + g) \times (1 – t))$

Exercise: Fair dividend yield

You are evaluating a listed share and decide that the required return is 10.4% and the expected growth rate in dividends is expected to be 8.0% p.a. Withholding tax is 20%. What would a fair dividend yield be for this share?

Answer:

$FDY = (10.4\% – 8\%) / ((1 + 8\%) \times (1 – 20\%)) = 2.78\%$

Or, apply calculator 3 in Reality Checks Application:

Required rate of return	10.4%
Withholding tax	20.0%
Expected growth in dividends	8.0%
Fair dividend yield	2.78%

Fair price earnings ratio

If the required return, withholding tax rate, growth rate in future dividends and dividend payout percentage are available, one can derive the fair price earnings ratio for a share, i.e. what the price earnings ratio should be.

The formula for a fair price earnings ratio can be derived from the fair dividend yield equation:

$FPE = (DP\% \times (1 + g) \times (1 - t)) / (r – g)$

Exercise: Fair price earnings ratio

You are evaluating a listed share and decide that the required return is 10.4% p.a., the predicted growth rate in dividends is 8.0% p.a. and the dividend payout percentage is 60%. Withholding tax is 20%. What would a fair price earnings ratio be for this share?

Answer:

$FPE = (60\% \times (1+8\%) \times (1 - 20\%)) / (10.4\% – 8\%) = 21.6$

OR use Calculator 4 in Reality Checks in the Applications:

Required rate of return	10.4%
Withholding tax	20.0%
Dividend payout ratio	60.0%
Expected growth in dividends	8.0%
Fair price earnings ratio	21.6

Fair price book ratio

If the required return, the withholding tax rate, the return on closing equity and the dividend payout ratio are known, one can calculate the fair price book ratio. The formula is:

$FPB = (ROE \times DP\% \times (1 – t)) / (r – (ROE \times (1 – DP\%))$

Exercise: Fair price book ratio

You are evaluating a listed share and decide that the required return is 9.0% p.a., the return on closing equity is 10.0% and the dividend payout percentage is 60%. Withholding tax is 20% on dividends. What would a fair price book ratio be for this share?

Answer:

$FPB = (10\% \times 60\% \times (1 - 20\%)) / (9\% -(10\% \times (1 - 60\%) = 0.96$

Or use Calculator 5 Reality Checks in the Applications:

Return on equity	10%
Required rate of return	9%
Withholding tax rate	20.0%
Dividend payout ratio	60%
Fair price book ratio	0.96

Imputed growth rate

The imputed growth rate is the growth in future dividends the Market used to arrive at the market price of the share assuming an appropriate required return for the share.

The formula for the imputed growth (IG) is:

$IG = (r – DY (1 – t)) / (1 + DY (1 - t))$ where

r is the required return

DY is the dividend yield

t is the rate of withholding tax

Exercise: Imputed growth

You determine that the required return on a share is 11% p.a.. Its dividend yield is presently 3%.

Calculate the imputed growth rate in this share.

Answer:

$IG = (11\% - 3\% \times (1 – 20\%)) / (1 + 3\% \times (1 - 20\%)) = 8.4\%$

Or use Calculator 6 in Reality Checks in the Applications.

Dividend yield	3%
Required rate of return	11%
Withholding tax rate	20.0%
Imputed growth	8.4%

Sustainable growth rate

The sustainable growth is the predicted growth rate in future dividends if the company is able to maintain its return on opening equity and its dividend payout percentage.

The formula for the sustainable growth rate is:

$ROE \times (1 – DP\%)$ where:

ROE is the return on opening equity

DP% is the dividend payout percentage.

Exercise: Sustainable growth rate

A company is expected to earn a return on opening equity of 20% p.a. and pay a dividend of 60% of its profits going forward.

Calculate the sustainable growth rate in future dividends.

Answer: $20\% \times (1 – 60\%) = 8\%$

Chapter 07: Dissecting Returns

Introduction

This chapter illustrates how to dissect the return on a share and an index into its elements, namely the return from:

1. Dividends
2. Dividend growth
3. Corporate events, such as an unbundling
4. Changes in the imputed growth rate
5. Changes in the required return
6. Irreconcilable differences (usually immaterial)

When analysing the returns achieved by a market index or share one should dissect the return into the fundamental return achieved and the effects of market sentiment.

The fundamental returns comprise the dividend return and the dividend growth. If a company had a corporate event affecting the price of the share in the current period e.g. a rights issue or unbundling, such an effect should be isolated separately as part of the fundamental return.

The sentiment effects comprise the changes in the imputed growth rate and required return during the period caused by market players reassessing the future of the market or share.

Constituents of a return on a share

Example

An investor bought a share for 1 000 cents at the beginning of the year. The dividend per share was 30 cents prior to her acquiring the share. The market price of the share was 1 200 cents at the end of the year and a dividend of 33 cents was paid during the year.

The total return for the year was (200 + 33) / 1 000 = 23.3% before withholding tax.

The dividend return was 3.3% and the capital growth 20%.

When the above investor acquired the share, the dividend yield was 3.00% (30/1 000). At the year end the dividend yield was 2.75% (33/1 200).

The profile of the share was:

Period	Begin	End
Price of share	1 000	1 200
Dividend per share	30	33
Dividend yield	3.00%	2.75%
Required return	9.95%	9.80%
Withholding tax	20.00%	20.00%
Imputed growth	7.37305%	7.43640%
Return for the year		23.30%
Dissecting the return for the year:		
Dividend return (1)		3.30%
Dividend growth (2)		10.00%
Corporate events (3)		0.00%
Fundamental effect (4)		13.30%
Imputed growth effect (5)		2.74%
Required return effect (6)		6.18%
Irreconcilable difference (7)		1.08%
Sentiment effect		10.00%
Return for the period		23.30%

Notes:

1. 33 / 1 000 x 100 = 3.30%
2. 33 / 30 – 1 = 10%
3. None
4. 3.30 + 10.00 + 0.00 = 13.30%
5. Calculator 10 in Reality Checks in Applications
6. Calculator 9 in Reality Checks in Applications
7. Irreconcilable difference

Example

Here is an analysis of the returns of Shoprite for the past four years:

Year	2016	2017	2018	2019
Price	171.46	221.19	190.15	125.92
Dividend yield	2.64%	2.28%	2.55%	2.53%
Dividend	4.52	5.04	4.85	3.19
Required return	10.28%	10.59%	10.25%	9.92%
Imputed growth	7.999%	8.608%	8.045%	7.739%
Return		31.9%	-11.8%	-32.1%

Here is an analysis of the returns for 2017 to 2019

Year	2017	2018	2019
Dividend return	2.9%	2.2%	1.7%
Dividend growth	11.5%	-3.8%	-34.2%
Corporate actions	0.0%	0.0%	0.0%
Fundamental effect	14.4%	-1.6%	-32.5%
Imputed growth effect	31.5%	-26.0%	-14.3%
Required return effect	-12.0%	20.7%	17.6%
Irreconcilable difference	-2.0%	-4.9%	-2.9%
Sentiment effect	17.5%	-10.2%	0.4%
Total return for period	31.9%	-11.8%	-32.1%

The good news is that all of these calculations are incorporated in the market statistics and company files in the database so you do not need to know how to do the calculations, but you must know what they mean.

Exercise

The market price of a share at the beginning and the end of the year together with its market profile (required return and imputed growth) and dividends during the year are:

	Price	DY	RR	IG	DPS
Opening	1 000c	3.60%	10.15%	7.0665%	36c
Closing	1 200c	3.33%	9.80%	6.9408%	40c

Calculate the total return earned by the share during the year and the elements of the return.

Total return: (1 200 + 40) / 1 000 -1	24.0%
Dividend return: 40 / 1 000	4.0%
Growth in dividends: 40 / 36-1	11.1%
Fundamentals	15.1%
Imputed growth effect (Applications Reality Checks)	-4.2%
Required return effect (Applications Reality Checks)	12.8%
Irreconcilable difference	0.6%
Sentiment	8.9%
Total return	24.0%

Constituents of the return on an index

Example

The following is the profile of the JSE Alsi index over the past four years:

Year	**2016**	**2017**	**2018**	**2019**
Index	50654	59505	52737	57084
Dividend yield	2.91%	2.78%	3.52%	3.58%
Required return	10.28%	10.59%	10.25%	9.92%
Imputed growth	7.771%	8.184%	7.230%	6.860%
Return		20.7%	-8.3%	12.1%

An analysis of the returns for 2017 to 2019 is:

Element	2017	2018	2019
Growth in dividends	12.2%	12.2%	10.1%
Dividend returns	3.3%	3.1%	3.9%
Fundamental returns	15.5%	15.3%	14.0%
Imputed growth effect	17.6%	-32.2%	-12.4%
Required return effect, etc.	-11.0%	16.5%	12.3%
Irreconcilable difference	-1.4%	-7.9%	-1.8%
Sentiment effect	5.2%	-23.6%	-1.9%
Return on the Alsi	20.7%	-8.3%	12.1%

This tells us that the fundamentals have been strong over the past three years.

In 2017 the imputed growth rate increased from 7.62% to 8.18% resulting in a 24.0% positive imputed growth rate effect and an excellent return on the Alsi. However, in 2018 the market reassessed the imputed growth from 8.18% to 7.23% with a disastrous effect on the market return for 2019 (-32.0%). A further reduction in the imputed growth rate in 2019 impacted the return on the Alsi negatively.

Crudely, one could compare the imputed growth rate to the expected inflation rate plus real growth. The question you should be asking yourself is: "Is 6.86% now realistic or could there be a further fall in the imputed growth rate?"

Exercise

The index, dividend yield and required returns at the beginning and end of a year were:

	Index	**DY**	**RR**
Opening	51 976	3.46%	10.17%
Closing	51 232	3.76%	10.12%

Calculate the total return earned by the index during the year and the four elements of the return.

Answer

Total return: (51 232 + 3.76% x 51 232) / 51 976 -1	2.3%
Dividend return: (3.76% * 51 232) / 51 976	3.7%
Dividend growth: (3.76% x 51 232) / (3.46% x 51 976)-1	7.1%
Fundamentals: (3.7% + 7.1%)	10.8%
Imputed growth effect (Applications Reality Checks)	-9.5%
Required return effect	1.7%
Irreconcilable differences	-0.7%
Sentiment	-8.5%
Total return: (10.8% - 8.5%)	2.3%

Conclusion

Being able to separate the return from a share into the results of the actions of management (the dividend return, the growth in dividends and other corporate events), called the fundamentals, and market perception or sentiment (the change in the imputed growth and required return) improves the ability of the investor to analyse past returns and to project the future.

Being able to separate the return from a sector into the fundamentals and market sentiment enables the analyst to predict how reversions of sentiment to the mean could affect future sector returns.

Chapter 08: Valuing Listed Equity Shares

Introduction

This chapter discusses the thinking behind valuing a share in a listed equity company, including the:

1. Nature of a listed share
2. Two concepts of value
3. Valuation models used in Our Programme
4. Valuation models rejected
5. Steps taken when performing a valuation
6. Required return

Nature of a share

The key question to ask when valuing a listed equity share is: "Exactly what am I valuing?" The rights attaching to a minority equity holding in a listed company are the rights to:

1 Receive future dividends

2 Sell the shares on the open market

3 Receive any liquidation distributions

4 Attend shareholders' meetings and vote on resolutions (a waste of time!)

5 Receive the annual and interim financial statements of the company and other information – this right is available to the general public

6 Participate in any rights issues and other offers made by the company - many companies ignore this right

So it is a bundle of rights that you need to address when arriving at the valuation of a listed equity share.

Contrary to popular belief, a minority shareholder has no rights to the company's assets or to its profits. Any valuation based on the value of the assets of a company or on the profits of the company is, therefore, without merit unless the full value of the benefits derived by the assets or the full profits are passed onto the shareholders by way of dividends.

Two valuation concepts

There are two values of a share:

1. What you can buy or sell it for today (the market price)
2. It's value to you if held as a long term investment

If the value to you, as a long term investment, is less than the market price, you should not hold it. If the value to you as a long term investment is more than the market price you should hold it (provided that the investment meets the three other selection criteria).

One stage dividend growth model

The only long term benefit a small shareholder of a listed company receives is dividends. We have, therefore, adopted the discounted dividend valuation model.

There are two approaches one can use to arrive at the formula for determining a one stage dividend growth valuation model of a share:

1. Derive it from the formula for the predicted rate of return or
2. Apply the time value of money formula for discounting a future growing stream of cash flows (Gordon's Growth Model)

Predicted rate of return approach

The return one can expect from a listed equity investment is the expected future dividends plus the expected future growth therein:

$r = DY + g$

Because a share's dividend yield is the previous dividend per share divided by the current price of the share, we need to project a forward dividend yield by increasing the actual dividend yield by the projected growth rate.

$r = DY (1 + g) + g$

As dividends are taxed, we need reduce the forward dividend yield by withholding tax.

$r = DY \times (1 + g) (1 – t) + g$

Capital gains tax is payable on realised capital gains so we should reduce the growth element by CGT. However, CGT can be managed by effective tax planning and the exemption granted to individuals so this tax is not accounted for in the determination of the predicted rate of return.

To summarise, therefore, the formula for the predicted return on a share is:

$r = DY \times (1 + g) \times (1 - t) + g$ where:

- r is the predicted rate of return for the share being evaluated
- DY is the previous maintainable dividend per share divided by the current market price of the share
- g is the expected future growth rate in dividends
- t is the rate of withholding tax (presently 20%)

For example, if the market price of a share is 100 cents, the previous maintainable dividend was 5 cents per share giving a dividend yield of 5%, the expected growth in dividends is 9% p.a. and the rate of withholding tax is 20%, the return on this share would be:

$5\% \times (1 + 9\%) \times (1 – 20\%) + 9\% = 13.4\%$

If the required return for this share was 13.4%, the price of the share would be fair.

