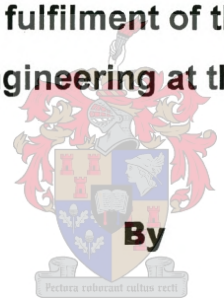
AN INVESTIGATION INTO AND APPLICATION OF THE "ECONOMIC VALUE ADDED" (EVA) MEASUREMENT CONCEPT

Thesis presented in partial fulfilment of the requirements for the degree of Master of Industrial Engineering at the University of Stellenbosch



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Declaration

I the undersigned hereby declare that the work contained in this thesis is my own original work and has not previously or in its entirely or in part been submitted at any university for a degree.

English Abstract

The age old principle of earnings exceeding the cost of capital as a sound basis of wealth creation has been re-packaged and to a large extent, prominently revived, by the Stern Stewart Consultancy of New York in the form of EVA (economic value added).

The most well know application of EVA for the past 10 years and subsequent success has been with the global company, *Coca Cola.*

However, the widely debated capital asset pricing model – with no conclusion in site – is used as the basic principle in calculating EVA and therein lies one of its many weaknesses.

All aspects of measurement is the foundation on which Industrial Engineering is based.
This dissertation set out to evaluate this financial measurement and / or measure in terms of;

a) an ability to replace any existing financial ratios
b) an ability to measure wealth creation
c) an ability to influence or improve on manufacturing systems such as JIT (Just-In-Time) or TOC (Theory of Constraints).
d) an ability to focus on the productive use of capital and lastly
e) an ability to point towards failure of a business when realising a low or negative EVA

On a comparison with the traditional financial measurement techniques and ratios the EVA concept shows too strong a correlation to render it "unique" or able to replace EPS (earnings per share) as the single most important indicator in the financial markets.

There is also the interesting phenomenon that industrial sectors vary significantly from country to country in their ability to earn over and above their cost of capital and that being the case in EVA terms, the question is raised whether those countries with negative EVA industrial sectors, should consider moving out of those businesses.

The EVA calculations consist of reducing a company's annual earnings with its total weighted average cost of capital and a positive result is stated as a sign of "wealth creation" whereas a negative result points to the destruction of wealth.

As will be seen in this dissertation, the EVA measure is healthy as to focussing on the "hurdle" effect of the cost of capital but that the world consists of many organisations with low or negative EVA that have been successfully doing business and producing profits for many years.

Oorsig

Die eeu oue beginsel dat inkomste die koste van kapitaal moet oorskry vir 'n grondige basis om rykdom te skep, is herverpak en tot 'n groot mate, uitstekend vernuwe deur Stern Steward Consultancy van New York in die vorm van ETW (ekonomiese toegevoedgde waarde [EVA]).

Die mees bekende toepassing van ETW die afgelope 10 jaar asook die gevolglike sukses daarvan is op die internasionale maatskappy, *Coca Cola.*

As gevolg van die feit dat die onvoltooide debat rondom die kapitale bates prysmodel as beginsel gebruik word in die berekening van ETW, is die waarde van die ETW maatstaf dienooreenkomstig verswak.

Die aspek van maatstawwe of meting is een van die hoekstene van Bedryfsingenieurswese. Hierdie tesis het dan dit ten doel gestel om hierdie ETW maatstaf te evalueer in terme van;

a) 'n vermoë om enige bestaande finansiële verhouding te vervang
b) veral die vermoë om die skep van rykdom aan te dui
c) 'n vermoë om 'n invloed te hê, of selfs verbeterings aan te bring aan moderne vervaardiging stelsels soos JIT (Knapbetyds) of TOC (sinkrone vervaardiging)
d) 'n vermoë om die produktiewe gebruik van kapitaal te meet en
e) 'n vermoë om aan te dui of 'n onderneming gaan faal as gevolg van 'n lae of negatiewe ETW waarde.

In vergelyking met die tradisionele finansiële maatstawwe en verhoudings, wys die ETW konsep 'n te sterk ooreenkoms met bogenoemde om dit as uniek te beskryf of om VPA (verdienste per aandeel [EPS]) as die belangrikste aanwyser van die finansiële markte te vervang.

Daar is ook die interessante verskynsel dat industriële sektore beduidend verskil, van land tot land, in hulle vermoë om hoër as die koste van kapitaal te verdien en indien dit die geval is met ETW, moet die vraag gevra word of hierdie lande wat negatiewe ETW industriële sektors het, nie daaraan moet dink om daardie besighede te sluit nie.

Die ETW berekenings bestaan uit die verlaging van 'n maatskapy se jaarlikse inkomste. Die totale gewig is die koste van kapitaal wat indien positief 'n teken is dat "rykdom" geskep word en indien negatief dat rykdom vernietig word.

In hierdie tesis sal die volgende aan die ligkom: die ETW maatstaf is goed in die sin dat dit fokus op die "drumpel"-effek van koste van kapitaal; die wêreld bestaan egter uit baie organisasies wat 'n lae of negatiewe ETW het, maar wat baie jare suksesvol besigheid doen en wins lewer.

Table of Contents

List of Illustrations

Glossary

Beta:	A company's risk relative to the market risk.
Cost of Capital:	Capital is made up of debt and equity. Both these have costs, which the company has to pay. These costs make up the cost of capital.
Debt:	Money that the company owes (e.g. loans).
Equity:	The owner stake in a business.
EVA:	Economic value added. A measure of corporate performance.
FIFO:	First in first out. Inventory purchased first is sold first.
GAAP:	Generally Accepted Accounting Principles.
JSE:	The Johannesburg Stock Exchange.
LIFO:	Last in Last out. Inventory purchased last is sold first.
NOPAT:	Net operating profit after taxation. Typically measured before interest expenses.
Rate of return:	The rate at which money is made off an investment.
Shareholders:	The owners of a company. They invest their money in the business as they expect to earn healthy returns.
Value-based measure:	A quantitative measure.
WACC:	The Weighted Average Cost of Capital. A blend between the cost of debt and the cost of equity.

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1. Introduction

1.1 General financial measurement criteria.

This thesis set out to study the financial measurement criteria of EVA (economic value added) as coined and registered by the Stern-Stewart partnership of New York.

In the book "The Quest for Value - A Guide for Senior Managers" Bennett Stewart states the following.
"**EVA is both a measure of value and a measure of performance**. As a matter of fact it is the only measure that can link forward -looking valuation and capital budgeting procedures with the manner in which performance subsequently can be evaluated. EVA is the bedrock upon which a new and completely integrated financial management system can be constructed, a system which in this book goes by the name "value planning"". (Stewart, 1991, p5)

He also states;
"In many companies the all-important quest for value is being confounded by a hopelessly obsolete financial management system. The wrong financial goals, performance measures and valuation procedures are emphasized. Managers are improperly and in many cases inadequately rewarded for their efforts. Balance sheets are but dully structured when surgical sharpness often is needed. **These shortcomings cry out for approaches to financial management so profoundly different from current ones that nothing less than a revolution in thinking is called for."** (Stewart, 1991, p1)

He continues with ;
"The most widely shared misconception centres on the primacy of accounting results, most notably, earnings per share, as determinants of share value. All but the most hardened accounting enthusiast must succumb to the logic and evidence marshalled against these false gods" (Stewart, 1991, p14).

1.1(A) TORPEDO RATIOS

This misconception is further supported by this latest writing from an Internet share service at a time when we have a severe downturn in the Stock exchanges of the world (May/June 1998) after a growth run-up over the past 10 years.

From the daily Internet magazine, Money Matters, Les Mott writes: "During earnings season, are you ever left wondering why your stock is tanking even though it announced profits that beat expectations?
It could be that while you were fixated on that nice earnings surprise, professional investors were busy calculating the "torpedo ratios". **These are tools measuring hidden financial trends that can spell trouble for a stock - even while earnings look good.**

Two of the most common ones measure the extent to which inventories and accounts receivable are building up compared to sales growth. On a company balance sheet, inventories include anything from raw materials to unfinished product to goods ready to be shipped. Accounts receivable basically measures the amount of outstanding bills the company has to collect from customers.

Both are considered assets - so it is nice to have a lot of them. But not too much. And certainly not more than you did last year, compared to your sales revenue. **Professional investors believe that when these two accounts are building up relative to sales, it may be a sign of trouble.**

Once you have the numbers, calculate the torpedo ratio by dividing the amount of inventories (or accounts receivable) for the most recent quarter, by the trailing 12 months worth of sales. Then take the amount of inventories or accounts receivable from the quarter a year before, and divide by its trailing 12 months worth of revenue. The two ratios should be about equal.

If the most recent one is bigger, look out. Problems may be shaping up.
"It can be a sign that something is getting out of balance in the company's business that is going to impact earnings down the road," says Mott. For example, she found that the stocks sending off the strongest sell signal because of an accounts receivable buildup underperformed midcap stocks overall by around 5.2%. That's on an annualised basis between the start of 1987 and March of this year.

A buildup in inventories tends to be a less accurate predictor. Stocks sending off the strongest sell signal because of this problem only underperformed by 1.3%. Mott says modern inventory management tools may be rendering this ratio obsolete."

This may sound overdone in the light of the absence of EVA figures in most of our published financial statements, however, nearer home we have a public quoted company Financial Director making similar statements.

1.1(B) LOCAL ALTERNATIVES

Mr. N C Axelson, of the AECI group of companies states in a memorandum dated 8 March 1995, p3; "The process of Creating Business Value is designed to understand and quantify investor expectations, to measure current performance levels of a company and its component business, and provide tools to guide management efforts to raise the performance of their business to meet and exceed investor expectations. Measures such as EVA and RONA are single period measures that meet these needs, but are seriously distorted by inflation - a significant problem in South Africa."

He then proposes a system called **Money of the Year Accounting (MOYA)** which is based on the principle of restating certain items in historic cost accounts, so that all the financial values may be measured in terms of money of the same period.

Here we have a Management Consultancy from New York and a Financial Director from Johannesburg, literally worlds apart, decrying the usefulness of existing financial measurement systems. It would seem prudent to investigate and pursue this notion.

All aspects of measurement is the foundation on which Industrial Engineering is based. Financial measurement is an important function of a modern Industrial economy, and the evaluation and understanding of the elements of financial management and measurement is necessary to enable the Industrial Engineer to obtain a holistic capability when engaging in Enterprise design and integration.

At the most basic level it is important to even investigate concepts suspected of having an element of "buzzword flavouring", if only to confirm known and traditional measurement techniques as valid and relevant.

1.1(C) INDUSTRIAL ENGINEERING

Furthermore, the Industrial Engineer often finds the latest manufacturing systems at loggerheads with the financial systems of the day. The Japanese developed method of 'Just-in-Time' manufacturing is well understood by the financial manager when the emphasis is on a reduction in Inventory, but when that also includes the under-utilisation of workers and machines, the manager reverts back to the accounting principle of variance costing and apportionment of overheads. And it is a wellknown phenomenon that maximum utilisation of workers and machines make the accounting figures look good, but increases inventory beyond efficient cash flow norms.

Following this there is the "Theory of Constraints" production system developed by Dr. E. Goldratt that discards the multiple variable cost of a production unit and replaces it with a new insight which states that "An hour saved at a non-constraint workstation is an hour wasted" which again supports the under-utilisation of men and machines. He also observes that most company's fixed costs tend to vary from year to year and their variable costs remain the same. This is described more fully in chapter 3.3.1.i

EVA has been brought to prominence by the International business magazine , "Fortune", since 1993 and has been popularised in many financial and business magazines ever since.

It all started with Prof. Joel Stern's (Stewart 1991, pxxi), development of the concept of "free cash flow" during the late 60's, that is simply the cash available or "free" for distribution to investors after all investments have been financed. The "free" cash, he became convinced, formed the foundation of a firm's market value.

During 1969, whilst working for Chase Manhatten Bank, he delivered a two-day course to business executives and invented the slogan
"Earnings per share don't count, It's free cash flow that really matters."
Prof Stern continues to be a Managing Partner in Stern Stewart & Co, and regularly travels to South Africa where he has an affiliation with the Graduate School of Business of the University of the Witwatersrand.

1.2 Layout of the thesis

The thesis investigates the EVA concept and its underlying principles and conventions in Chapters 1,2 and 3. In chapter 4 the single unique aspect of EVA, namely the cost of equity as a real cost, is evaluated and in chapter 5 the combination of equity and debt is investigated. In chapter 6 each of the traditional financial measurements are dissected and compared with the EVA principle in an effort to find the reasons for :

a.) the seeming inadequacy of traditional methods

or

b.) any traditional methods that may correlate and in so doing offer a part explanation why many companies still only use the traditional measurement techniques with which to steer them by.

And finally in Appendix A the EVA concept is applied to a division of a publicly quoted Industrial company to evaluate not only the implementation effort but the contribution, if any, EVA can make to the success of this division. Use is made of the computer program developed by Mr. Heinrich Woeke as part of his final year thesis in Industrial Engineering.

2. COMPANY PERFORMANCE & FINANCIAL MEASUREMENT

Financial measurement is represented as an abundance of facts, figures and ratios that represent the financial standing of a company, and which has evolved to enable management to steer the company to prosperity.

Why then, with an abundance of ratios and indicators do business still fail? And what is really the core reason for the differences between a highly profitable and less profitable company ?

Prof Peter F Drucker, of the Claremont Graduate Business School, writes that: "We may have gone furthest in redesigning both business and information in the most traditional of our information systems : accounting.

Again and again in business history, an unknown company has come from nowhere and in a few short years overtaken the established leaders without apparently even breathing hard. The explanation always given is superior strategy, superior technology, superior marketing, or lean manufacturing. But in every single case, **the newcomer also enjoys a tremendous cost advantage, usually about 30%. The reason is always the same : the new company knows and manages the cost of the *entire* economic chain rather than its costs alone".**

He points to the inability of traditional cost accounting, as developed by General Motors 70 years ago, to measure a variety of weaknesses of the total process, where-as activity-based costing (ABC) has enabled a different concept of the business process, as well as a different way of measuring.

Traditional cost accounting will measure all the tasks and set it as an equivalent to the total costs. *Activity-based costing will measure the cost of not doing, which often equals or may even exceed the costs of doing.*

However, companies are paid to create wealth, not control costs.
This fact, Peter F Drucker states, is not reflected in traditional measurement as accountancy students are taught that the balance sheet portrays the liquidation value of the enterprise and

provides creditors with worst case information. But enterprises are not normally run to be liquidated. They have to be managed as going concerns, that is, for wealth creation.

Will EVA contribute to the end of the cost accounting era? The TOC accounting investigation has come across definite proof of unit cost reductions. With EVA introducing a hurdle into the system, the Management is left with no alternative but to increase profitability or decrease capital usage. That's where ABC or TOC accounting will contribute to enable a positive EVA count. By forcing EVA onto management, they may be forced to consider ABC or TOC and reduce their traditional Cost Accounting measurement criteria.

2.1 Information for wealth creation

Peter F Drucker identifies 4 diagnostic tools that are required by management to make informed judgements. They are foundation information, productivity information, competence information and information about the allocation of scarce resources.

He describes this as follows;

2.1.1 Foundation Information

The oldest and most widely used set of diagnostic management tools are cash-flow and liquidity projections and such standard measurements as the ratio between dealers inventories and sales for new cars; the earnings coverage for the interest payment on a loan; and the ratios between Debtors outstanding more than 6 months ,total Debtors, and sales. Those may be likened to the measurements a doctor takes at a routine physical: weight, pulse, temperature, blood pressure, and urine analysis. If those readings are normal, they do not tell us much. If they are abnormal, they indicate a problem that needs to be identified and treated.

2.1.2 Productivity information

The second set of tools for business diagnosis deals with the productivity of key resources. The oldest of them - of World War II vintage - measures the productivity of manual labor. Now we are slowly developing measurements though still quite primitive ones, for the productivity of knowledge - based and service work. However, measuring only the productivity of workers, whether blue or white collar, no longer gives us adequate information about productivity. We need data on total factor productivity.

That explains the growing popularity of economic value -added analysis. EVA is based on something we have known for a long time : what we generally call profits, the money left to service equity, is usually not profit at all.

Until a business returns a profit that is greater than its cost of capital, it operates at a loss. Never mind that it pays taxes as if it had a genuine profit. The enterprise still returns less to the economy than it devours in resources. It does not cover its full costs unless reported profit exceeds the cost of capital. Until then, it does not create wealth; it destroys it. By that measurement, incidentally, few U.S. businesses have been profitable since World War II.

By measuring the value added over *all* costs, including the cost of capital EVA measures, in effect, the productivity of *all* factors of production. It does not by itself tell us why a certain product or a certain service does not add value or what to do about it. But it shows us what we need to find out and whether we need to take remedial action. EVA should also be used to find out what works. It does show which product, service, operation or activity has usually high productivity and adds unusually high value. Then we should ask ourselves, what can we learn from those successes.

The most recent of the tools used to obtain productivity information is benchmarking - comparing one's performance with the best performance in the industry, or better yet, with the best anywhere in the business. Benchmarking assumes correctly that what one organization does, any other organization can do as well.

And it assumes, also correctly, that being at least as good as the leader is a prerequisite to being competitive. **Together, EVA and benchmarking provide the diagnostic tools to measure total-factor productivity and to manage it.**

2.1.3 COMPETENCE INFORMATION

A third set of tools deals with competence. Ever since C.K. PRAHALAD and G. Hamel's pathbreaking article, " The Core Competence of the Corporation" (HBR May 1990), we have known that leadership rests on being able to do something others cannot do at all or find difficult to do even poorly. It rests on core competencies that meet market or customer value with a special ability of the producer or supplier.

But how does one identify both the core competencies one has already and those the business needs in order to take and maintain a leadership position? How does one find out whether one's core competence is improving or weakening? Or whether it is still the right core competence and what changes it might need?

A number of highly specialised midsize companies are developing the methodology to measure and manage core competencies. The first step is to keep careful track of one's own and one's competitor's performances, looking especially for unexpected successes and unexpected poor performance in areas where one should have done well. The successes demonstrate what the market values and will pay for. They indicate where the business enjoys a leadership advantage. The non-successes should be viewed as the first indication either that the market is changing or that the company's competencies are weakening.

Core competencies are different for every organisation; they are, so to speak, part of an organisation's personality. But every organisation - not just businesses - needs one core competence : *innovation.*

And every organisation needs a way to record and appraise its *innovative performance*. In organisations already doing that, the starting point is not the company's own performance. It is a careful record of the innovations in the entire field during a given period. Which of them were truly successful? How many of them were ours? Is our performance commensurate with our objectives? With the direction of the market? With our market standing? With our research spending? Are our successful innovations in the areas of greatest growth and opportunity? How many of the truly important innovation opportunities did we miss? Why? Because we did not see them? Or because we batched them? And how well do we convert an innovation into a commercial product?

A good deal of that admittedly, is assessment rather than measurement. It raises rather than answers questions, but it raises the right questions.

2.1.4 RESOURCE-ALLOCATION INFORMATION

The last area in which diagnostic information is needed to manage the current business for wealth creation is the allocation of scarce resources, capital and performing people.

Those two convert into action whatever information has about its business. They determine whether the enterprise will do well or poorly.

GM developed the first systematic capital appropriations process about 70 years ago. **Today practically every business has a capital-appropriations process, but few use it correctly.** Companies typically measure their proposed capital appropriations by only one or two of the following yardsticks: return on investment, payback period, cash flow, or discounted present value. But we have known for a long time - since the early 1930's - that none of those is the right method. To understand a proposed investment, a company needs to look at all four. Sixty years ago, that would have required endless number crunching. Now a laptop computer can provide the information within a few minutes. We also have known for 60 years that managers should never look at just one proposed capital appropriation in isolation but should instead choose the projects that show the best ratio between opportunity and risks. That requires a capital appropriations budget to display the choices - again, something far too many businesses do not do. Most serious, however is that most capital appropriations processes do not even ask for two vital pieces of information:

- What will happen if the proposed investment fails to produce the promised results, as do 3 out of every 5? Would it seriously hurt the company, or would it be just a flea bite?
- If the investment is successful - and especially if it is more successful than we expect - what will it commit us to? No one at GM seems to have asked what Saturn's success would commit the company to. As a result, the company may end up killing its own success because of its inability to finance it.

In addition, a capital appropriations request requires specific deadlines: When should we expect what results? Then the results - successes, near successes, near failures, and failures - need to be reported and analysed. There is no better way to improve an organisations performance than to measure the results of capital appropriations against the promises and expectations that led to their authorisations.

Capital, however, is only one key resource of the organisation, and it is by no means the scarcest one. *The scarcest resources in any organisation are performing people.*

Since World War II, the US military - and so far no one else - has learned to test its placement of decisions. It now thinks through what it expects of senior officers before it puts them into key commands. It then appraises their performance against those expectations. And it constantly appraises its own process for selecting senior commanders against the successes and failures of its appointments. In business, by contrast, placement with specific expectations as to what the appointee should achieve and systematic appraisal of the outcome are virtually unknown. In the effort to create wealth, managers need to allocate human resources as purposefully and as thoughtfully as they do capital. And the outcomes of those decisions ought to be recorded and studied as carefully.

Drucker concludes his article with:

What is important is not the tools. It is the concepts behind them. They convert what were always seen as discrete techniques to be used in isolation and for separate purposes into one integrated information system. That system then makes possible business diagnosis, business strategy, and business decisions.

That is a new and radically different view of the meaning and purpose of information : as a measurement on which to base future action rather than as a postmortem and a record of what has already happened."

The popular media regularly equate EVA with Wealth Creation, something that is certainly of the utmost importance and necessity for South Africa.

3. THE DEVELOPMENT OF EVA

What does the world see as value?

Economic Value Added (EVA) has been brought to prominence by the New York management consultancy of Joel .M. Stern and Bennett. Stewart. (Stern Stewart & Co.)

They developed the concept of Free Cash Flow (FCF) and coined the term EVA as a measure of a company's ability to create wealth. Their consulting work culminated in a book written by B. Stewart on the concept and practical implications of EVA.

In the preface to his book 'The Quest for Value- A Guide for Senior Managers' J.M. Stern writes (xvii): "The theory underlying FCF was first set forth in the seminal article,"Dividend Policy, Growth and the Valuation of Shares", Journal of Business, October 1991, by Professors F. Modigliani and Merton H. Miller, M&M, as they became known, asked and answered the question **"what measures of corporate performance does the market capitalise?"** in arriving at a firm's market value (For the purposes of the thesis the 'worth' or value of a company is equated with market value and applicable to private or public companies).

As I came to understand it, the principal implication of the paper is that a firm's value is based on the timing and risk of future cash receipts and disbursements. For the purpose of valuation there really are no such things as a balance sheet and an income statement. Rather, it is the model of the corner grocery store, in which the surest indicator of success is a cigar box lid rising with net cash collections. If that is the case, and I am thoroughly convinced it is, it means also that bookkeeping entries that have no effect on cash have no effect on value. Those entries include goodwill amortization, deferred taxes, LIFO reserve, and other accounting provisions which distort FCF measures of performance.

The ultimate importance of FCF versus mere accounting results can best be appreciated with cash outlays that alternatively can be expensed or capitalised. Those who believe that accounting earnings measured are paramount in valuing a firm - examples include the bottom-line net profit after tax provision, the per/share figure and return on equity - would capitalise cash outlays whenever possible to boost reported results. FCF proponents, in contrast, expense such cash items because expensing often reduces tax paid. That is, if the

firm still has the money, its value is greater than if the money is in the hands of the tax collector"

Mr. Stern's FCF model was presented to a group of business executives during 1969 and has been adapted by many companies and Business Schools since then. It ultimately lead to the wider acceptance of the concept of Economic Value Added (EVA).

Further to the FCF model, they have also searched for a measure that would correlate with a company's share price to which Stewart writes: "First of all, the myth that increasing earnings, earnings per share, or return on equity is the way to attract Wall Street must be abandoned. Many senior executives believe that the market wants earnings and wants them now, despite the fact that not one shred of convincing evidence to substantiate that outlandish claim has ever been produced. (Stewart,1991, p2)

Arrayed against the earnings myth and these harmful practices is an over-whelming body of established academic research. It shows that accounting measures of performance are only coincidentally related to stock prices (read company valuations) and are not the primary movers and shakers. *What truly determines stock prices (valuation), the evidence proves, is the cash, adjusted for time and risk, that investors can expect to get back over the life of the business.*

The question is : How can discounted cash flow, which truly is at the heart of market valuation, become the driving and integrating force behind the financial management system?

The answer, for the most part, is actually quite straightforward : Management should focus on maximising a measure called economic value added (EVA), which is **operating profits less the cost of all the capital employed to produce those earnings.**" (Stewart,1991, p2)

This then links with the FCF work done previously and it can be seen that: **the EVA concept evolved from the theory that any company that producing a positive cashflow from earnings over and above what the providers of capital would earn or expect to earn, is adding value to the enterprise.**

Although there are obvious reasons for tying EVA to a company share price, this thesis will only focus on the interpretation and application of EVA as a practical measurement tool - the typical Industrial Engineering interest - and ignore any or all of the relationships that it may or

may not have with a company's share price. (And in the light of the August 1998 'crash' of the world markets, it may once again be shown to be an elusive relationship.) The study will certainly hope to find sufficient proof of the relationship between EVA and company "worth", but show no interest in the reflection thereoff as far as the company's share price is concerned.

3.1 Why economic value and not financial value?

Before considering the EVA equation we need to get to grips with the semantics of the concept. Stewart states that the accounting model relies on two financial statements: an income statement and a balance sheet - whereas the economic model uses only one: sources and uses of cash. Why then the use of the word 'economic' when the generally used terms and all data will be derived from the 'Financial Statements' of a company which would include the source and application of funds statement.

In the world of accounting it is known that:

Profit is only an opinion, cashflow is fact!

Finance and financing describes the principles and procedures in making cash flow in an economy. The cash will flow even if goods and services are bought on credit and paid for at a later date. Financing is the timely availability of money that has been saved for investment in a business.

Money has an earning power that can only be realised once financing has been obtained. Earning power relates to profits and profitability and the resultant increase in cash can be saved which relates to the growth of an economy.

Fabrycky et al, states : " Economic understandings depend largely on the behaviour of people instead of on well-ordered cause-and-effect relationships often experienced with physical phenomena (Fabrycky et al, 1998, p254).

"Economic considerations embrace many of the subtleties and complexities characteristic of people. Economics is derived from the behaviour of people individually and collectively, particularly as their behaviour relates to the satisfaction of their wants". (Fabrycky et al, 1998, p12)

When they state, " The relative scarcity of goods and services has been, is and likely will continue to be an economic dilemma that all must face" (Fabrycky et al, 1998, p12) they may as well include the capital source of a company as an 'economic' dilemma. Does this however justify the measurement under investigation as an economic value when the earnings or profits are accepted to be 'financial"?

They discuss the concept of 'value' and define it as the worth a person attaches to a product or service. This weights a product or service from the human perspective and not the inherent value of the item.

The result/objective of business is to participate in the economy of a country. This leads to economic decision analysis as an aid to selecting economic activities with a high profit potential. An economic venture will consist of elements such as outputs, inputs, Income, outlay, and a variety of costs (first cost, fixed costs, variable costs, incremental and marginal costs, sunk costs)

Further support for the 'cash effect' valuation measurement system of a company can be found in the work of Prof Shyam Sunder as recorded in Stewart, "Professor Shyam Sunder demonstrated that companies switching to LIFO experienced on average a 5% increase in share price on the date the intended change was first announced." (Stewart, 1991, p24) This is off course due to: " Switching from FIFO (first in, first out) to LIFO (last in, first out) inventory costing in times of rising prices decreases a company's reported earnings because the most recently acquired and hence, most costly inventory is expensed first. But, in so doing, it saves taxes, leaving more cash to accumulate in the cigar box." (Stewart, 1991, p24)

However, a more formal explanation may be found in Cannings' book of 1929. He analyses the economic and traditional accounting concepts of income (income being synonomous with earnings or profit). Since then, a third school of thought, during the 1960's, has been established which advocates current value accounting.

Prof. Lee writes: "The reason for writing this book has been prompted by a growing debate between accountants, financial analysts, stockbrokers, investors and politicians, concerning the rather high number of faults present in the traditional accounting concept of income: for example the flexibility of its measurement practices, the assumed stability of the purchasing power of the monetary measuring unit, and a widespread failure to recognise various contemporary values and value changes. It is apparent, also, that a growing number of

accountants and economists are interested in attempting to ensure that the operational accounting income concept is at least compatible with economic thinking while retaining as many favourable features of traditional accounting as possible" (Lee, 1980, p2).

Canning has stated that accountants see capital as tangible objects symbolising future service potential rather than from which future income can be derived. Prof. Lee describes this as "a measure depending entirely on the nature of the transactions recorded and is far removed from the economist's conception of capital." (Lee, 1980, p9)

The Fisher-Hicks tradition is based on the capital as a stock embodying future services, from which income will flow. It is also expressed by Prof. Lee as: "Economists normally look forward in time in terms of anticipated services, and these expectations form the basis of determining economic capital. It seems that the difference between accountants and economists is one of measurement as highlighted by Boulding; that accountants measure capital in terms of actualities, as the primary by-product of the accounting income measurement process; and that economists measure it in terms of potentialities, in order to measure economic income." (Lee, 1980, p10)

One of the most crucial aspects, seemingly addressed by EVA, is the concept of capital maintenance in the process of measuring periodic income - meaning opening capital must be maintained before there can be recognition of such income. To this Prof. Lee asks: "What capital should be maintained - should it be money capital (as in the case with traditional accounting); physical capital (ie in terms of tangible assets or operating capability); potential consumption (as expressed by economists in discounted cash flow measurements); or purchasing power (as suggested in certain recent inflation accounting proposals)?" (Lee, 1980, p11)

And at this stage it is suspected that EVA can only maintain the money capital component by reducing the income by the cost of capital. And in the case of equity and debt capital, the proportionate reduction in income is the proportionate maintenance of that capital.

Does EVA therefore consider the future potential of capital to qualify as an economic measure or does it simply stop at a calculation of the actual available accounting based data? And with referral to Prof Drucker's statement of the few profitable US companies, since World War II, in contrast to their growing and dynamic economy, it can be seen that a clear division between financial and economic is not readily at hand.

We first need to evaluate the full composition of the EVA concept before attempting to classify it as financial or economic.

3.2 Stern-Stewart's Economic Model

By adjusting the accounting model of financial statements Stewart arrives at the "economic model" which he uses to calculate the true return on capital the company's operations produced. And the true return, we have seen, will be reflected in a company's Free Cash Flow.

3.2.1 Return On Capital Rate r

The return on capital rate r is defined as a measure of the periodic, after-tax, cash-on-cash yield earned in the business.

It is computed by taking net operating profit after tax, or NOPAT, and dividing by capital outstanding at the beginning of the fiscal year.

(or by the simple year-to-year average of capital if assets declined by more than 20% over the year or if acquisition expenditures totalled more than 20% of average assets.)

For this purpose: $$r = \frac{\text{NOPAT}}{\text{Capital}} \%$$

with **NOPAT** defined as :

- **reported net operating profits** *(which includes various non-cash items)*
- **plus** the increase in the bad debt reserve *(a non-cash item)*
- **plus** the increase in LIFO reserve *(a non-cash item)*
- **plus** the amortisation of goodwill *(a non-cash item)*
- **plus** the increase in net capitalised R & D *(incorrectly deducted as an expense, as it should be capitalised as called for by Stern.)*
- **plus** other operating income *(excluding passive investment income (this may be questioned as we should be interested in all incomes over and above our cost of capital)*
- **less** cash operating taxes, i.e., taxes payable, in cash, on the company's net operating profits (as adjusted), defined as:

the provision for income taxes
less the increase in the deferred income tax reserve
plus the tax saved by deducting any unusual loss (gain) at a marginal corporate income tax rate
plus the tax saved by deducting interest expense at a marginal rate
less the tax imposed on passive investment income at a marginal rate.

3.2.2 CAPITAL

Capital is defined as the approximation of the economic book value of all cash invested in going-concern business activities, capital is essentially a company's net assets (total assets less non-interesting-bearing current liabilities), but with three adjustments :

1. Marketable securities and construction in progress are subtracted.
2. The present value of non capitalised leases is added to net property, plant, and equipment.
3. Certain equity equivalent reserves are added to assets :
   - Bad debt reserve is added to receivables. *(an unnecessary reduction of debtors?)*
   - LIFO reserve is added to inventories.*(an unnecessary reduction of inventory?*)
   - The cumulative amortisation of goodwill is added back to goodwill. *(the original goodwill remains part of the capital employed and the full cost of capital should be borne)*
   - R & D expense is capitalised as a long-term asset and smoothly depreciated over 5 years *(a period chosen to approximate the economic life typical of an investment in R & D). (a conservative approach to R&D ecpenditure)*
   - Cumulative unusual losses (gains) after taxes is considered to be a long-term investment.

The above mentioned changes concludes the summary of Stewart's proposed adjustments to arrive at the economic value for capital and operating profit. And although some of the items seem unnecessary, the list is comprehensive in nature and may be reduced when it is found that the influence on a company's EVA may be minimal. It is proposed that further research be undertaken to ascertain the relevancy and influence of the items on the EVA of South African Industrial companies

3.3 Objectives of EVA

We have seen that EVA developed from a company's ability to generate FCF. It has also developed from a need to improve, if not perfect, the correlation between the share price (valuation) of a company and a single financial measure. (It must be noted here that this thesis will only be concerned with the concept of "value" or wealth creation and the increase thereoff for the small or large company and that the share price benefit as achieved in a secondary market environment is co-incidental. Much as a productivity improvement in a company may or may not result in an increased share price.) Added to this we find that the EVA system can lead to management directing scarce resources to their most promising uses and most productive users.

Stern-Stewart states that the objectives of EVA can be seen to;

a) Increase Productivity
b) Abandon Cash Flow and
c) To turn managers into Owners

3.3.1. PRODUCTIVITY

As EVA is a measure of the use of capital, any change becomes an increase or decrease in productivity. This then forms part of the specific interest Industrial Engineering has into mostly the effect of EVA.

From the basic equation it can clearly be seen that an increase in earnings with a constant cost of capital is an increase in the productive use of capital (provided it is a positive EVA result).

Stewart emphatically states that the overall Productivity increase or decrease in a company can be measured by the EVA ratio: "Management should focus on maximising a measure called economic value added (EVA), which is operating profits less the cost of all the capital employed to produce those earnings. EVA will increase if operating profits can be made to grow without tying up any more capital, if new capital can be invested in projects that will earn more than the full cost of the capital and if capital can be diverted or liquidated from business activities that do not provide adequate returns.

Carrying this concept to a higher level, projecting and discounting EVA for an entire company automatically sums the net present value of all of the firm's past and projected capital investment projects. This relation tells us that if its EVA is expected to be positive, a company has added value to its out-of-pocket cost of the resources drawn into the firm; if EVA is projected to be negative, value has been destroyed.