Exercise: Predicted return

You are evaluating a share with a maintainable dividend yield of 3%. You estimate that the future growth in dividends will be 8% p.a. and you require a return on this investment of 10% p.a. On the face of it, is the share under, over or fairly valued by the market?

Answer

The share price appears to be slightly undervalued as the predicted rate of return (10.6%) exceeds the required return.

r = DY% x (1+g) x (1-t) + g

r = 3% x (1 + 8%) x (1 – 20%) + 8% = 10.6%

Or, using the calculator 2 in Reality Checks

Maintainable dividend yield	3.0%
Withholding tax rate	20%
Predicted growth rate	8.0%
Predicted rate of return	10.6%

Replacing DY in the above formula with Dividend divided by Value, the formula for value would be:

V = (D x (1 + g) x (1 – t)) / (r – g)

Discounting growing cash flows

The formula for discounting future growing cash flows is:

V = (D x (1 + g) x (1 – t)) / (r – g) where:

V = Value

D = Last year's dividend per share

g = Annual growth expected in future dividends

r = Required rate of return

t = Withholding tax rate

Example

Use Calculator 7 in Reality Checks, or manually calculate the valuations for the four examples below.

Elements	**1**	**2**	**3**	**4**
Past DPS – cents	60	60	60	60
Required return	10%	10%	10%	10%
Predicted growth	6%	7%	8%	9%
Withholding tax	20%	20%	20%	20%
Valuation - cents	1 272	1 712	2 592	5 232

Multiple stage dividend growth model

The multiple dividend growth model is used in Our Programme. We use the one stage dividend growth model as a backup to this model.

The steps taken when applying the multiple stage valuation model are:

1. Decide on the required rate of return (five year government bond rate reduced by the marginal tax rate for individuals plus an average risk premium (we use 5%) plus or minus any adjustment required to the average risk premium. We usually do not do the last step as we assume that the share is to be part of a portfolio.
2. Study the past six years' dividends per share and project the next six years' dividends per share (the first three manually and thereafter using growth rates) based on your analysis of the company's financial statements and comments by directors.

The model assumes that the sixth DPS growth rate will continue into the future.

The model discounts the projected dividends for the first five years and values the share at the end of the fifth year to arrive at the value at the year end.

An adjustment is then made to arrive at the value at the valuation date.

Study the valuation model in B Database, Applications and those in Level 2 and 3 company analyses to fully understand the model.

Where the price and the value differ materially, attempt to determine the reasons why this could be the case. If you cannot understand why the share price is materially above the fair long term value of the company, it is best to avoid holding the share. I have avoided many a loss following this approach.

Valuation methods rejected

There are two valuation methods used by investors which need to be examined and rejected as being unscientific. They are:

1. The Price Earnings Ratio Method
2. The Sum of the Parts Method

Price Earnings Ratio Method

Those who apply this method start the process by determining the earnings per share (basic, headline, core, sustainable, maintainable, or adjusted?). Then multiply the earnings by a "fair price earnings ratio". This multiple is usually derived from similar listed companies.

Those applying this method usually do not know that the formula for a fair PE ratio is:

PER = (DP% x (1 + g) x (1 – t)) / (r – g)).

If they used this formula to determine a fair PE ratio, their method would be slightly more acceptable.

SOTP Method

Those who apply this method value the assets of the company, deduct the value of the liabilities of the company and divide the net amount arrived at by the number of shares in issue, excluding treasury shares. This method is only valid if the full benefits derived by the assets of the company are passed on to the shareholders of the company. Where, for example, the benefits derived by the assets of the company are used to pay remuneration to management or/and are used to invest in uneconomical assets (hair-brained schemes), this method is not applicable. Research has revealed that investors would be better off over time investing in the underlying assets of companies rather than in the companies that hold such assets.

Required return

An alternative to investing in a share is to invest in long term government bonds which, if held to maturity, can usually be seen as a risk free investment. In Our Programme, this is our starting point for arriving at the required return for a share investment.

It is a basic principle of investing that one evaluates the after-tax cash flow using an after tax required return. Government bond interest is taxed in the hands of investors at the normal rate of tax which, for this purpose, is deemed to be the top marginal tax rate of 45%.

Listed share investments are more risky than government bonds so you need to be compensated for this risk by earning a premium over the after-tax risk free rate. In determining this premium one has to be realistic as the market may not be able to deliver a high premium. It is considered that a realistic average risk premium for shares listed on the JSE is 5% p.a.

There will be shares listed on the JSE that will warrant a premium above the average risk premium of 5% p.a. due to their higher risk profile (e.g. mines, furniture retailers and motor vehicle dealers) and some that could be less than 5% because they are less risky than the average listed share (e.g. food retailers). In Our Programme this is called the risk adjustment.

Note that Our Programme rejects the theoretical capital asset pricing model.

Exercise: Required return

You are evaluating a listed share. The long term government bond rate is presently 9.0% p.a. and you require an additional risk premium over and above the average risk premium of 0.5% p.a. What is the required return for this share?

Using calculator 1 in Reality Checks the answer is 10.45%

r = Rf (1 – t) + SR +/- RA

r = 9.0% (1 – 45%) + 5.0% + 0.5% = 10.45%

Chapter 09: Market Performance Analysis

Objectives

The objectives of this Chapter are to:

1. Describe the JSE Equities market
2. Analyse the profile of the market
3. Analyse the returns achieved by the market
4. Analyse the risks of investing in the market

Description

Our Programme analyses the market into:

1. Three sectors: industrials, financials and resources
2. Three strata: A (the top 10 shares by market float), B (the next 30 shares by market float) and C (the rest of the shares in the Alsi)
3. The various clusters: e.g. banking, insurance, retail

The total value of the equity shares listed on the JSE at 31 December 2019 was R14 630bn. This amount was arrived at by summing the market caps of the +/- 350 equity shares listed on the JSE. The market cap of a company is arrived at by multiplying the market price of its equity shares by the number of equity shares in issue.

When we mention the "market" in Our Programme, we refer to the All Share index, which consists of the free floats of +/- 160 companies included in the index. To be included in this index the company has to meet certain criteria, for example, a minimum free float percentage.

Sectors

To keep our analysis simple, we use the Indi 25, the Fini 15 and the Resi 10 as surrogates for the three sectors. At 30 September 2020 the free floats were (Rbn):

Sector	Surrogates	%	Other	Total	%
Industrials	2970	49%	139	3109	47%
Financials	902	15%	226	1128	17%
Resources	2221	36%	209	2430	36%
Total	6093	100%	574	6667	100%

To view the shares included in the Indi 25, the Fini 15 and the Resi 10 go to B Database, Markets and JSE Sectors.

Strata

We have stratified the market into three strata:

1. Stratum A includes the top 10 companies by free float in the Alsi index
2. Stratum B includes the next 30 companies by free float in the Alsi index
3. Stratum C includes the rest of the companies (+/-120) in the Alsi index

The free floats and market caps of the three strata at 30 September 2020 were (Rbn):

Stratum	Float	%	Cap	%	F/C
A	4078	61%	7906	56%	52%
B	1839	28%	2520	18%	73%
Top 40	5917	89%	10426	74%	57%
C	750	11%	3629	26%	21%
Alsi	6667	100%	14055	100%	47%

Clusters

For planning the diversification of our portfolios we classify the Top 40 index into 16 clusters. Strictly we should use the Alsi index. However, to keep it simple and based on the Top 40 and the Alsi index returns being almost identical, we opted to use the Top 40 index for this purpose.

Profile

The profile of the Alsi index at 31 December each year for the past six years assuming an average risk premium of 5% p.a. is:

Year	PE	DY	DP%	IG	RR
2014	17.0	2.97%	50%	7.0%	9.7%
2015	19.3	3.17%	61%	7.7%	10.6%
2016	22.8	2.91%	66%	7.6%	10.3%
2017	21.0	2.78%	58%	8.2%	10.6%
2018	16.4	3.52%	58%	7.2%	10.3%
2019	16.5	3.58%	59%	6.9%	9.9%

From 2017 to 2019 the price earnings ratios fell and the dividend yields increased which reflects the poor returns achieved during these periods.

The required return and imputed growth rate have been falling since 2017.

Similar information is available in the database for the Top 40, the Indi 25, the Fini 15 and the Resi 10.

Returns

The returns achieved by the various sectors for the past six years have been:

Year	Alsi	Top40	Indi	Fini	Resi
2014	11%	13%	22%	31%	-13%
2015	5%	7%	17%	0%	-36%
2016	3%	-1%	-8%	4%	29%
2017	21%	23%	25%	23%	17%
2018	-8%	-8%	-18%	-4%	18%
2019	12%	12%	11%	1%	25%

2014's and 2015's returns were badly affected by resources. However, since 2016, resources have made a dramatic recovery.

In 2018 industrials were impacted by the fall in Nasper's share price.

But for 2014 and 2017, financials have been a disaster, even more so in 2020.

Similar information is available in the database for periods longer than six years.

Return analysis

The return from dividends (DR) plus the return from dividend growth (DG) equals the return generated by the performance of the companies in the index (fundamentals).

The return from changes in the imputed growth (IG), the required return (RR) and the reconciling difference are not within the control of companies but result from market forces, called "sentiment" in Our Programme.

The four elements of the returns achieved on the Alsi index for each of the past six calendar years were (%):

20	DR	DG	Fun	IGE	Other	Sent	Ret
14	3%	18%	21%	-19%	9%	-10%	11%
15	3%	9%	12%	25%	-32%	-7%	5%
16	3%	-8%	-5%	-3%	11%	8%	3%
17	3%	12%	15%	24%	-19%	5%	20%
18	3%	12%	15%	-32%	8%	-24%	-9%
19	4%	10%	14%	-12%	10%	-2%	12%

The fundamental returns have been excellent.

Sentiment has been negative four of the past six years impacting on the total returns.

The imputed growth rate fell in 2018 from 8.2% to 7.2% resulting in the disastrous -32% imputed growth effect in 2018's return. A similar fall in the imputed growth rate the following year caused the -12% imputed effect in 2019.

Of course the Covid-19 virus has changed all this for now.

Risk analysis

There are two ways of analysing market risk:

1. To analyse historical market "crashes"
2. To use the concept of Value at Risk

Historical Crashes

In the past 45 years we have experienced four years where significant events caused markets to "crash", i.e. incur a loss of worse than -8% in any one year:

Year	1975	1998	2008	2018
Loss	-12.4%	-9.6%	-22.5%	-8.3%

In the past 40 years the following months saw losses of over 8% together with the result for the year:

Year	Month	Loss	Month	Loss	Year
1975	Aug	-16.3%			-12.4%
1997	Dec	-12.7%			-4.3%
1998	Jun	-11.1%	Aug	-29.7%	-9.6%
2001	Mar	-9.2%	Sep	-9.3%	+27.9%
2002	Jul	-13.1%			-6.9%
2003	Mar	-8.3%			+15.4%
2008	Sep	-13.7%	Oct	-11.6%	-22.5%
2009	Feb	-9.8%			+31.5%
2018					-8.3%
2020	Feb	-8.7%	Mar	-12.5%	-2.3%

So far, to 30 September 2020, the pandemic crisis has resulted in a loss of only -2.3%. However, it is still early days.

The ten worst market crashes in the US, prior to the 2008 crash, were:

No.	Fall	Dates	Reason
10th	38%	15 Jan 2000 to 10 Sep 2002	1
9th	40%	21 Nov 1916 to 19 Dec 1917	2
8th	41%	12 Sep 1937 to 28 Apr 1942	3
7th	45%	11 Jan 1973 to 6 Dec 1974	4
6th	46%	17 Jun 1901 to 9 Nov 1903	5
5th	47%	3 Nov 1919 to 24 Aug 1921	6
4th	48%	3 Sep 1929 to 13 Nov 1929	7
3rd	49%	19 Jun 1906 to 15 Nov 1907	8
2nd	49%	10 Mar 1937 to 31 Mar 1938	9
1st	86%	17 Apr 1930 to 8 Jul 1932	10

Reasons:

1. Tech bubble burst
2. Beginning of the first world war
3. Attack on Pearl Harbour – world war two
4. Vietnam war and Watergate scandal
5. Severe drought in the US
6. First tech bubble burst
7. Start of great depression
8. Credit crunch in New York
9. Great depression, war scare and Wall Street scandals
10. Great depression (took 22 years to recover)

One can conclude that South Africa has not been a disaster that many make it out to be!

Value at Risk

Value at risk tells us what the probability is that any period (in our case month) will exceed a certain loss. For example, VAR during the past 10 years and nine months was -5.6%. This tells us that there is a 5% probability that a loss of 5.6% or more should be incurred in any month. This only holds true if the histogram is not overly skewed.

The following table analyses the statistics of the Alsi returns for the past 40 years and nine months:

Years	40.75	30.75	20.75	10.75
Sample size (SS)	489	369	249	129
Average gain (AG)	1.1%	1.0%	0.9%	0.7%
Median gain (MG)	1.3%	1.0%	0.9%	0.6%
Standard deviation (SD)	5.8%	5.2%	4.8%	3.8%
1.645 x SD (F)	9.5%	8.6%	7.8%	6.3%
VAR (AG – F)	-8.3%	-7.6%	-6.9%	-5.6%
AG + F	10.6%	9.6%	8.8%	7.0%
Months below VAR	26	18	12	4
% of sample size	5.3%	4.9%	4.8%	3.1%
Months above AG + F	16	18	16	8
% of sample size	3.3%	4.9%	6.4%	6.2%
Biggest loss (-)	29.9%	29.9%	14.0%	12.5%
Highest gain	17.5%	17.5%	14.0%	13.5%

Explanations and comments:

Sample size: Number of months included in the study

Average gain: The average gain per month. Notice how it is reducing.

Median gain: The monthly median (middle of the sample) gain for the period. It is also decreasing. It has gone from being above the average gain to equaling the average gain to below the average gain. This helps you visualise the bell curve.

Standard deviation: Notice how the monthly volatility is reducing.

The factor 1.645: Imagine a bell curve. If you go 1.645 standard deviations to the left of the average return and at this point you draw a vertical line from the base to the top of the curve and then go 1.645 standard deviations to the right of the average return and at this point you draw a vertical line from the base to the top of the curve, 90% of the population should be between the two vertical lines if the bell curve is not overly skewed, leaving 10% outside, 5% on either side.

Value at risk: The average return minus 1.645 standard deviations is VAR. For example, for 40.75 years VAR is -8.43%. There is a 5% probability that a loss of greater than -8.43% could occur. 26 months were below VAR over the past 40.75 years, or 5.3% so it works. Only 18 months were above AG plus F, which means that during this period there was a fat tail. Notice how the fat tail has moved to a thin tail as the period reduced.

One can conclude from this exercise that market risk has reduced over time but, unfortunately so has the market return.

Exercise

The following statistics apply to Shoprite for the past 129 months:

Average monthly return	1.1%
Standard deviation of monthly returns	7.8%

Calculate VAR at 95%.

Answer

1.1% - 1.645 x 7.8% = -11.7%, i.e. there is a 5% probability, based on the past, that any one month's loss could exceed 11.7%.

Problem with strata returns

We calculate the Stratum A returns by assuming that the shares in this stratum have been there since the beginning of the year. This is not how the JSE calculates the returns for the Top 40 shares, i.e. strata A and B, so we cannot calculate, reliably, the returns for stratum B on its own. We can, however, calculate the returns on Stratum C by difference as we have the Alsi and Top 40 returns.

Here are the returns for the past five years:

Year	Alsi	Top 40	Stratum C	Stratum A
2015	5.1%	7.4%	-6.6%	12.3%
2016	2.8%	-1.4%	26.4%	0.2%
2017	20.7%	22.8%	10.8%	40.0%
2018	-8.3%	-8.1%	-8.9%	-8.7%
2019	12.1%	12.4%	10.6%	15.4%

Chapter 10: Company Performance Analysis

Introduction

This Chapter discusses a company performance analysis under the following headings:

1. Growth analyse
2. Profitability analysis
3. Sustainability analysis

Growth analysis

You should analyse the growth achieved in the following elements of the income statement, comprehensive income statement, cash flow statement and balance sheet:

1. Revenue
2. Operating profit
3. Comprehensive income
4. Dividends paid
5. Borrowings
6. Equity

See the company's file in B Database, Financial analysis. This information is only given for level 3 analysis companies.

Example

Here are the growth ratios for Shoprite for the years ended 30 June:

Year 20	16	17	18	19	20	5y
Revenue	14%	8%	3%	4%	4%	5%
Operating profit	16%	8%	-3%	-7%	8%	2%
Earnings	17%	12%	-4%	-18%	-21%	-10%
Headline earn.	17%	15%	-3%	-20%	-3%	-4%
Comp. income	13%	6%	0%	-67%	-122%	-57%
Dividends paid	11%	21%	15%	-19%	-27%	-7%
Borrowings	66%	3%	32%	44%	11%	19%
Equity	12%	30%	-1%	-5%	-24%	-5%

Profitability analysis

Ideally we should employ the modified du Pont financial analysis system to assess the company's profitability. We include a discussion of this system in Appendix 05. However, for selecting shares for inclusion in a portfolio this is over-kill and during the years this analysis was part of our programme, few used it or understood it. So we have designed a watered down version for this chapter, i.e. to analyse the:

1. Margin
2. Earnings to revenue
3. Return on equity (earnings)
4. Return on equity (comprehensive income)

Example

Here are the return ratios for Shoprite:

Year	2016	2017	2018	2019	2020
Margin	5.7%	5.6%	5.3%	4.8%	4.9%
Earnings to rev.	3.7%	3.8%	3.6%	2.8%	2.1%
ROE (Earnings)	22.7%	19.6%	19.0%	16.3%	16.9%
ROE (CI))	19.9%	16.3%	16.5%	5.7%	-1.6%

Risk analysis

The following areas are discussed under this heading:

1. Business risks
2. Financial risks
3. Compliance risks
4. Management risks
5. Foreign exchange risks

Business risks

Business risks could include:

1. The impact that competition could have on the business
2. The possibility of labour unrest and the impact on the future profits and cash flows
3. The possibility and consequences of losing one or two major customers
4. The reliability of supplies of raw material and product
5. The vulnerability of the brand to legal and other attacks
6. The impact of changing commodity prices on profitability
7. The effect of product obsolescence on the future profitability, cash flows and sustainability
8. The impact of an economic downturn on the profits and cash flows of the company
9. The impact of a pandemic on its operations

Financial risks

Financial risks could include:

1. The impact that interest rate increases could have on profits and cash flows
2. Whether there are available liquid resources to meet commitments and obligations
3. The exposure to credit risk, e.g. defaulting debtors
4. Possible pension fund shortfalls
5. Under provision for environmental damage
6. Under provision for bad and doubtful debts

Compliance risks

Compliance risks could include:

1. The extent to which government interference could affect profitability and cash flows

2. The risk of tax authorities attacks and the possible consequences thereof
3. The effects of non-compliance with legislation
4. BEE regulatory compliance

Management risks

Management risks could include

1. Provisions for succession of key managers
2. The effect of skills shortages on operations
3. Inadequate internal controls
4. Exposure to cyber attacks
5. Poor decision making such as:
    - Woolworth's investment in David Jones
    - Sasol's investment in Lake Charles
    - Famous Brand's investment in GBK Restaurants

Foreign exchange risks

Foreign exchange risks could include:

1. On imports and exports
2. On foreign borrowings
3. On foreign loans
4. On assets located in foreign countries

Chapter 11: Share Performance Analysis

Introduction

This chapter deals with the process for analysing the performance of a share:

1. Market performance analyses
2. Growth analyses
3. Share price reality checks
4. Risk analysis
5. Value v price

Market analysis

There are four areas to analyse in this step:

1. The absolute returns achieved
2. The elements of the returns achieved
3. The returns relative to the overall market returns
4. The returns relative to our benchmark returns

Absolute returns achieved

In each company's file (can access from A Passive Wealth Builder, Watch List, Statistical Analyses), the returns achieved for the past 10 years, 5 years, 3 years, 10 individual calendar years and the current year to date can be found under the heading "Returns Achieved". These returns are pre-withholding tax returns and include capital growth and the dividend return.

Elements of returns achieved

In the company's file, Statistical Analyses, the elements of the returns achieved for the past 10 years, 5 years, 3 years, 10 individual calendar years and the current year to date can be found in the right-hand block.

Alsi alphas achieved

In the company's file, Statistical Analyses, the positive or negative Alsi alphas (returns achieved above or below the Alsi returns) achieved for the past 10 years, 5 years, 3 years, 10 individual calendar years and the current year to date can be found under the heading "Alpha Alsi". (See also the ten year graph.)

Top 40 alphas achieved

In the company's file, Statistical Analyses, the positive or negative Top 40 alphas (returns achieved above or below the Top 40 returns) achieved for the past 10 years, 5 years, 3 years, 10 individual calendar years and the current year to date can be found under the heading "Alpha Top 40". (See also the ten year graph.)

Growth analyses

There are four areas to analyse under this step:

1. Growth in book value per share
2. Growth in earnings per share
3. Growth in dividends per share
4. Sustainable growth rate

Growth in BVS, EPS and DPS

The growths in book value per share, earnings per share and dividends per share for the past six years and the weighted average five year growth rates can be found in the Share Information section of each company's file for level 3 and level 2 analyses companies, if available.

Sustainable growth rate

The sustainable growth rates for the past five years and the weighted average over the past five years can be found in the Share Information section of the company's file.

This measure can assist in the prediction of the growth in future dividends on condition that the return on opening equity and the dividend payout percentages remain constant going forward.

Reality checks

There are four areas to analyse in the step:

1. The dividend yield
2. The price earnings ratio
3. The price book ratio
4. Imputed growth rate

The first three measures can be found in the Share Information sections of each company's file. These measures can be tested for reasonableness by using the application sheet called "Reality Checks" in the Application folder in B Database.

The imputed growth rates in the Statistical Analysis sheets in each company's file can be tested for reasonableness by analysing the growth actually achieved in the past and by comparing them to the sustainable growth rate.

Risk analysis

Risk means different things to different "investors":

1. To the Speculator it means making a loss instead of the hoped for profit.
2. To the Traditional Balanced (TB) style investor it means earning less than the return hoped for.
3. To the Enhanced Tracker (ET) style investor, it means underperforming the market return.

Traditional balanced portfolios

The risks these investors are exposed to are that:

1. Selected counters under-perform
2. The market itself under-performs

One can minimise the first risk by careful selection of counters.

There is not much one can do about the second risk.

Enhanced tracker portfolios

1. The risks these investors are exposed to are that:
2. Counters not selected out-perform the Top 40
3. Counters selected under-perform the Top 40
4. The Top 40 (beta) under-performs the Alsi

5. Not sufficiently diversifying the portfolio

One can minimise these risks by being careful during the selection process.

Value v price

This step involves performing a valuation of the share – see Chapter 8. The populated valuation models for the shares can be found in the Fundamental Analyses sheets in each company's level 2 and level 3 file. You should perform "what-if" analyses on these models to get a feel for how the valuation elements (required return and projected growth) affect the value of the share.

Chapter 12: Investment Styles

Introduction

Two investment styles have proven popular over the years of presenting Our Programme. We recently named them:

1. The traditional balanced style (TB)
2. The enhanced tracker style (ET)

This Chapter describes each of these styles, identifies the pros and cons of each and gives guidance to those who wish to convert from the TB to the ET style. It also lists policies to consider in the selection or rejection process.

Traditional balanced style

Description

This style is used by most professional and DIY asset managers. Its goal is to earn an absolute return or to beat a benchmark such as the inflation rate or a long term government bond return.

It attempts to minimise risk of loss by diversifying over many clusters and usually aims for equal weighting of counters to minimise risk of loss from over-weighting a counter that collapses.

In selecting counters for inclusion in the portfolio, a thorough analysis is made of the company and share before investing therein. This is a costly exercise and beyond the capability of most DIY investors.

Our Programme gives guidance to assist DIY asset managers in the selection process. We use the Four Evidence Based approach (performance, business, profile and value). The most problematic element is arriving at value as this requires predicting future events.

Few asset managers are able to beat the Alsi return using this style. This is why the worldwide move has been towards tracker funds.

Most DIY portfolio managers feel comfortable using this style and find it difficult to escape their comfort-zone.

Risks

Risk, for this style is not achieving your stated goal. The risks associated with this style are:

1. That the market under-performs
2. That one or more selected counters collapse
3. That the portfolio is miss-managed

Enhanced tracker style

Description

This style chooses an index to track. However, instead of merely acquiring all the counters in the index, in the index weightings, it attempts to enhance the returns from the index by discarding the under-performing counters and modifying the index weightings of the counters to reduce risk. The MeB (Modified Enhanced Beta) approach is synonymous with the ET style.

The goal of this style is to earn a return above the market (Alsi) return, which we call alpha in Our Programme.

Steps taken when constructing a portfolio

The steps taken when constructing an ET portfolio are:

1. Decide which index to track.
2. List the shares comprising the index.
3. Eliminate the duplicates, under-performers and shares that are not in accordance with our policies.
4. Decide how many counters we want in our portfolio.
5. Select the best counters left over in our list after the elimination process for inclusion in our portfolio.
6. Modify the market weightings of the counters.
7. Decide on a cap (maximum holding) and floor (minimum holding) policy.
8. Adjust the modified market weightings of the counters selected taking the caps and floors into account.
9. Round the number of shares to nearest 10
10. Go for it.

Step 1: Choice of index

The most representative index in RSA of the Alsi is the Top 40 index. This index tracks the Alsi almost perfectly. Here are the returns for the past ten years:

Year	Alsi	Top 40	A – T
2010	19%	17%	2%
2011	3%	2%	1%
2012	26%	26%	0%
2013	21%	19%	2%
2014	11%	13%	-2%
2015	5%	7%	-2%
2016	3%	-1%	4%
2017	21%	23%	2%
2018	-8%	-8%	0%
2019	12%	12%	0%

Step 2: List the counters (shares) in the index

The shares comprising the Top 40 index can be found in Portman 2020, B Database, A Passive Wealth Builder, Top 40.

A list can also be found in Portman 2020, B Database, A Passive Wealth Builder, Watch-List.

Step 3: Eliminate under-performers, etc.

Without giving advice, here are my suggested eliminations:

Banking: ABG, INL/P and NED. The other three banks FSR, SBK and CPI could be considered.

Chemicals: SOL is far too risky to consider.

Diversified: REM and RNI - our policy is to acquire the underlying and not the holding company.

Insurance: OMU – SLM and DSY are considered to be better investments.

Pharmaceuticals: APN fails our selection criteria.

Technology: NPN and PRX are really one company. We favour the underlying so NPN is rejected.

Mining: Our policy is not to hold SA mining shares due to the risks involved. The shares rejected are therefore AGL, AMS, ANG, EXX, IMP, GFI, SSW and NHM.

Other: MCG due to its short history as a listed share.

Property: GRT and NRP as we do not invest in property.

Retail: MRP and WHL due to the high risk nature of the shares.

Telecoms: MTN due to the high risk nature and poor performance of the share.

23 counters are rejected leaving us with 17 possibilities from which to select our portfolio.

Step 4: Decide on the number of counters to hold

This number could range from 10 to 18, depending on the size of the portfolio and how risk adverse or aggressive the investor is.

Step 5: Select the counters you wish to hold

See the next step for an example.

Step 6, 7 & 8: Modify and adjust market weighting

1. List the counters for inclusion, together with the float weightings.
2. Modify the float weightings to bring the total to 100% - in the example below use the factor 100.0/60.5.
3. Adjust taking into account caps and floors, in the example below we used 15% cap and 6% floor. Note that PRX is seen as two counters, PRX and NPN.