EVA, in short, is the fuel that fires up a premium in the stock market value of any company or accounts for its discount. That is EVA's greatest significance, and it is a property that sets EVA above every other financial performance measure, even cash flow!"

This bold statement may be justified when we consider the findings of Dr. Goldratt, who developed the concept of Theory of Constraints to more successfully manage a business. He states: "In 1978 I switched from research in Physics to researching Industry. Almost from the start I was baffled by the use of efficiencies and product cost as performance measurements. It seemed as if Industry was using measurements that worked against the stated goal of Industry - to make a profit.

As time and my research progressed I became more and more frustrated with the devastating ramifications of the way cost accounting was (and still is) used by managers. Finally, toward the end of 1983, I decided, against all advice, to address the issue in my public lectures. I entitled my presentation "Cost Accounting - Public Enemy number one of Productivity". To my astonishment it was extremely well received by the accounting profession, so much so that I was invited to be a keynote speaker at the 1985 annual conference of the Institute of Management Accountants. It turned out that the accounting professionals were aware of, and agreed with, most of the points I raised."

If this is so then EVA should work for TOC and/or TOC should work for EVA.

3.3.1.i TOC and EVA

From the book "The Theory of Constraints and its Implications for Management Accounting", written by E. Noreen, D. Smith and J.T.Mackey, it can be gleaned that the theory has been highly successful at the 21 US and European companies investigated.

To find the relationship with EVA we need to consider the core principle of TOC and isolate the elements that may or may not impact on the EVA of a company.

The core principle is the fact that every business is constrained and that the constraints can be reduced to a single constraint that will determine the output of the system whether they are acknowledged and managed or not.

The analogy of a constraint can be as per the weakest link in a chain and strengthening the weakest link will offer the largest benefit to the effort expended.

Dr. Goldratt developed a process, first for the manufacturing industry and later for any business, with which to identify and manage for the constraint. This lead to a generic approach called the "Thinking Process" and the writers report that **"Companies that used TOC consistently generally reported impressive gains in financial results and in key operating statistics such as cycle time and due date performance."** (Noreen, 1995, pxxiii)

The crucial aspect, however, from their investigations is the fact that "It is impossible to disentangle TOC operations from TOC accounting. Any attempt to run a TOC operation while using traditional management accounting measures and controls is doomed to failure." And before we consider TOC accounting it must be noted that dr. Goldratt has defined business objectives as simply increasing Throughput and/or decreasing assets (inventories) and expenses. With expenses very pertinently being defined as *all* expenses or *all* costs incurred in the process of producing a throughput. When Throughput is accounted for, it is normally the sold product or service *less* the exact or direct materials consumed but it is equally common to find the materials consumed lumped with the total expenses thereby maintaining the unadulterated meaning of Throughput. He allows no room for the classification of expenses and points to the fact that companies tend to keep their variable costs fixed and vary their fixed costs. He also defines Throughput as only goods, products or services that have been *sold*.

This is another crucial deviation from cost accounting as any goods in a long supply chain that may be returned cannot be Throughput untill the end user has accepted the product. This then leads to TOC accounting as compared to standard product costing, or variance accounting or even absorption costing as their determination is dependant on a classification of costs.

The other effect of traditional cost accounting as displayed by the practice of standard cost variance is to increase the efficiency, thus decreasing the unit cost, by simply producing

more units and by definition the non-constrained work centres can produce output faster than the constrained centres. The very opposite to the Theory of Constraints!

In contrast to that, management only need manage the constraint. The efficiency, downtime and use of the constraint typically are monitored because any time wasted or lost on a constraint results in a loss of throughput and thus profits. To this E. Noreen et al add: "Indeed, there should be less than 100% utilisation of resources that are not constraints. And there should be considerable downtime on non-constraints due to setups and split batches. **Managers in TOC companies believe that the usual standard costing variance reporting control system leads people to take actions that are very nearly the opposite of the actions that should be taken."** (Noreen, 1995, p xxv)

Even the Just-in-Time system of manufacturing supports the Theory of Constraints as it has undoubtedly shown that a build up of work-in-process inventories are the cause of major operating problems and tends to camouflage problems (ie quality) that should be dealt with. TOC accounting solves the 'costing' problem by, instead of using absorption costing, using only the direct materials as a variable cost. E. Noreen et al state: "Variable costing is preferred to absorption costing under TOC for three reasons:

- It does not create incentives to build up inventories
- It is considered more useful in decisions; and
- It is closer to a cash flow concept of income." (Noreen, 1995, p xxiv)

TOC seems to apply a method that will maximise profits and EVA will judge that profit with a capital cost yardstick. However, as TOC is a function of the utilisation of assets (decrease assets, decrease expenses whilst increasing Throughput) and so is EVA (increase profits with a reduction in capital) a full evaluation of the input components should point to a serious relationship and if not, a flaw must be sought in either theory.

The following comparative chart was compiled by changing each component of TOC and noting the effect, if any, on EVA.

The EVA relationship, if any, is compared as follows:

TOC			EVA	*Comments*
Throughput	**Assets**	**Expenses**		
Constant	Constant	Constant	Zero change	
Increase	Increase	Increase	Dependant	*dependant on the extent of each increase*
Decrease	Decrease	Decrease	Dependant	*dependant on the extent of each decrease*
Increase	Constant	Constant	Increase	*increased profit*
Increase	Increase	Constant	Dependant	*increased profit offset by increased cost of*
Increase	Increase	Decrease	Dependant	*increased profit offset by increased cost of*
Increase	Decrease	Increase	Dependant	*lower cost of capital offset by decreased profit*
Increase	Decrease	Decrease	Increase	*most 'profitable' condition*
Increase	Decrease	Constant	Increase	*increased profit and lower cosyt of capital*
Increase	Constant	Increase	Dependant	*rate of increase determines EVA*
Increase	Constant	Decrease	Increase	*increased profit*
Decrease	Constant	Constant	Decrease	*decreased profit*
Decrease	Decrease	Constant	Dependant	*lower profit offset by lower cost of capital*
Decrease	Decrease	Increase	Dependant	*lower profit offset by lower cost of capital*
Decrease	Increase	Decrease	Dependant	*rate of decrease determines EVA*
Decrease	Increase	Increase	Decrease	*lower profit and increased cost of capital*
Decrease	Increase	Constant	Decrease	*lower profit and increased cost of capital*
Decrease	Constant	Decrease	Dependant	*rate of decrease determines EVA*
Decrease	Constant	Increase	Decrease	*lower profit*
Constant	Decrease	Constant	Increase	*lower cost of capital*
Constant	Constant	Decrease	Increase	*increased profit*
Constant	Constant	Increase	Decrease	*lower profit*
Constant	Increase	Constant	Decrease	*increased cost of capital*
Constant	Decrease	Decrease	Increase	*increased profit and lower cost of capital*
Constant	Increase	Increase	Decrease	*decreased profit and increased cost of capital*
Constant	Increase	Decrease	Dependant	*increased profit offset by increased cost of*
Constant	Decrease	Increase	Dependant	*lower profit offset by lower cost of capital*

And we find a 100% correlation for with any change in TOC, there is an equivalent change in EVA provided a company's capital mix remains the same. With TOC expressing the wealth creation ability of a company in terms of all the tangible financial factors. This means that the cost of interest bearing debt capital is included but not the intangible cost of equity capital.

However, if at any stage capital is introduced into the business without an equivalent decrease in expenses or increase in Throughput, the correlation may cease to exist depending on the type of capital. If interest bearing debt capital is introduced, the correlation will remain (albeit somewhat delayed before it takes effect), but if equity capital is introduced, TOC may display the benefit but not the cost (except inventory cost) whereas EVA will

include the cost. The TOC format may still correlate but only at a later stage, as all new capital can be considered to be for the purpose of increasing Throughput or decreasing expenses. This brings about one complete opposite aspect to EVA which again will bring us no nearer an answer to the debt-risk debate: under TOC it is possible to decrease the expenses by simply replacing interest bearing debt capital with equity capital and thereby reducing the gearing and the risk and offcourse increasing the profit. And, as will be shown, the US economy is increasing its gearing, and therefore the return on equity, which will not be sacrificed for a pure TOC approach.

Stewart, on the other hand, expounds the virtues of gearing as he finds interest bearing debt far "cheaper" than equity capital. This will be re-visited in chapter 6.3. Finally we find TOC operates in parallel / synomous to EVA, as the introduction of new capital will be scrutinised through the "increase Throughput or decrease assets/expenses" maxim which is nothing less than the productivity criteria referred to above. (Stewart, 1991,p271)

This again highlights the 'hurdle' effect that capital, in any form, takes on when EVA or TOC is applied.

3.3.1.ii Just-in-Time and EVA

The net effect of a Just-in-Time system is to reduce waste (unnecessary expenses), to reduce inventory and WIP (reduction in capital) and to abolish the traditional pre-occupation with labour utilisation. To this effect proffs Chase and Aquilano state: "Cost accounting systems have focussed on direct labour since the Industrial Revolution. However, under JIT (and computer integrated manufacturing) overhead costs are dominant, often 20 times as high as direct labour. Moreover, with workers maintaining their own equipment, and other measures, the **distinction between direct and indirect labour has become blurred for cost allocation purposes.** It presently appears that the primary difference between traditional and JIT cost accounting is the application of overhead on the basis of product time in the system (cycle time) rather than direct labour or machine hours." (Chase & Aquilano, 1995, p252)

And again we find elements of EVA imbedded in the origens of JIT: reduce capital which will reduce the WACC, price products by their consumption of overhead and obtain real profitability and lastly increase productivity by eliminating all sources of waste.

The reason for the development of JIT and TOC could be found in the EVA measurement criteria. Both JIT, as a far older applied technique, and the more recent TOC does point towards the quest for maximising profits but with an almost taken-for-granted fact that the cost of capital was accounted for in the improved results. And Toyota of Japan is a case in point considering the competitiveness and enormity of the American motor corporations that have been beaten with their ability to produce profits.

3.3.2. ABANDON CASH FLOW

The second objective certainly sounds irrational but Stewart states: "However important cash flow may be as a measure of value, it is virtually useless as a measure of performance. So long as management invests in rewarding projects - those with returns above the cost of capital - the more investment that is made, and therefore the more negative the immediate net cash flow from operations, the more valuable the company will be.

EVA, on the other hand, is a measure of value and a measure of performance. The conclusion is inescapable but perhaps shocking : Abandon the practice of discounting cash flow, and discount EVA instead. The valuations will be the same, that's true, but comprehension and communications will be dramatically strengthened." (Stewart, 1991, p4)

This objective will be applied to the case study (see Appendix A).

3.3.3. TO TURN MANAGERS INTO OWNERS

There are many different gainsharing or incentive schemes applied to Industry. Stewart takes a negative view of the general perception and offers a solution in the form of EVA : "Most companies persist in basing bonuses on the attainment of planned levels of performance, which is a catastrophic mistake. Make budgets the targets for determining bonuses, and the opportunity for fruitful collaboration vanishes and is replaced by an endless series of negotiations in which managers have every incentive to sandbag potential for their businesses instead of reaching for the stars and to manage earnings and the expectations of the corporate office instead of maximizing value. The use of budgets for bonuses is a vestige of an archaic accounting model that emphasizes earnings over cash flow, control over delegation, variances instead of vision, and questions instead of answers." (Stewart, 1991, p5)

He offers the solution to turn managers into owners. He states: "EVA is key. For although operating people can do countless individual things to create value, all the things eventually must fall into one of the categories measured by EVA. **Giving managers a bonus that is a share of EVA is the right way to motivate them to create value and make them think and behave more like owners.**

The new system turns the time-worn practice on its head. It liberates manacled managers from the tyranny of the budget - setting process. For instead of having budgets drive their bonuses, bonuses - or rather the ownership imperative - drive their budgets.

The goal is to move from a system requiring a continuous negotiation of financial targets to one that requires a one time setting of bonus parameters. Give managers throughout the company a bonus that is a share of the level and increase in the level of the EVA of their operation (and of sister units and overarching groups with which their units interrelate). By fixing their share of EVA in advance - and not changing it in light of subsequent performance - the managers will be given a tremendous personal incentive to devise and execute extremely aggressive plans.

In this case, just achieving planned performance levels can produce extraordinary bonuses for them; performance in relation to the plan itself is not used in any way to determine their reward.

A corollary to providing managers with the incentive of ownership is to delegate to managers the autonomy needed to maximise the value of the operation. Decentralising decision making along with incentives has become all the more imperative as the pace of new product development and the fragmentation of markets have accelerated and as computing power has proliferated. Recognising these trends, the new financial model emphasizes management by motivation and not mandated, by empowerment and not by punishment". (Stewart, 1991, p7)

He continues to warn against the risk of managers falling into the temptation to 'empire build' their departments and proposes a penalty should their units fall astray of value building.

3.4 EVA and Financial Restructuring

To meet any of the abovementioned objectives a company needs to implement a change which in itself is a process of restructuring.

The important need is to enable a multitude of recognisable business units that can be measured in terms of EVA.

In this respect Stewart states: "Broad-based academic research shows that when a company **first announced the intention to spin off a subsidiary unit, its stock price almost always increases in value.** On the surface, the market's favourable response is hard to fathom; it is much like cutting a slice from a pie, putting it onto a separate plate, and then saying there is more pie than before. Just as the statement defies the terms of physics, so a spin-off appears incapable of increasing a company's market value.

To answer the riddle, **some people say that spin-offs increase value because investors are better able to grasp the actual value of the unit once it is separated from its parent.** The parent's common stock price rise, so this faulty explanation goes, is in reaction to a change in the perception of value and not to a change in value per se. That claim however, cannot be reconciled to the fact that the parent company's stock price rises when the intention to spin -off is first announced, a time well before the spin-off becomes effective and new information on the unit is disclosed". (Stewart, 1991, p9)

Stewart proposes an internal buy-out or spin-off as an efficient means of de-coupling a business and enabling an EVA measurement system.

To this effect he writes:
"The important question for top management is how best to harness the power of financial restructuring while, as in the case of atomic energy, avoiding its excesses. Many companies in the 1980's made the mistake of restructuring blindly, taking on a whopping debt at the corporate level and thereby gambling all their assets against all the debt. Not only did such a strategy expose the firm to the risk of a financial meltdown in the event things did not materialise as planned, it was insensitive to the particular strategic challenges facing the individual business units. It also failed to involve local personnel as fully as would be desirable" (Stewart, 1991, p 11).

(The reader may draw his own conclusions re this contradictory statement to his overwhelming support of increased debt in the previous sections.)

3.5 The EVA Equation

The EVA equation is derived from the single statement: **EVA is a measure of the wealth created over and above the cost of borrowed capital and/or the minimum return required/expected by the owners of non-borrowed capital.**

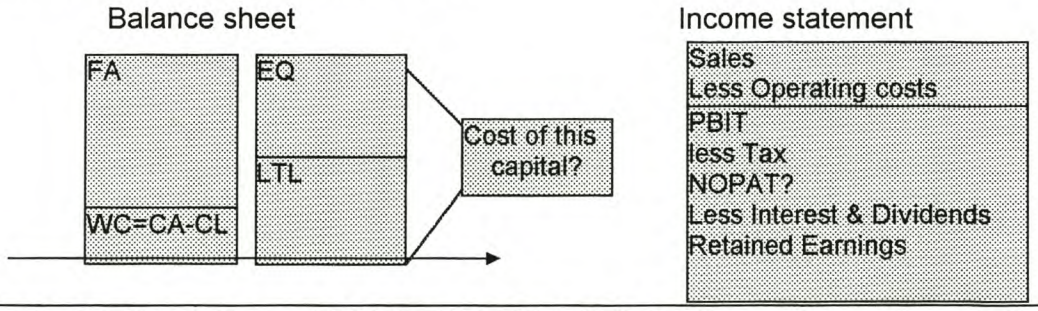
Here the wealth is defined as the earnings per annum (NOPAT) and the equation can be derived as follows:

EVA = **Wealth - (cost of all capital)**
= NOPAT - (cost of borrowed capital + theoretical cost of Equity (non-borrowed capital))
= NOPAT - (COBC + TCOE)
= **Wealth created if positive**
= Wealth destroyed if negative
= *a Measure of the productive use of capital*

(Stewart, 1991, p24)

We use the illustrations of C Walsh to offer a schematic presentation of EVA as follows (Walsh, 1996, p87):

Figure 1: Schematic Presentation of EVA



Cost of this Capital should be LESS than the Profit (NOPAT) generated by the use thereoff.

Before reducing this to a singular ratio of capital consumption we need to consider the effect of leverage on earnings p.a.

Stewart writes: "In place of Return on Equity, the rate of return on total capital (the correlation with return on total assets is considered in chapther 6) is the return that should be used to assess corporate performance. Computed by dividing a firms net operating profit after taxes (NOPAT) by the total capital employed in operations, it is a savings account equivalent, after tax, cash-on cash yield earned in the business (Stewart, 1991, p85).

It measures the productivity of capital employed without regard to the method of financing, and it is free from accounting distortions that arise from accrual bookkeeping entries, from the conservative bias of accounting statements, and from the tendency to understate capital by writing off unsuccessful efforts. It may be compared directly to indicate whether value is being created or destroyed." (Stewart, 1991, p86)

From the above we define Return on total capital as :

ROTC = r = NOPAT/ capital

Here we have capital being the sum of all the cash that has been invested in the company's net assets over its life. NOPAT is the profits derived from the company's operations after taxes but before financing costs and non-cash-bookkeeping entries, as defined by Stewart. It is also a measure of the earnings generated by a portion or all of the capital.

Therefore, NOPAT equals the cash source with which to provide a cash return to the financial providers of the company.

The exception allowed by general accounting practice is the subtraction and therefore inclusion of the non-cash item of depreciation and Stewart justifies it with:

"The assets consumed in the business must be replenished before investors achieve a return on their investment. Another way to see this is to observe that a company, when it leases assets, must pay a rent that covers the depreciation the lessor suffers on the lessee's behalf (plus interest). Thus, the economic charge of depreciation does have a cash-equivalent cost" (Stewart, 1991, p86).

3.5.1 WEIGHTED AVERAGE COST OF CAPITAL (WACC)

We also define the weighted average cost of capital rate (WACC) as the ratio of interest expenses paid on borrowed capital as well as the theoretical minimum expected return by the shareholders.
We denote cost of capital rate (WACC) as c* and the ratio equates to :

$$c^* = (\text{interest expense} + \text{expected return}) / \text{capital}$$

From the EVA definition we have:

$$\begin{aligned} EVA &= \text{Wealth} - \text{cost of capital} \\ &= NOPAT - c^* (\text{capital}) \\ &= r (\text{capital}) - c^* (\text{capital}) \\ &= (r - c^*) \times \text{capital} \end{aligned}$$

Stewart supports this with: "EVA is the one measure that properly accounts for all the complex trade-offs involved in creating value. It is computed by taking the spread between the rate of return on capital (r) and the cost of capital (c*) and then multiplying by the economic book value of the capital committed to the business" (Stewart, 1991, p136):

If for example:

NOPAT is $250, capital is $1000, and c* is 15%, then r is 25% and EVA is $100 as follows:

$$\begin{aligned} \mathbf{EVA} &= (r - c^*) \times \text{capital} \\ &= (25\% - 15\%) \times \text{capital} \\ &= \mathbf{\$100 \text{ or } 10\% \text{ of capital is the economic value added to the business.}} \end{aligned}$$

Although in any given business there are countless individual things that people can do to create value, eventually they all must fall into one of the three categories measured by an increase in EVA. EVA will rise if operating efficiency is enhanced, if value-adding new investments are undertaken, and if capital is withdrawn from uneconomic activities.

Simply stated, **EVA will increase when:**

a) The rate of return (r) increases without tying up any more capital.

b) Additional capital is invested in projects that return more than the cost of obtaining and servicing the new capital.

c) Capital is liquidated in substandard operations where r = c* or r < c*, in other words, inadequate returns are being earned.

4. Unique Aspects of EVA

The single aspect that differentiates EVA from all other measurement criteria is the fact that a ***cost of Equity*** is introduced.

The weighted average cost of capital rate has specifically been defined as the weighted proportion of interest on debt and a theoretical return (interest) expected by the equity owners.

4.1 Defining c*

Stern/Stewart uses one of two approaches in calculating c*. The first is an operating approach. The second is the more traditional financial approach. Stern, Stewart & Co. has developed a heuristic method to calculate the weighted average cost of capital, c* with his operating approach. Here the two different costs of capital namely the cost of capital for business risk and the cost of capital for financial risk is used to develop a model. This model is then used to calculate the cost of equity capital in the absence of share price history.

And although it is accepted that equity would not exist if there was no return to the Investor, it is not widely accepted that there is a tangible "cost" of equity. Stern bases the theory of EVA on the acceptance and ability to not only calculate a cost of equity but to believe that there is a fixed relationship between all equity. He finds a mathematical existence of one equity compared to another, which can be translated to a unique cost for each equity.

C. Walsh states: " The cost of equity is not so easy to establish. It is an issue that has exercised many eminent minds over a number of decades." (Walsh, 1996, p278)

We have however, a model in the **"capital asset pricing model"** that has become the most quoted and believable explanation of the cost of equity mystery and is based on the premise

that investors require a minimum rate of return even when no risk is involved, and this required rate increases as the apparent risk increases.

The input values required by the model are:

a) The risk-free (government bonds?) rate

b) The average return of equity shares across the total market

c) A measure of the riskiness (Beta value) of the specific share

Which can be applied as follows:

a) Establish the risk-free rate

b) Establish the long term average return of an investment in the stock exchange

c) Calculate the Market Premium ie market return less the risk-free rate

d) Finally calculate the cost of equity by adding the Market Premium (which is increased or decreased by the company's Beta value) to the risk-free rate.

And is expressed as:

*Cost of Equity = Risk free rate + Beta * Market risk premium*

in symbols: $y = R_f + \beta * MRP$

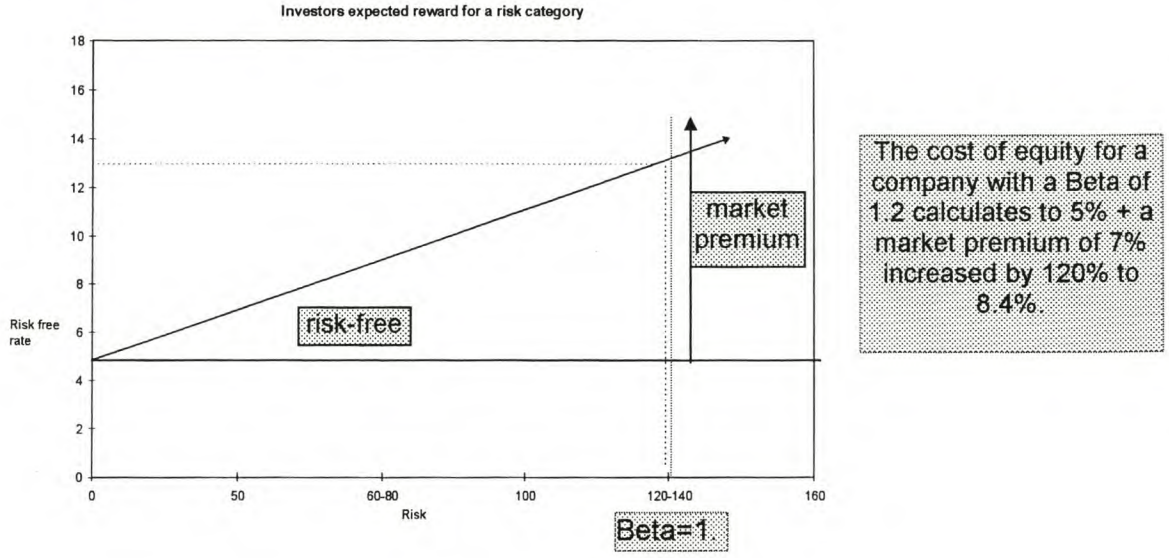
The cost of equity is then derived from his RISK-REWARD TRADE-OFF theory.

"The reward for investing is the total rate of return obtained through a combination of cash yield and cash-equivalent price appreciation. Risk is the variability or uncertainty in the prospective return. Even when they take no risk, investors can still expect to earn some return just because there is a time value to money. At any moment such a risk-free rate of return R is indicated by the prevailing yield on U.S. government bonds. If held to mobility, U.S. government bonds guarantee investors a nominal return without subjecting their principle to a risk of default. Risk-free government bonds generally provide about a 3% real rate of return plus a premium to offset the expected rate of inflation" (Stewart, 1991, p77).

This is an interesting aspect that will be discussed in appendix A. As inflation and the real rate of return is at a vastly different rate in S.A. versus the American situation.

He continues with: "To move beyond such riskless bonds, 100 can be used as an index to represent the degree of risk entailed in holding a broad common stock portfolio such as the (American) S & P 500. That way, the risk of all individual equity investments can be positioned on a risk map that progresses from left to right. (See exhibit 1)

Exhibit 1. Investor Risk



For example, it is around a risk score of 50 that public utilities tend to cluster. They are regulated to earn steady rates of return, as a result, their common shares are only about half as risky as the average common stock investment.

Food companies tend to plot between 60 and 80 on the risk map. In general, however food stocks are less risky than the market because people tend to eat quite regularly. Around 100 are the consumer products giants and 120 to 140 is the domain of the cyclical stocks - the steel, cement, aluminium, automotive, chemical, textile machine tool and tire and rubber companies, for example.

From 150 on up are the airlines, hotel and motel chains, and construction, leisure time and photographic companies - businesses in which many of the costs are fixed and revenues are strongly tied to the economy, making profits highly dependent on the stage of the business cycle. The risk score can be as high as 200 to 300 for companies developing new technologies but without current products to sell and for firms in or near bankruptcy much like Chrysler in the early 80's - firms whose stocks behave more like options.

The upward slope of the line stretching beyond the risk-free yield indicates that, because they bear more risk, investors ought to expect to earn a greater return. I emphasize the word "ought" because, without the prospect of earning a greater reward, who would bother to buy riskier stocks? **One of the greatest achievements in all financial academic research has been to prove that such a risk-reward trade-off does in fact exist in the stock market.**

Comprehensive studies of actual share price data stretching back to 1925 show that in diversified portfolios of stocks and over sufficiently long periods of time (long enough for the long-term upward trend in the stock market to dominate its inherent near-term variability), investors have indeed been rewarded - for bearing additional risk. Risk and reward do in fact go hand-in-hand."

This having been established we continue to consider the return expected by the investor which will translate into the cost of equity.

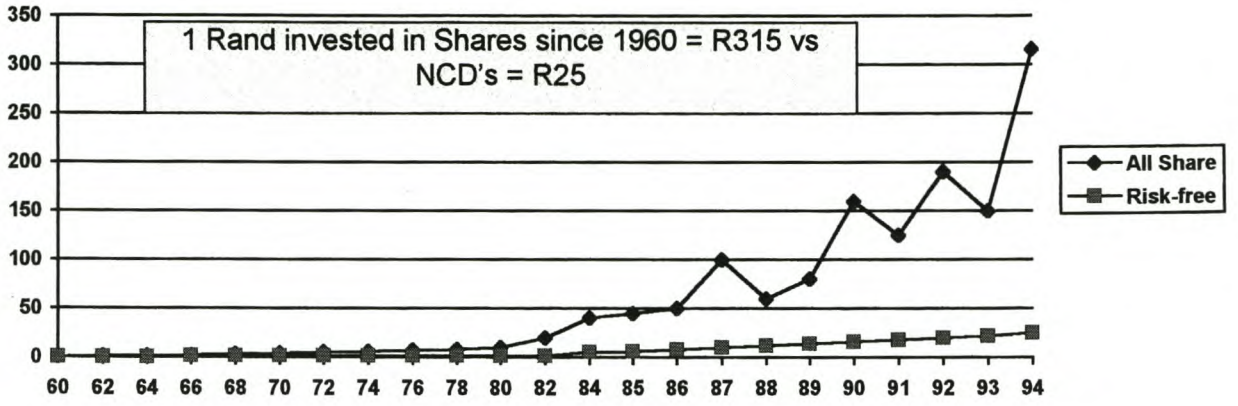
"Although individual stocks do over- and underperform investors' expectations, investing in a broad portfolio of stocks essentially guarantees that a return will be earned over the long haul to compensate for the degree of risk borne over the short term.

Now I know that you are thinking this sounds too easy. If investors are always rewarded for bearing additional risk, as indeed the evidence shows is the case, why wouldn't everyone invest in common stocks instead of bonds, and risky common stocks at that, and earn higher returns?

The reason is that an investor in stocks must often wait longer to earn a return that is higher than that provided by bonds, like as much as about 20 years longer, and the riskier the investment the longer the wait is likely to be. The return for risk really is a premium for patience.

The risk-reward trade-off can now be presented in another way. Invest in "risk-free" bonds, and the result will be a steady if unexceptional return over a period of time (as represented by the NCD line in exhibit 2) Invest in common stocks, and over the short term there is a great uncertainty over the potential return, but over the long run the return will narrow to the reward that investors expect in order to compensate them for risk".

Exhibit 2: Stocks vs Bonds



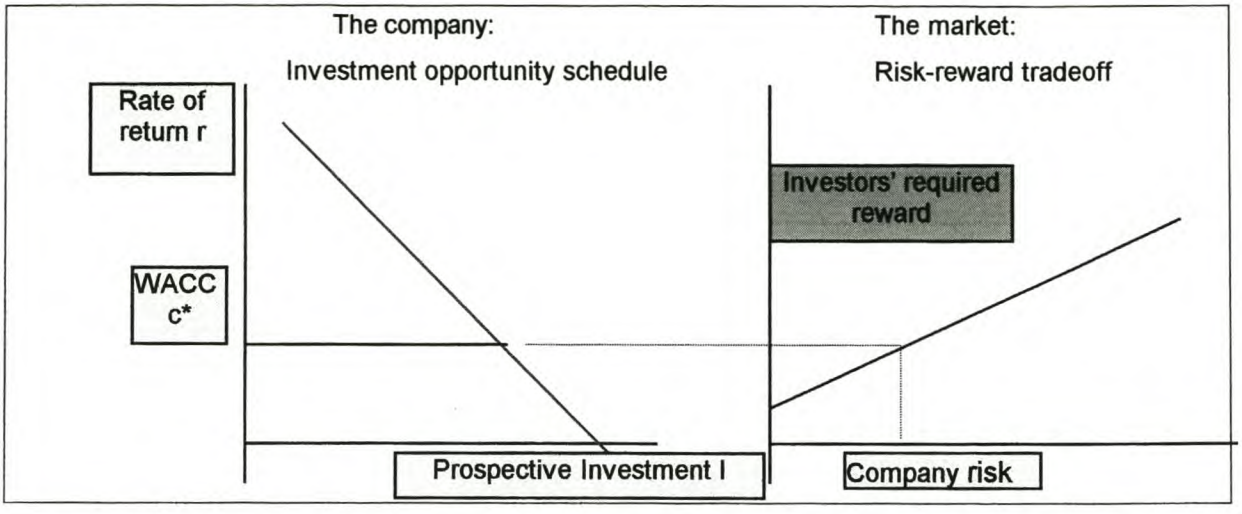
Stewart states that the definitive evidence lies in the proof that share prices are the result of discounting projected cash flows and not by capitalising earnings. Which means the greater the risk in the future cash flows, the higher the rate used to discount them to a present value. (Stewart, 1991, p81)

The important conclusion he makes that is to be used is his "cost of equity" theory: "Discounting cash flows is the only valuation procedure that can account for the fact that investment risk is rewarded with a higher cash return over a period of time and therefore *must* be the basis by which share prices are set.

Lead-steer investors, with their years of experience and sound business instincts, reach conclusions about value that are consistent with discounting projected cash flows, even though most do not explicitly employ such techniques, nor would many of them recognise it if they saw it" (Stewart, 1991, p82).

He continues and "unveils" the cost of capital: The final important application of the risk-return trade-off is to estimate the required return for creating value. By measuring where a company (or project) plots along the risk map and drawing a line we get an intersection that is the cost of capital c* (Stewart, 1991, p82). It is equal to the

Exhibit 3: Risk vs Reward



return investors could expect to earn by buying a portfolio of companies of similar risk; in short, it is the return offered by a firm's capital competitors".

Stewart defines four costs of capital as:

"1. The cost of capital for business risk c. This is the return investors require to compensate them for the inherent cyclicity of NOPAT. In practice, it can be estimated by adding a premium for business risk to the prevailing risk free rate on long-term government bonds. (The statement that the long term government bond rate must be used as the proxy for the risk free rate is not accepted by most experts in the South African market. This analysis was undertaken **by Hans Oosthuizen in his final year thesis.**)

2. The cost for borrowing is the required return for credit risk, that is, for the risk in meeting contractual interest and payments on debt. It is indicated by the after-tax yield to maturity on the firm's long term debt; in symbols, it is (1-t)b. The tax-rate t should be the marginal corporate tax-rate, and the borrowing rate b should be the replacement cost of debt. The imbedded cost of debt is irrelevant because funds no longer can be obtained at those rates.

3. The cost of equity y is the return investors require to compensate them for the variability of bottom-line profits. Paying fixed interest payments out of uncertain operating profits makes bottom line profits more variable, and hence riskier, than the operating profits. The cost of equity is thus the cost of capital for business risk c plus a financial risk premium (FRP). It can be estimated by adding a premium for both business and financial risk to the prevailing risk-free rate.

4. The Weighted Average Cost of Capital c* is the blended cost of the firm's debt and equity. It is the rate to discount operating cash flows to their present value, to rank

> capital investment projects, and to judge returns on capital employed. In other words, it is *the* Cost of capital. The other costs are useful only insofar as they serve as a means to calculate c*." (Stewart, 1991, p432)

The real cost is a psychological cost, for the pressure is on the company to perform in line with an expectation that is equivalent to a comparative competitor's performance. This supports and explains the minimum hurdle theory rather than a "cost" which can not be measured. This remains highly debatable especially in South Africa where, it is said, we have indifferent shareholders.

An important contribution can however be made by including an equity cost into a company's capital management criteria as explained by the following case study put forward by Stern:

4.2. Alternative views on the Cost of Capital

As EVA is based on the cost of capital we need to evaluate further the role this plays in a company.

" The twin problems of deciding upon the "right" combination of capital sources for a business enterprise and of determining the cost to the enterprise of that combination have occupied the attention of a seemingly disproportionate number of financial scholars and practitioners during the last decade or so. The issues have been confronted from a range of viewpoints exceeded only by the variety of the conclusions reached and the catalogue of publications created." (Lewellen, 1969, p vi)

"The problem of choosing the most desirable combination of long-term funds for a business firm, then, is that of determining the mix of finance which will maximise the market price of its shares. As we shall see, this objective is equivalent to minimising the firm's cost of capital." (Lewellen, 1969, p3)
Lewellen points to an important assumption which is contrary to why EVA should exist. He states "Even if it were true that top executives owned no stock in the corporations they manage, they would still have a strong interest in making decisions which would raise share prices, simply because that would be the easiest way to keep their stockholders happy and thereby achieve increases in their own compensation." (Lewellen, 1969, p3) The question is whether they can achieve that without keeping their eye on their EVA?