Example for 10 counters:

Share	Cluster	Sect	Stra	Weigh	Mod *	Adj **
CPI	Banking	Fini	B	0.8%	1.3%	6%
FRS	Banking	Fini	A	3.0%	5.0%	6%
BID	Food	Indi	B	1.5%	2.5%	6%
SLM	Insur.	Fini	B	1.8%	3.0%	6%
MNP	Manuf.	Resi	A	2.5%	4.1%	6%
PRX	Technol.	Indi	A	25.4%	42.0%	30%
BHP	Mining	Resi	A	13.0%	21.5%	15%
BTI	Recreat.	Indi	A	2.6%	4.3%	6%
CLS	Retail	Indi	B	0.9%	1.5%	6%
CFR	Retail	Indi	A	9.0%	14.9%	13%
Totals				60.5%	100.0%	100%

Step 9: Round number of shares

Round the number of counters to the nearest 10, purely to make the portfolio look neat!

Step 10: Go for it

If you do not yet have a portfolio, buy the shares per your plan. If you already hold a portfolio, use the construction sheet in A Passive Wealth Builder to modify it.

Comparisons of the two styles

1. The TB style aims for an absolute return or a return relative to some benchmark such as the rate of inflation whereas the ET style aims to beat the market.
2. It is easier to identify a dog than a gem. The TB style requires one to select shares for inclusion whereas the ET style requires one to reject poor performing counters.
3. The TB style often involves investors becoming attached to a share (emotion) whereas the ET style follows a defined process.
4. The ET returns in 2020, so far, have outperformed the TB returns – see the Hedgehog stats. However, this will not always be the case, e.g. if in the ET portfolio above PRX collapses, TB portfolios could out-perform ET ones.
5. Both styles focus on diversification to reduce risks.
6. The TB style aims for more or less equal weighting of counters where the ET style uses a modified market weighting approach employing caps and floors.
7. If the market collapses, the TB investor weeps. The ET investor, however, feels nothing as this event has little impact on the achievement of his or her goal.

Policies

My policies for managing my portfolio are:

1. I take control and responsibility for my own portfolio of listed equities.
2. I do not invest in properties, bonds, unit trusts, tracker funds, retirement benefit funds or pension funds.
3. I use the modified enhanced beta strategy when constructing my portfolio:
   - I use the Top 40 index as my “beta”.
   - I attempt to enhance my returns by eliminating unnecessary duplicates and poor performing counters in the Top 40 index from my portfolio.
   - I use the adjusted market weighting approach to weight the counters in my portfolio employing caps and floors.
4. I take care when selecting shares for my portfolio by using the Four Evidence Based (4EB) decision making process - see Chapter 13.
5. I do not try to time the market: once I have a plan I execute it.
6. I exercise patience when managing my portfolio. I am in this game for the long haul so short term movements in the market do not impact my decisions.
7. I avoid placing halos on companies, i.e. I keep emotion out of the decision making process.
8. I do not bet on turnarounds, unless research indicates that such a turnaround is highly likely.
9. I avoid knee-jerk reactions by selling gems due to a temporary negative event.
10. I do not fiddle for the sake of fiddling: I keep my gambling instincts under control.
11. I do not act on stories: I do my own research and analysis before investing in a counter.
12. I include a sufficient number of shares in my portfolio to diversify my risk but not so many as to dilute my return.
13. I do not chase the next big thing but confine my selection to a sound researched watch-list based on the Top 40 index.

14. I do not invest in SA mining companies due to the risks involved, their poor past performance and the unsustainability of their future performance.
15. I aim to include at least 45% rand-hedge shares in my portfolio.
16. I try not to buy high and sell low - good shares usually recover after a fall in price.
17. I exit a share as soon as it no longer meets the 4EB (performance, profile, business and value) criteria – see Chapter 13.
18. I avoid companies that merely hold shares in other JSE listed companies as these holding companies tend to destroy value by not passing the benefits of the underlying companies onto their shareholders.
19. I stick to my long term strategy even in years when it seems not to be working. However, I keep evaluating it to ensure that it is still relevant.
20. I avoid a high concentration in clusters such as banks and retail shares as these shares tend to move in tandem with each other thereby increasing risk.
21. I base all decisions on sufficient, relevant, reliable and current evidence obtained from the source when selecting shares for my portfolio - see our database.
22. I trust my own ability and instincts.
23. I am proactive, i.e. I do not procrastinate, I am persistent and I am a master of detail.
24. I conduct monthly post-mortems on my portfolio's performance.
25. I do not let my ego blind me to my mistakes: I ensure that my responses have the objective of improving future outcomes.

Chapter 13: Selection Process

Introduction

This chapter explains the four step evidence based (4EB) process for evaluating a share for inclusion in a portfolio:

1. Performance
2. Profile
3. Business
4. Value

Performance

There are four areas to analyse in this step:

1. The company's performance
2. The share's performance
3. The market performance of the share
4. The dividend performance of the share

Company's performance

From the financial analysis section of the company's file analyse the:

1. Growth in revenue, earnings, headline earnings and comprehensive income.
2. Returns achieved by the company.
3. Financial strength of the company.

The techniques for performing this analysis are covered in Chapter 10.

Share's performance

From the statistical analysis, graphical analysis and share information sections of the company's file analyse and evaluate the:

1. Growth rates in book value, earnings and dividend per share
2. Sustainable growth rate and its elements.
3. Reality checks being the price book ratio, price earnings ratio, dividend yield and imputed growth rate
4. Book value per share dilution

The techniques for performing this analysis are covered in Chapter 11.

Market performance

From the graphical and statistical analysis sheets in the individual company files, measure and analyse the:

1. Past absolute returns earned by the share
2. Returns earned relative to the Alsi and Top 40
3. The profile of the share (see the statistical analysis)
4. The fundamental and sentiment effects of the share's performance

Dividend performance

From the share information, statistical analysis and fundamental analysis sections of the company's file study the dividend history of the company noting the:

1. Past growth in dividends
2. Basis for paying dividends and dividend pay-out percentages
3. Frequency of dividends (once, twice or four times a year)
4. Consistency of dividend payments

If you are satisfied with the performance of the share, proceed to the next step. If not, abort the exercise.

Profile

If investors do not like a company, the share price is unlikely to perform. Companies need to project a sound profile for it to be accepted by the market. It can take years to build a reputation and minutes to destroy it. If a company has a bad reputation, rather avoid the share.

Analyse the following four areas:

1. Management's ability
2. Reporting integrity
3. Financial strength
4. Regulatory issues

Management's ability

1. Management's qualifications and experience.
2. Actions taken by management and the outcomes thereof, e.g. going off-shore with disastrous consequences.
3. The strategic plans of management.
4. The corporate governance procedures, ethics and reactions to any challenges to its reputation.

Reporting integrity

1. Clarity, brevity and telling it truthfully.
2. Compliance with sound accounting standards.
3. Free from strange and unexplained entries.
4. Free from unnecessary hype designed to mislead, own definitions of earnings such as "EBITDA", "core", etc.

Financial strength

1. Financial structure
2. Liquidity
3. Relationship of debt to equity
4. Liability settlement period

Regulatory issues

1. Constraining regulations
2. Outstanding court cases
3. Attacks by SARS
4. Other run-ins with authorities, e.g. competition, health, etc.

If you are satisfied with the company's profile, proceed to the next step. If not, abandon the evaluation.

Business

Decide whether or not you are comfortable with the business of the company. There could be moral or religious reasons for not associating yourself with certain businesses. Your risk appetite will also be a factor to consider here.

Avoid high risk businesses such as gold and platinum mining, motor dealing and furniture manufacturing.

Understand the nature of the products the company sells and the services it provides, who the company's customers and clients are, the sources of the company's raw materials and other resources, where the company operates, the extent to which the operations are diversified, the sustainability of the company's operations, the threats to its operations and the rand-hedge potential of the company's cash flows.

Consider the threats, opportunities and life cycle of the business of the company. Beware of the company that tries to reinvent itself by changing course and/or making major investments in other businesses or/and countries.

See Chapter 10 for a fuller discussion on business risks.

If you are satisfied with the business activities of the company, proceed to the next step. If not, there is no point in continuing your assessment of this share.

Value

The value of a share is the discounted future predicted dividends after tax so gather evidence and evaluate the:

1. Sustainability of the dividends
2. Future growth potential in dividends
3. Risks attaching to the future dividends
4. Results of the valuation model

Dividends sustainable

Study the company's dividend paying history and analyse the company's financial statements.

Growth potential

Consider:

1. The historical growth in dividends.
2. The sustainable growth rate and the relevance of this measure, e.g. whether the company has the ability to pass cost inflation onto customers, fund future growth, find additional customers, etc.
3. Management's plans for future growth and how this is to be funded.
4. The growth in the economies in which the company operates.

Risks

Risks can be classified into:

1. Business risks
2. Financial risks
3. Compliance risks
4. Management risks

See Chapter 10 for a full discussion on risk analysis.

Valuation model results

The valuation model in the fundamental section of the company's file is available to assess whether or not the price of the share is fair. To perform this exercise:

1. Take a view on the projected dividends for the next three years and the growth thereafter.
2. Perform "what-if" scenarios by changing your views regarding the predicted dividends per share and growth therein.

Ranking system

The purpose of this process is to rank a counter for possible selection for inclusion in your portfolio. Our Programme works on a five ranking system:

5 = A no brainer – go for it

4 = Like the share but need to do more research

3 to 1 = Not interested at this stage

Chapter 14: Portfolio Construction

Introduction

This chapter sets out the process for constructing a portfolio assuming the Enhanced Tracker Style is adopted. The same process could be used for the Traditional Balanced Style. However, the latter will focus more on selecting shares for inclusion in the portfolio.

Steps to take

Step 1: Decide on the profile of your portfolio

The examples given below are merely for illustration purposes. You must apply your own mind.

Go to the construction sheet in "A passive wealth builder" and:

1. Enter the total expected amount of your portfolio, e.g. R700 000 in cell B10.
2. Enter your chosen cap and floor in cells C10 and D10, e.g. 15% and 5%.
3. Enter the number of shares you expect to hold in Stratum A, B and C in cells G10, G11 and G12.
4. Enter your suggested percentage holdings in Stratum A, B and C in cells D4 to D6 and in H10, H11 and H12, e.g. 65%, 35% and 0%.
5. Enter your suggested holdings in the industrial, financial and resources sectors in cells H4, H5 and H6, e.g. 65%, 25% and 15%.

These estimates are not cast in stone but will be re-visited during the construction process.

Step 3: Analyse the Top 40 shares

Study the list of shares in the Top 40 index in the sheet in the file called "A passive wealth builder" and note the possible under-performers and duplicates you may consider eliminating.

Step 4: Rank the shares in the watch list

Study the performances of the shares in the Top 40 index and rank the shares based purely on their past performances in the company list in the file called "A passive wealth builder".

In respect of those that you consider are worthy of inclusion in your portfolio, click onto the share's code and study the analysis of the information about the share using the 4EB approach.

In respect of those that really interest you, download the latest financial statements and learn more about the company.

Enter your ranking for the share in column K opposite the company's code in the Watch List: 5 means "go for it", 4 means "need to think some more about it" and 3 or lower means "leave for now".

Step 5: Analyse the core sheet

Study the Core sheet in the file called "A passive wealth builder". This sheet reflects the rankings you gave the various shares in the watch list. If you are happy with the rankings in the core sheet click the VBA button called "Update 5's". You can change any ranking by entering the new ranking in column H opposite the share. Do not over-write the formulas in column G.

Step 6: Consider your selection

You will now be in the construction sheet. Consider your selection and if you are not happy with the results, go back to the core sheet and change the rankings in column H. Continue this process until you are happy with your selection.

Step 7: Decide on your weightings

Decide on the weightings of each share using the adjusted weightings and your caps and your floors as a guide. Enter them into column L and ensure that your weightings add up to 100%.

You now have your model portfolio. If you already have a portfolio and you need to get it into line with your model portfolio, go to Step 8.

Step 8: Shares owned but don't want

If there are shares in your portfolio that you have decided to sell, type the index numbers of these shares from the core sheet at the bottom of your portfolio in column C in the construction sheet. If the share that you hold is not in the core sheet, type its name at the bottom of the list.

Step 9: Separate the construction sheet

Right click the tab "Construction" and copy (not move) this sheet to a separate file.

Step 10: Go for it

Enter the latest share prices in column G and the number of shares you own in each share in column O. Ensure that the total of your existing portfolio agrees with the amount in cell B 10. Column S reflects the number of shares to be bought or sold. Only take action if material.

Chapter 15: Portfolio Monitoring

Introduction

The purpose of monitoring your portfolio is to enable you to take effective management decisions.

Our Programme's monitoring and measuring system is called Hedgehog. As from 31 December 2020 you can join our hedgehog family for a small monthly fee.

This Chapter covers the following aspects of the monitoring activity:

1. The objectives of Hedgehog
2. The accounting system employed
3. Instructions for completing the monthly return
4. Information provided by the system
5. The process followed on receipt of the portfolio

Objectives of Hedgehog

The objectives of the Hedgehog system are to enable you to evaluate the following outcomes achieved by your portfolio.