"In this light, the tasks of the financial manager which we shall consider here may be regarded as twofold: to provide a required rate of return standard - a cost figure - which the

firm can use in appraising prospective investment opportunities; and to arrange it's finances in such a way as to minimise that cost" (Lewellen, 1969, 3).

To quote Wilbur Lewellen of Purdue University: **"The determination of a business firm's "cost of capital" is one of the most complex and challenging problems in the field of finance. Indeed, if the diversity of viewpoints expressed in the extensive literature on the subject during recent years is taken as a guide, it is also one of the most contentious."** (Lewellen, 1969, p1)

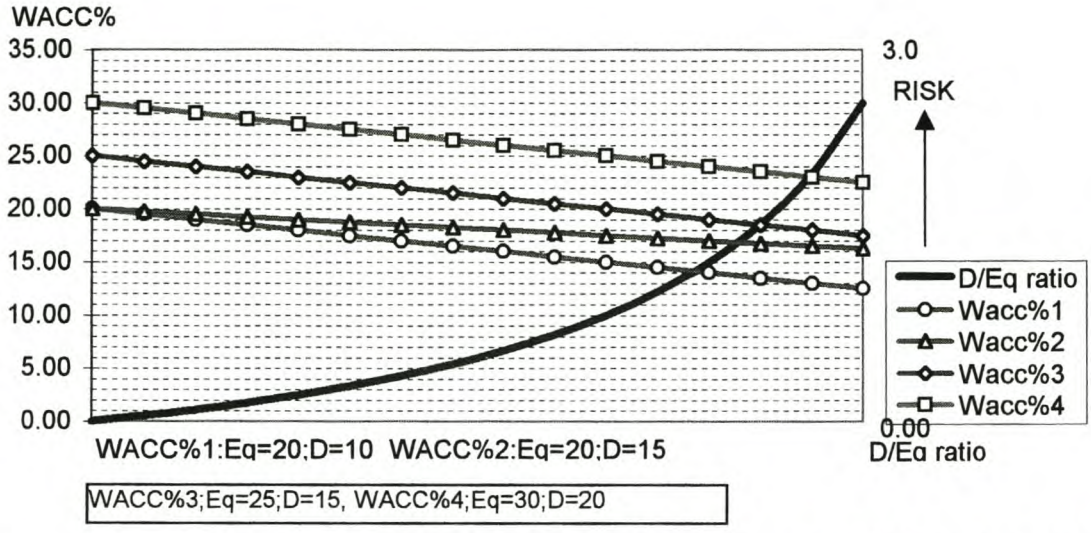
It is not only difficult to analyse the type of funds needed but also the mix of funds in an uncertain economy that will positively influence the subjective reactions of capital providers at any stage. This difficulty is further increased by the phenomena/dilemma that when equity capital is needed but unavailable due to the need, debt has to be increased and vice versa. Lewellen introduces another aspect of the equation: "The problem of choosing the most desirable combination of long-term funds for a business firm, then, is that of determining the mix of finance which will maximise the market price of its shares (in our case the "worth or value" of a company - private or public). As we shall see, this objective is equivalent to "*minimizing the firm's cost of capital.*"

He continues with: "The object of undertaking a business venture is not merely to earn a return; it is to earn a return in excess of the costs associated with the resources employed. A firm's so-called "cost of capital" then - commonly expressed as an annual percentage figure - is simply that which its assets must produce in order to justify raising the funds to acquire them." (Lewellen, 1969, p6)

This is one of the many equivalent-to-EVA views expressed in financial literature. In terms of minimising the firm's cost of capital we are seemingly only constrained by the element of risk introduced when making use of debt capital. And it ironically seems, especially as expressed by Stern-Stewarts research and writings, that debt capital is the lower cost to the company and therefore, from a cost viewpoint, the most desirable.

The cost of capital in the form of a WACC can be compared to a debt/equity ratio as follows:

Exhibit 4: Different Debt to Equity ratios vs WACC%



From this it can be seen, with debt capital chosen as the lower cost factor, that the higher the debt/equity ratio (our maximium taken as a liberal 75% debt to 25% equity) which equates with the maximum risk, the lower the WACC. It can also be seen that the sensitivity, or desirability of debt, increases as the difference between the debt and equity cost increases. Therefore: the cost of capital correlates with the debt/equity mix as the WACC migrates towards the lower cost capital.

Lewellen points out that: "Were it not for the corporate income tax, we would conclude that debt-equity ratios would be of no concern and that the degree of leverage chosen by a firm would not alter the price of its stock." (Lewellen, 1969, p51)

This is an observation with obvious implications for countries with a low tax rate and should lead to an interesting study.

The benefit of a debt capability is further described as: "The fact that a corporate tax does exist, however, suggests that leverage should be beneficial to shareholders. **They are unable to do for themselves via personal borrowing that which the firm can do for them by corporate borrowing.** The tax deductability of the firm's interest charges produces this result. As long as a corporation stays within its generally accepted debt limit, its shareholders stand to gain the more it takes advantage of debt financing." (Lewellen, 1969, p51)

This concept, circa 1969, has certainly been taken up by corporate America as we see the growth in debt financing in exhibit 7.

Lewellen refers to the theoretical nature of the cost of debt and equity capital but nevertheless accepts the above measurement technique as sufficiently accurate (Lewellen, 1969, p51).

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As to accuracy he declares: "It is worth emphasising that, even if the numbers required for such measurements cannot always be obtained with great precision, it is not necessary that we insist on the kind of accuracy that would permit us to carry computations to the point where we measure cost of capital to the nearest 0,01%' (Lewellen, 1969, p51).

We can still make a great many important investment decisions with considerable confidence. The large majority of our capital budgeting present-value computations will produce the same answer ie. accept or reject the proposal - whether we use 9,10 or 11 percent as the relevant "cost of capital". As long as we are reasonably sure that the number is not 5 percent - or 20 percent - we can function effectively.

Note that nowhere in the formula developed by him does the interest rate on debt appear. The hypothesis is that the sole two detereminants in calculating cost of debt capital is the "risk class" the investment is in and the corporate tax rate. This intimates that the return on a debt financed investment of low risk can be lower than the interest rate on the debt as the benefit to the shareholder derives from the leverage effect. This is also true where debt can increase capacity to beyond the break-even point, ie. in a manufacturing company, and result in a profit although the return is lower than the interest rate. This ties in with dr. Goldratt's Theory of Constraints principle where the emphasis should be on throughput. (Noreen, 1995, p12)

The above is a clear example of the dangers of applying EVA in isolation to the overall effect of financial management decisions.

4.3 An explosive concoction

From Stern-Stewart; "The Liquigas fallacy illustrates why a mixture of operating and financing decisions is an explosive concoction. As reported in a now famous Harvard Business School case, in one year the management of Liquigas would employ debt to finance the company's

expansion and, accordingly, required all projects to return more than just the after-tax cost of borrowing funds. The logic for the decision-making criteria was that all such projects would increase EPS and ROE. Not surprisingly, many low-return projects were accepted in those years. By the next year, the company had become so highly leveraged that management was forced to raise equity. All projects up for review were required to cover the full cost of equity (once again to prevent dilution in EPS and ROE), which made it difficult for even very attractive projects to pass muster.

The moral of the Liquigas fallacy is not to associate sources with the uses of funds. Such association distorts the desirability of undertaking a project by mixing operating and financing decisions. Instead, all projects should be thought of as being financed with a target blend of debt and equity no matter how they might specifically be financed. That way, each investment stands or falls on its own merits.

To be consistent with this commendable capital budgeting procedure, subsequent performance should be measured and evaluated in a manner that clearly distinguishes operating and financing decisions. Unfortunately, comparing the rate of return on equity against the cost of equity does not (or at least, does not without great difficulty). Comparing the rate of return on total capital with the weighted average cost of debt and equity capital does". (Stewart, 1991, p85)

4.3.1 EVA AND MAR (minimum acceptable rate of return)

Minimum acceptable return, MAR (or cost of capital) is a well-known and popular criteria in the evaluation of projects.

Paul Jeynes, in his book "Profitability and Economic choice" states; "The idea of a minimised cost of money, which is not to include profit, is not new. But the literature of the subject inhibits strikingly the evil effects of failing to define terms and intent **exactly**." (Jeynes, 1968, p29)

He continues to define and specify MAR which is nothing less than the cost of capital as used in the calculation of EVA.

He further introduces the lowest attractive rate of return as the cut-off rate and explains it as "if a proposal promises any smaller earnings than the cut-off rate, it will not be undertaken." (Jeynes, 1968, p29) Which is synonymous with a negative EVA.

He points to the EVA concept ad offers the solution to the above Liquigas example as follows; "It is not the project's earnings in excess of its immediate cost of financing that measures its profitability, but its earnings in excess of MAR on the company pool of investors' committed capital over the service life of the project." (Jeynes, 1968, p50)

He concludes with a somewhat more practical calculation of cost of capital:

"MAR on equity has two components (a) dividend yield and (b) capital gains rate. With any change in market price, as on component increases, the other decreases; the effect tends to be offsetting." (Jeynes, 1968, p56)

And although this offers a small variation to the EVA discussions, the result is no more or less than the stated EVA calculation.

4.4 Equivalence of Value in exchange

In a country with an embedded traditional inflation the meaning of equivalence pertaining to value in exchange needs to be considered. Fabrycky et al, point out that the relative value of several alternatives is usually not apparent from a simple statement of their future receipts and disbursements (Fabrycky et al, 1998, p52).

The factors involved in the equivalence of money are:

a) the amounts of the sums
b) the time of occurrence of the sums
c) the interest rate

"For example, present amount of $300 is equivalent to $643.20 if the amounts are separated by 8 years and if the interest rate (inflation) is 10% per annum" (Fabrycky, 1998, p51)

Fabrycki et al, touch on the EVA concept as follows: "Capital assets are purchased in the belief that they will earn more than they cost. One part of the prospective earnings is considered to be capital recovery. Capital invested in an asset is recovered in the form of income derived from the services rendered by the asset and from its sale at the end of its useful life".

A second part of the prospective earnings will be considered to be return. Because capital invested in an asset is ordinarily recovered piecemeal, it is necessary to consider the interest on the unrecovered balance as a cost of ownership. Thus, an investment in an asset is expected to result in income sufficient not only to recover the amount of the original investment but also to provide a return on the diminishing investment remaining in the asset at any time during its life. Which represents another way of expressing EVA.

This gives rise to the phrase capital recovery with return (CCR):

with CCR = Income sufficient + % of diminishing investment

and EVA = Income sufficient over the cost of capital

They continue with: "Two monetary transactions are associated with the procurement and eventual retirement of a capital asset : first cost and salvage value. From these amounts, it is possible to derive a simple formula for the annual cost of the asset for use in economic decision analysis.

The capital recovery plus return cost for an asset is independent of the depreciation function used to represent its decline in value over time. As long as the first cost and salvage value (cost) are realised, the annual equivalent cost is simple to determine. The resulting equivalent amount may be used as a basis for beginning the analysis of activities that employ assets" (Fabrycky et al, p61).

This certainly could even be considered as an alternative "worth or value" measurement of a company especially as it excludes the thorny issue of "cost" of equity.

A Firm's worth can now be expressed as an equivalent to CRR with the first cost representing all the capital (savings account cash equivalent as per chapter 1), a service life of 10 to 20 years, the interest rate represented by the inflation rate, the very important annual Free cash Flow (or Throughput) to represent A - the single payment in a series of equal payments made at the end of each annual interest period, and lastly the salvage value of the firm which provokes pshychological aspects (why will a sound and growing business be worth less in 10 years than now? etc) as well as the mission/objectives of the firm expressed as a money equivalent value.

5. MEASURING INVESTMENTS

A few alternative measurement criteria are considered at this stage to find a link with EVA.

EVA places a value on a company by measuring it's ability to productively use its capital to the extent that a higher return than a determined weighted average cost of capital is delivered.

But there are other available measurement criteria such as :

a. Present worth
b. Future worth
c. Internal Rate of Return (IRR)
d. Payback Period
e. Minimum acceptable Rate of Return (MARR)

To apply the above to a company we need for example, to determine the net Present worth of a company and compare that with the previous year's Present worth. And the same for other measurement criteria.

5.1 Conventional Measurement Techniques

Mr. Walsh, reminds us in his book, "Key management ratios", of the abundance of complex equations and obscure terminology which surround corporate finance and believes it is only the most hardy of adventurers that will conquer the subject.

He makes this important statement: "While each measure in itself is simple to calculate, **comprehension lies not in how to do the calculations but in understanding what these results mean and how the results of different measures mesh together to give a picture of the health of a company".** (Walsh, 1996, p xiii)

This is then the principle that will be followed in comparing conventional ratios. Only those ratios that play a meaningful role in a company's effort to create value, will be investigated and in each case the degree of relevancy will be ascertained.

The difficult aspect of ratio or measurement analysis, is the fact that they are all inter-linked and in too many cases a single outcome is subject to a variety of probabilities attached to the

linked factors. The outcomes are also 'after the fact' and little help in the immediate steering of the company. Nevertheless, the evaluation of the ratios need to be done to show up the shortcomings and to induce a need for invention of more active, dynamic and relevant measurement parameters. This ties in with the comments of the first chapter as well as the introduction of TOC accounting in chapter 3.

A ratio is the relationship between two (or more) figures that enables the effects of scale to be removed. (Norkett, 1981, p255)

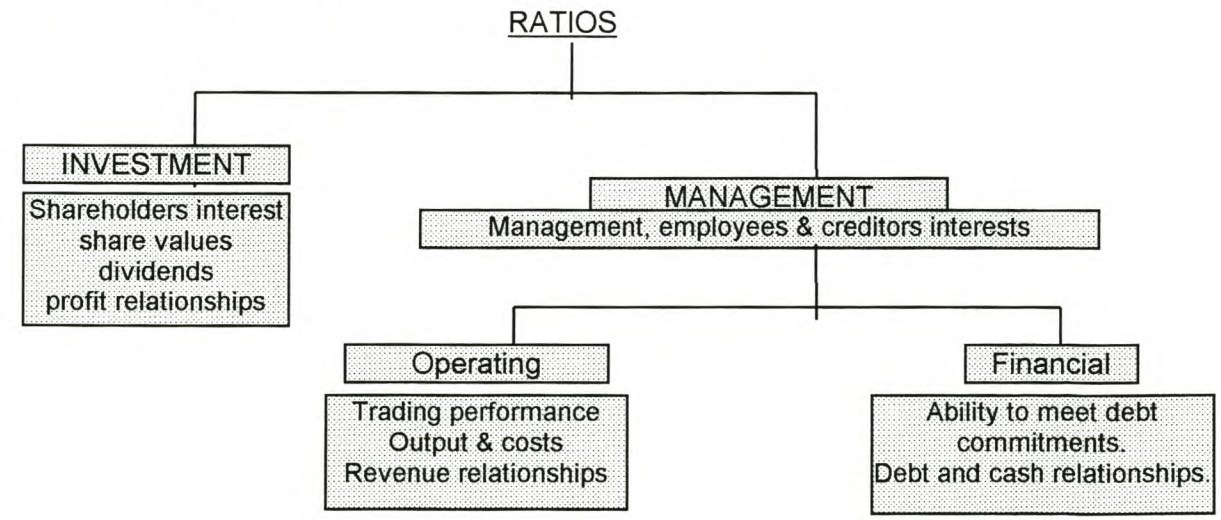
The most popular ratios are derived from

a) The balance sheet
b) The profit and loss account
c) The cash flow statement

and are devided into : 657.3 GIB

a) Liquidity ratios
b) Borrowing capacity
c) Profitability ratios
d) Investment ratios
d) Cash Flow ratios

Exhibit 5: Ratios and Relationships



To illustrate the importance of ratio comparison it is noted that in 1959 the British Institute of Management set up a non-profit making body called "Interfirm Comparison" to help firms measure their performance and improve their efficiency by providing performance yardsticks. (Norkett, 1981, p256)

5.2 Financial Ratios

The Market states : "Businesses go bust through lack of cash not necessarily through lack of profits". (Norkett, 1981, p257)

This is accepted as a general fact even today but the underlying truth is that the profitability of the operation has been reduced below a risk value with the result that should a risk factor manifest itself, the cash generation cycle is interrupted which exacerbates the lack of profitability and the inevitable 'bust' condition sets in.

One of the popular ratios is therefore the liquidity ratio which measures a company's ability to meet its short term commitments such as trade creditors and/or bank overdraft.

The liquidity ratio, represented by the current ratio = (current assets/current liabilities) and the quick ratio (or acid test) =((current assets-stocks)/current liabilities) is a function of the working capital cycle:

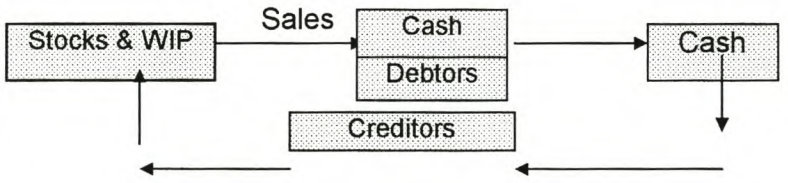
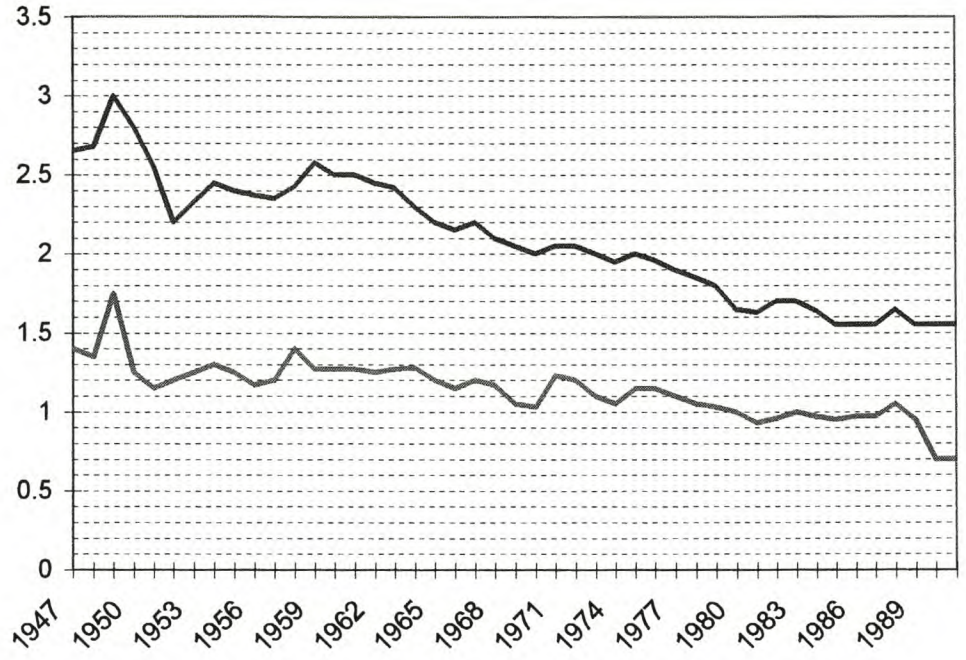


Exhibit 6: Trends in Current and Acid test ratios - US Manufacturing companies 1947-1991

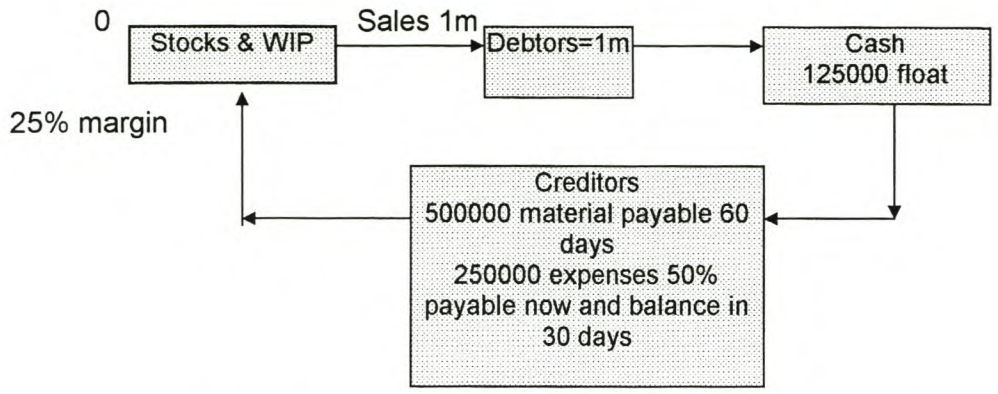


Where the debtors and cash are **sufficiently** larger than the creditors the single risk factor of timing is less important and tends to play a small role in the efforts of wealth creation. It is only when the risk factor of timing becomes abnormal on a continuous basis that a trend towards the 'bust' condition will appear due to the interruption on the cash generation cycle. And that may simply be solved by an injection or re-allocation of capital provided the profitability is generous.

Is there any link between this ratio and the EVA principle?

Yes, the liquidity ratio is nothing less than EVA applied to the working capital cycle. It points to the fact that only if the profits generated by the WCC (working capital cycle) exceed the cost of the WCC will the company remain in business. The weakness lies in the calculation of the profits of the WCC not providing for the expense incurred in any delayed payments. The probability of a slow down in the WCC is not covered, as a safety factor in the profit margin of the sales limits hence a negative EVA result and the destruction, of wealth, if not arrested, leads to a 'bust' condition.

The following example illustrates the sensitivity to the cost of capital:



To accelerate the influence, the example considers Russia with an interest rate per month of 10%

Position end month 1	R125 000.00	opening cash float
	- R 125 000.00	payments as per creditors agreement

Position end month 2	0	debtors receipt
	0	in Bank
	R125 000.00	payment due
	R125 000.00	obtain loan
	0	

Position end month 3	-R125 000.00	from prev. month
	-R 12 500.00	interest
	R500 000.00	due to creditors
	-R500 000.00	obtain loan
	-R637 500.00	

Therefore time to **wealth destruction** = 1m -637 500/(10%of 637500pm)

= approximately 4.5 months

In our liquidity ratio calculation of

current assets =Stock and/or Debtors and/or Cash, to

current liabilities=Trade creditors and/or Overdraft

and assuming we are utilising Industry standard stock and WIP levels, it can be seen that with the stock component, the debtors/cash combination need to be sufficiently 'inflated' to exceed the trade creditors/overdraft combination. This can only be achieved by an adequate profit position.

One of the dangers of ratio analysis is that a change in a ratio may mean a change to the numerator, ór the denominator, ór a change in both. In the case of liquidity ratios, its possible to sell fixed assets, or even worse, issue long term debt with which to improve the ratio. The selling of fixed assets may have no effect on the EVA value of a company, but the issuing of long term debt will certainly increase the cost of capital and without an equivalent increase in profits, will adversely affect the EVA value.

5.3 Gearing

Gearing is the term for the debt to equity ratio of a company.

This relationship between debt and equity leads to the question : Is there an optimal capital structure?? Debt and equity represent the capital of a company by shareholders and recorded as equity as well as by moneylenders that is recorded as debt.

In general it is accepted that equity is more difficult to service than debt, whereas debt is a continuous expense commitment.

It is also accepted that as debt increases, so the risk increases.

There is a third aspect of off-balance-sheet financing.

"High geared companies however often resort to off-balance-sheet finance methods instead of opting for the lengthier and more costly alternative of issuing equity (Norkett, 1981, p267). This represents "hidden" gearing.

The risk element of debt lies solely in the ever present probability of a company not generating adequate funds to meet the principal or interest obligation. One of the conventional ratios to determine a company's ability to satisfy the moneylenders is represented by the times interest earned ratio.

An interesting aspect in Gibson is the fact of a times interest earned ratio of less than 1. It seems that the airline Industry has had several bad periods when the times interest earned was less than 1.00, but they were able to maintain the interest payments. This was due to many non-cash items on the profit and loss statement such as depreciation, amortisation or depletion expenses (Gibson, 1994, p314).

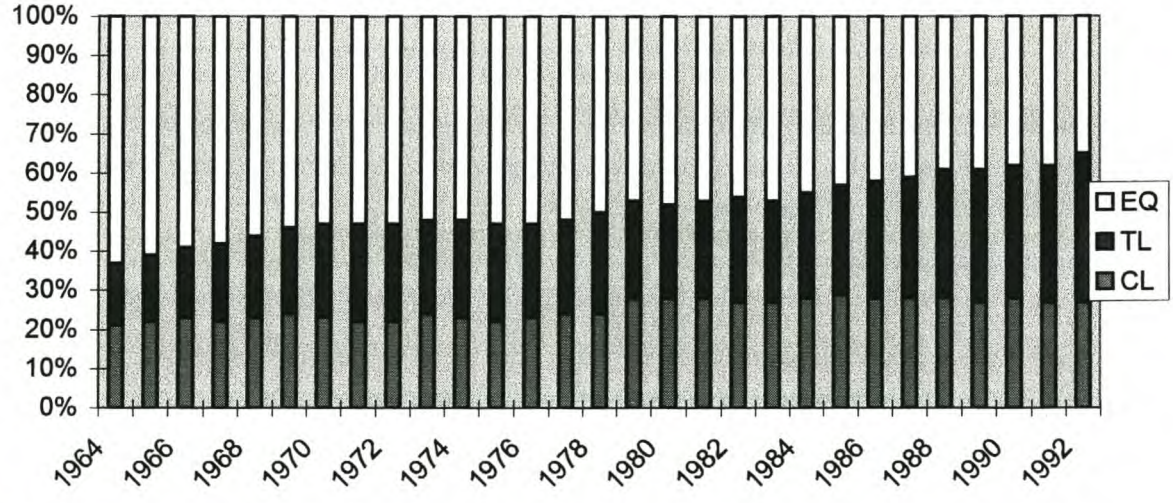
Once again the EVA principle of adequate profit over and above a minimum is reflected. Again we can hypothesize that the risk aspect relates to a fixed commitment to pay real

money to the suppliers of debt, whereas the commitment to the shareholder is tempered by the fact that when the return on his equity is low, that may represent the best in any case. Added is the hope for a much higher return versus a known fixed rate via a savings Institution.

As far as EVA is concerned would the owner/shareholder prefer a zero return but no debt or rather a low return with a high debt to equity ratio?

This is maybe the most crucial question of the EVA principle for if we believe that equity, although more difficult to service, has at least a zero cash cost from time to time, and a subsequent pshycological "peace of mind" versus the debt commitment which may do the most damage when it is needed the most, is preferable, then the influence on the WACC rate is negative and the hurdle inflicted by EVA worsens. A company with a low debt factor would therefore prefer a less "negative" measurement criteria than EVA.

Exhibit 7: Trends in Current Liabilities, Total Liabilities and Equity



Trends in Current liabilities, Total liabilities and Stockholders equity 1964 to 1992.
(Total Liabilities includes current liabilities)

"It shows that there has been a major shift in the capital structure of firms, toward a higher proportion of debt in relation to total assets. This indicates a substantial increase in risk, as management more frequently face debt coming due . It also indicates that short-term debt is a permanent part of the financial structure of firms" (Gibson, 1994, p326)

So what happened to the belief that capital was scarce? And with less equity%, that means less shareholders, why the increase in the share markets 1990 to 1998? And with the

popular trend of share buybacks does that lead to an unobserved/unnoticed trend of the increase in debt. The risk increases but are the managers concerned? What has changed?

Some of the questions that need to be answered before the concept of EVA can be fully supported.

5.4 Profitability measures

"Profitability is the ability of the firm to generate earnings" (Gibson, 1994, p375).

EVA is not the ability of the firm to generate earnings, but as can be seen from the previous chapters, it is an indication that the quantity of earnings will create wealth and effect growth of the company.

Without profitability there is no need for an additional indicator such as EVA, whereas with profitability it will indicate if the profitability is "good" or "not good enough".

Increased profits is the single best contributor to the value of a company ie leading to an increase in share price.

Profitability is a performance measure with absolute figures having less meaning than earnings measured as a percentage of a number of bases such as; assets, sales and the various types of capital employed.

It is normal practice when doing profitability analysis to exclude certain types of income arising from abnormal transactions of the company such as;

a) unusual or infrequent items

b) discontinued operations

c) extra-ordinary items

d) cumulative effects of changes in accounting principle

This study will however include these items, where appropriate, for the EVA indicator becomes a change agent for the management philosophy of a company and may or must therefore include some of the above abnormal transactions to support an EVA-style.

5.4.1 NET PROFIT MARGIN

Net profit margin is a popular measure based on the return on sales:

Net profit margin = Net Income/ Net Sales

This ratio provides the owner with an indication of the net income Rands generated by each Rand of sales. This would enable a quick EVA check as follows;

Total sales x Net profit margin less interest and tax compared to the WACC.

It can be deducted that a high Net profit margin is best. Or where it is a highly competitive industry then total sales must be high. Or finally the WACC must be low. And we find the contradictions facing us due to the inter-dependency of the factors compared leads to the simplistic and mostly ineffectual above deductions.

The possibility of an optimisation exercise is there: low interest means low debt but higher equity and higher taxes but also higher WACC. This again reflects the trend towards debt financing!

This leads to the fact that for each Industry there is normally a known and fixed relationship (see exhibit 9) between capital used or required to support a) higher sales and/or b) the efficiencies required to support a higher net margin, that we may find there should be a unique EVA (which we have previously identified as a "penalty price or hurdle") for each Industry.

Exhibit 8: Margin by Country

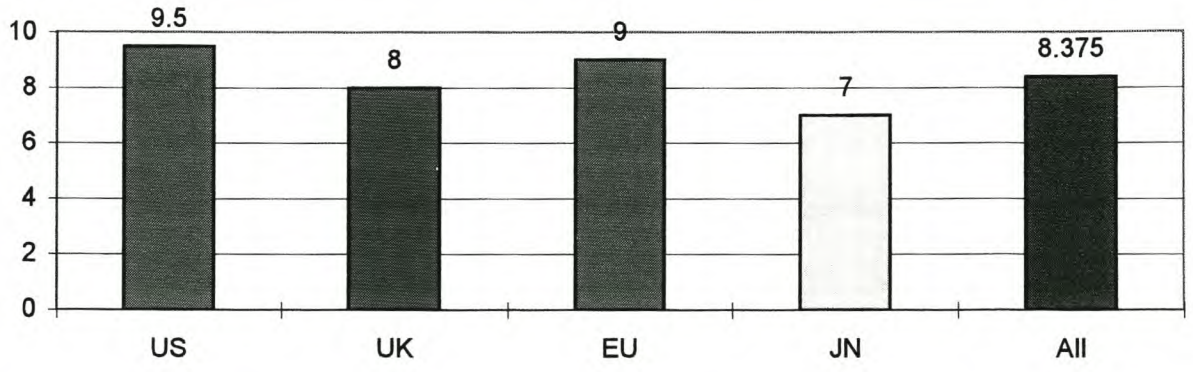
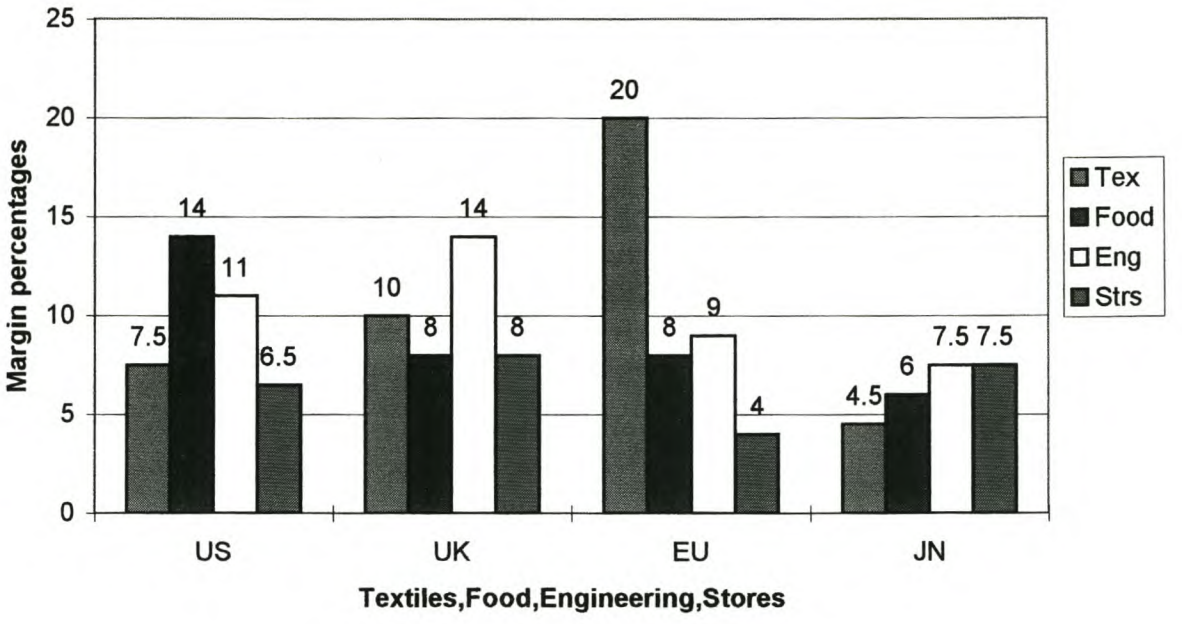


Exhibit 9: Countries by sector



This again supports the notion that EVA is nothing more than a measure of productivity. From the above it can be seen that to produce an EVA value better than the Industry, the company finds itself in, it needs to

a) have higher sales than the Industry norm whilst maintaining the same capital and expense structure than the Industry norm or

b) have the same sales but a higher net profit margin than the Industry norm

c) have a lower WACC than the Industry norm but the same sales and margins

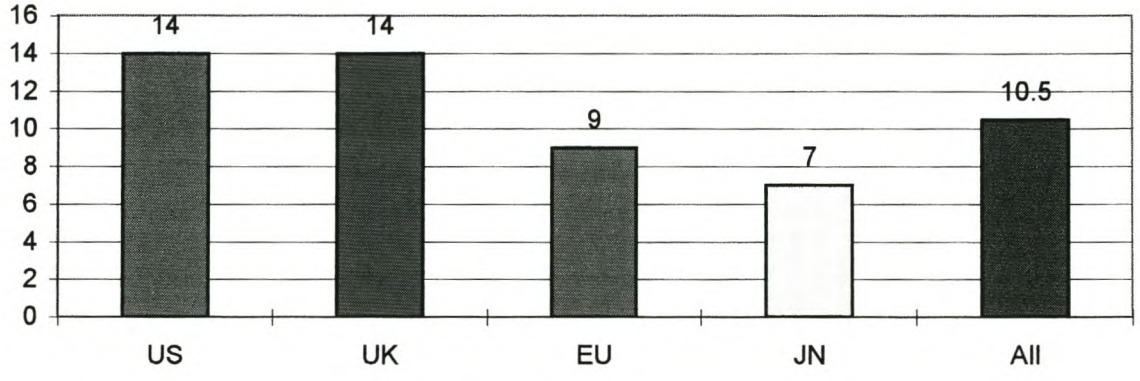
a) can only be achieved through a more productive sales effort and/or *b)* can only be achieved through a more efficient expense system (read productivity) or lastly *c)* can only be achieved by utilising less capital than the norm. Again only by being more productive.

Any company therefore performing as per the Industry it finds itself in will produce an EVA that is typical to that Industry. From the above we identify the sector with the highest margin in the country requiring the least capital and come to some obvious EVA conclusions. At the other end we identify the lowest margins obtained through the highest capital consumption

and conclude that wealth is being destroyed. The following charts can be used to consider some interesting assumptions:

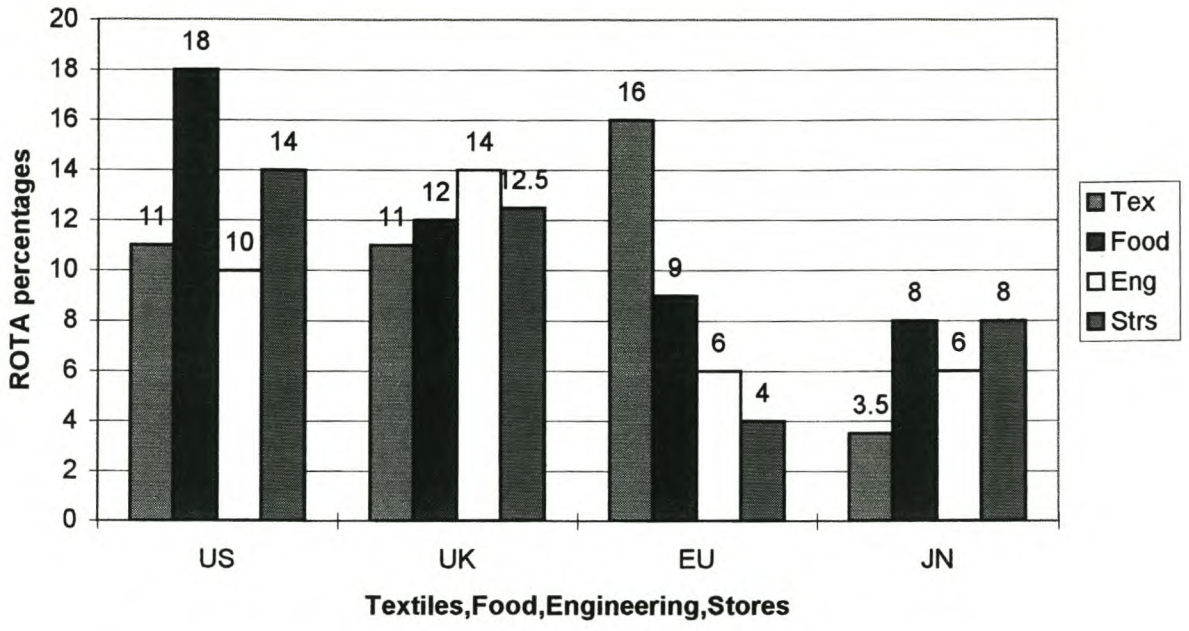
a) In Japan the Textile Industry produces a negative EVA. At a ROTA of 3.5% it would be difficult to produce a positive EVA even if a WACC as low as 3.5% was available. Without considering the history or fundamentals of the Industry, it would seem that by the EVA measurement criteria the continuation of the Japanese Textile Industry should lead to a crisis of national proportion..

Exhibit 10: ROTA by Country



b) The best chance of a positive EVA is in the US and UK, with the Food Industry in the US and the Engineering in the UK offering the best returns, although the Textile Industry in Europe is the better sector.

Exhibit 11: ROTA by Sector per Country



This relates to: does a high capital requirement Industry produce a low EVA and vice versa including a high capital requirement purely funded by shareholding may deliver an adequate and consistent earnings to the owners vs a low capital requirement with high debt funding may deliver a high EVA but be either too risky or too unprofitable due to the ease of entry.

Entry into an Industry is dependant on

a) Competitive forces within an Industry

b) Economic conditions

c) Availability of financing

d) Operating characteristics, which to a large extent controls the profit margin of an Industry.

We now find that EVA, in isolation, falls short of including crucial aspects such as the stability of an Industry. And again there is the awareness that EVA does not provide for the periods in a Country or an Industry when survival is made possible by a large non-interest bearing equity capital ór that it considers the effects of an inflationary environment.

5.5 Total Asset Turnover

"Total asset turnover measures the activity of the assets and the ability of the firm to generate sales through the use of the assets" (Gibson, 1994, p378).

Total asset Turnover = Net sales/ ave Total assets

Again we find there is an inter-dependency as it is seldom possible to increase sales without increasing the assets to support the effort. This also then leads to a ratio typical of an Industry. Again the charts show Industry averages per country with US and UK leading the ability to produce the most sales per dollar or pound of utilised asset.

Exhibit 12: Sales to Total Assets per Country

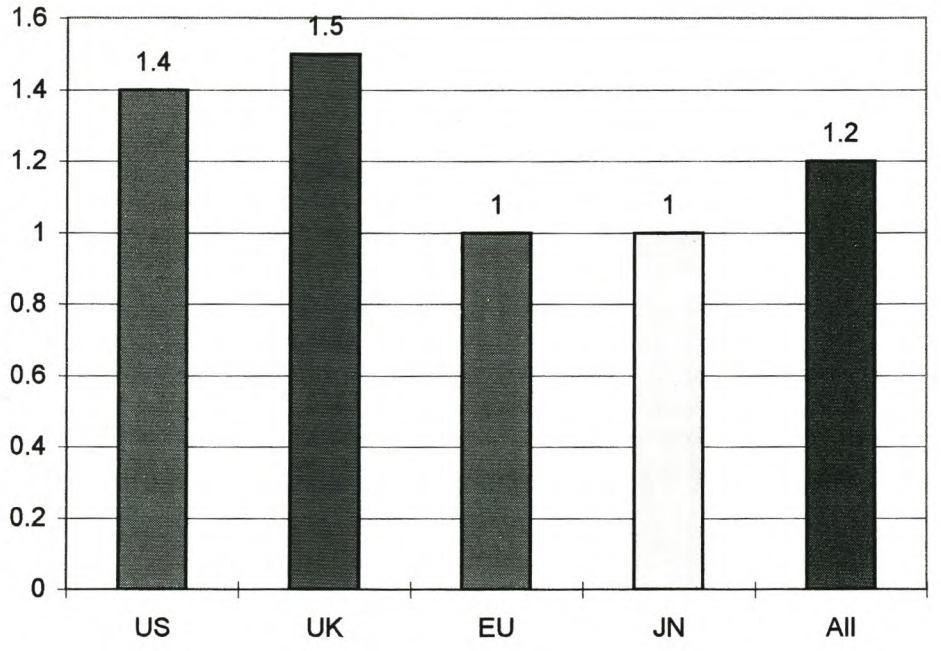
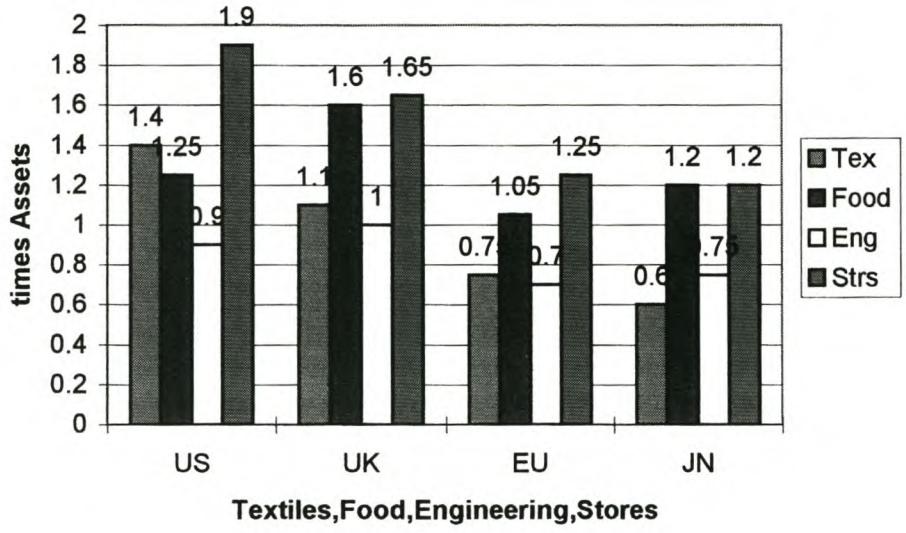
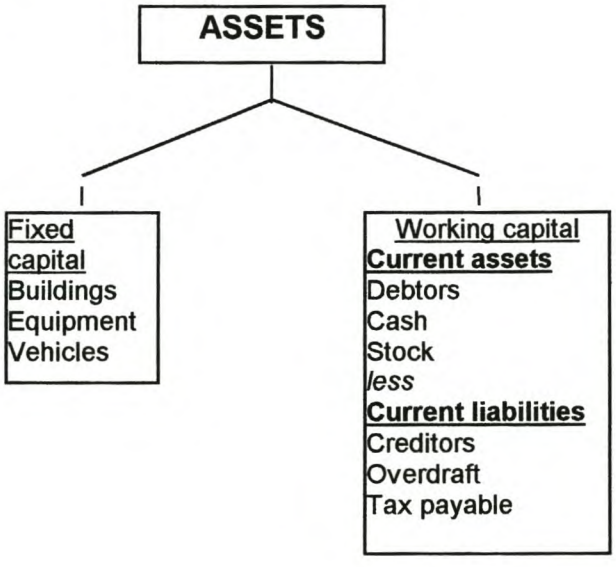


Exhibit 13: Sales to Total Assets per sector per Country



To increase the asset turnover (a definite productivity issue) we need to increase sales singularly or simultaneously decrease total assets. And as total assets are represented by fixed assets and working capital, we again find that there are fixed relationships within an Industry.

Exhibit 14: Asset Categories



To manage for EVA we need to increase our profits and decrease our WACC. And there-in lies the dilemma. Higher profits can be derived from higher sales which would require higher assets, but we cannot increase our assets as that would increase our WACC. Of course, if

we ignore the theoretical cost attached to equity, we find ourselves increasing assets through an increased equity funding and generate a subsequent increase in profits.

Should we manage to increase our sales without an increase in Assets, we can claim to be more productive. There must, however, be a ceiling to squeezing sales from our contained assets, after which we revert back to our dilemma described above.

The question for a Country and an Industry is for example whether the best performance of nearly 2 times Assets achieved by the Stores sector of the US can be duplicated in another Country or Industry by managing for EVA? (when it can be assumed that the WACC is Country specific and fixed in many instances with some sensitivity to an Industry type) Alternatively, does the owner of a Textile factory in Japan liquidate his capital and re-invest in a Store in the US and achieve a positive EVA in a shorter timespan? Does that equate with "creating wealth?"

Should we find that EVA is truly an "economic value" then the answer to this type of question holds the key to economic survival and wealth creation for a developing country such as South Africa.

5.6 Return on Assets

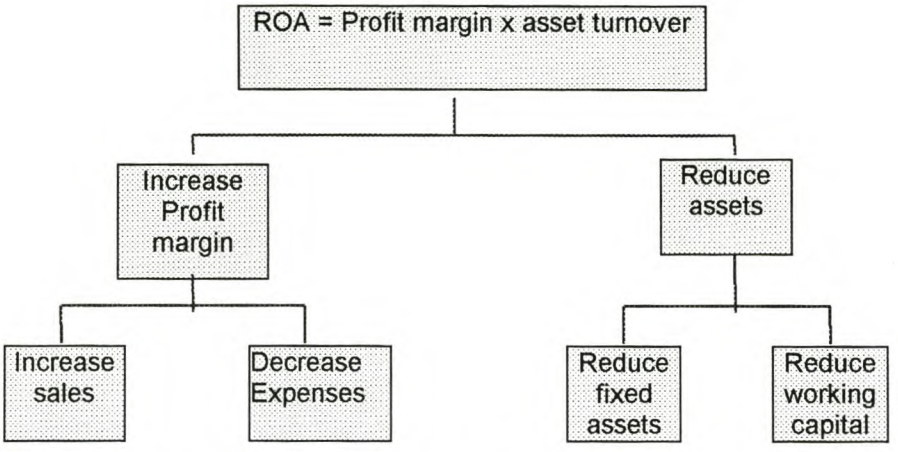
"Return on assets measures the firm's ability to utilise its assets to create profits by comparing profits with the assets that generate the profits" (Gibson, 1994, p379).

Return on assets also = Profit margin x Asset turnover

= Net income(NOPAT)/ave total assets

= productivity related x productivity related

It can also be displayed as follows:



When the ratios Net profit margin, total asset turnover and return on assets are reviewed together, it is called the Du Pont return on Assets. Interpretation of the Du Pont analysis can be illustrated as follows:

	Return on assets	=	P/margin x tot asset turn
Year 1	10%	=	5% x 2
Year 2	10%	=	4% x 2.5

And the example shows how more efficient use of assets can offset rising costs such as labour or materials.

To further illustrate the dilemma we repeat the example with 2 companies and we introduce EVA via the WACC:

Exhibit 15: WACC vs EVA relationship

	ROA	=	NPmarg	x	TAT	Sales	N Profit	WACC	EVA
Firm A									
Year 1	10%	=	4%	x	2.5	1m	40000	10000	30000
Year 2	8%	=	4%	x	2.0	8000	32000	10000	22000
Firm B									
Year 1	10%	=	4%	x	2.5	1m	40000	10000	30000
Year 2	8%	=	3.2%	x	2.5	1m	32000	10000	22000

We see that , although Firm A has a slowdown in sales per asset employed in year 2, Firm B has a reduction in profit margin in year 2 with no difference in the profits generated. When applying a WACC we find the same result in the EVA of each Firm as the WACC only acts as a fixed penalty.

EVA indicates no more than the downtrend in profit. The dilemma is confirmed in that a reduction in capital (assets) may end up supporting the downtrend. Yet, where we see a drop in sales by Firm A in year two and a drop in profit margin or profitability by Firm B in year 2, an early reduction in capital and hence WACC would have arrested the slide in EVA but at the risk of losing operational efficiency or left wihtout the assets to support an increase in demand for our products.

To manage for EVA during the drop in efficiency in year two for both Firms could only be achieved by reducing the WACC to R2 000. That would need an 80% drop in the WACC versus a 20% drop in efficiency in both cases.

And the most common route to reduce the WACC would be to settle the capital with the highest cost. Here it is expected to be the equity capital and we face a second dilemma in that the owners/shareholders should not be desirous at this time to return their shares to the company in exchange for money. (Note that this is possible in the USA and it has been indicated by the authorities that it will soon be possible in S.A.). The second choice then, to retire some debt, must be followed and that again is dependent on the cash position of the company.

It is normal for management to manage for an increase in profit and it is doubted whether timeous corrective action can be taken as explained above. Managing for EVA in this case by reducing their focus on earnings growth resulting in a negative EVA should at best only indicate an inability to recover their WACC with the solution lying in increasing their profits to sufficient levels.

5.7 Return on Investment

"Return on Investment applies to ratios measuring the Income earned on the invested capital" (Gibson, 1994, p385).

Return on investment (ROI) = Net Income/(LTL + equity)

And this ratio has a distinct relationship with EVA. The Net Income is dependent on the amount of capital invested and that again generates a cost in the WACC. The LTL and equity utilised has to be paid for - the LTL directly and equity indirectly.

The best rate of ROI will determine the best possible EVA given that the maximum acceptable WACC is an Industry characteristic. For example for a best ROI = 50% and maximum WACC as 30% we have as follows;

Exhibit 16: ROI vs EVA relationship

WACC	Capital	ROI	Profit	EVA
30%	1m	50%	500,000	200,000
30%	2m	50%	1m	400,000
30%	3m	50%	1,5m	600,000
30%	4m	50%	2m	800,000
30%	5m	50%	2,5m	1,000,000

And we see that Profit has to be 1% point larger than WACC % to succeed! EVA only acts as a hurdle or penalty value. The penalty is really WACC.

5.8 Return on Equity

"The ROA model is extended by recognising that the owners' investment in the firm is generally less than the amount of total assets because of the use of borrowed funds". (Gibson, 1994, p76)

ROE = Net Income /Equity

= (Net sales/tot assets) x (Net income/net sales) x (Tot assets/equity)

= TAT x NPM x Equity multiplier

With the introduction of the **equity multiplier** and the subsequent conclusion that to increase ROE is as easy as increasing the equity multiplier, one may find and explanation for trend observed in 6.3 p57.

And if the statement holds true that EVA measures the wealth created, then a risky situation develops in that the more debt raised the more wealth can be created. This either proves that EVA is the ultimate measure of financial success or as per all other ratios, points to the need that it be read relative to other relationships and balanced against those relationships to succeed financially.

ROE can also be expressed as :

ROE = ROA/(1-(tot debt/tot assets))

In his book "Key Management Ratios" Mr. Walsh writes:

"This ratio is arguably the most important in business finance. It measures the absolute return delivered to the shareholders. A good figure brings success to the business - it results in a high share price and makes it easy to attract new funds. These will enable the company to grow, given suitable market conditions, and this in turn leads to greater profits and so on. All this leads to high value and continued growth in the wealth of its owners" (Walsh, 1996, p62).

Exhibit 17: ROE by Country

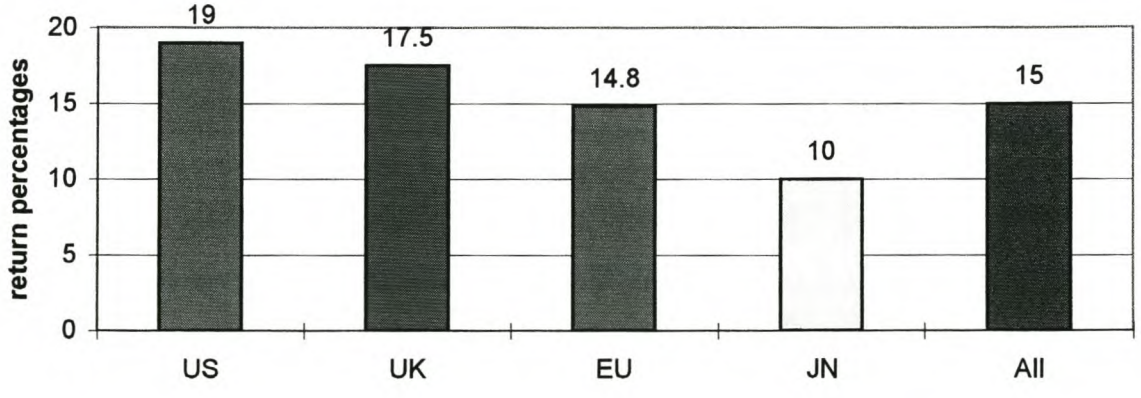
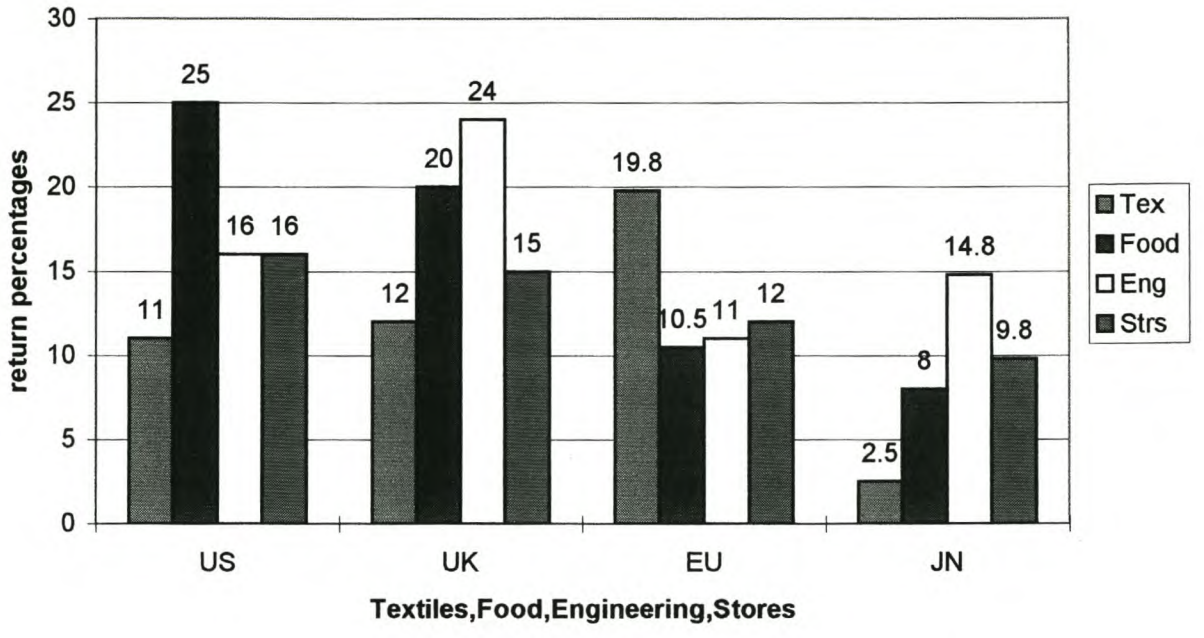


Exhibit 18: ROE by Sector by Country



The deduction can now be made that the US's high ROE is more than likely due to a higher gearing with Japan the lowest, and that the US Food sector is the highest geared of all.

And a high debt to equity ratio favours a lower WACC and therefore a relatively more favourable EVA than the other sectors.

This deduction is however flawed in that the Food Industry may be no more highly geared than the average but that the returns are higher than for the other sectors. However, in this case the difference in margins, as seen in exhibit 18, is so slight as to support the notion above.

The EVA viewpoint would therefore lead us to believe that the US Food sector would offer the route to a convenient EVA number as it intimates an ability to attract debt capital.

A Financial Growth Model, showing more clearly the impact on ROE with an increase in gearing, is displayed in Exhibit 19.

This has the effect of borrowing as much as prudence allows and returning the difference between the income and the cost to the equity portion. To display this graphically we can use the following formula (Helfert, 1977, p 258) :

We have (R) ROE = (I)Income/(E) Equity as .....(1) and

the return on capital r = (I+Di)/(E+D) with

D = debt, i = interest after taxes, I = NOPAT, R = return on E, E = Equity

and I = r(E+D) - Di

with Di = after the tax cost of interest on outstanding debt

then R in (1) transforms to = (r(E+D)-Di)/E = r + D(r-i)/E

and this shows that the leverage effect is represented by the portion Debt to equity, multiplied by the difference between the earnings power of net assets and the after tax cost of interest.

Thus, after introducing debt into the capital structure, the ROE is increased as long as the interest cost does not exceed earnings power! This is the same type of financial rule as EVA where the interest cost should not exceed the earnings power based on <u>all</u> the capital of the company.

How will the EVA yardstick impact on the ROE of the company?

To maintain a positive or increasing EVA can be displayed as follows :

EVA = C(r-i*)
= 0 when r = i*
=+ when r > i*
=- when r < i*

With EVA = 0 reduce i* or increase r

a) to reduce i* reduce the costly equity portion and increase the debt.

This points to the cost of equity. To solve the EVA riddle we need to solve for the cost of equity!

Exhibit 19: Financial Growth Model

Results of 3 different stable sets of policies over 3 periods

	Case 1			Case 2			Case 3	
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
Capitalization:									
Debt : equity ratio	0:1	0:1	0:1	1:1	1:1	1:1	1:1	1:1	1:1
Debt	0	0	0	250	290	336.4	250	270	291.6
Equity	500	550	605	250	290	336.4	250	270	291.6
Net assets	500	550	605	500	580	672.8	500	540	583.2
Profitability:									
ROA	10%	10%	10%	10%	10%	10%	10%	10%	10%
Profit	50	55	60.5	50	58	67.28	50	54	58.32
Interest @ 4%	0	0	0	10	11.6	13.46	10	10.8	11.66
Earnings disposition:									
Dividend payout	0%	0%	0%	0%	0%	0%	50%	50%	50%
Dividends paid:	0	0	0	0	0	0	20	21.6	23.33
Reinvestment	50	55	60.5	40	46.4	53.82	20	21.6	23.33
Financing::									
Additional debt	0	0	0	40	46.4	53.82	20	21.6	23.33
New investment	50	55	60.5	80	92.8	107.6	40	43.2	46.66
RESULTS%:									
ROA	10	10	10	8	8	8	8	8	8
ROE	10	10	10	16	16	16	16	16	16

The growth in equity can be considered as a wealth creation indicator as follows :

When no debt is employed and no dividends paid

$g = r$ with g = growth in equity and r = after tax rate of return on capitilisation

because return on capitilisation here is equal to return on equity which is equal to the growth in equity.

Once debt is introduced, the leverage factor, is added to the formula.

$g = r + D(r-i)/E$ with i=interest rate after tax

And when dividends are paid, a slowing in the growth in equity follows due to the reduced retained portion for re-investment. The retained portion p can be added to the above equation which will reduce the growth rate accordingly;

$g = rp + D(r-i)p/E$

This generalised formula for the growth rate in equity can be maintained if a business is able to invest its funds at the return indicated, if the debt-equity ratio is maintained and if interest costs and dividend rates do not change.

This is the type of formula that is quite common in financial literature and it needs to be evaluated against the EVA approach.

Is the growth in equity the growth due to the exact retained financial portion per annum, or is it the market price of the shares?

As this thesis is only looking at wealth created for the owners/shareholders at a financial statement level it will not include a market premium.

EVA states that real growth, also wealth created, is only represented by the portion of income,over and above, a hurdle cost of capital.

$g_{eva} = r - i^*$ with no debt, but if i^* = o because no cost on equity only!?

$= r - i^*_{eva}$ with i^*_{eva} = theoretical cost of equity

When debt is introduced we have

$g_{eva} = r + D(r-i)) - i^*_{eva}$

$= r + D(r-i)/E$ - (WACC%) and with i_{eq} = cost of equity%

$= r + D(r-i)/E - ((Di/cap) + (Ei_{eq}/cap))$ and cap = D+E

$= r + (Dr/E) - (Di/E) - (Di/cap) - (Ei_{eq}/cap)$

$$= r + D((r/E) - (i/E) - (i/D+E)) - (Ei_{eq})/(D+E)$$

Therefore g_{eva} always remain smaller than g!

The debt multiplier is further reduced by (i/D+E) (very small) and $(Ei_{eq}/D+E)$ (also very small)

In the case of no debt the equation is reduced to

$g_{eva} = r - i_{eq}$ with o debt

$g_{eva} = r + D(r/E - i/E - i/D)$ with 100% debt

$=r + (D(r - i)/E) - i$ (and can be negative)

Once again the EVA yardstick is seen to be an additional hurdle which is dependent on the capital and capital structure.

5.9 Earnings per share

Whether a company has only one owner with one share or many owners with many shares, the earnings per share is a measurement a shareholder cannot do without.

"A shareholder's interest in a company is embodied in the shares he holds. Both the market value of his shares, and the dividends earned by his investment in those shares are extremely important to him" (Faul et al, 1981, p553).

The most successful owner/shareholder must be the one that sees his EPS continuously increasing at an acceptable rate per annum. This is the final summary of all the actions undertaken by the management of a company and when the EPS continues to increase from year to year, the shareholder can only but be satisfied that he has funded the correct, even best, business undertaking amongst a myriad of investment choices.

If there is a correlation between EVA and EPS it would be understandable why, seemingly, the world is holding on to EPS growth as the holy grail.

However, if there is no correlation, what is the difference and which one will lead to the pinnacle of success?

Factors influencing EPS growth.

The Internet has a few 'stockchat' facilities where the public owners of shares listed on any American Stock Exchange, compare notes and talk their stocks up or down. During the preparation work for this thesis, more than 3 000 messages or 'stockchats' were read of various Internationally known companies, such as Intel, Microsoft, Hewlett Packard and Compaq computers to find a mention of EVA and if it played a role in the average shareholders' assessment of the worth or value of a company.

Not a single mention was made of EVA in any form or any principle that even remotely reflected an EVA type approach. However, there is an overwhelming, near addiction, level of interest in the EPS future of a company. The smallest sign of a slowdown in EPS growth leads to a flurry of discussion and an immediate portion of doomsayers coming to the fore. And a conviction of uninterrupted EPS growth leads to an exuberance of positive statements and an abnormally high price/earnings ratio as can be seen with the Microsoft share price movement the past 8 years.

It is for this reason that we need to scrutinise the EPS factor and need to find the relationship, if any, with EVA.

We include an example from Johnson & Melicher's Financial Management

"We express the model as:

Return on Equity = tot Assets turnover x net Profit margin x Equity multiplyer

$$\frac{\text{Net Income}}{\text{Equity}} = \frac{\text{Net Sales}}{\text{Tot Assets}} \times \frac{\text{Net Income}}{\text{Net Sales}} \times \frac{\text{Total Assets}}{\text{Equity}}$$

Lets also assume that "Cable TV Productions" had the following financial statement information for the fiscal year just completed:

Net Sales of	500 000
Net Income of	40 000
Total Assets of	400 000
Equity of	400 000
Number ofShares	20 000

Inserting the appropriate data for Cable TV Productions into the ROE model delivers:

$$\frac{40\,000}{400\,000} = \frac{500\,000}{400\,000} \times \frac{40\,000}{500\,000} \times \frac{400\,000}{400\,000}$$

thus 10% = 1,25 x 8,00 x 1,00

First notice that since the firm's total assets are financed with only equity funds, the equity multiplier is 1,00 and thus there is no financial leverage. By financing with some short-term or long-term debt funds the firm could increase its equity multiplier and could even increase the net profit margin through the use of positive financial leverage (ie where the cost of borrowed funds is less than the return on the investment of the borrowed funds)

In addition to the use of financial leverage to increase ROE, Cable TV Productions might be able to search for and identify more profitable fixed asset investment opportunities. Replacement projects may lead to operating savings and thus higher net income. Attractive expansion projects could result in improved total assets turnover ratios and higher net profit margins if they offer risk-adjusted returns that are superior to those being produced by the existing capital projects, owned by the firm. Evidence, however, indicates, that it is very difficult to maintain continued growth in ROE over time because there are limits to the ability to find continually superior asset investment opportunities, as well as limits to the effective use of financial leverage. This suggests that after some degree of operating efficiency, managers will be doing well to maintain desirable or acceptable levels of equity returns" (Johnson & Melicher, 1982, p620).

Johnson & Melicher continue and ask;

"How then do firms achieve EPS growth? EPS can be decomposed into two basic elements as follows:

EPS = ROE x Book value per share (BVPS)

thus $\frac{\text{Net Income}}{\text{Shares outstdg}} = \frac{\text{Net Income}}{\text{Equity}} \times \frac{\text{Equity}}{\text{Shares outstanding}}$

$$\frac{40\,000}{20\,000} = \frac{40\,000}{400\,000} \times \frac{400\,000}{20\,000}$$

thus EPS = \$ 2,00 = 10% of \$20

This shows us that EPS can grow over time only by increasing either ROE or BVPS!

For example, lets assume that we have the opportunity to make a \$ 40 000 plant expansion this year that is comparable in a risk - return framework to other recent investments made by Cable TV Productions, so that the firm's ROE is expected to remain unchanged . One option would be to retain the full \$ 40 000 of net income and not distribute any of the earnings in the form of cash dividends to our shareholders. This would mean that the firm's equity would

increase by the $40 000 in retained earnings or by 10%, and that net income would also increase by 10% to $ 44 000, in order for the ROE to remain constant.

We would estimate this year's EPS for Cable TV Productions to be:

$$\frac{44\,000}{20\,000} = \frac{44\,000}{440\,000} \times \frac{440\,000}{20\,000}$$

or $2,20 = 10% of $22,00

This shows in terms of accounting numbers, that an increase in EPS can be achieved by increasing a firm's book value per share even though the ROE is not changed. In fact, increasing BVPS figures have been primary reason why business corporations have been able to produce increasing EPS figures over recent decades!

Another way of estimating the potential EPS growth rate from internally generated funds in the form of retained earnings is to multiply the expected ROE by the firm's earnings retention rate.

EPS growth = ROE x Retention Rate

This retention rate is also 1 - the dividend payout ratio.

The expected EPS growth for Cable TV Productions is :

EPS growth = 10% X 1.00 = 10%

Thus last years $2.00 EPS would be expected to grow by 10% to $2.20.

In contrast, if Cable TV Productions had a policy of paying out one-half of its earnings in the form of cash dividends, the expected EPS growth from internally-generated funds would have been ,

EPS growth = 10.00% X 0.50 = 5.00%

for an expected EPS of $2.10 for this year.

This implies, of course, that C-TV Productions would be investing only $20 000 instead of $40 000 in new capital projects with a corresponding rise in BVPS only to $21.00" (Johnson & Melicher, 1982, p622).

The following common but important statement then follows:

"We should recognise at this time that firms that choose to pay out a large portion of their earnings in the form of cash dividends are able to grow at a slower rate based on internally generated funds than would a firm with a low dividend payout policy" (Johnson & Melicher, 1982, p622).

A stock with a high dividend yield is likely to have a low growth rate and thus little capital appreciation expectations, and vice versa.

Johnson & Melicher also write of the generally accepted anomaly of the payment of dividends: "Some Firms choose to pay cash dividends even though they could profitably employ all internally-generated funds within their firms. In such cases a portion of their asset financing needs are met by issuing new long-term debt and stock securities. In this case, management must decide whether maintaining a specific dividend policy is worth the added expense associated with selling new shares of common stock instead of retaining more of the Firm's earnings" (Johnson & Melicher, 1982, p.622).

And lastly, a firm that is able to repurchase its own shares will cause its EPS to rise.

The aspect of growth of EPS is important and as we have established, is an important ingredient in an EVA consideration or management style.

Walsh states : " While the absolute amount of earnings per share tells nothing about a company's performance, the *growth* in EPS over time is a very important statistic. Indeed, many chairpersons stress it as a prime target in annual reports. Furthermore, growth in EPS has a significant influence on the market price of the share." (Walsh, 1996, p160)

5.9.1 STABILITY VS GROWTH

Not only is growth in EPS most important, so also is its stability. Investors look closely at the quality of earnings. They dislike the erratic performance of companies with widely fluctuating profits. A high-quality rating is given to earnings that are showing steady, non-valuable growth" (Walsh, 1996, p160).