1. The gross and net returns earned for comparison with the returns earned by the market and other Hedgehog members
2. The return earned on idle cash and the effective net return earned
3. The return earned by the Alsi and Top 40 indexes for comparison with your returns
4. The alpha generated for comparison with your goal
5. The returns earned by the three strata (A, B and C) for comparison with the returns earned by the three market strata
6. The returns earned by the three sectors (Indi, Fini and Resi) for comparison with the returns earned by the three market sectors
7. The effect on your returns by weighting your counters
8. Your portfolio quality measures:
    - The number of counters presently held
    - The number of counters held during the period
    - Your churn rate
    - Your batting average against the Alsi
    - Your batting average against the Top 40
    - The biggest holding in your portfolio
    - The biggest cluster held in your portfolio
    - Your biggest winner (return in rand of your biggest winner divided by the total value of your portfolio)
    - Your biggest loser (the loss in rand of your biggest loser divided by the total value of your portfolio)
    - The proportion of your counters making a positive return
    - The portion of your return from NPN/PRX and from other counters
9. The performance of your clusters compared to the performance of the Top 40 index clusters
10. The comparison of your total return with the return on the counters held at the end of the period
11. The total amount of shares bought and sold during the period to date
12. The trustee fees paid – brokers have different fees. The most expensive being EasiEquities
13. The transaction fees paid – many have saved transaction fees by negotiating with their broker or switching brokers
14. Your portfolio's PE ratio and dividend yield compared to the market PE ratio and dividend yield
15. The withdrawals and contributions to your portfolio during the period
16. The results of your allocation strategy v your selection strategy on your Alsi alpha:
    - From your stratification strategy choices
    - From your sector strategy choices
17. Your investment and living annuity plans
18. Your portfolio's financial statements for the period:
    - Your cash income statement
    - Your opening and closing portfolio
    - Your portfolio changes during the period
    - Your portfolio at the end of the reporting period:
    - Short name, code, stratum, sector and cluster
    - Number of shares held in each counter
    - Market prices and values of each counter held
    - Proportions of each counter to the total portfolio
    - Capital gains, dividends received and returns for each counter
    - Each counter's rung
    - Return on the weighted average investment in relation to the portfolio
    - PE ratio, dividend yield and dividend pay-out percentage of each counter held
19. Below the portfolio, the transactions from the beginning of the reporting period to the end of the reporting period
20. A post-mortem procedure detailing the outcomes of your decisions and a "what, why, how and when" discussion.

Accounting system

The accounting approach we use to process portfolios is a simple bookkeeping system. This is a good opportunity to learn about bookkeeping if you are not an accountant.

To understand bookkeeping you need to become familiar with two things:

1. The definitions of assets, liabilities, equity, income, expenses and profit or loss and
2. Journal entries (debits and credits)

Financial statements and their elements

A balance sheet comprises assets (A), liabilities (L) and equity (E): A - L = E

An income statement comprises income (I), expenses (E) and P or L: I – E = P or L

Definitions of ALIE

An **asset** is a resource held by you, e.g. shares held in Shoprite or cash in your bank.

A **liability** is an amount you owe to someone else, e.g. if you borrowed money to buy shares.

Income is what you earned, e.g. dividends received or interest received.

Expenses are costs that you incurred, e.g. withholding tax, transaction costs, fees to collect interest (known as trustee fees), platform fees (bank charges) or service fees to manage your portfolio, together with value added tax thereon.

Journal entries

A journal entry is passed to record a transaction. A journal entry must consist of one or more debits and one or more credits. The debits and credits should add up to the same amount for your books to balance. This is an ancient but effective system of keeping books.

Debits:

1. Increase assets
2. Increase expenses
3. Reduce liabilities
4. Reduce income (not often)

Credits:

1. Increase liabilities
2. Increase income
3. Reduce assets
4. Reduce expenses (not often)

Typical transactions

Buy 25 shares in A at R800 a share for R20 200:

Share investment	Dr.	20 000
Transaction costs	Dr.	200
Cash	Cr.	20 200

Sell 100 shares in B at R300 per share for R29 700

Cash	Dr.	29 700
Transaction costs	Dr.	300
Share investment	Cr.	30 000

Receive dividends from C of R1 000 and incur withholding tax of R200.

Cash	Dr.	800
Withholding tax	Dr.	200
Dividends received	Cr.	1 000

Receive interest of R3 000

Cash	Dr.	3 000
Interest received	Cr.	3 000

Incur trustee fees of R300 and VAT of R45 thereon.

Cost of collecting interest	Dr.	345
Cash	Cr.	345

Company D unbundles E. Receive 1 000 shares in E at a price on the date of unbundling of R6.

Share investment (E)	Dr.	6 000
Share investment (D)	Cr.	6 000

Company E issues 30 scrip dividends in lieu of cash:

No journal entry – merely increase the number of E shares by 30.

Receive R2 000 refund of foreign withholding tax.

Cash	Dr.	2 000
Withholding tax	Cr.	2 000

Opt for a DRIP scheme where R5 000 is taken out of your account and you receive shares worth R4 000:

Withdrawal from portfolio	Dr.	5 000
Cash	Cr.	5 000
Share investment	Dr.	4 000
Cash	Dr.	1 000
Contribution to portfolio	Cr.	5 000

Submitting monthly returns

Purpose

The purpose of this process is to set-out the rules for submitting the monthly return so that we can process your portfolios.

Objectives

The return must achieve two objectives:

1. Reconcile the cash balance at the end of the previous month with the cash balance at the end of the current month by recording all the transactions during the month.
2. To ensure that all movements in shares during the month have been accounted for from purchases, sales, scrip dividends, unbundlings, donations, etc.

Process

Close to the end of each month you will receive the blank return to be completed together with a deadline date.

Diarise to send me your completed return by not later than the evening of the deadline date. The sooner we receive your return, the sooner you will receive your portfolio.

If your return is received by us after this deadline, it will only be processed the following month together with the next month's return.

Steps for completion

1. Retrieve the return.
2. Enter your handle and your cellular number.
3. Enter last month's cash balance and ensure that it agrees with the closing amount in your previous month's portfolio.
4. Enter the dividends received during the month – three-letter code in capitals (do not guess), the amount received and the tax thereon to the nearest cent.
5. Enter the purchases made during the month – three-letter code (do not guess), date, number of shares

bought, clean price paid per share, i.e. excluding transaction costs, in rand to the nearest cent and the total amount paid, including transaction costs.

6. Enter the sales made during the month – three-letter code (do not guess), date, number of shares sold, clean price received, i.e. before transaction costs, per share in rand to the nearest cent and the total amount received, after transaction costs.
7. Check that the transaction costs in column Q for the deals make sense, e.g. if 100%, something is wrong – they should be close to 1%.
8. Enter any transfers to or from your broker account giving the date and the amount to the nearest cent (+ for transfers in and – for withdrawals).
9. Enter the amount of interest received or paid during the month.
10. Enter any fees for collecting the interest, including VAT thereon and check that the percentage in column Q makes sense – should be between 9% and 26%. These fees are called “Trustee fees”.
11. If, and only if, your portfolio is managed by a third party, enter the fees they charge including VAT thereon.
12. Enter any account charges including VAT thereon.
13. Enter the cash balance per your stockbroker and ensure that the control cell is zero. Don’t force balance by changing the formula!
14. Enter any scrip dividends (shares received in lieu of cash dividends) – code and number.
15. If you acquired one or more new counters not previously held in your portfolio, complete the details of this counter in the spaces provided. The cluster names are on your portfolio. Do not make up new clusters and do not guess codes.
16. Give us details of any other changes in numbers of shares such as share splits, consolidations, etc. in the block provided at the bottom of the return plus any other information we will need to know to process these changes.
17. Delete all rows not needed for processing, including headings such as Sales, if there were none.
18. Save the return by adding a space (not a -) and your handle to the END of the file name, e.g. 2020 11 Return Handle.
19. Do not change the Excel version – keep as 1997 to 2003 workbook.
20. Walk away from your computer and do some relaxation exercises.
21. Return and do a final check on your return, fixing any mistakes.
22. Perform reality checks on the information, e.g. if your transaction costs are 0%, you probably did something wrong, if your cost of collecting interest is >60%, you have included other costs in this row, etc.
23. Complete the certificate below the return.
24. Send your return to cphat@pcfinance.co.za (not to Jade.)

Please ensure that your date formats are correct, for example 13-Jan-20. Our system cannot handle other formats. If you type 13jan the format will automatically adjust to our requirement.

Please do not guess the share codes. Wrong codes cost us dearly.

Merely add your handle to the end of the file name before sending it to me, e.g. 2019 02 Return Handle.

Process on receipt of portfolio

Take the following steps on receipt of your portfolio to check for accuracy and understanding:

1. Compare your stockbroker statement with the Hedgehog portfolio ensuring that:
   - The number of shares in each counter are the same
   - The market prices per share are within the ballpark (we use month end prices)
   - The cash at the end of the period agrees with the portfolio
   - The value of your portfolio is in the ballpark
2. Check that the strata, sectors and clusters for your holdings make sense.
3. Check that the PE ratios and dividend yields for your holdings make sense.
4. Evaluate the returns (gross, net and IRR) achieved.
5. Assess the achieved returns against the three benchmarks.
6. Determine in which decile in Hedgehog you are placed when you receive the full list of results.
7. Assess the various quality (risk) measures:
   - The number of shares you hold
   - Your churn rate
   - Your Alsi batting average
   - Your biggest hit
   - Your biggest cluster
   - Your biggest winner and biggest loser
   - The portion of your portfolio making a profit
8. Understand how your return was impacted by:
   - The weighting of the counters in your portfolio
   - The allocation of your portfolio into the three strata
   - The allocation of your portfolio into the three sectors
   - The allocation of your portfolio into the various clusters
   - The inclusion of PRX and NPN in your portfolio
9. Understand what portion of your Alsi alpha is due to allocation and what portion is due to selecting for both your strata and sectors strategies.
10. Understand the movements in your portfolio for the period to date.

11. Analyse the performances of each share in your portfolio asking the question: "Would I buy this share today at today's price?"
12. Determine whether or not your portfolio is in line with your strategy, and if not, what action you should take to realign it.
13. If necessary, plan to rebalance your portfolio, dispose of the dogs, top up the gems and re-weight your holdings.
14. Determine what cash is surplus to your needs and plan to deploy it.
15. Complete your investment and living annuity plan.
16. Perform your post-mortem on your portfolio.
17. Ask this question each month: "If my portfolio were a unit trust, would I invest in it?"

Chapter 16: Post-mortems

Introduction

Every action should be followed by a post-mortem if you are in the pursuit of perfection. The post-mortem process involves the following steps:

1. Identify the outcomes of your actions
2. Establish what the problems (causes) are
3. Identify why (reasons) the problems arose
4. Decide how to rectify them going forward
5. Plan when to take action

This is a cybernetics feedback system.

Outcomes

Our performance is driven by allocation and selection decisions and should be evaluated accordingly.

The outcomes table in 2020's Hedgehog report is set out below. The figures are for illustration purposes. They are for Beta Plus for the nine months ended 30 September 2020.

Returns	**Mine**	**Market**	**Min - Mar**
Gross return	0.0%	-2.3%	2.3%
Top 40 return	1.8%	0.9%	0.9%
Stratum C return	0.0%	-25.8%	25.8%
Industrials	12.0%	7.2%	4.8%
Financials	-32.7%	-31.9%	0.8%
Resources	8.9%	10.9%	-2.0%
Proportions	**Goals**	**Actual**	**Market**
Industrials	65%	62%	47%
Financials	20%	19%	16%
Resources	15%	19%	37%
Stratum A	75%	75%	62%
Stratum B	25%	25%	26%
Stratum C	0%	0%	12%
Alpha analysis	**Alloc**	**Select**	**Alpha**
Sector	2.7%	-0.3%	2.4%
Stratum	13.1%	-10.7%	2.4%
Other	**Goals**	**Actual**	**A – G**
No. of counters	12	11	-1
Churn rate	20%	25%	-5%
Batting average	65%	50%	-10%
Making a profit	65%	50%	-15%
Costs	0.8%	0.8%	0.0%

This table is then followed by a "What, Why, How and When" discussion, i.e. what are the problems, why did they arise, how can they be fixed and when action should be taken.

Some possible reasons for poor decisions are:

1. A lack of knowledge (ignorance)
2. A lack of experience (don't know what to look for)
3. Arrogance (know it all)
4. Laziness (not prepared to spend time and effort)
5. A lack of relevant, reliable, sufficient and current evidence from the source to back your decisions
6. Spending effort and time on "philosophising" (e.g. people are aging so hospitals are a good investment) instead of analysing and evaluating the source data
7. A belief that you can see the future clearly (you can't)
8. Not learning from your mistakes (not doing post-mortems)
9. Relying on the opinions of others without verifying their credentials
10. Fear (terrified of taking wrong decisions)
11. Impatience (sell your gems at the drop of a hat)
12. Apathy (could not care about your portfolio)
13. Taking bets on turnarounds (we invest, not gamble)
14. Not diversifying effectively

Ideas

When evaluating your progress and performance, consider the following ideas:

1. Evaluate the outcome of a decision against the quality of the decision making process.
2. There is usually a cause behind a poor outcome: look beyond the obvious.
3. When you make a mistake, before blaming circumstances, look to your own actions.
4. If at first you don't succeed, learn from the experience and try again. Don't give up too easily.
5. The market seems to react immediately to bad news but takes time to assimilate good news.
6. Wealth does not accumulate over time in a straight line or in a gentle curve: it accumulates in a jagged steep curve with a hockey stick effect towards the end.
7. When attempting to correlate cause with effect remember that the effect could be the cause or the results could just be a coincidence.
8. Portfolio fiddling for the sake of fiddling destroys wealth over time. Only take action when a problem has to be resolved.
9. If you make a mess, don't look for a scapegoat: find the cause, learn from the experience and move on.
10. If you pick a winner don't automatically attribute it to your genius – it may be due to pure luck. Do an honest assessment.
11. Often share prices fall when excellent results are published. This could be because the market was expecting better results or may merely be that investors are "taking their profits".
12. The path to success is strewn with rectified mistakes. If you deny that you make mistakes, success will avoid you.

Appendix 01: Description of Our Programme

Introduction

The information contained in Our Programme is divided into five sections:

A: Knowledge

B: Database

C: Sundries

D: Portfolios

E: Reports

Access to sections A, B, C and D above is available on the secure section of our website called Mafiabuzz. Section E is too large to send to participants or to load onto our website. It will be given to those who attend a workshop.