One of the challenges facing the Investor, is to evaluate a company's worth based on a reliable measurement that shows a near 100% correlation with the value of the company. This is emphasised by Hans Oosthuizen in his thesis as : "Traditional measures of company performance, such as return on equity, earnings per share, cash flow growth and earnings - and asset growth are not highly correlated to share prices. Neither can the success of the

company be seen in its dividend yield. None of them isolate the single most important concern of shareholders, namely "Is management adding or subtracting value from capital?"

As pointed out often in the past 100 years and now made popular by Stewartn we find that to assess if true value is being created, the company needs to produce adequate returns on all capital (all the cash that is committed for business over the life of that business) employed.

Hans Oosthuizen compares the company with a savings account : "Cash flows into the account (the same as share capital and debt flows into a company). Interest is earned on cash in the account (the same as the return on the total investment in the company)".

Stewart makes the following comments about the inadequacy of accounting measures.

Earnings

"Earnings, as reflected in the income statement of a company, are diminished by bookkeeping entries that have nothing to do with recurring cash flow, such as an ever increasing deferred tax reserve, warranty reserve etc. Earnings also are charged with value building outlays such as R & D.

The stock market regards R & D as value building outlays since it promises future returns. The increase in a company's stock price, in response to R & D is the discounted present value of the returns predicted taking into account risk and expected time over which there returns will materialise. Therefore R & D must be excluded from earnings and added back to equity capital.

The choice of LIFO (last in first out) or FIFO for inventory costing, the use of successful efforts instead of full cost accounting for risky investments, and accrual bookkeeping entries, that bury in reserves, the cash flow the company currently generate from operations, severely distort the accounted reported earnings.

Reserves, such as bad debt reserve, is charged against earnings and then become in a sense hidden capital, this capital however forms part of the cash that shareholders have committed to the company for business. Thus the true return on capital is distorted when reserves are subtracted as the normal accounting practice calls for." (Stewart, 1991, p66)

Earnings Growth

"Although it is true that companies that sell for the highest stock price multiples are rapidly growing, rapid growth is no guarantee for a high multiple.

To see why, consider a situation in which two companies, A and B, have the same earnings and are expected to grow at the same rate. At this point, one would be forced to conclude that both companies would sell for the same share price and P/E multiple (price earnings multiple) because, as far as one can tell, they are identical. Suppose now that A must invest more capital than B to sustain its growth. In this case B will command a higher share price and P/E multiple because it earns a higher rate of return on the new capital it invests. A merely spends its way to growth that B achieves. Thus B achieves this growth through a more efficient use of capital.

In sum, rapid growth can be a misleading indicator of added value because it can be generated simply by pouring capital into a business. Earning an acceptable rate of return is essential to creating value. Growth adds to value only when it is accompanied by an adequate rate of return. If returns are low growth actually reduces value" (Stewart, 1991, p38).

Earnings Per Share (EPS)

"Consider an acquisition in which a company selling for a high P/E multiple buys a firm selling for a low P/E multiple by exchanging shares. Because fewer of the high P/E shares are needed to retire all the outstanding low P/E shares, the buyer's EPS must always increase. Many regard this as good news. If on reserves transaction the low P/E firm buys the high-multiple company through a share exchange. This time the buyer's EPS must always decrease, a greater number of low-multiple shares will have to be issue to retire all the high -multiple ones. Many see such EPS dilution signals as bad news for the buying company's shareholders. But regardless of which company buys or which sells, the merged company will be the same, with the same assets, prospects, risks, earnings and value.

Here is an example taken from **The Quest for Value p36 :**

Assume two companies each currently earn $1 a share and have 1 000 shares outstanding, and one firm sells for 20 times earnings while the other sells at 10 times earnings.

Table 1: Example of EPS distortions

	Hi	Lo	Hi buys Lo	Lo buys Hi
Number of shares	1000	1000	1500	3000
Total earnings	$1000	$1000	$2000	$2000
Share price	$20	$10	$20	$10
Total value	$20000	$10000	$30000	$30000
EPS	$1	$1	$1.33	$0.66
P/E	20	10	15	15

Hi must issue 500 shares at $20 to retire all 1 000 **Lo's** $10 shares.

Lo must issue 2 000 shares at $10 to retire all 1 000 of Hi's $20 shares.

Earnings per share (EPS) at best, measures only the quantity of earnings. However, the quality of earnings as reflected in the P/E ratio, matters too" (Stewart, 1991, p37).

5.10 Dividend Policy

"The best research on the subject shows that paying dividends does not enhance the total return received by investors over a period of time. But paying dividends may deprive worthwhile projects of capital or may force the company and investors to incur unnecessary transaction cost. Companies are valued for what they do, not for what they do not do. By paying dividends management has less cash available to fund future growth that promise high return" (Stewart, 1991, p43).

Here is an interesting statement from Stewart re dividends :

"Does paying a dividend make a stock less risky to own?: Some argue that a bird in the hand (a dividend) is worth two in the bush (capital gains). But the retort is not that dividends ***not*** *paid will show up as capital gains for sure, but that dividends that are paid are capital gains lost for sure. Stock prices fall by the amount of any dividends paid never to be recouped".* (Stewart, 1991, p44)

If this, as is widely supported, is important then a company is successful when it starts with a low EPS of say 0,5 and grows at 25% p.a on a continuous basis. However, the equivalent EVA measure will be negative through to zero and only much later turn positive. This reflects a type of measure that is difficult, if not possible, with which to evaluate a company and will certainly lead to many lost opportunities from an investors view point. EVA therefore, only

works when a level above the hurdle rate has been reached which excludes the often explosive increase in share value that is achieved during the early periods. That is assuming that investors will shy away from any company with negative measures.

5.10.1 Role of Dividend Policy

An interesting anomaly is stated by Johnson & Melicher:

"On an historical basis, dividends have been more stable than corporate profits.

Dividend stability seems to reflect a desire of corporate directors to maintain a steady payment of dividends in the face of what they perceive to be temporary financial reverses. Studies of dividend policy followed by corporate managers suggest that dividend payments are not just a residual paid out after the need for retained earnings has been met. There is a strong tendency to maintain a particular level of dividend payment and to make a change in the level only when management is convinced that a new rate can be maintained for a reasonable period of time. This policy of gradual adjustment of dividend payments to changes in earnings seems to be coupled with a target payout ratio; that is, the proportion of earnings that management believes is suitable to pay out o their shareholders. This target payout ratio, while it varies substantially across industries and firms, most frequently has been observed in the 40 to 60% range over time for business corporations". (Johnson & Melicher, 1982, p623)

Much has changed since this was written about the 70's and with the increase in share prices the past 10 years has seen a dramatic shift away from dividend payout with a seemingly less and less effect on the valuation of share prices.

It has also become popular to offer shares in lieu of dividends and in so doing retaining all cash with which to further increase the asset base and subsequent returns.

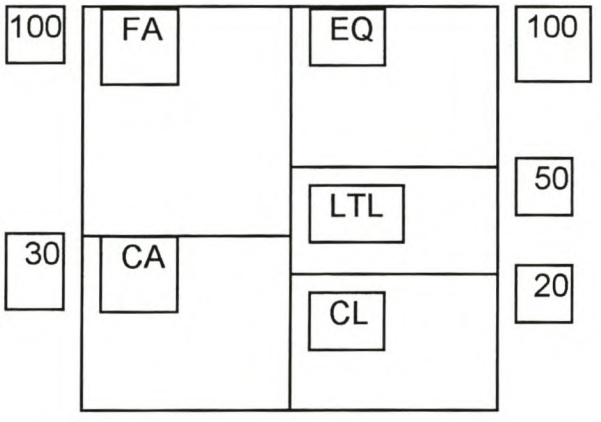
Here again, EVA as a comparison could be a valuable measure for a company issuing more shares for whilst maintaining a negative EVA condition could hasten its demise. A negative EVA is pointing towards an inability to manage better than a hurdle rate for whatever reason, and without clear rectification plans, the additional capital will not be applied efficiently.

5.10.2 Summary of the effect of ratios

We can summarise the previous ratios as follows :

Table 2: Summary of Ratios

Ratio	Equation	Relationship to EVA
i) Liquidity	= CA/CL	Influences WACC
ii) Gearing	= Debt/Equity.	Influences WACC
iii) Profitability	= Net Inc/N Sales	Part of EVA calculation
iv) asset utilisation	= Net Sales/Tot Assets	No correlation
	= Net Income/tot Assets	Equivalent to EVA
	= Prft margin x Ass T/O	Equivalent to EVA
v) Return on Investment	Net Income/LTL +Equity	Correlates with EVA
vi) Return on Equity	Net Income/Equity	Correlates with EVA
vii) EPS	NetIncome/shares issued	No direct correlation



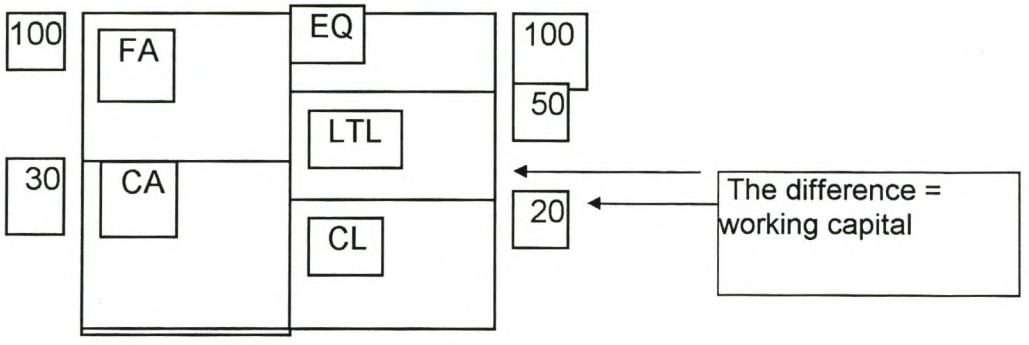
Walsh uses the above schematic presentation which will be used here in relation to the various ratios and the EVA principle. The various blocks representing Fixed assets, Current assets, Current liabilities, Long term loans or commitments and lastly Equity are also scaled from 0 to 100.

(i) Liquidity ratio = CA/CL = 30/20

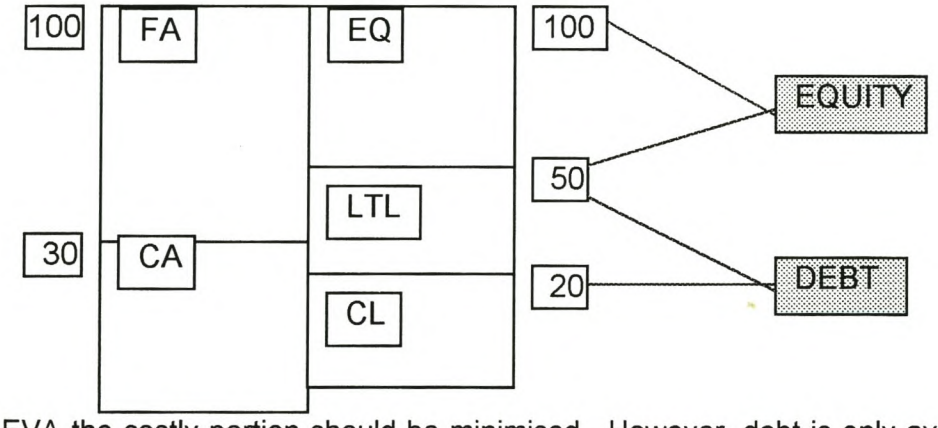
and the working capital = CA - CL = 10 or

EQ + LTL - FA = 10

Figure 2: Liquidity Ratio Schematic



(ii) Gearing ratio = Debt/equity

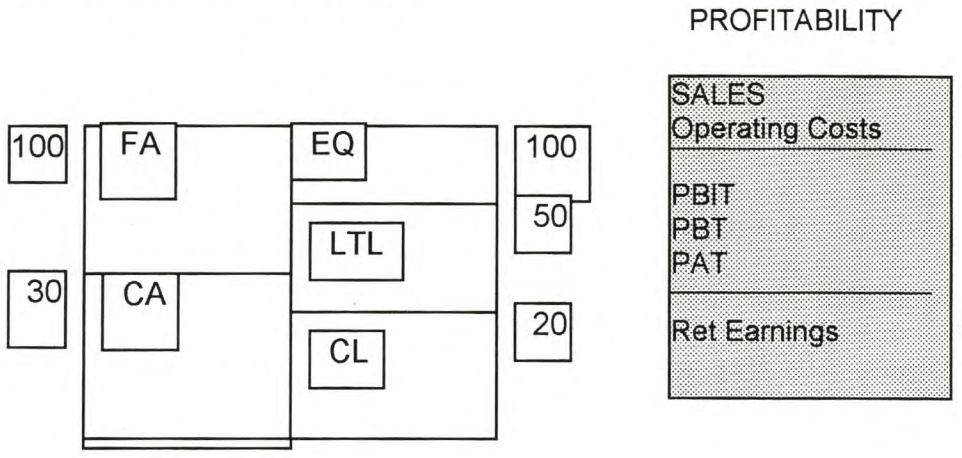


For EVA the costly portion should be minimised. However, debt is only available once the equity has been successfully utilised.

(iii) Profitability? See (iv)

(iv) Asset utilisation

Figure 3: Gearing and Asset Ratio



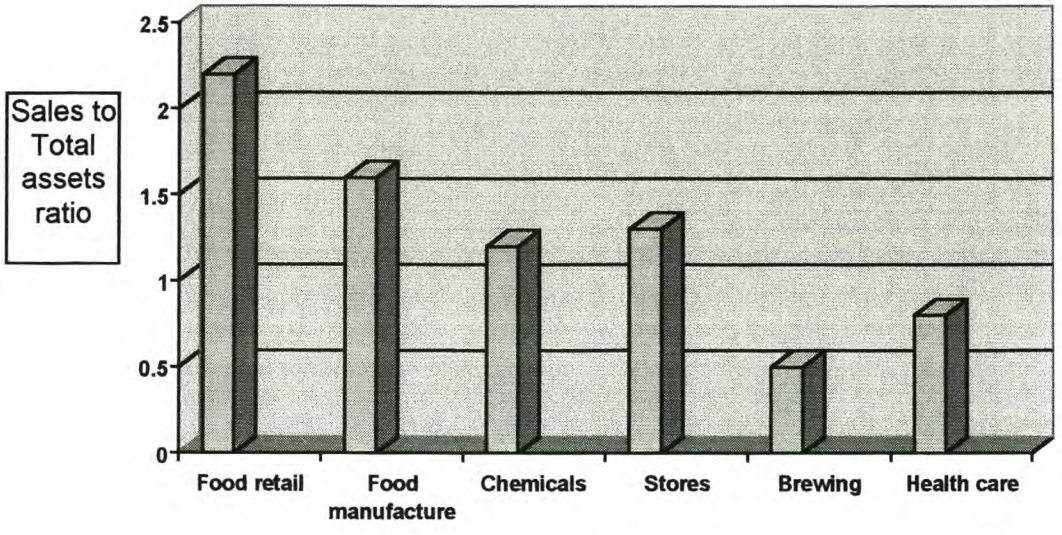
First we have the sales produced by the total assets as an important productivity ratio which enables a company to beat the cost of capital hurdle.

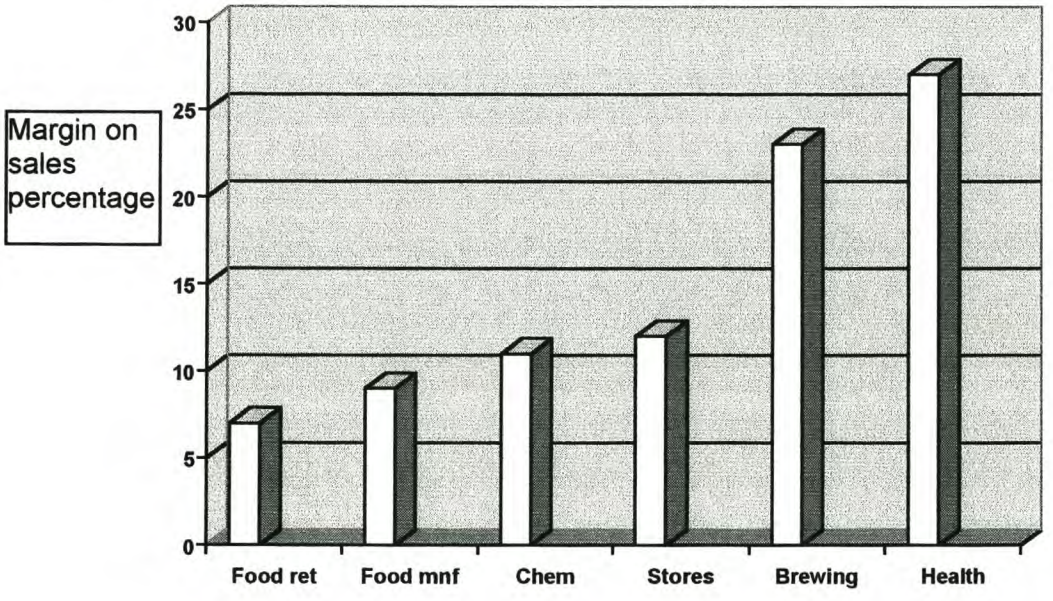
The profit margin times asset turnover ratio is a combination of two productivity ratios that are interlinked and difficult to evaluate as EVA drivers. The profit margin, in a manufacturing Industry, is mostly dependent on the utilisation of efficient equipment and manpower and that again indicates a higher asset base. The asset turn will therefore be lower which indicates a high cost of capital. A positive EVA could be difficult to achieve and indicate a less desirable type company, when, as in electronics, it could be the next Intel or Microsoft.

(v) The Return on Assets = Net Income (PAT) / (FA + CA) displays the same dilemma as above.

The following graph clearly displays the dilemma.

Exhibit 20: Sector values for sales to total assets and margin on sales ratios for data from top UK companies in 1992 (Walsh, 1996, p79)





It would be wonderful to enjoy the profit margins of the Brewing or Health care Industries, if the enormous investments or very low asset turns can be afforded.

This poses the question; will EVA as a measurement be equally valid and relevant for all the Industries? And it is accepted that EPS and EPS growth is seen as an equal criteria to any business Industry.

(vi) The Return on Investment as defined here can be assumed to be of no real difference than the Return on Assets ratio.

(vii) The Return on Equity is next to EPS most probably the second most important ratio to the shareholder/owner and indicates his "best" investments.

We have seen how equity forms a portion on the side of the balance sheet that determines the hurdle value of the EVA equation. If we should find that the long term and current debt falls within a narrow band for various Industries or Companies, we can deduct that ROE correlates with EVA which may explain why the EVA concept, which has been written about for nearly a 100 years, has not taken over from EPS or ROE.

However, when the debt portion is included we are lead back to the ROTA which is EVA once the ROTA is compared to the cost of those assets.

With a fluctuating interest rate on debt and a fixed equity return expectation a normal company may perform as follows:

Which is nothing less than EVA. Once we introduce the WACC we evaluate EVA as where traditionally the ROTA may have been compared with the debt % we increase the hurdle with the equity as an additional factor.

The real issue is whether the ROA comparison with the WACC line as compared to the Debt % line would have brought any change in Management decision making? Would the ROTA have improved sooner and/or significantly so since the drop of 1993 or not?

Too often even the best management can not forsee an "Oil or Asian" type crisis and the subsequent drastic reduction in sales for a period.

We test this deduction against a Johannesburg Stock Exchange quoted Industrial company such as Irvin & Johnson Ltd.

Exhibit 21: I&J Ratios (Extracted from The Investors Guide Sept/Okt 1997 Issue 84 [all values in millions])

I&J	1996	1995	1994	1993	1992
Total assets	1169	1046	877	817	720
Shareholder	752	687	560	498	449
Total borrowings	99,3	83,9	76,4	95,6	24,3
Capital employed	884	787	666	610	512
PAT	52	75,5	62,2	54,6	73,9

Total assets are defined as Fixed assets Investments + Stock + Cash & securities + Debtors. Shareholders funds are defined as ordinary shareholders' funds + minority interest preference share capital and convertible debentures (adjusted for intangible assets).

Total borrowings are defined as long-term loans + bank overdraft + short term loans and redeemable debentures (ie. all interest bearing debt)

From the above we have

	1996	1995	1994	1993	1992
ROTA	4,4%	7,2%	7,1%	6,7%	10,3%
Return on Cap	5,9%	9,6%	9,3%	9%	14,4%

This is an interesting example in that EVA certainly cannot add any further information which may be more relevant than already indicated by the poor ROTA or return on capital employed. The ROTA ratio is the more conservative ratio and includes an EVA "hurdle" type factor with the result that should ROTA be above a certain cut off rate determined by the WACC rate, the company is "adding wealth" as defined by the EVA principle.

This cut off rate can assure never to be below the average interest rate on debt, but by adhering to the EVA principle, it will include an equity rate of return expectation. In the above example the stock exchange prices, between 1992 and 1996, grew at an average of 0.30% p.a. which would be an indication of expectation for an average shareholder.

To continue with the comparison we need to include a successful company such as Q Data, an electronics company.

Exhibit 22: Q Data Ratios

Q Data	1996	1995	1994	1993	1992
Total assets	322,2	207,7	137,29	84,68	67,55
Shareholder	137	75,3	34,2	26,1	21,3
Total borrowings	27,4	6,92	4,24	3,46	2,61
Capital employed	164,4	82,2	38,4	29,9	24,7
PAT	43,7	26,2	17,6	13	10,56

And we obtain :

	1996	1995	1994	1993	1992
ROTA	13,6%	12,6%	12,8%	15,4%	15,6%
Return on cap	26,6%	31,9%	45,8%	43,5%	42,8%

And the success is obvious. Is there any need to calculate for EVA when there is no doubt to the outcome? No, the traditional measurements are sufficient.

A solid growth company with a doubling in its dividend every 4 years would be CTP Holdings, a printing and packaging company with data as follows :

Exhibit 23: CTP Ratios

CTP	1996	1995	1994	1993	1992
Total assets	742	664,7	498,4	413,9	363
Shareholder	481	400	322	271	225
Total borrowings	30,4	62,1	52,2	27,7	22,2
Capital employed	532	475	382	287	252
PAT	98,8	84,5	57,4	45,3	38,6

And we obtain :

	1996	1995	1994	1993	1992
ROTA	20,5%	21,1%	17,8%	10,9%	10,6%
Return on cap	18,6%	17,8%	15%	15,8%	15,3%

Note the low debt to equity ratio. From an EVA viewpoint the expensive equity component manifests itself as a higher hurdle rate which again calls for an even higher profit margin before "wealth is created". This could be interpreted as low risk companies do not create wealth or only high risk companies create wealth.

The next Industrial company, Invicta Holdings, starts with a 1:1 debt to equity ratio and obviously works at reducing the debt portion.

Exhibit 24: Invicta Ratios

Invicta	1996	1995	1994	1993	1992
Total assets	134,4	107,7	77,1	42,2	52
Shareholder	55	32,6	21,6	16	16,6
Total borrowings	3,97	7,62	7,68	12,7	16,2
Capital employed	59	44,2	29,5	28,7	32,8
PAT	26,9	16,9	8,5	2,5	2,1

And we obtain :

	1996	1995	1994	1993	1992
ROTA	20%	15,7%	11%	6%	4%
Return on cap	45,6%	38,2%	28,8%	8,7%	6,4%

Here the risk is reduced dramatically whilst the return is steadily increased and again we find the same outcome whether we measure it with the EVA ratio or the ROTA ratio!

And lastly, to compare with the first company analysed we look at Ocean Fishing Company. They have achieved a steady increase in EPS with a near constant level of debt.

Exhibit 25: Ocean Fishing Ratios

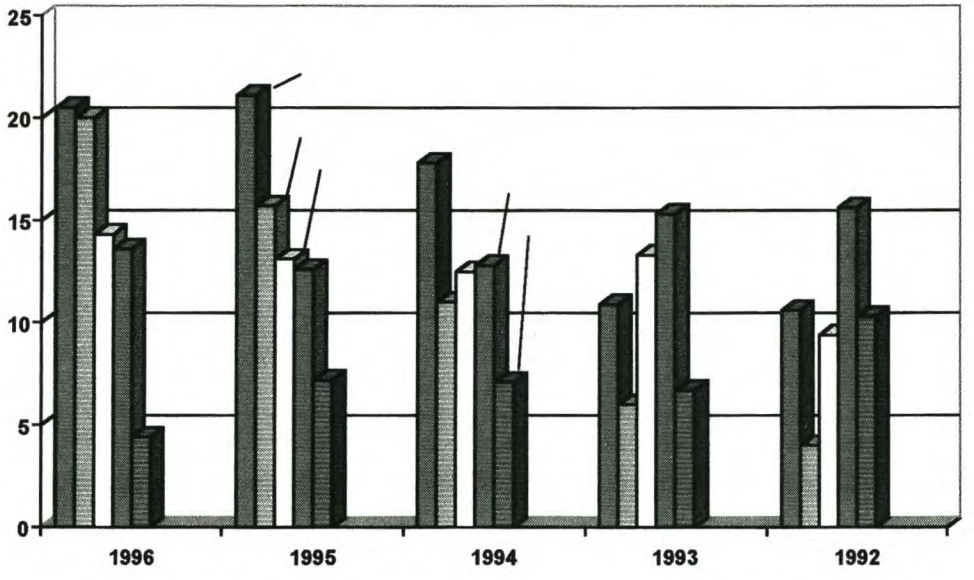
Ocean	1996	1995	1994	1993	1992
Total assets	351,6	290	242,5	207,4	207,5
Shareholder	148	122	93,4	110	101
Total borrowings	8,65	14,4	6,66	4,5	9,6
Capital employed	151	128	100	115	111
PAT	50,2	38,2	30,4	27,6	19,5

And we obtain :

	1996	1995	1994	1993	1992
ROTA	14,3%	13,1%	12,5%	13,3%	9,4%
Return on cap	33,2%	29,8%	30,4%	24%	17,6%

If we now summarise the ROTA values of the 4 companies we find:

Exhibit 26: Summary and comparison of ratios



And we can immediately identify the companies that are creating wealth versus those that are seemingly going backwards. Whether it can be classified as 'destroying wealth' is not certain as all the above companies have been in existence for many years and have had good cycles and bad cycles. We can now ask what EVA will indicate more than is already known?

To calculate an accurate EVA with the limited information available may not be possible as we need a Beta value for each company and each year and we also need to add back the non-cash items for each year to arrive at a NOPAT value for each year. However, the Beta value can be circumvented by comparing a range of WACC values and the non-cash items can be assumed to be consistent from year to year resulting in an equal 'fault' in the calculation.

The need is not to calculate an exact EVA but rather to find a comparison between an EVA and ROTA trend as follows:

Exhibit 27: ROTA vs EVA for 1996

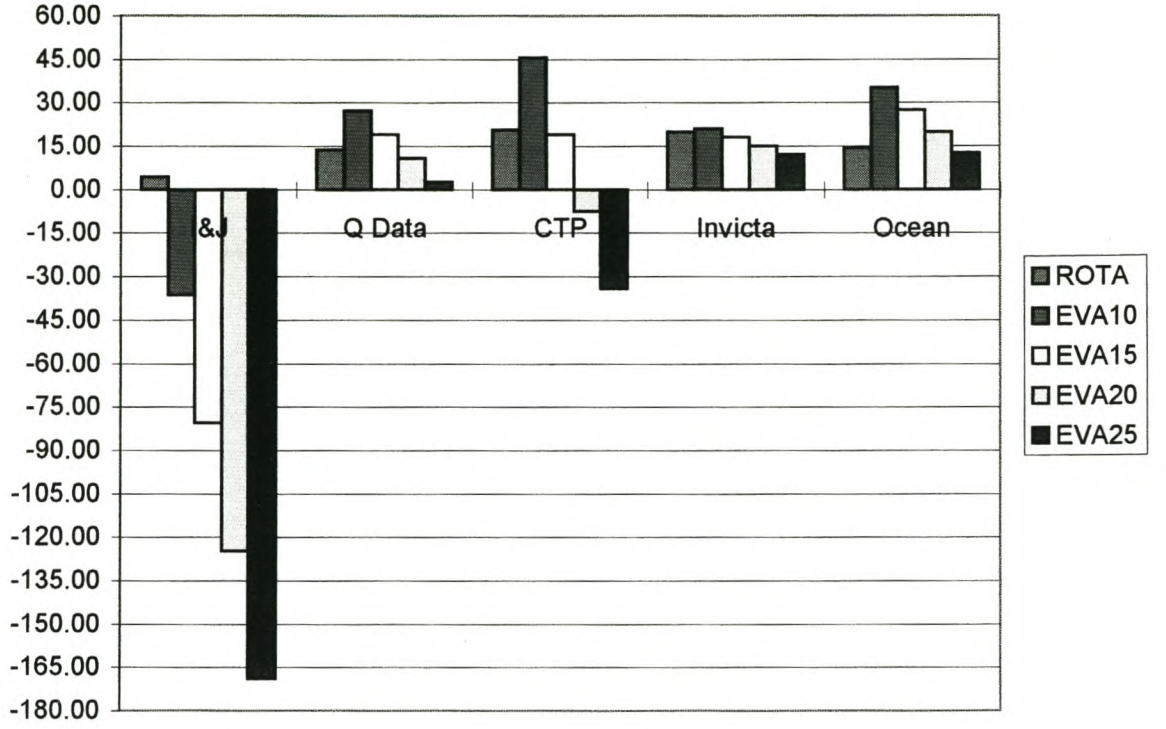


Exhibit 28: ROTA vs EVA for 1995

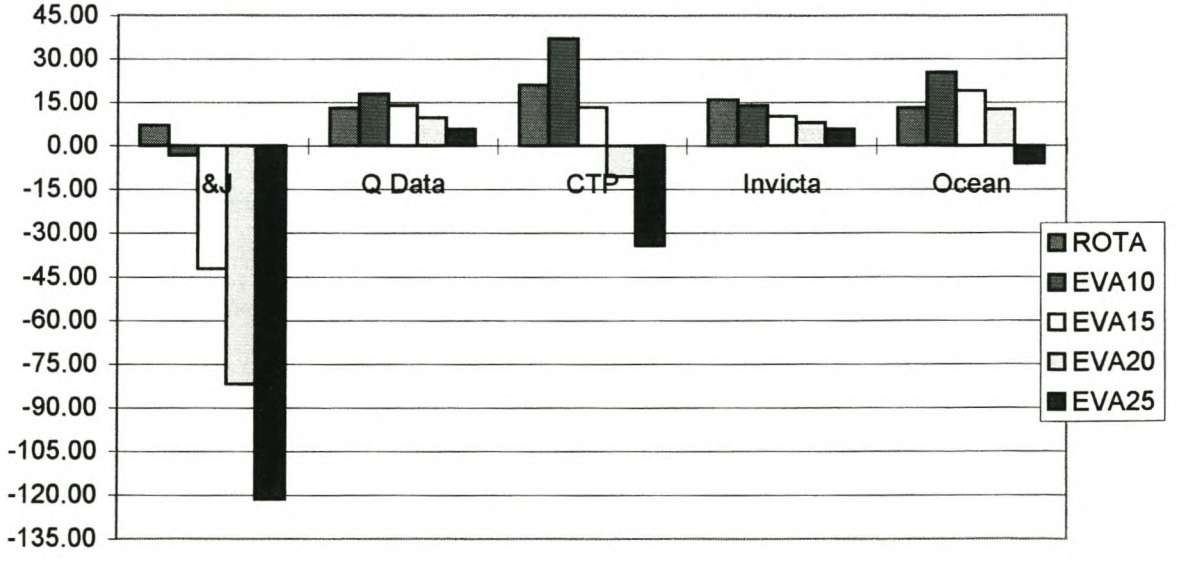


Exhibit 29: ROTA vs EVA for 1994

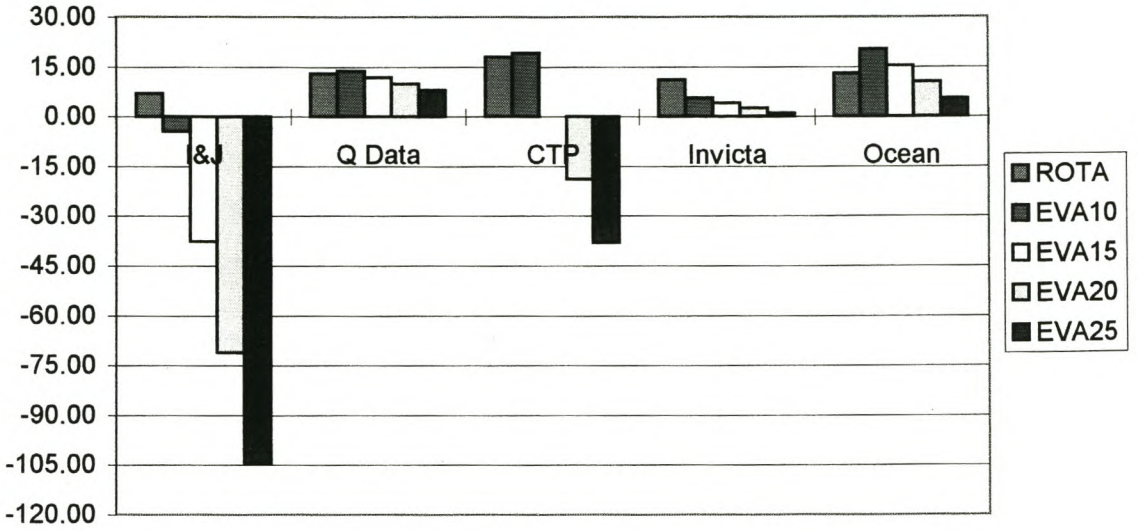


Exhibit 30: ROTA vs EVA for 1993

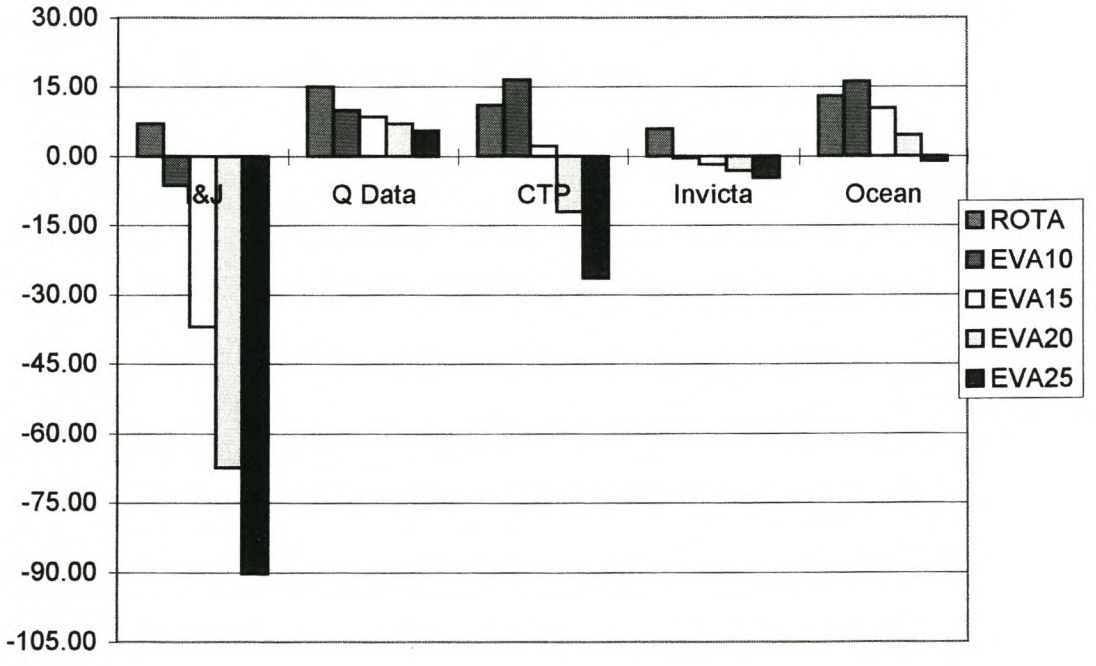
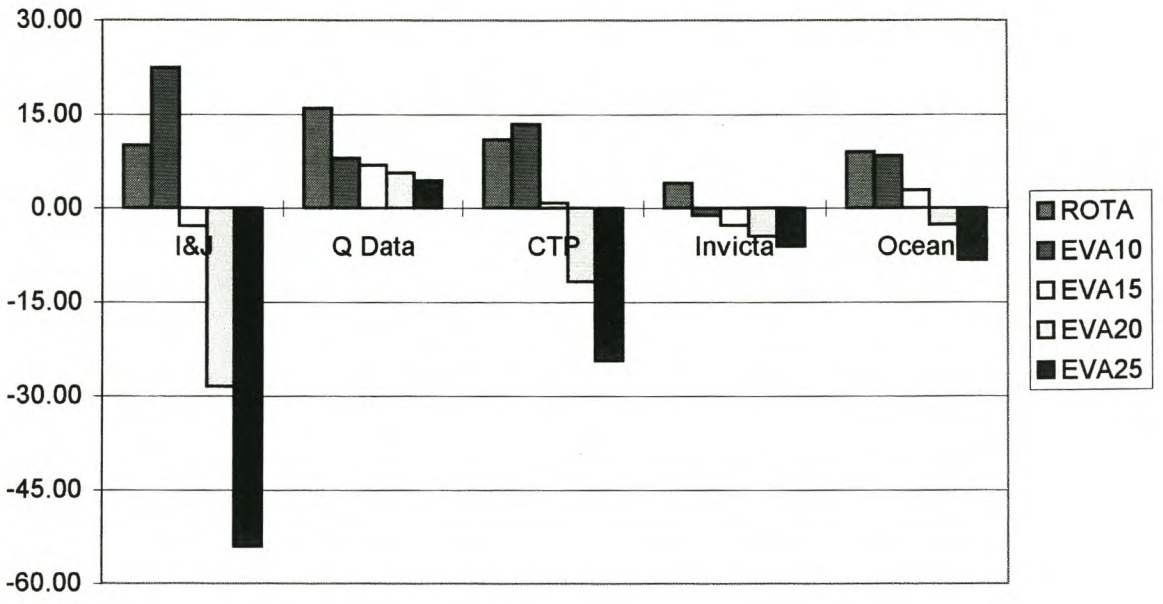


Exhibit 31: ROTA vs EVA for 1992



With the EVA calculated at a WACC of 10, 15, 20, and 25% and the PAT taken as per the above tables.