On joining Our Programme participants are given a password to access the secure section of our website. The website is updated once a month. Google Mafiabuzz and follow the prompts to find the secure section and download the four folders into a new folder called, for example, Portman 2020 01 (being for January) created each month for the month to which the information applies.

The contents of each folder are described below.

A: Knowledge

This section contains:

1. This manual
2. Major breakthroughs
3. A simple approach to investing on the JSE
4. A strategy for managing an equity portfolio and processes

B: Database

This section contains the market and company information one would need on which to base allocation and counter selection decisions. Open the file called “A Passive Wealth Builder” and you will find the following:

Structure

This sheet contains the total market cap and float of the JSE analysed into the three sectors and three strata. It also contains a diagram analysing the market and the JSE cluster information.

Returns

This sheet contains the returns generated by the Alsi and the three sub-sectors (Indi, Fini and Resi) going back 45 years. Note the trend as the period shortens.

It also contains the sector returns for each year commencing in 2007 and the stratum returns for each year commencing in 2010.

Annual JSE information

This is an annual analysis of the JSE going back to 31 December 1970. It contains information about the Alsi, Indi 25, Fini 15, Resi 10 and Top 40 and an analysis of the information to enable predictions to be made.

Monthly information

The sheet gives information similar to the previous sheet but on a monthly basis going back to 1 January 1996. In addition it gives the indices and gains and losses on a monthly basis for the Dow, the S&P 500 and the FTSE 100. A summary at the bottom of the sheet illustrates the gains and losses of the overseas indices in foreign currencies and in rand terms for comparison against the local indices.

Rolling returns

This sheet illustrates the returns that would have been achieved in the past based on a five year and ten year holding period. The purpose is to show that there is little risk of investing on the JSE if your portfolio is well diversified and you stick to the programme for a long time. There has never been a negative return in any five-year or ten-year holding period if the market portfolio was spread among all three sub-sectors.

JSE Sector Information

These four sheets list the companies comprising the four indices we track (Top 40, Indi 25, Fini 15 and Resi 10) and their performances. Incorrect inferences can be made about the performance of a sector if this information is not available. Often it is only a few companies that can distort the performance of a sector.

Commodity prices

This sheet lists the prices of Gold, Platinum, Brent crude and the Krugerrand for each month going back to January 1990.

Exchange rates

This sheet lists the rates of exchange between the rand and the dollar, the pound and the euro. The table at the bottom of this list is instructive.

Interest rates

This sheet lists the prime bank overdraft rate (reduce this by 3.5% to get the repro rate), the various SA government bond yields and a measure of the bond yield curve (the difference between the over 10 year bond rate and the 0 to 3 year bond rate).

The last column is a measure of the extent to which the Reserve Bank is trying to move interest rates (prime bank overdraft rate minus the 0 to 3 year bond rate). When this exceeds 4.0%, we know that it is getting stressful.

Inflation rates

This sheet tracks the monthly inflation rates and the annual GDP performance.

Watch list

This sheet summarises certain information from the individual company files, where it is available. It is divided into three groups:

1. Shares in the Top 40
2. Shares in the Indi 25, the Fini 15 and the Resi 10 but are not in the Top 40
3. Shares not in the Top 50 but tracked anyway

We use three levels of analyses to evaluate shares:

Level 1: Market analysis (graphical and statistical)

Level 2: Level 1 plus share analysis (share performance, indicators and value)

Level 3: Levels 1 and 2 plus company analysis (growth, returns and risk)

The investor will rank the individual shares in this list. These rankings are repeated in the Core sheet. The ranking system is: 5 = go for it, 4 = think some more about it and 3, 2, 1 leave for now.

Companies in database

Prices

This sheet is the source of the graphical and statistical analyses. It contains the high, low and closing prices at the end of each month, the number of deals in the month and the dividends in that month. It also reflects the share's monthly returns, the Alsi returns and the Top 40 returns.

Share information

This sheet is the source of the fundamental analysis of the share and contains the following financial year information about the share:

1. Closing price
2. Book value (net asset value)
3. Headline earnings
4. Dividends declared and paid during the year
5. A five year analysis of the sustainable growth rate
6. The five year growth rates in 1 to 4 above
7. The past six years:
   - Price book ratios
   - Price earnings ratios
   - Dividend yields
   - Dilution in book values

Financial analysis

This sheet contains:

1. The growth in revenue, earnings, headline earnings and comprehensive income for the past five years as well as a five year average growth
2. Selected balance sheet information for the past six years
3. Key profitability ratios
4. Key financial strength ratios
5. A list of the shareholders of the company at the year-end
6. The names of the key mangers

Announcements

This sheet contains a summary of the recent (past three years) SENS announcements about the company.

Statistical analysis

The first block summarises the past ten year market performance of the share giving high/low price analyses, standard deviations (volatility), liquidity (number of deals), returns and alphas achieved.

The second block (to the right of the first block) summarises the five elements of the returns achieved by the share analysed into the fundamental elements and the sentiment elements.

Ten year graph

This sheet depicts a graph of the share prices assuming that the dividends are reinvested and compares them to the equivalent Alsi and Top 40 performances using the same basis. There is a handy slider that can change the graph into any period you wish to view.

Fundamental analysis

The purpose of this sheet is to evaluate the price of the share. The six stage valuation model requires you to give your views as to the growth rates in dividends for the next six years and the one stage valuation model requires you to give your estimate of the average long term growth rate in future dividends.

The outcome of these projections will be the value of the share at the date of performing the exercise.

Core shares

It is on this sheet that you make your final choices for your portfolio. It reflects your rankings from the watch-list. You can change those rankings by entering your revised rankings in the blank column to the right of the watch-list rankings. When you click the VBA button "Update 5's", your chosen portfolio appears on the next sheet called "Construction". Do not change rankings by over-writing the watch-list rankings. Change them by typing in the blank column to the right of that column. Only those shares ranked as a 5 will appear on the construction sheet.

Construction

This sheet enables you to construct your portfolio – see Chapter 14 for guidance on how it is used.

B: Applications

The folder called Applications contains the following calculators, models and analyses.

Time value of money

The purpose of this calculator is to perform time value of money calculations. Enter the known amounts in the light blue cells and the answers appear in the red cells. Always work in the protect mode so as not to over-write formulas.

Reinvestment risk

This calculator illustrates how wealth is destroyed by not reinvesting dividends.

Lump sum

The purpose of this application is to calculate the annualised return made on an investment for comparison with the return achieved by the All Share index over the same period. Enter the opening month-end date and the amount of your investment and the closing month-end date and amount of your investment. The results appear immediately below the table. This application applies where there are no investments or withdrawals during the period. The date format must be Day-Month-Year, e.g. 30-Nov-19.

IRR calculator

This application allows you to make a quick determination of the return on your portfolio and spare cash to date for the current year.

Living annuity

This application assists with planning an investment portfolio and utilisation of the funds created. Enter the items in the light blue cells. If the bottom right hand corner is in red, the investor is in trouble. An example for a twenty seven year old could be:

Investment plan:

Seed capital	20 000
Years to invest	35
Expected return	10.0%
Monthly savings	2 500
To grow by p.a.	7.0%
Predicted inflation	5.0%
Value end	3 506 145

Living annuity plan:

Opening investment	3 506 145
Years to draw down	20
Expected return p.a.	10.0%
Monthly draw-downs (-)	-30 000
To grow by	7.0%
Predicted inflation	5.0%
Value end	-5 037 881

This 27 year-old is in trouble so will have to revise the plan.

Planner

This is a more sophisticated investment and retirement planner than the previous one. The "black box" indicates the period in which the retiree runs out of funds.

Select a share game

We play this game in our workshops as a fun exercise. Merely follow the rules.

Rights issue calculator

This calculator allows one to determine how many rights will be received on a rights issue, the amount of cash needed to take up the rights, the expected price of the rights and the expected price of the shares after the rights are split from the shares.

Reinvestment needed

This application illustrates the du Pont financial analysis model. Play with the projections and the valuation views and understand the impact they have on the value of the share.

Reality checks

This application allows you to calculate the:

1. Return required on a share investment
2. Predicted return from a share investment
3. Fair dividend yield for a share or an index
4. Fair price earnings ratio for a share or an index
5. Fair price book ratio for a share
6. Imputed growth in future dividends embedded in the price of the share or index given a required return
7. Fair rough and ready value of a share
8. Combination of all of the above in one application
9. Calculation of the effect on the return on investment due to the required return increasing or reducing during the period
10. Calculation of the effect on the return on investment due to the imputed growth rate increasing or reducing during the period
11. Combination calculation of the six elements of return

To arrive at the above measures you need to decide on certain elements related to that share or index. By doing what-if exercises you can get a feel for how these elements impact on the measures. This is one of the most powerful Applications in Our Programme.

Valuation model

This model requires you to input the facts and views in the light blue cells to arrive at the value of the share using the dividend discount model, the model we use in the company analyses. At the bottom of the model is a one stage growth model for valuing the various indexes.

Sustainable growth model

This model illustrates that the sustainable growth is the return on opening equity multiplied by the percentage plough-back of earnings.

C: Sundries

The sundries folder contains seven sub-folders:

1. Buzzes: a summary of important buzzes written in the past and those written in the current year
2. Directors' dealings for each month for the companies we track
3. Feedbacks: both for the market and Hedgehog
4. The end of the previous month Newsflash
5. Questions and answers: often asked questions with answers
6. Weekly Hedgehog updates
7. Other information:
   - A brokerage calculator
   - The capital gains tax cost of investing
   - Codes, sectors, strata and clusters of common shares
   - An article on the concept of value
   - The formulas used in the programme
   - Ideas for thinking clearly
   - Required returns
   - The latest tax guide for shareholders
   - POPI

D: Portfolios

This section contains the real live portfolios we monitor on behalf of those who requested this service. The portfolios are given "handles" to protect the identity of the investors.

E: Reports

This section contains the published integrated reports and financial statements of the level 2 and level 3 companies we monitor. They are supplied at the workshops but, unfortunately, are too large to load onto our website. It is your responsibility to download the financial statements of the companies in your portfolio.

In conclusion

The creation of passive wealth should be high on your list of priorities. Nothing is achieved without investing time and effort. It is essential that you take this project seriously so that you can reap the benefits down the line. Manage this project as you would a business. Appoint yourself as the CEO of your portfolio and develop proper management techniques to build it into something you can be proud of.

Our Programme does not give advice on where and when to invest. It merely gives guidance, knowledge and information to enable you to take the decisions.

Appendix 02: Abbreviations and Formulas

Time value of money

FV	Future value	
	Lump sum	PV x (1 + RR) ^ n
	Terminal annuity	A x ((1 + RR) ^ n – 1) / i
	Terminal constant growth	- (A / (1 + g) x ((1 / (1 + k) ^ n – 1) / k)) x (1 + RR) ^ n
PV	Present value	
	Lump sum	FV / (1 + RR) ^ n
	Terminal annuity	A x ((1 / (1 + RR) ^ n – 1 / RR
	Terminal constant growth	-(A / (1 + g) x ((1 / (1 + k) ^ n – 1)) / k
	Perpetual growth	(A x (1 + g)) / (RR – g)
IRR	Internal rate of return	(FV / PV) ^ (1 / n) – 1

A = annuity, n = period, ^ = to the power of, g = growth rate, k = (RR – g) / (1 + g) or if RR – g = 0, k = 0.00000001

In Valuations

RR	Required return	Five year bond rate adjusted for tax plus risk premium
PG	Projected growth	Growth rate in projected dividends

Share Performance Analysis

EPS	Earnings per share	Headline earnings divided by weighted average number of shares in issue
DPS	Dividend per share	Addition of past interim and final dividend per share
BPS	Book per share	Equity of the company divided by the number of shares in issue at the end of the year
PPS	Price per share	Market price of the share
VPS	Value per share	As arrived at by applying a suitable valuation model

Price Measures

DY	Dividend yield	Dividend per share divided by market price per share
PE	Price earnings	Price of share divided by headline earnings per share
PB	Price book	Price of share divided by book value per share
IG	Imputed growth	Growth rate imputed in price of share assuming an appropriate required return

Elements of Return

DR	Dividend return	The portion of the return applicable to dividends during the period
DG	Dividend growth	The portion of the return applicable to growth in dividends during the period
FunE	Fundamentals effect	DR plus DG
IGE	Imputed growth effect	The effect of changes in the imputed growth on the return achieved during the period
RRE	Required return effect	The effect of changes in the required return on the return achieved during the period
SenE	Sentiment effect	RRE + IEG

Annual and Monthly JSE Information

PE	Price earnings	As published by the JSE
DY	Dividend yield	As published by the JSE
Rinv	Reinvestment of dividends	The index assuming dividends are reinvested – used to calculate returns
DP%	Dividend payout %	Based on the published PE and DY
Gain	Gain in the index	The gain from the previous period to the current period
DR	Dividend return	DY x current index divided by the opening index
Tot Ret	Total return	Gain plus dividend
Divi	Index dividend	DY% multiplied by the index
RR	Required return	Long term bond rate adjusted for tax plus risk premium
IG	Imputed growth	(RR – DY x (1 – WT)) / (1 + DY x (1 – WT)
Value	Index value	Divi x (1 + IG) / (RR – IG) should equal the index
EG	Earnings growth	(Current index / PE) / (Previous index / previous PE) – 1
DG	Dividend growth	(Current index x DY) / (Previous index x previous DY) – 1
VAR	Value at risk	If @ 95% there is a 1 in 20 risk the return could be higher than the stated loss

Appendix 03: Glossary of Terms

Introduction

Please let me know if any aspect needs further explanation or if there are other areas I should cover in this glossary.

If you are not sure how an amount is calculated in a spreadsheet, unprotect the sheet, place your cursor on the cell and understand the formula.

Contents

Allocation

It has been found that over time, allocation accounts for most of one's alpha. At the highest level, one can allocate one's funds between equities, bonds, properties and other investments. In our strategy we allocate our portfolio between the various the sectors (industrials, financials and resources), the various strata (top 10 (A), next 30 (B) and rest (C)) and various clusters.

Alpha

Your alpha is calculated by deducting from your portfolio return the market return, e.g. if your portfolio earned 19% for the period and the market earned 16%, your alpha is 3%.

Alsi

The All Share Index, at the date of writing, comprised +/-160 shares of the total number of equity shares listed on the JSE (+/-350) and accounts for 47% of the total market cap. It includes only market cap that is defined as free float. There are some exceptions to the rule, e.g. only 13% of BTI is presently included in the index. Recently a small part of ANH has been included in the Alsi index, as has GLN, two enormous companies.

Batting Average

In the Hedgehog accounting system this is the percentage of the counters held during the period that are beating the market return, as defined, to date. One of our goals is to generate alpha. If your holdings are equally weighted and your batting average is above 50% you are on the way to achieving your goal, subject to no large losses on individual counters.

Book Value per Share (BVS)

This is the equity of the company divided by the number of shares in issue at the end of the year excluding treasury shares (shares held within the group).

Churn

In the Hedgehog accounting system, this is the proportion of your portfolio that you turn over during the period, e.g. if you have a portfolio of R100k during the period and you sell shares totaling R20k and use the cash to buy other shares totaling R20k, your churn rate will be 20%. Sales for the purpose of distributing cash out of your portfolio and new investments from contributions to your portfolio do not count as churn. A high churn rate could indicate that you are fiddling or, possibly, not knowing what you are doing and a zero churn rate could indicate that you are not managing your portfolio carefully where circumstances change and action is necessary, e.g. to rebalance your portfolio.

Counter

This is merely another name for a share. One would say: "I have 100 shares in the counter Aspen". A company may have different classes of shares in issue so we cannot refer to a share by the name of the company. The word "counter" solves the problem.

Dividend Payout Percentage (DP%)

The dividend payout percentage is the dividend per share divided by the earnings per share, e.g. if the dividend per share was 25 cents and the earnings per share was 50 cents per share, the dividend payout percentage would be 25/50 x 100 = 50%. The DP% calculated for various indexes is the dividend yield of the index divided by the earning yield of the index, e.g. if the dividend yield of the Alsi is 3,0% and the earnings yield is 5,7%, the DP% would be 3,0% divided by 5,7% x 100 = 53%.

Dividend per Share (DPS)

The dividend per share of a company is the dividends declared by the company divided by the number of shares

to which the dividend applies. if the company declared an interim dividend of 10 cents per share and a final dividend of 15 cents per share, the dividend per share would be 25 cents for the year.

Dividend Yield (DY)

The dividend yield of a share is the last dividend per share declared by the company (interim plus final plus special) as a percentage of the market price, e.g. if the dividend per share was 4 cents and the current market price is 100 cents, the dividend yield would be 4%. The JSE publishes dividend yields as calculated by their actuaries for the various indexes. For our purposes we want the dividend yield to be pre-withholding tax. The Citizen is one of the few newspapers that got this right.

Earnings per Share (EPS)

The earnings per share of a company is the earnings of the company attributable to the ordinary shareholders divided by the weighted average number of shares issued to the ordinary shareholders during the period, e.g. if the earnings of a company total R120m for the year and the number of shares in issue (weighted average) is 60m, the earnings per share will be 200 cents per share.

Free Float

This is the part of a company's issued shares that is readily available for trade on the JSE. It excludes foreign-owned shares, major holdings by the founder of the company and his or her family, employee share option schemes, shares that are subject to lock-in conditions, shares held by the government and quasi government organisations (e.g. the government pension fund) and cross holdings. Only free float is included in the various indexes published by the JSE.

Gain

A gain on a share for a period is the closing price divided by the opening price minus one. For example, if you bought a share for 100 cents and then sold if for 120 cents you would have made a gain of 20 cents or 20% on your purchase price, or (120/100-1) x 100 = 20%.

A gain on an index for a period is the closing index divided by the opening index minus one. For example, if the opening Alsi was 40 000 and the closing Alsi was 40 800, the gain on the index was 800 or 2% of the opening index, or (40 800/40 000 – 1) x 100 = 2%.

Living Annuity

One of the objectives of developing a store of wealth is to use it as a living annuity when you no longer wish to be tied down having to spend your days earning a living. The living annuity application allows you to plan such a situation. Open it and follow the instructions:

1. In cell D6 enter your seed capital, i.e. the amount you have to start the building phase. If you own, for example, unproductive assets such as rental property, preference shares, bonds, gold coin, etc. you may consider realising them and using the proceeds as your seed capital. If you already have a portfolio of shares, this could be your seed capital.
2. In cell D7 enter how many years you plan to save prior to commencing the living annuity phase of your life.
3. In cell D8 enter 10.0%, i.e. the return you expect to earn on your portfolio going forward, being the return the market is expected to yield.
4. In cell D9 enter the monthly savings you expect to transfer to your portfolio.
5. In cell D10 enter the rate at which you plan to increase your monthly savings each year.
6. In cell D11 enter the expected rate of inflation going forward.

The result in cell D12 will be the value of your portfolio at present day values when you start utilizing it.

Now move to the right-hand side of the application:

1. In cell G7 enter the number of years you intend to utilize the portfolio to provide a living annuity.
2. In cell G8 enter 10.0%, i.e. the return you expect to earn on your portfolio going forward, being the return the market is expected to yield.
3. In cell G9 enter the expected monthly draw-down as a negative, e.g. -30 000, you believe you will need during this stage of your life. Note that this amount is at present day values.
4. In cell G10 enter the rate at which you expect to increase the amount in (3) above, e.g. 7%, each year.
5. In cell G11 enter the expected rate of inflation going forward.

The result in cell G12 is the amount you will have in your portfolio at the end of the living annuity phase. If this amount is in red, you are in trouble. You can now tweak your projections to ensure that your plans are doable, e.g. by managing your alpha carefully, you may be able to push the 10.0% p.a. projected returns to 12.0% p.a. by generating a 2.0% p.a. positive net alpha. This exercise will help you appreciate the power of alpha.

Market Cap

The total market cap of a share is the total number of shares in issue, excluding treasury shares (shares held within the group), multiplied by the market price per share on the day. The total market cap of the JSE is the total of all the market caps of the shares listed on the JSE. The index market cap is the total of the market caps of the shares included in the index.

Maverick Risk

The risk of not being in line with others because of following your own strategy which did not work out

Price Book Ratio

The price book ratio is the market price of the share divided by the net asset value per share. The net asset value per share is arrived at by taking the equity of the company per its balance sheet and dividing it by the number of shares in issue, excluding the shares held within the group, i.e. the treasury shares.

Price Earnings Ratio

The price earnings ratio is the market price of the share divided by the headline earnings per share as defined by the South African Institute of Chartered Accountants in their circular of this name.

Rand hedge share

A holding in a company that will help protect the shareholder from a fall in the rand, e.g. a share in a company whose business is mainly conducted outside the African continent.

Return

A return on a share is the gain you made on the share plus the dividend received during the period as a percentage of the cost or value at the beginning of the period. For example, if the value of the share was 100 at the beginning of the period, you received a dividend of 4 during the period and the market price was 120 at the end of the period, the return during the period was 24% ((20 + 4) / 100).

Return on WAI

This term is used in the Hedgehog accounting system to report the return on an investment for comparison with the market return to calculate alpha. It is best explained by means of a hypothetical example.

Assume the market earned 5% from 31 December to 31 March. Share X was valued at R5 000 at the end of December and at R5 400 at the end of March. The weighted average return on share X for the period is R400 / R5 000 x 3 months / 3 months = 8% for the period giving an alpha of 3% for the period (8% - 5%). If a share was bought at the beginning of March for R1 000 and earned R300 for that month, the return is 3% for that month. But this return cannot be compared to the market return of 5% for three months so the system calculates the return on the WAI by multiplying the 3% by three months and dividing by one month, giving a return on WAI of 9% (3% x 3 / 1 = 9%.).

Rights Issues

If a company wishes to raise money from its shareholders it issues them rights to acquire shares in the company usually at a price lower than the market price of the share. If a shareholder wishes to invest further amounts in the company, the shareholder takes up the rights, i.e. subscribes for the shares. If the shareholder does not wish to take up the rights, the shareholder can sell the rights on the market to someone who would like to exercise them. It is essential that the shareholder either takes up the rights or sells them to avoid losing the value of the rights.

Scrip Dividend

Some companies give shareholders a choice of receiving dividends in cash or in shares. If you select the share option, you will receive shares in lieu of the cash dividend. In the Hedgehog accounting system these shares are accounted for as an addition to the number of shares you already own, i.e. there are no cash movements.

Sector/s

In our statistical system we try to keep things simple so divide the Alsi into three sectors, i.e. the industrial sector, the financial sector and the resources sector. We use the Indi 25, Fini 15 and Resi 10 to represent these three sectors, which total 50 of the total number of shares in the Alsi Index, or 91% of the Alsi in value at the time of writing.

Stratum/Strata

To enable us to construct our portfolios we divide the market into three strata:

A: The top 10 shares by market float in the Alsi

B: The next 30 shares by market float in the Alsi

C: The rest of the shares listed on the JSE

At the time of writing, Stratum A accounted for 61% of the Alsi, stratum B 28% of the JSE and Stratum C 11% of the Alsi.

Sustainable growth

The sustainable growth rate (SGR) is the return on opening equity (ROOE) multiplied by plough-back (1 – dividend payout percentage (DP%)):

SGR = ROOE x (1 – DP%)

The return on opening equity can be arrived at by dividing the earnings per share by (the closing book value per share less the earnings per share plus the dividend per share for the year).

The dividend payout percentage (DP%) is the portion of the company's profits declared as a dividend:

DP% = DPS / EPS x 100

Top 40 Index

The top 40 index is an index of the top 40 shares by market float as published by the JSE. At the date of writing, the top 40 shares accounted for 89% of the Alsi.

Appendix 04: Time Value of Money Concepts

Learning objectives

This appendix provides insights into the concept of time value of money and illustrates how to calculate the:

1. Future value of a lump sum, constant annuity and growing annuity
2. Present value of a lump sum, constant annuity and growing annuity
3. Effective rate of return
4. Impact of alpha
5. Adjustment for inflation
6. Reinvestment risk

In Our Programme it is not necessary to memorise the formulas for time value of money calculations. The Applications in the Database folder can be used to solve the problems.

To view the formulas in the Time Value of Money calculators, unprotect the Excel sheet (click the Unprotect VBA button at the top of the sheet).

The exercises below are designed to give you the training necessary to solve advanced time value of money problems. Input the knowns into the light blue cells in the calculators and the answers will appear in the red cells. Before attempting each exercise, try to guess what the answer will be. This will give you a feel for the concept of time value of money. The detailed procedures for arriving at the solutions are given in the appendix at the end of this Manual.

Future value

Time can create or destroy value depending on the return you achieve. For example, if you invested R1 000 on a fixed deposit today, this would result in R1 100 in one year if the return earned was 10% p.a. ((1 000 x (1 + 0.1)^1). Note that "^" is "to the power of". If you earned a negative return of 10% the result would be R900 (1 000 x (1 - 0.1) ^ 1).

Exercise 1: Future value of a lump sum

You invested R10 000 in a portfolio of shares on the JSE on 31 December 1973. The Alsi index yielded a return of 17% p.a. for the next 45 years to 31 December 2018. What should your portfolio be worth at 31 December 2018 had you achieved the market return of 17% p.a.?

Answer: Time value of money calculator 1

Period	45
Rate	17.0%
Present value	10 000
Future value	11 704 794

Exercise 2: Future value of an annuity

You invested R20 000 each year in advance over a period of ten years in a portfolio of shares. If you earned 15% p.a. what would your portfolio be worth at the end of the period?

Answer: Time value of money calculator 3

Period	10
Rate	15.0%
Annuity	20 000
Future value if annuity is in advance	466 986

Exercise 3: Future value of a growing annuity

You started an investment plan 45 years ago by saving R1 800 p.a. in advance growing by 7% p.a. What would your portfolio be worth after 45 years on 31 December 2018 assuming you earned the market return of 17% p.a.?

Answer: Time value of money calculator 5

First period annuity	1 800
Rate	17.0%
Growth	7.0%
Period	45
Future value if annuity is in advance	24 207 985

Exercise 4: Future value of a lump sum - curve

Over time assets yielding a given return do not grow in a straight line. They grow in a jagged curve. What is not generally known is the slope of the curve.

Referring to exercise 1, what would your portfolio be worth at 31 December 1998, i.e. 25 years after 31 December 1973, if your portfolio earned 17% p.a. during that period?

Answer: Time value of money calculator 1

Period	25
Rate	17.0%
Present value	10 000
Future value	506 578

Present value

It is necessary to understand the concept of present value as this is used to arrive at the value of a share. If you can predict the future benefits from a share you can calculate its value today given a required return.

Exercise 5: Present value of a lump sum

You predict that a share that pays no dividends will be worth R100 in five years. What is its value today given a required return of 12% p.a.?

Answer: Time value of money calculator 2

Period	5
Rate	12.0%
Future value	100
Present value	56.74

Exercise 6: Present value of an annuity

You have been offered an annuity of R100 000 p.a. payable in arrear for 20 years. Assuming a required return of 9% p.a., what would the value be today?

Answer: Time value of money calculator 4

Period	20
Rate	9.0%
Annuity	100 000
Present value if annuity is in arrear	912 855

Exercise 7: Present value of a lump sum and growing annuity

A share that pays dividends growing at 8% p.a. is expected to be worth R100 in five years. The expected dividend next year is R5 after withholding tax. What is its value today given a required return of 12% p.a.?