Does EVA now clearly point to a succesful vs a troubled company? More so than ROTA or even any of the other ratios? And the answer is not an emphatic yes, but rather an indication that there is very little difference between an interpretation of ROTA of a company versus what EVA will show us. If we compare the above charts per year we find:

For 1996:

EVA and ROTA is clearly showing that I&J is a troubled company. The only other issue is the negative EVA of CTP if the WACC increases beyond 15%.

For 1995:

Exactly as per 1996.

For 1994:

Exactly as per 1996.

For 1993:

Exactly as per 1996.

For 1992:

The same as for 1996 with the addition of Invicta showing negative EVA's at any WACC value and which should be avoided as an investment except that it becomes one of the best by 1996. This certainly shows that there is reason for doubting the impact EVA may have once a company has established a satisfactory ROTA.

5.11 Correlation or redundancy?

From the afore going most of the research criteria have been met.

From 5.2, 5.3 and 5.4 we find very little to support the EVA measurement as a serious or unique addition to the traditional ratios. The increase in debt financing as per exhibit 7 p57 for the past 40 years seems rather a natural trend of a prosperous economy than a concerted effort to reduce the cost of equity. Exhibit 8 and 9 again point to a correlation between profitability and specific Industrial sectors and that EVA is nothing more than an expression of productivity.

In section 5.5 we find the differences between countries and industrial sectors leaves question that cannot be answered by applying EVA. At best we find that the emphasis on productivity may change the constraints faced by the different sectors in different countries.

Section 5.6 and 5.7 point towards the ratios ROA and ROI sufficiently satisfying the need to measure the success of a venture, with the WACC the real penalty. This penalty is merely duplicated by an EVA value, which has very little impact should the company be either very profitable or heading towards failure. And for a company to produce normal results, we find it fully covered by traditional ratios.

The question of ability to replace any ratios, or to measure wealth creation, or to focus on the productive use of capital, or pointing towards failure of a business is not sufficiently answered to use EVA as a measurement system.

6. Summary and Conclusions

When setting out to research and study the concept of Eva, the one lingering question was why this concept had been given so little coverage in South Africa (and that includes much work done by the Bureau of Financial Analysis of the University of Pretoria, as well as the Business Schools of the Universities of Stellenbosch and Witwatersrand, and some companies such as AECI as referred to in the introduction of this thesis versus the prominence and regular coverage in America.

The mere fact that there was an element of productivity involved had to stimulate interest from the Industrial Engineering profession. Further to this there are the reasons for South Africa of a severely constrained capital resource and the efficient application thereof.

The study has however shown that the concept is firstly not new or even young, but as old as the late 1890's. Every businessman knows that he needs to produce profits over and above the cost of capital. The very important difference lies in the cost of debt vs the cost of equity and the capital asset pricing model was developed to address and solve this very issue. The fact that it is still a debate between financial and economic parties is the major reason why EVA is not widely accepted or implemented. Add to this the fatal mistake of using EVA as a basis to correlate with share prices and you have a recipe for it to become nothing more than a buzzword with a limited lifespan. (It can be noted here that the Coca-Cola and AECI Company, both referred to in the introduction of this thesis, have seen their share prices tumble in the past 2 years.)

The two most prominent comparisons to EVA in this thesis has been a) the global spread of low EVA sectors and b) the correlation of EVA and ROTA. There are some lesser indications, such as the application of a artificial Beta value in the case study in Appendix A, that leads one to conclude that EVA, as most financial indicators, can add to a more rounded or successful financial management system but needs to be applied in balance with the traditional measurement ratios.

If we now include our conclusions to the case study presented in Appendix A we find

a) The risk index (beta value) that is used in the calculation of EVA is highly subjective for unlisted companies such as *Neslex*. The *Microsoft Excel* spreadsheet containing the *Neslex's* EVA statement is, however, designed in

such a way that the beta proxy can be changed easily, should the user feel it necessary to do so.

b) The EVA calculation is subject to so many assumptions and deductions that it is difficult to know whether the EVA calculated for a particular company is in fact fitting. This in itself may deter a user from calculating EVA.

c) EVA seems to show the same trends as traditional measures of performance, such as net income, ROE and ROA. EVA therefore does not appear to offer users who compare their company's current performance to that of previous periods, with any added benefits. It does, however, allow management to see whether they are yielding returns that are greater than the cost of capital.

d) Financial statements that are based on GAAP do not always include sufficient detail to convert the accounting book values to economic reality. This may result in EVA losing some effectiveness.

e) EVA definitely provides management with a different perspective. EVA may be the key to *Neslex's* success in the long run, although there is not conclusive evidence to support this.

The single most important contributing factor to the weakness of the EVA measurement system can be found in this case study. This is our failure to find a true Beta value. The subsequent sensitivity analysis did not improve the situation. The fact remained that there was no real WACC as the company carried no debt. The true measurement in this case will be ROE or ROA, as the shareholders would prefer.

It has often been said that the publicly quoted South African companies have their "indifferent" shareholders to thank for their poor performance. This leads one to realise that only when shareholders demand a premium over the risk free rate, for their equity, will the WACC become a reality to the captains of Industry. Not even the Unit Trust Industry seems to contribute to the fact that equity should bear a cost, by simply moving on to more promising companies without a fight.

It can be concluded therefore that the weak link in the EVA concept is the cost of equity and the incomplete debate as to the cost of equity. Not that it is discarded that the realisation of a cost of equity could make venture capital and henceforth the development of a country an expensive business.

And lastly, there is little or no evidence that any company is prepared to express its EPS in a reduced quantity of EVA per share, or that there is any shareholder demanding such a harsh result.

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Appendix A:

Case Study: Implementation of EVA at an Industrial Company

Study and research undertaken by Johan van Zyl, as part of his final year thesis, under the guidance and auspices of G.A. Ruthven

The Objective and Motivation of the Study

The objective of this study is to use *Neslex*[2] *Supplies (Pty) Ltd's* financial statements to incorporate the EVA formula within or outside these statements so that they can calculate a monthly EVA value. The idea is then to interpret this value so that *Neslex* can create shareholder value indefinitely. The results from this study will hopefully show that EVA is a **must** for any business enterprise!

Calculating EVA

The following information is needed to calculate EVA:

- The company's income statement
- The company's balance sheet

Step 1: Decide on which adjustments to make to the GAAP accounts

As mentioned earlier, calculation EVA requires a number of decisions about how to measure operating profit correctly how to measure capital, an how to determine the cost of capital.

Stern Stewart & Co has identified more than 160 potential adjustments to GAAP and internal accounting treatments, which can improve the measure of operating profit and capital. Naturally, any change to the accounting format will yield a different EVA value. So, which value of EVA is deemed correct?

Stern Stewart has devised an EVA spectrum to help clarify the issue (see figure 2 below).

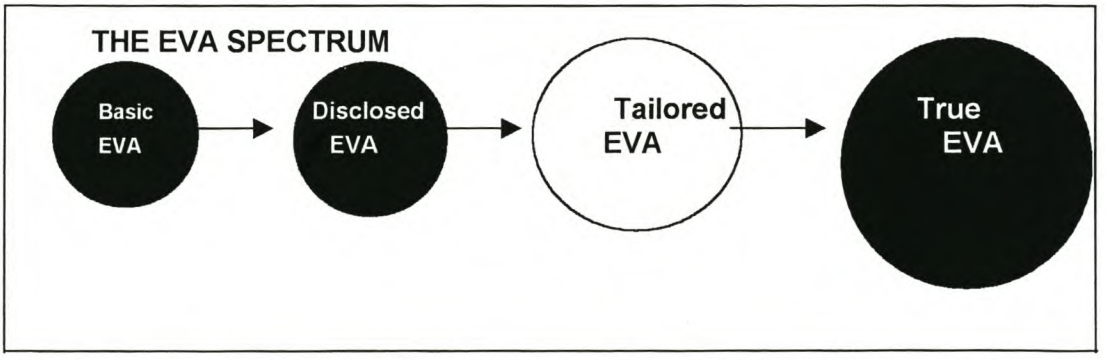

Figure 2: The EVA Spectrum

The EVA at the extreme left is what is called "basic EVA". This EVA is calculated using unadjusted GAAP operating profits and the GAAP balance sheet. Moving to the right there is what is known as "disclosed EVA". This EVA is used by Stern Stewart in its published MVA/EVA rankings. "Disclosed EVA" is computed by making a few standard adjustments to publicly available accounting data. On the far right is "true EVA". This is the most theoretically correct and accurate measure of economic profit. "True EVA" is calculated with all relevant adjustments to accounting data and using the precise cost of capital for each business unit in the organisation.

Stern Stewart believes that no specific EVA is correct. They motivate this by saying that while basic EVA is an improvement on regular accounting earnings as it recognises that equity capital has a cost, true EVA is far too complicated for the majority of non-financial managers to understand. Disclosed EVA is far better than basic EVA, but is not as good as it should be for internal management purposes. The reason for this is that publicly reported figures do not include enough detail to fine-tune some of the adjustments.

Stern Stewart believes that each company needs a custom-tailored definition that provides a balance between simplicity and precision. The EVA must be easily calculated and understood as well as being accurate enough to capture true economic profit. Stern Stewart suggest that once the EVA formula has been set, it should be immutable and serve as a constitutional definition of performance.

This flexibility and customisability of EVA has been subject to some heavy criticism. Critics believe that it causes a free-for-all in the metrics marketplace. Stern Stewart, however, argues that the purpose of EVA is not to arrive at some pristine measure of profits. They believe that the whole idea is to change the behaviour of managers and workers in a way that will maximise shareholder wealth. If the formula becomes too complex and difficult to understand it will lose its effectiveness of shaping managerial behaviour.

Tailoring thus allows each company to limit its adjustments to those that are of particular importance to it. EVA needs only to get as complicated as it has to be to provide the right information for managers and workers to make wealth creating decisions.

I tend to agree with the concepts that Stern Stewart put forward in defending this criticism, but I also find that it still leaves too much room for companies to manipulate their accounting data. As is sometimes the case with GAAP, figures can be manipulated in such a way that the company could calculate a positive EVA value even when it should be negative or they could limit their EVA value if it is already negative. Shareholders must therefore still be very careful not to read too much into a company's EVA without careful consideration!

Some of the major adjustments (Ehrbar, p167) required in converting the book value of NOPAT, capital and assets to the economic value are as follows:

- **Dividends** must be included with *capital* as an "other capital" balance, and not treated as a current liability. *NOPAT* is measured before dividends are deducted.
- The only taxes a company should deduct form current earnings are the ones it pays now. Correspondingly, the ***deferred taxes*** that are deducted from earnings should be moved form the liability portion of the balance sheet and added back to shareholder funds for the purposes of calculating *capital and the cost of capital.*
- FIFO accounting expenses inventory on a first in first out basis. In an inflationary environment, this will increase profits. LIFO accounting expenses inventory on a last in first in basis. This will lower profits and hence minimise taxation. The difference between the FIFO and LIFO values of inventory is the **LIFO reserve**. An increase in the LIFO reserve must be added back to *NAPAT* (to reflect the true FIFO cost of goods sold) as well as the *inventory and "other capital" balances* (to reflect the true value of inventory).
- **Reserves for bad debt, inventory obsolescence, guarantees and deferred income** that increase in proportion to sales must be transferred form "current liabilities" to *"other capital balances"* and an increase in the reserve must be added back to *operating profit.*
- The cumulative **goodwill[5] amortisation** must be added back to *profits, assets and equity.*
- Capitalise **R&D investments** by adding current outlays to the balance sheet as an asset and amortise them over an appropriate period.

STEP 2: Calculate net operating profit after taxes (NOPAT)

The second step in calculating EVA is to determine what the company's NOPAT is. Unlike the operating profits calculated by most companies, NOPAT includes

deductions for taxes and for depreciation of equipment. The logic behind this is that they are both real costs that have to be managed.

These and other adjustments are made to translate accounting earning into an economic or cash flow-based NOPAT. The following definition of NOPAT is used to resemble the major adjustments necessary (as described in step 1):

NOPAT	=	Reported net operating profits
	+	the increase in bad debt reserve
	+	the increase in the LIFO reserve
	+	the increase in net capitalised R&D
	+	other operating income
	-	the provision for income taxes
	+	the income in the deferred income tax reserve
	-	dividend provisions
	+	interest expenses

STEP 3: Identify capital

Stewart defines capital as the total assets less non-interest bearing liabilities, which is basically equal to net assets, but with three adjustments:

1. Marketable securities and construction in progress are subtracted;
2. The present value of non-capitalised leases is added to net property, plan and equipment; and
3. Certain "other capital balances" are added to assets (refer to step 1):
    - Bad debt reserve is added to receivables
    - LIFO reserve is added to inventories
    - The cumulative amortisation of goodwill is added back to goodwill
    - R&D expenses are capitalised as a long-term asset and smoothly depreciated over a period of 5 years
    - Cumulative unusual losses or gains after taxes are considered to be a long term investment

STEP 4: Define the cost of capital

The cost used is all EVA calculations is the weighted average cost of debt and equity capital. This is the percentage of capital provide by lenders multiplied by the company's cost of debt, plus the percentage supplied by shareholders multiplied by the cost of equity capital.

COST OF DEBT

Calculating the cost of debt is simple. It is the company's after tax cost of borrowing at current interest rates. Current interest rates are the appropriate ones to use because that is the cost the company would pay on new debt or would save if it repurchased debt. Expressed as a percentage the cost of debt (K_d) is

$K_d = I (1 - T)$
Where I = the current interest rate; and
T = the tax rate

COST OF EQUITY

Calculating the cost of equity is considerably more difficult. The easiest way to understand it is to divide it into three components:

1. *This risk free rate of return (R_f).* This is the yield to maturity achievable on financial instruments with a very low risk profile. An excellent R_f (in a South African context) would be the yield of a South African Government bond with a ten-year maturity.

2. *A market risk premium (RP).* This is the additional return expected by investors on an average basket of South African listed shares over and above the risk free rate.
   It can be expressed as follows:
   $RP = R_m - R_f$
   Where R_m is the average return of the market.

3. *The Beta factor (β).* This is a statistical measure of the volatility of a company's share price compared to the market as a whole. For unlisted companies (such as *Neslex*), a similar listed company in the same industry sector is used to obtain a Beta proxy.

The cost of equity (K_e) is then usually expressed through the application for the Capital Asset Pricing Model as follows:

$$K_e = R_f + \beta\ (RP)$$

The weighted average cost of Capital (WACC of C%)

Once the cost of debt and equity have been defined, it is necessary to find a bled between the two. This blend is known as the Weighted Average Cost of Capital (WACC). It can be expresses as

$$WACC = (W_d \times K_d) = (W_e \times K_e)$$

where W_d is the weight of debt as a proportion of total capital
and W_e is the weight of equity as a proportion of total capital.

STEP 5: Calculate EVA using the formula

The final step in calculating a company's EVA is by far the simplest. It is merely an act of plugging values into the basic EVA formula. Recall that Stern Stewart's EVA ® formula was given as:

$$EVA = NOPAT - C\%\ (TC)$$

Where NOPAT is the net operating after taxes,
C% is the percentage cost of capital or weighted average cost of capital
and TC is total capital.

To summarise, a company's EVA can be calculated using the following 5-step procedure:

1. Decide on which adjustments to make to the GAAP accounts
2. Calculate Net Operating Profit after taxes (NOPAT)
3. Identify Capital

4. Define the cost of capital
5. Calculate EVA using the formula

CASH FLOW RETURN ON INVESTMENT (CFROI)

Cash flow return on investment (CFROI) is the product of Boston Consulting Group (BCG) and HOLT Value Associates. CFROI is determined by converting profitability data into gross cash flow and using real gross assets as an implied investment. CFROI is calculated in two steps:

1. Inflation-adjusted cash flows available to all capital owners in the firm are measured and they are compared with the inflation-adjusted gross investment made by the capital owners.
2. The ratio of gross cash flow to gross investment is translated into an internal rate of return by recognising the finite economic life of the depreciating assets and the residual value of non-depreciating assets such as land and working capital.

CFROI has been found to correlate better with share prices than EVA as it explains share price movements better than EVA does. EVA can however be modified in order to avoid certain accounting distortions and to correlate better with share prices. The problem with this is that EVA then becomes almost as complicated as CFROI and even the smartest non-financial managers find it hard to understand.

NESLEX (PTY) LTD'S ANNUAL EVA

The information contained in the literature study of this paper provides an ideal framework for anyone wishing to understand the EVA philosophy.

The literature study should provide anyone determined in grasping the principles of EVA with a good starting point. To understand the rest of this paper it is essential that the reader come to terms with the content of the preceding section.

In this section, I am going to calculate an annual EVA value for *Neslex (Pty) Ltd,* based on their financial statements for the year ending on 31 December 1998. In the next section, I will look at their monthly statements and calculate a monthly EVA vale

that can be used for management purposes. I will follow the EVA calculation process described in section 6 of the paper.

NESLEX - The Company

Before delving into the EVA calculation process, it is important to understand a little more about the company that is being assessed. To calculate Neslex's EVA value, the following general information concerning the company should be known:

- The company activities include manufacturing, distributing and selling semi-finished products, tools, accessories and packaging materials in the food sector of the economy.
- The company commenced business on 1 April 1998. The annual EVA value for 1998 thus represents the company's performance for their first 9 months of business.
- The authorised and issued share capital consists of 1 000 000 ordinary shares of one cent each.
- No dividends are proposed for the periods under review.

The financial statements of 31 December 1998 are included as an attachment in appendix 4. These contain detailed information of the company's accounting policies. The information given above should, however, serve the purpose of illustrating how the company's EVA value is calculated.

The following procedure was followed in calculating an annual EVA value for *Neslex* based on their financial statements for the year ending 31 December 1998:

STEP 1: Decide on which adjustments to make to the GAAP accounts

It was mentioned earlier in the paper that to calculate the EVA value of a company, the company's income statement and balance sheet are required. The audited financial statements of *Neslex Supplies (Pty) Ltd* for the 9 months ended 31 December 1998 contain both of these. Using the income statement and balance sheet, we must decide on which adjustments to make to the *Neslex* accounts in order

to bring them closer to economic reality. In doing so, I will provide them with a fitting EVA value that can be used as an effective management tool.

For the following discussion, the EVA spectrum given in figure 2 on page 14 is reproduce on the next page. The diagram will be used extensively throughout the discussion.

Stern Stewart believes that a company should have a custom-tailored EVA value that provides a balance between simplicity and precision, so that it can realise its potential as a management tool. The final goal of this paper is to provide *Neslex* with a monthly EVA value that will serve as an effective management tool. So, in achieving this goal, I will attempt to calculate a custom-tailored EVA value, as depicted in the figure below, for *Neslex* to use for internal management purposes. The true EVA on the far right of the spectrum will be too theoretical and complex and thus lose its effectiveness as a management tool.

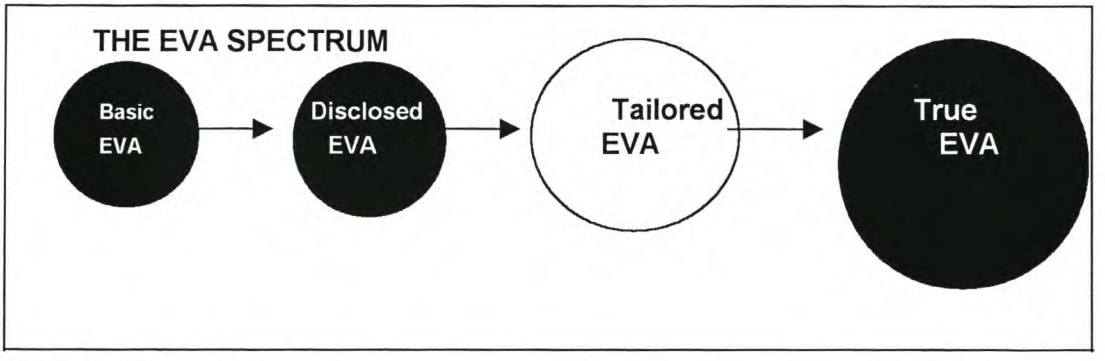

Figure 3: Figure 2 reproduced

Since I am initially only calculating and annual EVA value form the yearly financial statements, the annual EVA will probably represent the disclosed EVA in the figure more closely. The reason for this is that yearly financial statements do not include enough detail to properly tailor and EVA value.

By reviewing the list of major adjustments (section 6.1) that are suggested by Stern Stewart and analysing *Neslex's* balance sheet, income statement and their respective notes, the following decisions were made regarding the adjustments:

- No dividends are proposed for the period under review, so we can ignore how they should be treated.
- The deferred taxation present on the balance sheet, should be moved from the liability portion and added back to the shareholder funds for the purpose of

calculating capital and cost of capital, in step 3 and 4 respectively, of the EVA calculation. In future, only the annual increase needs to be added back.

- Since *Neslex* is only in its first full year of business, a LIFO reserve does not exists and is therefore not applicable.
- In economic reality, bad debt is written off in the period in which it is incurred. Hence, the provision for doubtful debt must be transferred form current liabilities to "other capital balance" on the balance sheet.
- The reserve for bad debt is included under the provision for doubtful debt, so we treat them as one. Inventory obsolescence, guarantees and deferred income are not indicated as separate times on the income statement, so their effect is ignored.
- There is no goodwill represented in the financial statements, so goodwill amortisation does not exist. Disregard any recommendations.
- R&D is existent, but after discussing the capitalisation of R&D investments with the financial director at *Neslex*, it was decided to ignore the effect of R&D on the EVA value. The reason for this being that the amount spent on R&D is too small for it to have a profound effect on the EVA value.

STEP 2: CALCULATING NET OPERATING PROFIT AFTER TAXES (NOPAT)

The NOPAT of a company should be as close to economic reality as possible. The NOPAT should be in line with the adjustments mentioned in the previous step. NOPAT should represent only the direct operational profit involved in the company's production period.

According to the adjustments mentioned in step 1, *Neslex's* NOPAT is calculated as follows:

NOPAT	=	Net profit after tax
		+ Interest paid
		+ Increase in the deferred income tax reserve

The calculation of *Neslex's* NOPAT for 1998 can be found in Appendix 1A.

Note that the NOPAT value obtained is higher that the "Net Profit after tax" found in the income statement that is retrained and carried over to the balance sheet. The

NOPAT value calculated is a much better representation of the actual operating profit that *Neslex* generates during the year.

STEP 3: IDENTITY CAPITAL

Capital was defined earlier as the total assets less non-interest bearing liabilities (with a few adjustments). After reviewing the financial statements and the adjustments recommended in step 1, the following formula is deemed to best represent *Neslex's* capital on an economic basis:

Total assets (from the balance sheet)

Less
Trade creditors
Sundry creditors
Receiver of revenue: taxation
Receiver of revenue: VAT

Plus
Deferred taxes
Provision for doubtful debt

The calculation of *Neslex's* capital at the end of 1998 can be found in Appendix B(16.1.2)

STEP 4: DEFINE THE COST OF CAPITAL

The cost of capital at *Neslex* is calculated by adding the percentage of capital provided by lenders multiplied by the company's cost of debt and the percentage supplied by shareholders multiplied by the cost equity capital.

COST OF DEBT

The cost of debt at *Neslex* is the company's after tax cost of borrowing at current interest rates. It is calculated using the formula given in section 6.4.1:

$K_d = I (1- T)$

Where I = the current interest rate; and
T = the tax rate

After discussions with Neslex's financial director, it was decided that the company's current interest rate in the cost of debt equation should be taken as the prime rate offered by local banks. As a benchmark, the prime rates of ABSA BANK were used. A list of the prime rates since 12 March 1998 is given in appendix 1C.

It must be noted that the prime rates do not changes at fixed intervals. For example, there were three changes in the prime rate during July last year. On 1 July, the prime rate was given as 22.25%. On 4 July 1998, the prime rate changed to 23.75% where it remained until another change on 28 July to 24%.

In calculating the cost of debt for the year, an average prime rate is required for the year. To obtain this, a monthly rate must be determined form which eh average for the entire year can be calculated. For example, the monthly prime rate for July was calculated as follows:

Calculated as follows: $\frac{3}{31}(22.25\%) + \frac{24}{31}(23.75\%) + \frac{4}{31}(24\%) = 23.64\%$

Similarly, the rates are calculated for the months April through December 1998. From these, the average prime rate for the year is calculated as 22.41 (see appendix 1C).

The rate is stated in the financial statements as 35% for 1998.

The cost of debt is thus

$$\begin{aligned} K_d &= I(1 - T) \\ &= 0.2241\ (1 - 0.35) \\ &= 14.57\% \end{aligned}$$

COST OF EQUITY

The cost of equity (K_e) is defined in section 6.4.2 as follows:

$$K_e = R_f + \beta\ (RP)$$

1. *The risk free rate of return (R_f)* that is usually used in a South African context is the yield of a South African Government bond with a ten-year maturity. The value of such a bond is around 14%.
2. *The market risk premium (RP)* can be calculated as follows:

$RP = R_m - R_f$

Where R_m is the average return of the market.

The market risk premium in South Africa is widely accepted as 5%.

3. *The Beta factor* (β). Since *Neslex* is not listed on the JSE, a similar listed company in the same industry sector should be used to obtain a beta proxy. Since it is difficult to find a company the exactly matches *Neslex*, it was decided to use the average beta value for the market sector in which *Neslex* operates. The average beta provided by BFAnet, for the food sector, is 0.41. The food sector tends to be relatively stable, so this value should serve as a good beta proxy for *Neslex*.

The financial director of *Neslex* felt that a beta of 0.41 was too low for the company. He felt that since *Neslex* was such a new company that its inherent risk would be viewed slightly higher than the sector mean. His gut feel was a beta of 0.6. To accommodate this, I have conducted a sensitivity analysis (see chapter 11) in which I vary the value of beta between 0.2 en 1.8. This will then allow management to assess their cost of capital (and ultimately their EVA) at a range of betas.

The cost of equity (for a beta of 0.41) is thus

$$\begin{aligned} K_e &= R_f + \beta\ (RP) \\ &= 0.14 + 0.41\ (0.04) \\ &= 16.05\% \end{aligned}$$

The weighted Average Cost of Capital (WACC or C%)

The Weighted Average Cost of Capital (WACC) can be expressed as

$$WACC = (W_d \times K_d 0 + (W_e \times K_e)$$

Where W_d is the weight of debt as a proportion of total capital

And W_e is the weight of equity as a proportion of total capital.

The debt of a company is viewed as the sum of its long-term liabilities (loans) and its interest-bearing current liabilities:

Debt = Long-term liabilities
Plus current liabilities
Less non-interest bearing current liabilities.

The weight of debt as a proportion of total capital is given by the following formula:

W_d = debt / capital employed

The weight of equity as a proportion of total capital is simply 1 – W_d.

Fro *Neslex*, W_e = 92% and W_d = 8% as calculated in appendix 1 D.

So, WACC or C% = (0.12) x 0.1457) + (0.92 x 0.1605)
= 15.93%

Since the WACC measures the cost of capital for the entire year (i.e. 12 months), it must be adjusted to represent the cost of capital for only 9 months of the year (April – December 1998).

So the WACC, adjusted for nine months, that represents the cost of capital for *Neslex* during 1998 is ((/12) (15.93%) = 11.95%.

STEP 5: CALCULATING EVA USING THE FORMULA

Recall that Stern Stewart's EVA ® formula was given as:

EVA = NOPAT – C% (TC)
Where NOPAT is the net operating after taxes,
C% is the percentage cost of capital or weighted average cost of capital, and TC is total capital.

Using the formula, *Neslex's* EVA for the year ending 31 December 1998 can then be calculated as

EVA = 731 088.44 – 0.1195 (8 348 572.64)

= **-R266 442.38**

NESLEX (PTY) LTD'S MONTHLY EVA

Now that *Neslex* have an EVA value for 1998, they require a monthly EVA value that can be used for management purposes. The monthly value will enable *Neslex* to compare their performance on a monthly basis. The EVA of one month can then be compared to the EVA of another month.

THE MONTHLY FINANCIAL STATEMENTS

Neslex currently calculate their monthly statements on *Microsoft Excel* spreadsheets. Their financial statements master file consist of one workbook that contains three sheets. The first sheet represents their monthly balance sheets, the second their monthly income statements and the third their cash flow statement. To calculate *Neslex's* monthly EVA, only the balance sheets and income statements are required.

Sheet 1: Summary balance sheet

The monthly balance sheets are currently displayed in columns starting the balance sheet for April 1998 and ending with the most recent monthly balance sheet (namely July 1999). The diagram below show the current structure.

Month	Apr 98	May 98			June 99	July 99
	R	**R**	**R**	**R**	**R**	**R**
Capital employed						
... ...						
Employment of Capital						

Table 2: Current structure of *Neslex's* monthly balance sheet in Excel.

9.1.2 Sheet 2: Income Statements

The monthly income statement are also currently displayed in columns, but not in the same order as the balance sheets. The income statements include columns for the 1999 budget. These fit in between the actual monthly income statements for 1998 and 1999. The general order of the columns for the monthly income statements is: Actual month (e.g. April) 1998 statement; Budget month (e.g. April) 1999 statement; Actual month 1999 statement. The income statements start with the January 1999 budget and end with the actual December 1999 monthly statement. The January, February and March figures for 1998 are omitted, as they are non-existent. The diagram below illustrates the current structure.

INCOME STATEMENTS	**Budget JAN 99**	**Actual JAN 99**	**... ...**	**Actual DEC 98**	**Budget Dec 99**	**Actual DEC 99**
NET INCOME AFTER TAX						
TOTAL SALES						
LESS COST OF SALES						
GROSS PROFIT Etc.						

Table 3: The structure of *Neslex's* monthly income statements in *Excel*.

Note that the actual December 1999 income statement (and the ones for October and November 1999) indicates a future period. The monthly statement for August and September were not available at the time of writing.

To incorporate a monthly EVA value within these statements, the format of the summary balance sheet was altered to match the format of the income statements. In accomplishing this, sheet 1 (summary balance sheet) was modified to match the structure of sheet 2 (income statements). The balance sheet budgets for 199 were then imported form a separate file and slotted into the appropriate columns.

I believe that if *Neslex* are to incorporate a monthly EVA value, thy must adopt a similar format so that the sheet containing the balance sheets is compatible with the sheet containing the income statements. The modified monthly summary balance sheet and the current monthly income statement are included as an attachment in appendix C (19.4).

Once the spreadsheets are in the same format (i.e. compatible), the monthly EVA value can be determined. A separate (new) *Excel* worksheet in the financial statements master file was created for the monthly EVA calculation. The result is also included in appendix 4.

The monthly EVA calculation process followed is similar to that of the annual EVA calculation, but with a few slight changes. The following procedure was followed in calculating a monthly EVA value for *Neslex* from April 1998 to July 1999 (including the budget for the entire 1999):

9.2 STEP 1: DECIDE ON WHICH ADJUSTMENT TO MAKE TO THE GAAP ACCOUNTS

The adjustment required for the monthly accounts must be tailored to suit them specifically. The same principles that were mentioned in the annual EVA calculation apply to the monthly calculation. A summary of the adjustments made for the monthly EVA value is given below:

- As was the case before, no dividends are proposed for the period under review, so we can ignore how they should be treated.
- Deferred taxes are not calculated at *Neslex* on a monthly basis due to the apparent difficulty. The monthly calculation will thus ignore how deferred taxes should be treated. If *Neslex* feel that they wish to incorporate them once they are calculated at the end of the year, they must adjust them accordingly for each month.
- As mentioned perfidiously, a LIFO resource does not exist and it therefore not applicable.
- The provision for doubtful debt is indicated on the monthly income statement as "bad debts written off". This must be transferred form current liabilities to "other capital balances" on the balance sheet.
- Inventory obsolescence, guarantees and deferred income are not indicated as separate items on the income statement, so their effect is ignored.
- There is no goodwill represented in the monthly financial statements, so goodwill amortisation does not exist. Recommendations can again be disregarded.

- Due to the small monthly amount spend on R&D, the ultimate effect that it will have on the EVA value can be ignored.

9.3 STEP 2: CALCULATE NET OPERATING PROFIT AFTER TAXES (NOPAT)

Since there is no proposed adjustment for the deferred taxes in the monthly EVA calculation, the net operating profit after tax is simply:

NOPAT = Net income after tax + interest paid

The NOPAT for July 1999 (actual) is calculated in appendix 2A as an example.

All the other NOPATs are calculated in a similar manner.

9.4 STEP 3: IDENTIFY CAPITAL

The capital figure in the monthly balance sheets represents the total capital presented at *Neslex* at that instant in time. It is important to realise that the capital does not represent the monthly capital investment.

From the previous definition of capital used in determining the annual capital present at *Neslex*, we can calculate the total capital for a particular month's end as:

Total assets (current assets + fixed assets_
Less
Trade creditors
Plus
Provision for doubtful debt (transferred from current liabilities)

The total capital at the end of July 1999 is calculated in appendix 2B to demonstrate how the capital was calculated at *Neslex*.
The capital at the end of each other month was calculated in exactly the same way.

9.5 STEP 4: DEFINE THE COST OF CAPITAL

The cost of capital for the monthly EVA value is calculated in the same way as was previously done for the annual EVA calculation.

9.5.1 Cost of debt

The cost of debt equation is identical to the one used before:

$$K_d - I\ (1 - T)$$

Where I = the current interest rate; and T= the tax rate

The current interest rate is once again calculated form the prime rates given by ABSA BANK. The monthly rate is calculated in the same way as before. For example, the monthly prime rate for July 1999 is calculated as follows:

$$(18\%) + \qquad (17.5\%) = 17.71\%$$

The monthly prime interest rates are calculated and shown in appendix B (17.1.3).

The tax rates is 30% for 1999 as opposed to 35% in 1998.

The cost of debt for July 1999 is then calculated as follows:

$$K_d = I\ (1\text{-}T)$$
$$= 0.1771\ (1 - 0.30)$$
$$= 12.4\%$$

9.5.2 Cost of Equity

The cost of equity for the monthly EVA calculation does not differ from the annual cost of equity calculated previously, because:

a) The *risk free rate of return* (R_f) is taken as the yield of a South African Government bond with a ten-year maturity. The yield is unlikely to change much over the course of a year due to its ten-year maturity. R_f is thus taken as 14% for the period under review. This can easily be altered should it be necessary.

b) The *market risk premium* is taken at 5% and may be changed easily should it be required.

c) The food sector *beta* of 0.41 is used as the beta proxy for the months April 1998 – December 1999. A sensitivity analyses (see chapter 11) is conducted by changing the beta value from 0.2 to 1.8 (in increments of 0.2) to show how the monthly EVA value is affected by different values of beta.

The cost of equity at the end of July 1999, for example, is calculated as follows:

$$K_e = R_f + \beta(RP)$$
$$= 0.14 + 0.41\ (0.05)$$
$$= 16.05\%$$

9.5.3 The Weighted Average Cost of Capital (WACC or C%)

Recall the formula for WACC was given as:

$$WACC = (W_d \times K_d) + (W_e \times K_e)$$

Where W_d is the weight of debt as a proportion of total capital
And W_e is the weight of equity as a proportion of total capital.

To calculate this we need to determine the total amount of debt at the end of each month. This is calculated using the following basic equation that was used before:

Debt = Long-term liabilities
Plus current liabilities
Less non-interest bearing current liabilities.

Once the debt is known, W_d can easily be found as the ration debt: capital employed. W_e is then simply $1 - W_d$.

W_d and W_e are calculated at the end of July 1999, as an example, in appendix 2D as 0% and 100% respectively.

Note that in the early stages of the company's existents, *Neslex* operates at a loss and is funded entirely by a normal loan (debt) from a parent company. This then causes the ration of debt to capital employed toe exceed at 100% since the debt is greater than the capital employed due to the loss the company is running at. But W_d cannot be greater then 100% as the weight of equity as a proportion of total capital cannot be less than 0%. This then necessitates a nested "if" statement in *Excel* to prevent W_d exceeding 100%.

The following pseudocode demonstrates the "if" statement implemented:

IF (NL 1 + NL2 +NL3 + CL – creditors)/Capital Employed >100% THEN

W_d = 100%

ELSE IF (NL1 + NL2 + NL3 + CL – creditors)/Capital Employed < 0 THEN

W_d = 0%

END IF

ELSE W_d = (NL1 + NL2 + NL3 + CL – creditors)/Capital Employed

END IF

In the above code NL1, NL2 and NL3 represents three different normal loans form parent companies. CL is an abbreviation for current liabilities.

It is now possible to calculate the Weighted Average Cost of Capital (WACC). *Neslex*'s WACC at the end of July 1999 is calculated as follows:

$$\begin{aligned} WACC &= (W_d \times K_d) + (W_e \times K_e) \\ &= (0 \times 0.1771) + (1.0 \times 0.1605) \\ &= 16.05\% \end{aligned}$$

It is important to note that this WACC measures the cost of capital for the whole year. It is thus necessary to adjust this value to obtain a montly WACC as follows:

$$\begin{aligned} WACC\ (monthly) &= 16.05\% / 12 \\ &= 1.34\% \end{aligned}$$

9.6 STEP %: CALCULATING *NESLEX'S* MONTHLY EVA

The last step in calculating *Neslex's* monthly EVA is simply to use the EVA formula defined earlier. *Neslex's* EVA fro July 1999 is calculated as follows:

$$\begin{aligned} EVA &= NOPAT – C\%(TC) \\ &= 173{,}514.20 – (0.0134)\ (8{,}701{,}004.98) \\ &= \mathbf{R\ 57{,}138.26} \end{aligned}$$

All the other monthly EVAs are calculated in a similar fashion.

10. COMPARISONS WITH COMMONLY USED PERFORMANCE MEASURES

In section 7 of the paper, the following traditional performance measures were discussed in theory: return on Equity (ROE), Earnings per share (EPS), Cash flow return on investment (CFROI), Return on assets (ROA) and Return on Net Assets (RONA). Their strengths are weaknesses were highlighted in an effort to show that EVA measures true economic performance better than most of them.

It is intended to compare the EVA value that was calculated for *Neslex* to some – but not all – of these traditional measures. After analysing *Neslex's* financial statements, it has become clear that comparing their EVA value to all the aforementioned measures would be senseless, let alone tedious. It would make far more sense to compare their EVA value to some of the measures that they include in their financial statements of measures that their shareholders are likely to consider. For this reason, it has been decided to compare the EVA value that was calculated for *Neslex* to their EPS value found at the end of their income statement. Further noteworthy measures that will be compared to *Neslex's* EVA value are ROE and ROA.

Although CFROI and RONNA are committed as terms of comparison, it is still important to be aware that they are frequently encountered in business. They are therefore included in the literature study section of this paper as a term of reference to show how EVA can encounter some of their limitations.

This section explains how the traditional measures of performance are calculated. The next section compares them to the EVA values.

10.1 EARNINGS PER SHARE (EPS)

The earnings per share value (Atrill & McLaney, p164) for *Neslex* was calculated using the following formula:

$$EPS = \frac{\text{Earnings available to ordinary shareholders}}{\text{No. of ordinary shares in issue}}$$

This value relates the earnings generated by *Neslex* during the fist nine months of business that are available to shareholders to the number of shares in issue. Many investment analyst regard this ratio as a fundamental measure of share performance. The major problem with using it as a measure of performance is that it ignores the

level of investment. Firms with the same EPS might have different profitabilities depending on their investment in assets. The other limitation is that the shares of different firms are not equivalent and firms with the same overall profitability may have different EPS figures because they have a different number of shares that represent ownership.

The best use of EPS is in a time-series analysis. By comparing EPS values of different period, the ration may be of some help in analysing the firm's performance. Since the EPS value in table 2 represents the financial performance of *Neslex's* first period of business, the EOPS value that is included in their income statement is of little vale to its shareholders. Although the EPS shows a positive return, there are no previous periods to which to relate it. *Neslex's* EPS value thus falls victim to the limitations described in the previous paragraph.

Neslex's earnings per share (EDS) for 1998, as found on their income statement, is calculated in appendix B(17.1.5).

10.2 RETURN OF EQUITY (ROE)

The following ROE ration (Atrill & McLany, p144) was used to calculate the return on equity achieved by *Neslex*:

$$\text{ROE} = \frac{\text{Net profit after taxation and preference dividend (if any)}}{\text{Ordinary share capital plus reserves}} \times 100$$

This ratio compares the amount of profit for the period available to the owners of *Neslex* to the owners' stake in the business. As discussed in section 7.2, this ratio is driven by the leverage effect. The higher the proportion of debt to equity the greater the leverage in a profitable company. However, the higher the proportions of debt to equity in the company's capital structure he greater the risk. The obvious risk is that of not being able to pay interest or repay loans in deteriorating business conditions.

Neslex's return on equity (ROE) for 1998 is calculated in appendix 3B.

10.3 RETURN ON ASSETS (ROA)

The following ROA ration (Hoskin, p362) was used to calculate *Neslex's* return on assets:

$$\text{ROA} = \frac{\text{Net income} + [\text{Interest Expense} \times (1 - \text{Tax rate})]}{\text{Total assets}} \times 100$$

This ratio tries to answer the following question regardless of the mix of debt and equity: What type of return is earned on the investment in assets?

In the light, the return on investment in assets should be computed prior to any payments or returns to creditors or owners. This means that net income must be adjusted for the effects of interest expense. For this reason, the interest paid should be added back to the net profit after tax. A complicating factor exists because interest is a deductible expense in the computation of tax expense. So, if the interest paid is to be removed from the net profit, the tax saving associated with this interest deduction must also be removed. Hoskin suggests that the effective tax rate (taxation / profit before taxation) that the company pay should be used in the ROA calculation.

The level of ROA reflects, to a certain extent, the risk inherent in the type of assets in which the firm invests. If the firm invests its assets in a low risk investment (e.g. a bank account), it would expect a lower return that if it invested in a very risky business (e.g. oil exploration). Although this is not always the case, it is something to keep in mind as this ratio is evaluated.

ROA is best used in a time-series analysis of if it is used to compare its value with a direct competitor in the same business. The major problem however remains to ROA does not indicate whether the company is achieving a rate of return above the cost of capital.

Neslex's return on assets (ROA) for 1998 is calculated in appendix B(17.1.7).

11 FINDINGS

This section documents an analyses the resultant findings of the study. The first part of this chapter will look at the annual EVA value that was calculated for *Neslex* based on their 1998 financial statements. The annual EVA will be analysed by comparing it to the other performance measures that were calculated. A sensitivity analysis is conducted to illustrate the effect of varying the beta value (risk factor) and the cost of capital. The second part of this chapter will investigate the monthly EVA values calculated for *Neslex*. These monthly EVA values will be compared to one another and to the other monthly performance measures such as ROE, EPS and ROA. A sensitivity analysis, illustrating the effect of varying the beta value and the cost of capital on the monthly EVA value, is also conducted. Graphs are referred to where possible.

11.1 ANALYSING *NESLEX'S* ANNUAL EVA

Neslex's EVA, EPS, ROE and ROA values, along with the net income, for 1998 are summarised in the table below:

EVA	-R266 442,38
EPS	50.42c
ROE	6.72%
ROA	5.07%
Net income	R504,173.28

Table 4: Summary of results

The accounting measures (EPS, ROE, ROA and net income) in table 4 above all look relatively happy. The net income is just over half a million rand – not bad for a company in its first year of business. Because of this health income, the EPS value indicates that shareholders are making a positive return on their shares, albeit rather small at this stage. Similarly, the ROE show that the company is making a positive return on the equity invested in it. Management will be pleased that they are making some kind of return on the assets invested in the company at this early stage.

The EVA value that was calculated for *Neslex* during this period, however, highlights how ineffective the accounting measures of performance can be.

By looking at the EPS value, shareholders are led to believe that they are making money off their investment. The EVA value, however, shows us that T266 442.38 of shareholder wealth is in fact being destroyed.

Neslex has a relatively high proportion of equity invested in its capital structure during their first nine months of business. This it typical of star-up company in its early stages, as they would initially prefer to operate at as low a risk as possible. Consequently, the ROE of 6.72% given in table 4 indicates that the return generated by *Neslex* is rather low compared to the owners' stake in the business. What may however happen as the company grows, is that they will be prepared to operate at a higher risk. Since debt is cheaper than equity, *Neslex* may then decide to alter their capital structure by increasing the proportion of their debt to equity. The ROE ratio will then be subject to the leverage effect described earlier. As they increase the proportion of debt, the ROE will be leveraged up and *Neslex* will superficially appear to be performing well.

What the ROE ration will be neglecting is that, as the perceived risk of investing in the business increases, the higher the return that will be expected. ROE is not necessarily related to the rate of return that the shareholders of *Neslex* will enjoy. EVA is designed to overcome this problem. Shareholders can monitor whether the management at *Neslex* is creating wealth for them of destroying it.

The ROA value of 5.07% given in table 4 represents *Neslex's* return on its investment in assets for its first nine months of business. It is difficult to interpret the ration without comparing it to previous periods or to ROA values of competitors. The ratio nevertheless shows a positive return, but the EVA value that was calculated shows that *Neslex* is not making a high enough return on their cost of capital.

The accounting measures discussed above do not consider the cost of equity. These measures can lead management to think that the company's performance for the period is good. The book vale of equity is, however not its market or true vale. Shareholders are not quite as easily misled as accountants as they assign a cost to equity. In effect, the market value of equity driven down and hence the perceived destruct of wealth at *Neslex* in 1998 that is indicated by the EVA value.

The EVA value in table 4 is calculated for a beta value of 0.41. This is the company's risk relative to the market. A company whose performance is in line with the

economy will have a beta of 1. A beta of 0.41 means that the company is relatively insensitive to changes in the economy. Since *Neslex* is an unlisted company, a beta proxy is chosen. The value of 0.41 was chosen as it represents the average beta of the industry sector in which *Neslex* finds itself. The value is highly subjective and as a result a sensitivity analysis is conducted below to yield different EVA values that might be more fitting.

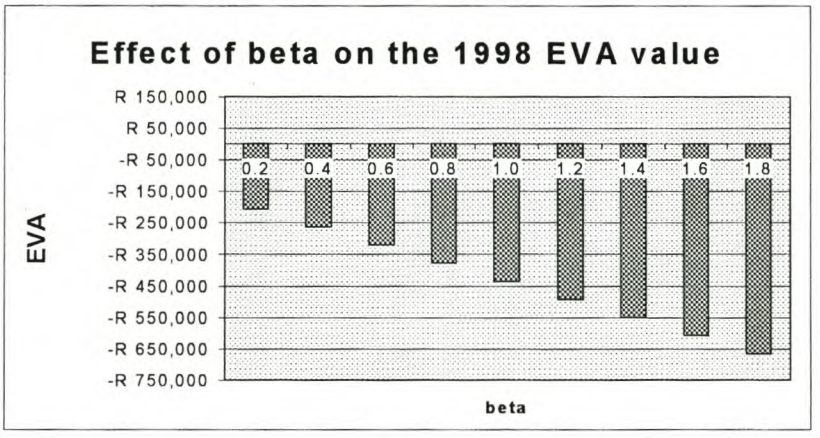

Figure 4: Sensitivity analyses varying beta.

In figure 4, it is clear that *Neslex (Pty) Ltd's* 1998 EVA value is negative for all betas in the interval [0.2, 1.8]. The EVA is least negative for small values of beta and most negative for large values of beta. This is obvious because investors expect lower returns for stable companies (i.e. those with low risk and therefore low betas). Hence if the return that is expected is lower, the cost of capital will be lower and in this case the EVA will be more positive (or less negative).

The alarming factor for *Neslex* is that no matte what vale of beta they decide on for 1998 (any betas outside this range are not realistic), the company still produces a negative EVA. *Neslex* need to focus on reducing their cost of capital. Figure 5 below indicates what their EVA would be if they managed to do this. Note that the EVAs in figure 5 are for the original beta of 0.41.

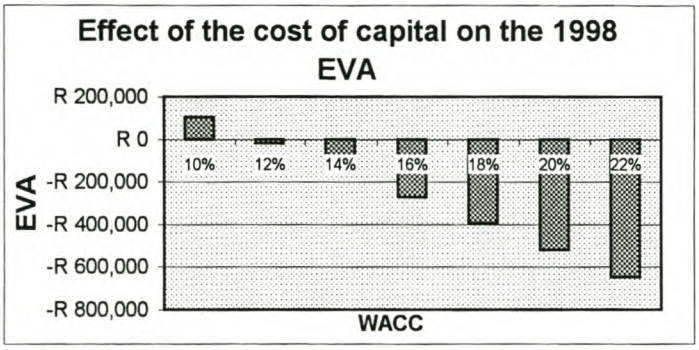

Figure 5: Sensitivity analysis varying WACC

Figure 5 shows that *Neslex* would only have achieved a positive EVA at a weighed average cost of capital of 10% for the year. This cost of capital is highly optimistic, but *Neslex* need to strive for such a value.

On the whole, *Neslex* do not need to be too alarmed by the negative EVA of 1998. It is after all the company's first year of business and shareholders do not often expect huge returns so early on. The EVA value calculated does however provide a benchmark against which the company can evaluate its performance. *Neslex* need to ensure that their EVA increases in the years ahead with the aim of achieving a positive value so that they create wealth for their shareholders.

11.2 ANALYSING *NESLEX'S* MONTHLY EVA

Having a monthly EVA vale is where management will benefit the most. Not only will they be able to see whether they are creating shareholders value each month, they will be able to compare their wealth-creation in one month to other months. Management should aim to increase their EVA each month so that their performance improves continuously. Figure 6 (below) shows that during 1998 management achieved exactly this.

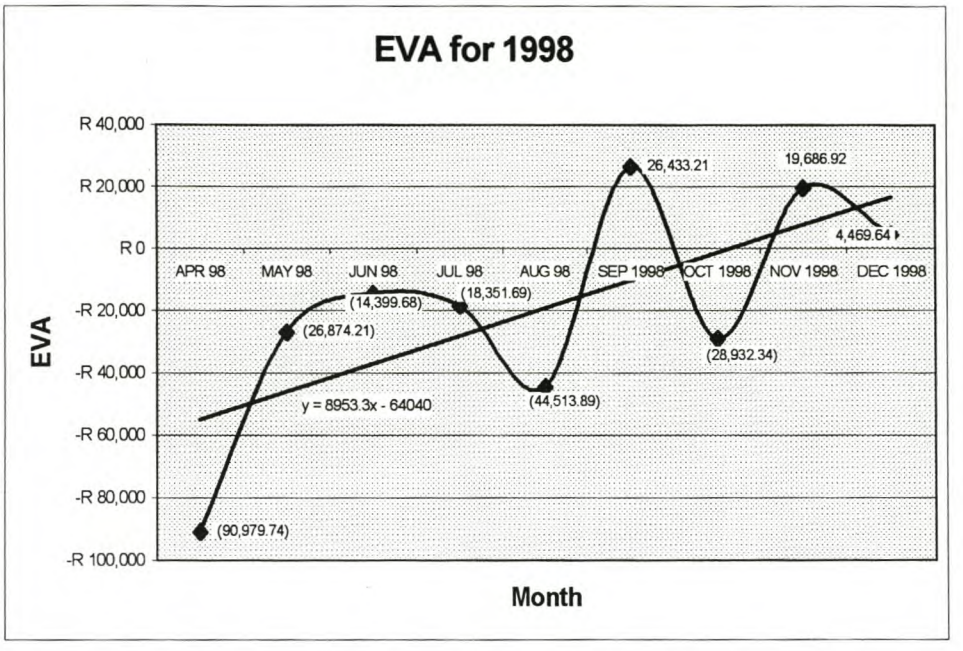

Figure 6: *Neslex's* monthly EVAs for 1998

Despite the fact that *Neslex* EVA decreases in July, August, October and December, the overall trend is upward. So, although *Neslex's* EVA for 1998 is negative, it improves throughout the year and by year-end, the monthly EVA is positive.

The highly negative EVA initially, can be attributed to the large loss in the company's first month of business. The shaper increase in the EVA value for the second month is due to the fact that *Neslex* mange to produce a profit after their heavy loss in April. The EVA manages to stay reasonably constant during June due to a large decrease in current assets, which is part of capital. The decline in the EVA value during July and August is due to a heavy re-investment in current assets. Another factor in the decrease is that the proportion of equity increases in comparison to the proportion of debt, which decreases. The resultant cost of capital increases, because debt is considered cheaper than equity. The rest of the year's EVA fluctuate according to changes in the net incomes. This can be seen in figure 7 below.

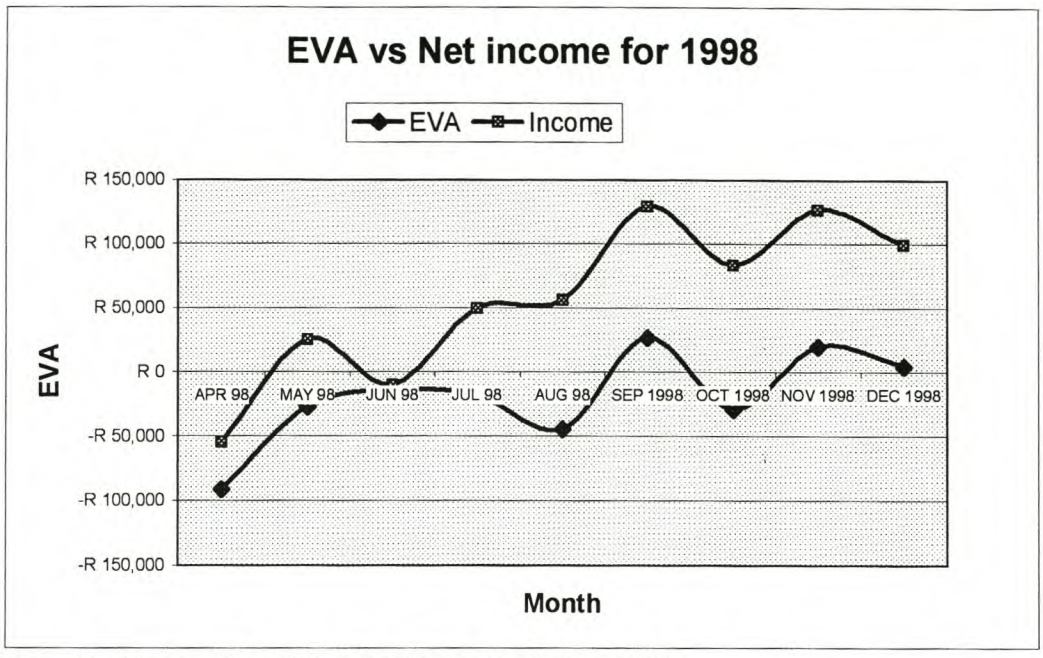

Figure 7: Comparing EVA to net income during 1998.

It is interesting to note that the trends indicated by the net income and the EVA values in figure 7, are similar. Note, however that looking only at the income can be misleading as the cost of capital is overlooked. Nevertheless, as indicators of performance these two measures seem to show the same trends between months. So, as a performance measure, how much better is EVA? There does not seem to be a conclusive answer.

Figure 8 on the next page shows the plot of monthly EVA values to date compared to the monthly net income to date for 1999. As can be seen by this graph, the net income and EVA lines again follow similar trends. As measures of performance, both EVA and net income provide management with similar information concerning the company's performance on a monthly basis. The gradient of each respective trend line indicates that both measures seem to be improving at fairly similar rates and when the EVA value takes a dip, the net income also takes a dip and vice versa. The only apparent difference in analysing the two performance measures is that the net income line give the impression of superior achievement, since all the monthly figures are positive. The EVA plot, however, indicates that in certain months, shareholders wealth was still being destroyed. So, while the plot of net income indicated that *Neslex* is performing exceptionally well, the EVA plot unveils the hidden picture, which is that the company is not always creating wealth for its shareholders.

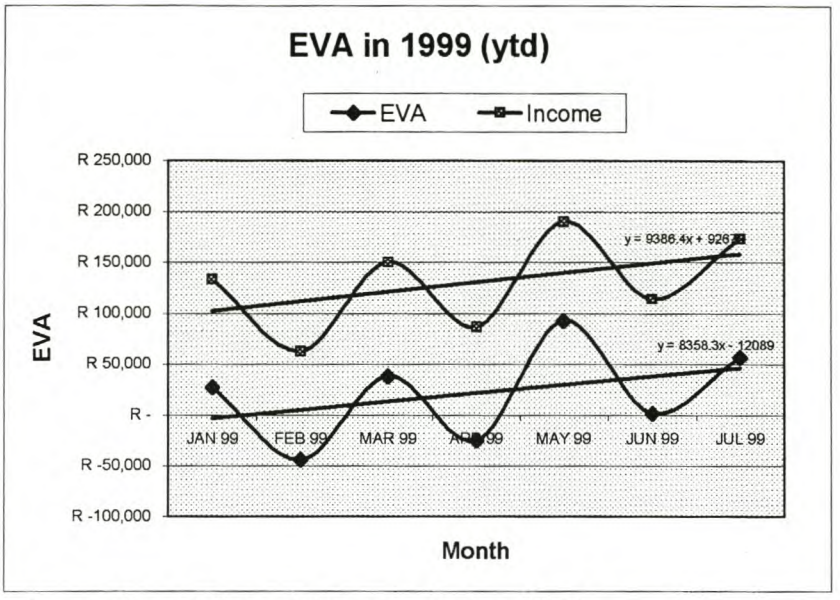

Figure 8: Comparing EVA to net income during 1999.

The reason why the income of EVA plots in figure 8 follows such similar trends that the NOPAT and net income after tax are identical. This is because *Neslex* have no interest bearing liabilities in 1999. The result is that they pay no interest and hence due to the formula for NOPAT, the net income and NOPAT are equal.

Management and shareholders of *Neslex* can take heart at the fact that the company's monthly EVA is improving at a steady rate. If the current growth continues, it will not be long before *Neslex* only produce positive monthly EVAs. Management should however note that the rate, at which the monthly EVA improved last year, was in fact more rapid than it is this year. They should consider implementing some of the EVA improvement strategies suggested in the next section of the paper.

The monthly EVA graphs analyse so far assume that beta I equal to 0.41 in the cost of equity equation. The *Neslex* management may however feel that this vale of beta does not fairly represent their company's sensitivity to changes in the economy. For this reason, a sensitivity analysis is conducted to project the monthly EVA values for the year-to-date (ytd) at beta values between 0.2 and 1.8. Remember that a company whose performance is in line with the economy will have a beta of 1.

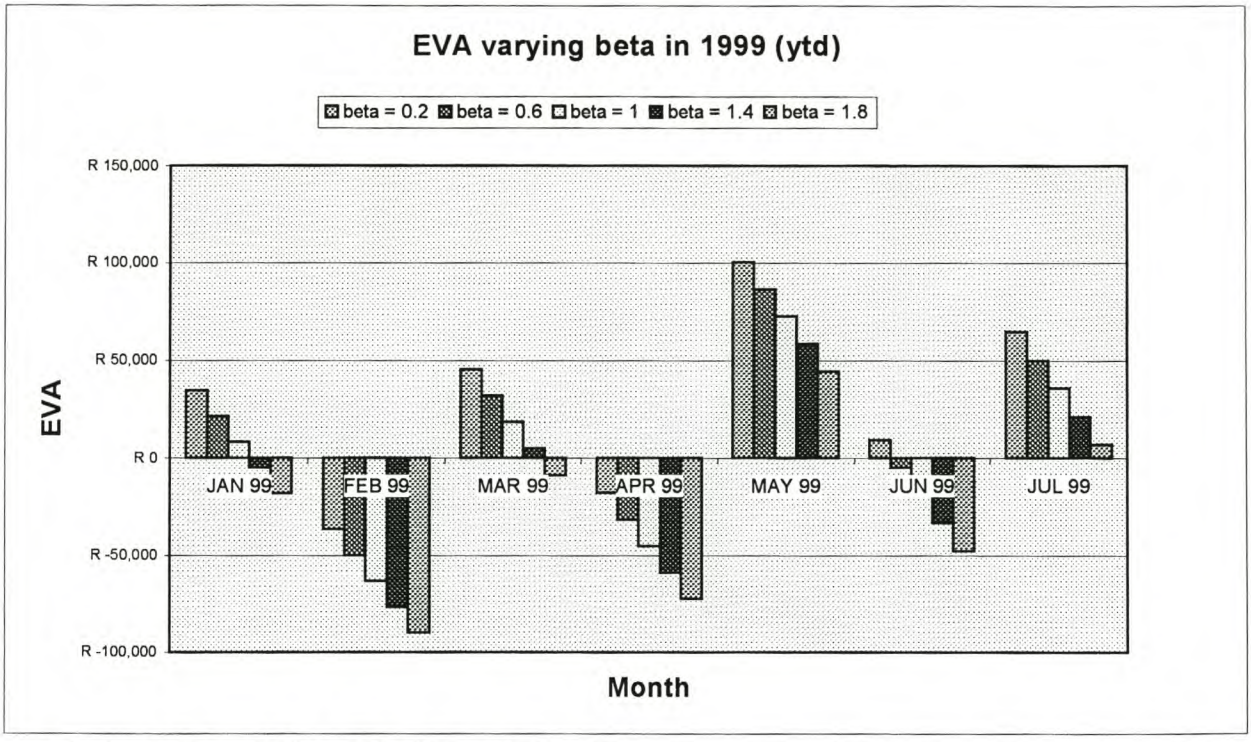

Figure 9: Sensitivity analysis varying beta

As was evident while analysing *Neslex's* yearly EVA for 1998, the smaller the beta value chosen the more positive the EVA. Figure 9 shows that for the entire range of betas analysed the monthly EVA for February and April is negative. This is attributed to the decrease in the net income during these months since the capital investment remain constant (see figure 8). In contrast, the entire range of betas analysed produces positive EVA values in May and July. This is attributed to the phenomenal profit generated in these months (figure 8). Further investigation is required to determine what strategy must be implemented to generate more income during months such as February and April in order to create positive EVA values during these periods. *Neslex* may have to consider varying their product range to supplement their income in the months that do not generate substantial returns.

To increase their overall value creation, *Neslex* should seek to reduce their cost of capital on a monthly basis. By reducing the cost of their capital slightly, *Neslex* will increase their EVA considerably. The result will inevitably be the creation of wealth for their shareholders. Figure 10 below shows what effect reducing (or increasing) the cost of capital at *Neslex* will have on their monthly EVA values for the year-to date. The EVA values are all calculated for a beta value of 0.41.

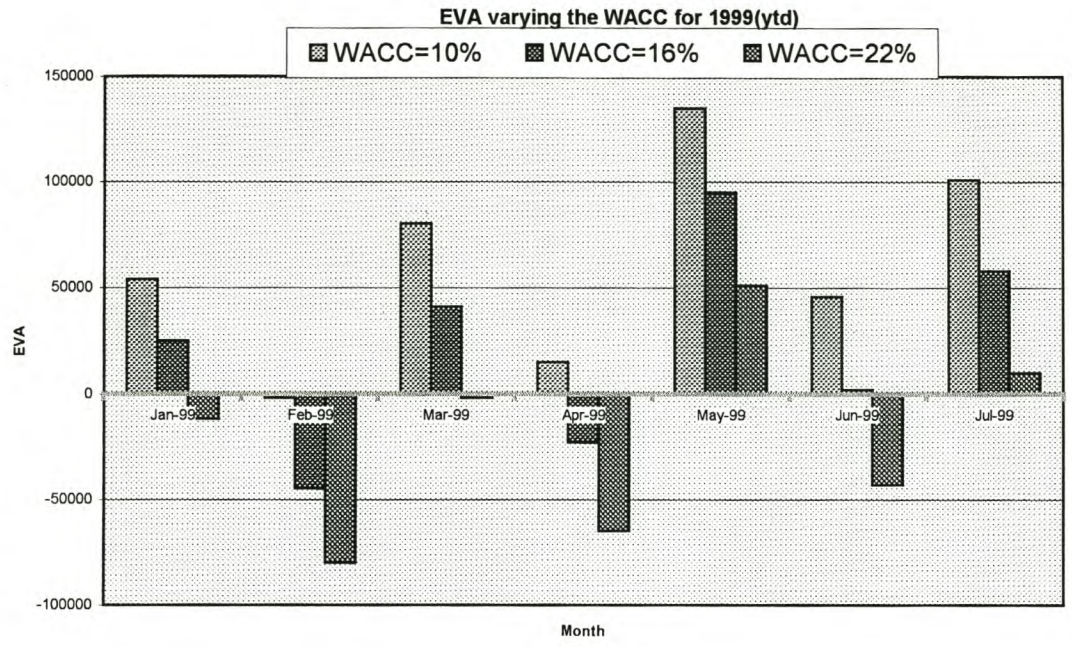

Figure 10: Sensitivity analysis varying WACC

The current cost of capital is approximately 16%. The centre bare represents this current cost for each month. The blue bar on the left represents a small cost of capital 910%) and the green bar on the right represents a large cost of capital (22%). Obviously, the smaller value is more desirable. At a WACC of 10% each month would yield a positive EVA with the exception of February, which would yield only small negative EVA. It is thus clear that *Neslex* should work on reducing their cost of capital in order to create wealth for their shareholders. This, on its own, may not be enough.

The monthly EVA values have been compared to the net income. We noticed that both the net income and EVA highlighted the same trends, because the net income after tax was equal to the NOPAT. The reason for this being that no interest had to be paid during the year so far. The following graph (figure 11) plots the ROE versus the ROA for 1999 to date. Do these graphs offer more information that the EVA-graph in figure 8? Or, do they hide valuable management information?