Answer: Time value of money calculators 2 and 6

Period	5
Rate	12.0%
Future value	100
Present value	56.74

Period	5
Rate	12.0%
Growth	8.0%
First premium	5.0
Present value	20.78

Add the present value of the lump sum to the present value of the growing annuity to get R77.52.

Exercise 8: Comparing investments

You have been offered a R100 000 tax free investment earning 7% p.a. repayable in 30 years. Your alternative is to invest the R100 000 in a low risk portfolio of listed shares, which is expected to earn 11% p.a. after withholding tax and capital gains tax. What would these two investments be worth in 30 years? What would these two investments be worth today given an expected inflation rate of 6% p.a. for the next 30 years?

Answer: Time value of money calculator 1

Period	30
Rate	7.0%
Present value	100 000
Future value	761 226

Period	30
Rate	11.0%
Present value	100 000
Future value	2 289 230

Answer: Time value of money calculator 2

Period	30
Rate	6.0%
Future value	761 226
Present value	132 537

Period	30
Rate	6.0%
Future value	2 289 230
Present value	398 578

So the opportunity loss of investing R100 000 in the tax free investment v a low risk portfolio of shares, given the above facts is R266 041 at today's values (R398 578 – R132 537)..

Effective rate of return

If you know the amount of the original investment, the period and the outcome but not the return, you can calculate the effective return earned by that investment.

There are three methods used to calculate the effective return on an investment:

1. The internal rate of return method
2. The time weighted method
3. The money weighted method

Exercise 9: Internal rate of return

You invested R100 000 in a portfolio and five years later the value of the portfolio was R124 672. What was the return earned over that period?

Answer: Time value of money calculator 7

Period	5
Present value	100 000
Future value	124 672
Rate	4.51%

Exercise 10: Time weighted v money weighted

You invested R600k in a unit trust. After five years it had grown to R1 430k. The performance was:

End year	1	2	3	4	5
R'000	450	752	601	1 052	1 430
Return	-25%	67%	-20%	75%	36%

1. What is the return on this investment using the Money Weighted Method?
2. What was the return on this investment using the Time Weighted Method?

Answer 1: Time value of money calculator 7

Period	5
Present value	600
Future value	1 430
Rate	18.97%

Answer 2 (-25% +67% -20% +75% +36%)/5 = 26.6%

Note that some asset managers in SA use the TWM to calculate and advertise the returns they achieve!

Impact of alpha

Earning a return above the market return (a positive alpha) can be beneficial to your wealth. On the other hand, under-performing the market (a negative alpha) can undermine your wealth. You need to adopt a sound strategy, be careful how you select shares and manage your portfolio properly to generate a positive alpha over time.

If you are not a member of Hedgehog, you may want to assess the performance of your portfolio by comparing its return to the market return.

Exercises 11 and 12 below illustrate.

Exercise 11: Impact of a positive alpha

You invested R10 000 in a portfolio of shares on the JSE on 31 December 1973. The JSE (Alsi index) yielded a return of 17% p.a. for the next 45 years, i.e. to 31 December 2018. Had you earned the market return, your portfolio would have been worth R11.7m at 31 December 2018. What would your portfolio have been worth had you achieved a 2% p.a. positive alpha over the 45 years?

Answer: Time value of money calculator 1

Period	45
Rate	19.0%
Present value	10 000
Future value	25 096 506

Exercise 12: Impact of a negative alpha

You invested R10 000 in a portfolio of shares on the JSE on 31 December 1973. The JSE (Alsi index) yielded a return of 17% p.a. for the next 45 years, i.e. to 31 December 2018. Had you earned the market return, your portfolio would have been worth R11.7m at 31 December 2018. What would your portfolio have been worth had you underperformed the market by 2% p.a.?

Answer: Time value of money calculator 1

Period	45
Rate	15.0%
Present value	10 000
Future value	5 387 693

Exercise 13: Calculating alpha on a lump sum

You started a R1 500 000 portfolio on 31 August 2012. On 31 December 2018 your portfolio stood at R2 623 229. What was your return and alpha over the investment period?

Answer: Applications, Lump sum calculator

Return earned		9.2% p.a.
Market return		9.7% p.a.
Alpha achieved		-0.5% p.a.
Portfolio	Date	Rand
Opening	31-Aug-12	1 500 000
Closing	31-Dec-18	2 623 229
Controls		1 123 229
Return		9.2%
Alsi return		-0.5%

Adjustment for inflation

When one makes long term investment predictions it is necessary to adjust for inflation to get perspective.

Exercise 14: Adjustment for inflation

You embark on a 35 year investment plan whereby you intend to save R20 000 p.a. starting today for the next 35 years, i.e. a total of R700 000. If you earn 7% p.a. on this investment after tax and the rate of inflation is expected to be 6% p.a., what would the investment be worth in 35 years and what would it be worth at today's values?

Answer: Time value of money calculators 3 and 2

Result: The value in 35 years will be R2 958 269 which is equivalent to R384 886 today.

Period	35
Rate	7.0%
Annuity	20 000
Future value if annuity is in advance	2 958 269

Period	35
Rate	6.0%
Future value	2 958 269
Present value	384 886

Reinvestment risk

Many investors believe that capital growth is the path to wealth creation. However, in the long term it is the compounding effect of reinvesting dividends that creates most (up to 80%) of your wealth. The exercise below illustrates.

Exercise 16: Reinvestment risk

You invested R10 000 on the JSE on 31 December 1973. You earned the market return of 17% p.a. During this period, 40% of your return was in the form of dividends.

1. What would your investment be worth on 31 December 2018 if you reinvested all of the dividends you received as you received them?
2. What would your investment be worth if you reinvested your dividends in money market investments earnings 5% p.a. after tax?

Answer: Applications, Reinvestment risk calculator

1. R11 704 794 (17% p.a. return)

Initial investment made	10 000
Return expected on investment	17.0%
Portion to be received in cash	40%
Cash invested at	17.0%
Investment period	45
Investment at end of period	11 704 794
Effective annual return	17.0%

2. R1 771 961 (12.2% p.a. return)

Initial investment made	10 000
Return expected on investment	17.0%
Portion to be received in cash	40%
Cash invested at	5.0%
Investment period	45
Investment at end of period	1 771 961
Effective annual return	12.2%

Insights

Some insights gained from this chapter are:

1. A slight variation in your return can make a large difference to you wealth over time.
2. To create meaningful wealth, you have to be in the market for a long time.

3. Wealth is not created in a straight line or in a gentle curve over time. It is created in a jagged steep curve with a hockey stick effect at the end of the investment period.
4. The higher the required return, the lower is the value of an investment.
5. The objective of investing is not to save tax but to generate a high after tax return, taking risk into account.
6. To generate wealth over time it is essential that you monitor, measure and manage your alpha.

Appendix 05: Modified du Pont Analysis System

Introduction

The purpose of this Appendix is to explain the modified du Pont profitability analysis system. The objective of this system is to explain the determinants of the return on equity of a company.

This tool was developed at the IDC, adopted by Du Pont and improved by the writer. It is a powerful way of analysing a company's profitably but is not understood by the typical DIY investor. A mini version has replaced the full Monte in Our Programme.

Income statement

The illustrative income statements below are those of Omnia a few years ago:

Item		Year 1	Year 2	Change
Revenue	1	16 774	16 269	-3%
Cost of sales	2	-13 369	-12 802	-4%
Gross profit	3	3 405	3 467	2%
Other income	4	139	291	109%
Expenses	5	-2 295	-2 731	19%
Margin	6	1 249	1 027	-18%
Non-core income	7	2	0	
Total income		1 251	1 027	-18%
Interest paid	8	-239	-251	5%
Pre-tax profit		1 012	776	-23%
Taxation	9	-310	-244	-21%
Total earnings		702	532	-24%
Minority share	10	-1	1	
Earnings		701	533	-24%

1. Usually from selling goods and services
2. The costs of inventory for the goods and services sold
3. The difference between revenue and cost of sales
4. Other income not from 1 above, e.g. commissions received, interest on spare cash, royalties, etc.
5. Normal business operating expenses such as salaries and wages, rent, etc.
6. Gross profit plus other income less expenses
7. Income from investments including the share of profits of associates and joint ventures
8. Interest and other expenses incurred on borrowings
9. Taxation including paid and deferred
10. The portion of earnings attributable to the outside shareholders of subsidiary companies in the group

Balance sheet

The illustrative balance sheets below are those of Omnia a few years ago:

Item		Year 1	Year 2	Change
Fixed assets	1	3 958	4 268	8%
Plant & equipment	2	3 440	3 572	4%
Fixed property	3	620	711	15%
Software	4	120	120	0%
Intangibles	5	90	192	113%
Goodwill	6	333	333	0%
Deferred tax	7	-645	-660	2%
Working capital	8	4 022	4 486	12%
Inventory	9	3 850	3 229	-16%
Receivables	10	3 319	3 296	-1%
Cash	11	572	1 302	128%
Payables	12	-3 807	-3 430	-10%
Deferred tax	13	88	89	1%
Operating assets	14	7 980	8 754	10%
Investments	15	26	0	
Total assets	16	8 006	8 754	9%
Borrowings	17	-344	-1 212	252%
Total equity	18	7 662	7 542	-2%
Minority interest	19	10	3	-70%
Equity	20	7 672	7 545	-2%

1. The total of 2 to 7
2. Machinery, vehicles, computer hardware, furniture and fittings, etc.
3. Land and buildings and improvements thereto
4. Computer programs
5. A wide variety of assets acquired by the company not meeting the above definitions, e.g. brand names, customer lists, franchise agreements, rights and other intellectual property
6. The purchase price of a business that could not be allocated to specific assets or liabilities (something you paid for but you don't know what!)
7. The tax payable on the realisation of the above assets at book values
8. The sum of 9 to 13
9. The cost (or net realisable value) of stock on hand
10. Amounts owed to the company
11. The cash on hand and with financial institutions
12. Amounts owed by the company
13. Tax receivable or payable on the realisation of items 9 to 12
14. The sum of 1 and 8
15. Loans and equity holdings in other companies, associates, joint ventures and businesses not consolidated by the company
16. The sum of 14 and 15
17. Amounts borrowed by the company on which interest is usually payable
18. 16 minus 17
19. The share of the equity of outside shareholders of the subsidiary companies

20. The bottom line

Profitability analysis

There are seven profitability measurement ratios in the system:

1. Return on operating assets (ROOA) (operating profit divided by operating assets)
2. Return on investments ROI (investment income divided by investments)
3. Return on total assets (ROTA) (total income divided by total assets)
4. Return on total equity before tax (ROTEBT) (pre-tax profit divided by total equity)
5. Return on total equity after tax (ROTE) (total earnings divided by total equity)
6. Return on minority interests (ROMI)
7. Return on equity (ROE) (earnings divided by equity)

Omnia's profitability measurement ratios were:

	Year -2	Year -1	Year 1	Year 2
ROOA	22%	19%	16%	12%
ROI	0%	0%	8%	0%
ROTA	22%	19%	16%	12%
ROTEBT	23%	20%	13%	10%
ROTE	17%	14%	9%	7%
ROMI	67%	46%	-10%	33%
ROE	17%	14%	9%	7%

The ratios that drive these returns are called "analytical ratios". The three groups of analytical ratios are:

1. The key management ratios
2. The gearing ratios
3. The tax impact

Key management ratios

Omnia's key management ratios were:

	Year -2	Year -1	Year 1	Year 2
Gross profit	22%	23%	20%	21%
Other income	1%	0%	1%	2%
Expense ratio	14%	15%	14%	17%
Margin	9%	9%	7%	6%
Velocity	2.49	2.15	2.10	1.86
ROOA	23%	19%	16%	12%

The ratios above are calculated as follows (IS = Income statement and BS = Balance Sheet):

1. Gross profit: Revenue in the IS minus cost of sales in the IS divided by revenue in the IS
2. Other income: Other income in the IS divided by revenue in the IS
3. Expense ratio: Operating expenses before interest and tax in the IS divided by revenue in the IS
4. Margin: Margin in the IS divided by revenue in the IS
5. Velocity: Revenue in the IS divided by operating assets in the BS

You will notice that if you multiply the margin by the velocity you will get the return on operating assets. This knowledge is the key to understanding profitability analysis.

Gearing ratios

Omnia's gearing ratios were:

	Year -2	Year -1	Year 1	Year 2
ROTA	22%	19%	16%	12%
Interest paid	21%	16%	70%	21%
Gearing margin	1%	3%	-54%	-9%
Debt/equity	11%	18%	5%	16%
Gearing benefit	0%	1%	-2%	-1%
ROTEBT	22%	20%	13%	10%

Note that there are rounding errors above due to working to the nearest 1%.

In the table above the difference between the return on total equity before tax and the return on total assets before tax is the gearing benefit. The gearing margin is the return on total assets less interest paid and the gearing benefit is the gearing margin multiplied by the debt equity ratio.

To arrive at the gearing benefit after tax, multiply the gearing benefit by 1 minus the tax rate:

	Year -2	Year -1	Year 1	Year 2
Gearing benefit BT	0%	1%	-2 %	-1 %
Tax rate	31%	30%	31%	31%
Gearing benefit AT	0%	1%	-2%	-1%

Tax impact

The tax payable by a company can have a material impact on the company's return on equity. The company tax rate in SA is presently 28%. If the tax rate materially differs from this percentage one should study the reconciliation in the tax note in the financial statements to determine the cause.

Analysis

The company's return on equity has fallen over the past four years from 17% to 7%.

The margin fell from 9% to 6% and velocity fell from 2.49 to 1.86 resulting in the return on operating assets falling from 23% to 12%.

The company is not benefiting from gearing.

Conclusion

A thorough financial analysis of the company should be undertaken before investing in its shares to obtain evidence regarding the sustainability of the dividends, the growth trends and the financial risks to which the company is exposed. The modified du Pont analysis system is ideally suited for this purpose. Due to the fact that few DIY investors understand this system, it has been replaced by a watered down version, which is more understandable and does the job almost as well.