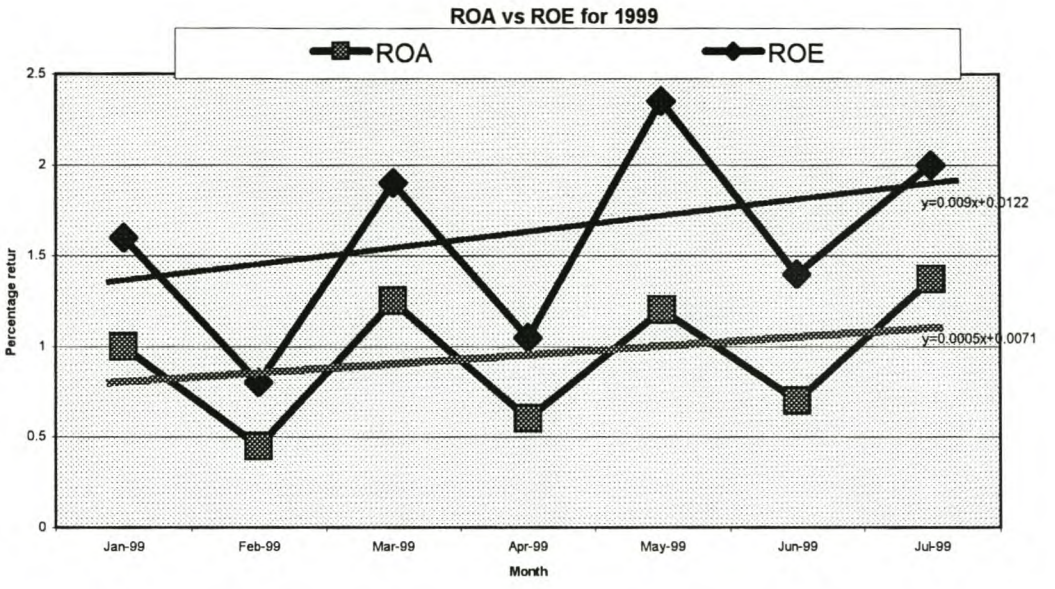

Figure 11: Comparing ROE and ROA

If we compare the above graph (figure 11) to figure 8, we see that the performance measures, ROE and ROA, show similar trends to EVA and net income. So as a management tool that is based on analysing trends in past performance, TOE and ROA offer the same information and net income and EVA. A closer look, however reveals that, like net income, ROE and ROA hide the fact that *Neslex* is destroying shareholder wealth, because they do not take the cost of capital into account. So, while *Neslex* is clearly destroying value during certain months of 1999, the traditional performance measures do not indicate that anything is wrong.

In summary, the power of EVA lies in its ability to supply management with an added dimension that keeps track of whether they are maintaining return that are above the cost of capital invested in company. This extra dimension may give *Neslex* a much-needed competitive advantage over competitors.

12 MANAGING EVA AT *NESLEX*

Now that *Neslex* has an EVA value, the question is what to do with it. In other words, how must the management system be changed in order to achieve better EVA values?

12.1 IMPLEMENTING EVA

Implementing EVA in a company is more than just calculating a value and adding it to the financial statements. Implementing EVA is a process that requires some management effort. The following steps are recommended:

1. *Inform the entire management team thoroughly about the subject.* It is important that everyone understands the concept. Compare it to other measures like ROE and EPS to convince sceptics. Informing mangers should be a one-sided affair – discussion is essential.
2. *Train the other employees, especially key personnel.* Key personnel need to be trained well, as they are the ones who should use EVA operationally and their commitment is essential in taking EVA to the lower levels.
3. *Adopt EVA in all levels of the organisation.* EVA is powerful at operational lever as it illustrates the cost of working capital (e.g. inventories). This helps in reducing the working capital without a similar reduction in sales.
4. *Integrate EVA as a bonus base for all employees.* This helps integrate the interest of employees and shareholders. Introducing an EVA-based bonus system with EVA facilitates the whole change process, since employees are naturally very concerned in all that affects their payroll.

12.2 WAYS TO RAISE EVA

Once management at *Neslex* is committed to EVA, they will be determined to find ways of improving the company's EVA value.

There is nothing fancy about how to make economic value added (EVA) go up. It is a fundamental measure of return on capital and their arithmetic of EVA shows that there are four ways to increase it:

12.2.1 Improve the returns on existing capital

The preferred method today is cost cutting. However, focussing on cost cutting often blinds companies to other ways of raising EVA. Another popular method is reducing taxes. The overall idea, though, is to operate more efficiently to earn a higher return in the capital already invested in the business.

12.2.2 Profitable growth

Neslex should invest capital where increased profits will more than cover the cost of additional capital. Investments in working capital and production capacity may be required to facilitate increased sales, new products or new markets.

12.2.3 Harvest

Neslex must rationalise, liquidate or curtail investments in operations that cannot generate return greater than the cost of capital. This might be through diversifying products of by withdrawing form unprofitable markets.

12.2.4 Optimise the cost of capital

The sensitivity analysis conducted in the previous chapter illustrated the effect the cost of capital has on *Neslex's* EVA value.

Financial strategy can have a significant effect on the cost of capital and thus on EVA. The basic building blocks of a financial strategy are the mix of debt and equity on a company's balance sheets and the method of distributing cash to shareholders.

Debt is considered a cheaper source of financing than equity for companies with taxable profits[66]. The optimal use of debt must take into consideration the inherent riskiness of a company's business and the funding requirements of its operating strategy. Companies with a comparatively low risk can afford a high ratio of debt to equity, while companies with high-risk need to keep debt low enough to ensure that their cash flow will cover interest costs in bad times. In other words, the optimal financial structure of any company to minimise the cost of capital in the highest proportion of debt that is consistent with the riskiness of the business and the financing flexibility that its investment and acquisition strategies demand.

---

[6] According to the similar work of Nobel laureates Franco Modigliani and Merten Mill in the late 1950s. *Al Ehrbar; "The Real Key to Creating Wealth"; John Wiley & Sons, Inc.; 1998; p135*

Neslex are currently funded entirely by equity capital. They do not currently plan on changing this strategy as they are in the process of paying off equity loans. One they have done this, they should consider altering their capital structure by making us of a larger proportion of debt, since it is cheaper.

13. Conclusions

Based on the research and findings of this study, the following conclusions may be drawn:

- The EVA value that is calculated for *Neslex Supplies (Pty) Ltd* should provide the company with an invaluable management and controlling tool. It is a simple measure, but it still measures the ultimate aim of any given company – the increase (or decrease) in shareholder wealth.
- The risk index (beta value) that is used in the calculation of EVA is highly subjective for unlisted companies such as *Neslex*. The *Microsoft Excel* spreadsheet contain the *Neslex's* EVA statements is, however, designed in such a way that the beta proxy can be changed easily, should the user feel it necessary to do so.
- The EVA calculation is subject to so many assumptions and deductions that it is difficult to know whether the EVA calculated for a particular company is in fact fitting. This in itself may deter a user from calculating EVA.
- EVA seems to show the same trends as traditional measures of performance, such as net income, ROE and ROA. EVA therefore does not appear to offer users who compare their company's current performance to that of previous periods, with added benefits. It does, however, allow management to see whether they are yielding returns that are greater than the cost of capital.
- Financial stamens that are based on GAAP do not always include sufficient detail to convert the accounting book values to economic reality. This may result in EVA losing some effectiveness.
- EVA definitely provides management with a different perspective. EVA may be the key to *Neslex's* success in the long run, although there is not conclusive evidence to support this.

14. RECOMMENDATIONS

Based on the findings and conclusions of this papers, the following recommendations are made:

- If *Neslex* are serious about implementing EVA, a further study may be conducted to help design simplified EVA training material that can be used to train employees. This my take the form of an interactive software program.
- In conjunction with the above, a detailed study may be conducted to introduce an EVA-based bonus system to *Neslex*. This will help integrate the interests of employees and shareholders.
- A detailed study could be performed to calculate the risk index, or beta, for companies that are not listed on the JSE.

15. REFERENCES

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5. Robert E. Hoskin; "Financial accounting – a user perspective", John Wiley & Sons, Inc.; 1994

15.2 Magazines

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2. "EVA works – but not if you make these common mistakes" by G. Bennet Stewart; Fortune, May 1, 1995
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5. "The Real key to Creating Wealth" by Shawn Tully; Fortune, September 20, 1993
6. "Governing for value" by Justin Petit; Ivey Business Quarterly, Autumn 1998

15.3 Internet

1. http://www.eva.com
2. http://www.evanomics.com
3. http://kyyppari.hkk.fi/~k23347/page02.html
4. http://www.pitt.edu/~roztoki/evasmall/
5. http://www.sternstewart.com

APPENDIX B

16.1.1 Calculating *Neslex's* Net Operating Profit After Tax (NOPAT)

	R
Net profit before tax	749,495.51
Less tax	(245,322.23)
Net profit after tax	504,173.28
Plus deferred taxes	55,623.94
Plus interest paid	171,291.22
Net operating profit after tax (NOPAT)	**731,088.44**

16.1.2 Identifying capital at Neslex

Total assets (current + fixed assets)	R	12,227,841.01
less		
Trade creditors		(3,308,236.54)
Sundry creditors		(454,300.45)
Receiver of revenue: VAT		(110,436.57)
Receiver of revenue: Taxation		(189,698,28)
plus		
Deferred taxes		55,623.94
Provision for doubtful debt		127,789.54
Capital (C)	**R**	**8,348,572.64**

16.1.3 *Neslex's* current rate of borrowing for 1998 calculated

Prime rates given by ABSA Bank

DATE	RATE
12/03/98	18.25%
11/06/98	20.25%
01/07/98	22.25%
04/07/98	23.75%
28/07/98	24.00%
31/08/98	25.80%
19/01/98	24.50%
09/11/98	23.50%
07/12/98	23.00%
11/01/99	22.00%
15/02/99	21.00%
15/03/99	20.00%
12/04/99	19.00%
25/06/99	18.00%
14/07/99	17.50%
02/08/99	16.50%
04/10/99	15.50%

1998 Prime Rates (derived)

Apr-98	18.25%
May-98	18.25%
Jun-98	19.25%
Jul-98	23.64%
Aug-98	24.06%
Sep-98	25.80%
Oct-98	25.25%
Nov-98	23.77%
Dec-98	23.10%
Average =	22.41%

16.4.1 Determining W_d and W_e

Debt= Long term liabilities

Plus current liabilities

Less non-interest bearing current liabilities

= 0 + 4 669 043.70 – (3 308 246.54 + 454 300.45 + 110 436.57 + 189 698.80)

W_d = debt / capital employed

= 606 361.85 / 7 559 797.22

= 8.02%

~8% and therefore $W_e = 1 - W_d = 91.98\% \sim 92\%$

17.1.1 Calculating *Neslex's* monthly NOPAT for July 1999

Net Income after taxation	R 173,514.20
Plus interest paid	
Net operating profit after tax (NOPAT)	**R 173,514.20**

Note that for this period the interest paid is zero. Hence, the NOPAT figure for July 1999 is equal to the net income after taxation for the same period.

17.1.2 Identifying the capital at *Neslex* at the end of July 1999

Current assets	R 9,635,916.12
Fixed assets	R 3,685,810.09
Total assets	R 13,321,726.21
less	
Trade creditors	R 4,660,721.23
plus	
Provision for doubtful debt	R 40,000.00
Capital (C)	R 8,701,004.98

17.1.3 *Neslex's* monthly rate of borrowing calculated (April 1998 to December 1999)

Prime rates given by ABSA Bank

DATE	RATE
12/03/98	18.25%
11/06/98	20.25%
01/07/98	22.25%
04/07/98	23.75%
28/07/98	24.00%
31/08/98	25.80%
19/01/98	24.50%
09/11/98	23.50%
07/12/98	23.00%
11/01/99	22.00%
15/02/99	21.00%
15/03/99	20.00%
12/04/99	19.00%
25/06/99	18.00%
14/07/99	17.50%
02/08/99	16.50%
04/10/99	15.50%

1998 Prime Rates		1999 Prime Rates	
Apr	18.25 %	Jan	22.32 %
May	18.25 %	Feb	21.50 %
Jun	19.25 %	Mar	20.45 %
Jul	23.64 %	Apr	19.37 %
Aug	24.06 %	May	19.00 %
Sep	25.80 %	Jun	18.80 %
Oct	25.25 %	Jul	17.71 %
Nov	23.77 %	Aug	16.53 %
Dec	23.10 %	Sep	16.50 %
Ave =	**22.41 %**	**Ave=**	**19.13 %**

17.1.4 Determining W_d and W_e at the end of July 1999

Debt = 0 + 4 660 721.23 – 4 660 721.23 = 0

W_d = 0 / 8 661 004.98 = 0%

And therefore $W_e = 1 - W_d$ = 100%

17.1.5 Calculating *Neslex's* earnings per share (EPS) for 1998

$$\text{Earnings per share} = \frac{\text{earnings available to ordinary shareholders}}{\text{No. of ordinary shares in issue}}$$

Retained income (earnings) at end of the year	R 504,173.28
Number of ordinary shares	1,000,000
Earnings per shares (cents)	**50.42**

17.1.6 Calculating *Neslex's* return on equity (ROE)

$$\text{ROE} = \frac{\text{Net profit after taxation and preference dividend (if any)}}{\text{Ordinary shares capital plus reserves}}$$

Retained income (earnings) at end of year	R 504,173.28
Shareholders' interest	R 2,254,173.28
Shareholders' loans	R 5,250,000.00
Equity	R 7,504,173.28
Return on equity (ROE)	**6.72%**

17.1.7 Calculating *Neslex*'s return on assets (ROA)

$$\text{ROA} = \frac{\text{Net income + [Interest expense x (1 – Tax Rate)]}}{\text{Total Assets}}$$

Retained income (earnings) at end of year	R 504,173.28
Interest paid	R 171,291.22
Tax Rate	35%
Fixed Assets	R 3,546,274.45
Current Assets	R 8,681.566.56
Total Assets	R12,227,841.01
Return on assets (ROA)	**5.03%**

APPENDIX C

Appendix C contains the following attachements:

19.1 FINANCIAL STATEMENTS 31 DECEMBER 1998

These are the audited year-end financial statements

19.2 MONTHLY BALACE SHEETS

Printed from *Excel* spreadsheets

19.3 MONTHLY INCOME STATEMENTS

Printed from *Excel* spreadsheets

19.4 EVA STATEMENTS

The final results of the study

FINANCIAL STATEMENTS 31 DECEMBER 1998

CONTENTS PAGE

PRICEWATERHOUSECOOPERS

9 April 1999

[redacted]

REPORT OF THE INDEPENDENT AUDITORS
TO THE MEMBERS OF [redacted]

PricewaterhouseCoopers Inc
Reg. no. 98/12055/21
PricewaterhouseCoopers Building
Zomerlust Estate
Berg River Boulevard
Paarl 7646
P O Box 215
Paarl 7620
Telephone +27 (21) 871 1233
Facsimile +27 (21) 872 1803

We have audited the financial statements of [redacted] Ltd set out on pages 2 to 14 for the 9 months ended 31 December 1998. These financial statements are the responsibility of the directors of the company. Our responsibility is to express an opinion on these financial statements based on our audit.

Scope:
We conducted our audit in accordance with statements of South African Auditing Standards. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. An audit includes:

- examining, on a test basis, evidence supporting the amounts and disclosures included in the financial statements,

- assessing the accounting principles used and significant estimates made by management, and

- evaluating the overall financial statements presentation.

We believe that our audit provides a reasonable basis for our opinion.

Audit opinion:
In our opinion, the financial statements fairly present, in all material respects, the financial position of the company at 31 December 1998 and of the results of its operations and cash flow for the 9 months then ended in conformity with South African Accounting Standards and in the manner required by the Companies Act.

PricewaterhouseCoopers Inc

Chartered Accountants (SA)
Registered Accountants and Auditors

[redacted]

STATEMENT OF RESPONSIBILITY BY THE BOARD OF DIRECTORS FOR THE 9 MONTHS ENDED 31 DECEMBER 1998

The directors are responsible for the preparation, integrity and fair presentation of the financial statements of [redacted] The financial statements, presented on pages 2 to 14, have been prepared in accordance with South African Accounting Standards, and include amounts based on judgements and estimates made by management. The directors also prepared the other information included in the annual report and are responsible for both its accuracy and its consistency with the financial statements.

The going concern basis has been adopted in preparing the financial statements. The directors have no reason to believe that the company will not be a going concern in the foreseeable future, based on forecasts and available cash resources. The viability of the company is supported by the financial statements.

The financial statements have been audited by the independent accounting firm, PricewaterhouseCoopers Inc, which was given unrestricted access to all financial records and related data, including minutes of all meetings of shareholders, the board of directors and committees of the board. The directors believe that all representations made to the independent auditors during their audit, were valid and appropriate. The unqualified audit report appears on page 2.

The financial statements were approved by the board of directors on 30 March 1999 and are signed on its behalf by:

DIRECTOR

DIRECTOR

DIRECTORS' REPORT

for the 9 months ended 31 December 1998:

The Directors have pleasure in presenting their report for the 9 months ended 31 December 1998

1 NATURE OF ACTIVITIES

The company manufactures, distributes and sells ingredients, semi-finished products, tools, accessories and packaging materials for the bakery, flour and confectionery industry.

2 FINANCIAL RESULTS

The company commenced business on 1 April 1998 and the results for the 9 months are presented in detail in the financial statements.

3 SHARE CAPITAL

The authorised and issued share capital consists of 1 000 000 ordinary shares of one cent each.

4 DIVIDENDS

No dividends are proposed for the period under review.

5 DIRECTORS

The names of the directors, the secretary and his postal and business address are shown on page 1.

6 POST BALANCE SHEET EVENTS

No events which may have a material effect on the company occurred after balance sheet date.

ALANCE SHEET AT 31 DECEMBER 1998

	Notes	R
CAPITAL EMPLOYED		
Share capital	2	10,000.00
Share premium		1,740,000.00
Retained profit		504,173.28
Shareholders' interest		2,254,173.28
Shareholders' loans	3	5,250,000.00
Deferred taxation	4	55,623.94
		7,559,797.22
EMPLOYMENT OF CAPITAL		
ed assets	5	3,546,274.45
Net current assets		4,013,522.77
CURRENT ASSETS		
Stock	6	2,208,352.16
Trade debtors	7	3,716,942.94
Sundry debtors	8	51,424.77
Bank, cash and short-term investments		2,704,846.69
		8,681,566.56
CURRENT LIABILITIES		
Trade creditors		3,308,246.54
Sundry creditors	9	454,300.45
Current account: [redacted]		605,361.94
Receiver of Revenue: VAT		110,436.57
Receiver of Revenue: Taxation		189,698.29
		4,668,043.79
		7,559,797.22

NCOME STATEMENT FOR THE PERIOD ENDED 31 DECEMBER 1998

	Notes	9 months R
evenue	10	24,819,276.05
ess: Cost of sales		(17,579,093.90)
ross profit		7,240,182.15
perating costs		(6,463,444.06)
perating profit before finance costs	11	776,738.09
let finance costs	12	(27,242.58)
rofit before taxation		749,495.51
axation	13	(245,322.23)
etained income for the year		504,173.28
etained income at beginning of the year		-
etained income at end of the year		504,173.28
arnings per share (cents)	14	50.42
eadline earnings per share (cents)	15	73.77

. ACCOUNTING POLICIES

The financial statements are prepared on the historical cost basis. The following are the principal accounting policies used by the company.

.1 Fixed assets

Fixed assets are included at cost. Cost includes all costs directly attributable to bringing the asset to working condition for its intended use.

Depreciation is recorded by a charge to operating profit computed on a straight-line basis so as to write off the cost of the assets over their expected useful lives. The expected useful lives are as follows:

Plant and equipment	- 8 years
Office furniture	- 5 to 6 years
Office equipment	- 3 to 5 years
Vehicles	- 4 years

1.2 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is calculated on an average basis. Cost includes transport and handling cost. In the case of manufactured products, cost includes all direct expenditure and production overheads based on the normal level of activity. Where necessary, provision is made for obsolete, slow moving and defective stock.

1.3 Deferred taxation

Deferred tax represents the tax effect of temporary differences between accounting and taxable income, and is provided at current rates on all such differences using the comprehensive method. Deferred tax assets are raised only to the extent that their recoverability is assured beyond reasonable doubt.

1.4 Revenue recognition

Sales are recorded in the financial statements.at the date the goods are delivered to customers.

1.5 Foreign exchange transactions

Transactions in foreign currency are translated at the rates of exchange ruling on the transaction date. Realised profits or losses on foreign exchange transactions are written off to income as incurred. Assets and liabilities in foreign currency are translated at rates of exchange ruling at the balance sheet date, except where forward exchange contracts have been entered into.

1.6 Retirement benefits

Pension scheme arrangements:
The company provides retirement benefits for all its employees by means of funds administered by the [redacted]. Current contributions to pension funds are charged against income as incurred.

		R
11.6	Retirement benefits (continued)	
	Post-Retirement Medical Benefits Employees of [redacted], who were previously employed by [redacted] Ltd, qualify for this benefit. A provision is made annually for the total accrued past service cost.	
12.	SHARE CAPITAL	
	Authorised and issued:	
	1,000,000 ordinary shares of R0.01 each.	10,000.00
13.	SHAREHOLDERS' LOANS	
13.1	[redacted] The loan is unsecured. The interest rate will annually be agreed upon by all the shareholders. The rate for the current year is 0%. The loan will be repaid in one instalment when the shares held by the Pioneer Food Group are sold, but not later than 12 June 2008.	2,625,000.00
13.2	[redacted] The loan is unsecured. The interest rate will annually be agreed upon by all the shareholders. The rate for the current year is 0%. The loan will be repaid in one instalment when the shares held by Palsgaard Industri are sold, but not later than 12 June 2008.	1,312,500.00
13.3	[redacted] The loan is unsecured. The interest rate will annually be agreed upon by all the shareholders. The rate for the current year is 0%. The loan will be repaid in one instalment when the shares held by the IFU are sold, but not later than 12 June 2008.	1,312,500.00
		5,250,000.00
14.	DEFERRED TAX	
	Balance at beginning of year	-
	Movements during year attributable to:	
	Timing differences	55,523.54
	Balance at end of year	55,523.54

		R
.	FIXED ASSETS	
5.1	Plant and equipment	
	Carrying amount at beginning of year	-
	Additions	3,780,064.61
	Disposals	(329,020.84)
	Written off	(420,744.76)
	Depreciation	(263,107.69)
	Carrying amount at end of year	2,767,191.32
	Carrying amount at end of year	2,767,191.32
	Gross carrying amount	2,992,564.61
	Accumulated depreciation	(225,373.29)
5.2	Office equipment	
	Carrying amount at beginning of year	-
	Additions	430,573.35
	Disposals	(66,266.67)
	Depreciation	(59,409.41)
	Carrying amount at end of year	304,897.27
	Carrying amount at end of year	304,897.27
	Gross carrying amount	360,433.35
	Accumulated depreciation	(55,536.08)
5.3	Vehicles	
	Carrying amount at beginning of year	-
	Additions	544,286.00
	Depreciation	(102,053.63)
	Carrying amount at end of year	442,232.37
	Carrying amount at end of year	442,232.37
	Gross carrying amount	544,286.00
	Accumulated depreciation	(102,053.63)
5.4	Office furniture	
	Carrying amount at beginning of year	-
	Additions	122,429.20
	Disposals	(3.00)
	Depreciation	(90,472.71)
	Carrying amount at end of year	31,953.49
	Carrying amount at end of year	31,953.49
	Gross carrying amount	120,929.20
	Accumulated depreciation	(88,975.71)
	TOTAL FIXED ASSETS	3,546,274.45

	R
6. STOCK	
The amounts attributable to the different categories are as follows and valued as per note 1.2:	
Raw materials	1,164,572.67
Finished goods	900,918.12
Consumables	5,325.04
Packing material	137,536.33
	2,208,352.16

7. TRADE DEBTORS

Trade debtors have been ceded to Standard Bank as security for overdraft facilities of R1,000,000.00.

8. SUNDRY DEBTORS

Prepaid expenses	33,697.50
Other	17,727.77
	51,424.77

9. CREDITORS

Included in sundry creditors is an amount of DKK 34,196.92, converted at an exchange rate of 1.0583 at 31 December 1998 to R 32,313.07.

10. REVENUE

Sales, which exclude value-added tax, represent the net invoiced value of products sold.

11. OPERATING PROFIT

Operating profit is stated after taking into account the following:

INCOME	
Profit on disposal of fixed assets	61,463.52
EXPENDITURE	
Depreciation	515,043.44
Auditor's remuneration - audit fees	45,000.00
Consulting fees	1,860.00
Loss on fixed assets written off	420,744.76
Machine rental	22,062.31
Company contributions to retirement benefits - fixed contribution plans	294,973.29
Post-retirement medical benefits	4,000.00

	R
2. FINANCE COSTS	
Interest received	206,041.84
- Customers	15,234.56
- Bank	74,273.28
- Call deposits	116,534.00
Interest paid	(171,291.22)
- Short-term loans	(168,609.07)
- Other	(2,682.15)
Net interest received	34,750.62
Realised exchange losses	(61,993.20)
	(27,242.58)
3. TAXATION	
South African normal tax	189,698.29
Deferred tax.	55,623.94
	245,322.23
Reconciliation of rate of taxation:	
SA normal taxation rate	35.00%
Permanent differences:	
Interest paid (Receiver of Revenue)	0.13%
Legal expenses	0.13%
Capital profit on disposal of fixed assets	-2.52%
Effective rate	32.73%

EARNINGS PER SHARE

The calculation of earnings per share is based on earnings of R 504,173.28 for the 9 months ended 31 December 1998 and 1,000,000 issued ordinary shares.

15. HEADLINE EARNINGS PER SHARE

The calculation of headline earnings per share is based on earnings of R 737,706.09 for the 9 months ended 31 December 1998 and 1,000,000 issued ordinary shares.

Reconciliation of earnings and headline earnings:

Earnings per income statement	504,173.28
Loss on fixed assets written off	420,744.76
Profit on disposal of assets	(61,463.52)
Adjustment for taxation	(125,748.43)
Headline earnings	737,706.09

R

16. RETIREMENT BENEFITS

The company contributed to retirement, pension and provident funds for all its employees which were underwritten and administered by several insurers. The pension and retirement funds were defined benefit plans and were converted to pension and retirement fixed contribution plans during the year. Actuarial valuations of the defined benefit plans were done before convertion and the Funds were financially sound. The Pension and Provident Funds are arranged and governed by the Pension Fund Act of 1956 and no actuarial valuation is required.

17. COMPARATIVE FIGURES

As this is the company's first year of business there are no comparative figures.

18. FUTURE CAPITAL COMMITMENTS

Contractually committed	-
Approved by the Board, but not yet contractually committed	1,625,000.00

The expenditure will be financed from operating income and borrowed funds, in accordance with a budget approved by the Board of Directors.

CASH FLOW STATEMENT FOR THE PERIOD ENDED 31 DECEMBER 1998

	Notes	9 months R
CASH FLOW FROM OPERATING ACTIVITIES		125,445.82
Cash receipts from customers		21,102,333.11
Cash paid to suppliers and employees		20,949,644.71
Cash generated from operations	A	152,688.40
Net finance charges		(27,242.58)
Taxation paid	B	-
CASH FLOW FROM INVESTMENT ACTIVITIES		(4,420,599.13)
Additions to and replacement of fixed assets		(4,877,353.16)
Proceeds on disposal of fixed assets	C	456,754.03
Net cash utilised		(4,295,153.31)
CASH FLOW FROM FINANCING ACTIVITIES		7,000,000.00
Share capital issued		1,750,000.00
Increase in equity loans		5,250,000.00
Increase in cash and short-term investments		2,704,846.69
Cash and short-term investments at beginning of year		-
Cash and short-term investments at end of year		2,704,846.69

OTES TO THE CASH FLOW STATEMENT FOR THE PERIOD ENDED 31 DECEMBER 1998

	9 months R
RECONCILIATION OF NET PROFIT BEFORE TAXATION TO CASH GENERATED FROM OPERATIONS	
Net operating income	776,738.09
Adjustment for:	
Depreciation	515,043.44
Loss on fixed assets written off	420,744.76
Profit on disposal of fixed assets	(61,463.52)
	1,651,062.77
Net change in working capital	(1,498,374.37)
Increase in stock	(2,208,352.16)
Increase in debtors	(3,768,367.71)
Increase in creditors	4,478,345.50
Cash generated per cash flow statement	152,688.40
B RECONCILIATION OF TAXATION PAID	
Amounts unpaid at beginning of the year	-
As disclosed in the income statements	(189,698.29)
Amounts unpaid at year end	189,698.29
	-
C PROCEEDS ON DISPOSAL OF FIXED ASSETS	
Book value of fixed assets sold	395,290.51
Profit on disposal of fixed assets	61,463.52
	456,754.03

DETAILED INCOME STATEMENT FOR THE PERIOD ENDED 31 DECEMBER 1998

(This statement has been prepared solely for the information of management and does not form part of the audited financial statements for the period ended 31 December 1998)

	9 months R
Gross sales	28,188,726.80
Discounts	(3,369,450.75)
Net sales	24,819,276.05
Cost of sales	(17,397,356.30)
Production overheads	(181,737.60)
Electricity	107,215.86
Water	13,931.06
Fuel : Boiler	21,188.96
Returnable packaging and pallets	39,401.72
Gross profit	7,240,182.15
Manpower costs	(3,224,549.86)
Wages costs	(1,314,989.16)
Salaries costs	(1,827,576.45)
Personnel expenses	(81,984.25)
Marketing costs	(74,631.44)
Maintenance costs	(471,089.73)
Cleaning materials	(143,070.93)
Despatch costs	(544,800.10)
Distribution Costs	(52,415.57)
Factory overheads	(424,826.28)
Rental paid: Premises	(325,523.64)
Rental paid: Machinery	(22,062.81)
Fumigation	(6,108.46)
Security costs	(71,131.37)
Depreciation	(515,043.44)
Plant and equipment	(263,524.36)
Office equipment	(58,992.74)
Vehicles	(102,053.63)
Furniture	(90,472.71)
Consultancy fees	(1,860.00)
Refuse removal	(34,854.00)
Insurance costs	(49,432.00)
Postage	(2,645.38)
Courier charges	(4,809.25)
Telephone	(52,707.22)
Telephone maintenance	(12,678.40)
Cell phones	(15,291.79)
Fax costs	(9,893.06)
CMC levies	(54,579.73)
Legal costs	(10,118.38)
Travelling: local	(64,890.04)
Travelling: overseas	(35,395.02)
Computer software usage charges	(176,414.99)
Audit fees	(45,000.00)
Stationery and office supplies	(41,260.91)
Subscription and membership fees	(4,766.11)
Administration fees	(21,636.00)
Protective clothing	(4,762.08)
Provision for doubtful debts	(127,789.54)
Bank charges	(13,454.33)
Sundry income	37,901.03
Net interest received	34,750.62
Interest received	206,041.84
Interest paid	(171,291.22)
Other income	92,701.73
Capital losses	(359,281.24)
Profit on disposal of assets	61,463.52
Loss on fixed assets written off	(420,744.76)
Realised foreign currency losses	(61,993.20)
Net Profit	749,495.51

TAX CALCULATION FOR THE PERIOD ENDED 31 DECEMBER 1998

		9 months R
Profit per income statement		749,496
Permanent differences		(48,575)
Add	Interest paid (Receiver of Revenue)	2,682
	Legal expenses	2,743
Less	Capital profit on disposal of fixed assets	(54,000)
		700,921
Timing differences		(158,926)
Add	Increase in provision for leave pay	52,119
	Increase in provision for post retirement medical benefits	4,000
	Provision for doubtful debts	127,790
	Depreciation	515,043
	Loss on fixed assets written off	420,745
	Installation cost of plant written off as maintenance	153,726
Less	Profit on disposal of fixed assets (excluding capital profit)	(7,464)
	25% of provision for doubtful debts	(31,947)
	Scrapping allowance	(321,386)
	Wear and tear allowance	(1,007,110)
	Wear and tear on installation cost of plant (20%)	(30,745)
	Insurance prepaid	(33,697)
Taxable income for 1998		541,995
Taxation at	35%	189,698.29

NESLEX (Pty) Ltd

SUMMARY BALANCE SHEET

MONTH	Budget JAN 1999	Actual JAN 1999	Actual FEB 98	Budget FEB 99	Actual FEB 1999	Actual MAR 1998	Budget MAR 1999	Actual MAR 1999
		R			R			R
CAPITAL EMPLOYED								
ORDINARY SHARE CAPITAL	10,000.00	10,000.00		10,000.00	10,000.00		10,000.00	10,000.00
SHARE PREMUIM	1,740,000.00	1,740,000.00		1,740,000.00	1,740,000.00		1,740,000.00	1,740,000.00
LOAN PIONEER - EQUITY	2,625,000.00	2,625,000.00		2,625,000.00	2,625,000.00		2,625,000.00	2,625,000.00
LOAN PIONEER - NORMAL								
LOAN PALSGAARD - EQUITY	1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00
LOAN PALSGAARD - NORMAL								
LOAN IFU - EQUITY	1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00
LOAN IFU - NORMAL								
RETAINED INCOME/(LOSS)	799,829.66	749,495.51		931,324.55	882,865.73		979,961.81	945,896.99
INCOME/(LOSS) FOR THE PERIOD	131,494.89	133,370.22		48,637.26	63,031.26		108,210.01	150,236.28
	7,931,324.55	7,882,865.73		7,979,961.81	7,945,897.00		8,088,171.83	8,096,133.27
EMPLOYMENT OF CAPITAL								
FIXED ASSETS	3,950,577.81	3,651,162.45		4,122,266.53	3,595,503.69		4,195,517.75	3,645,152.41
- PLANT & MACHINERY	3,122,023.09	2,869,595.99		3,309,374.71	2,832,525.69		3,400,372.16	2,894,149.87
- VEHICLES	430,894.25	430,893.07		419,555.25	419,554.80		408,216.25	408,215.50
- OFFICE FURNITURE & EQUIPMENT	397,660.46	350,673.39		393,336.57	343,423.20		386,929.34	342,787.04
NETT CURRENT ASSETS	3,980,746.74	4,231,703.28		3,857,695.28	4,350,393.30		3,892,654.08	4,450,980.86
CURRENT ASSETS	7,432,473.40	9,827,357.50		7,288,693.26	11,404,227.48		7,872,600.37	8,752,407.88
STOCK	2,504,386.46	2,830,686.59		2,469,632.40	3,104,034.50		2,833,100.10	2,669,436.66
DEBTORS	4,643,549.89	3,801,306.95		4,450,440.87	4,099,161.89		4,960,247.38	3,690,772.43
CASH BALANCE	284,537.05	3,195,363.96		368,619.99	4,201,031.09		79,252.90	2,392,198.79
CURRENT LIABILITIES	3,451,726.66	5,595,654.22		3,430,997.98	7,053,834.18		3,979,946.30	4,301,427.02
CREDITORS	3,380,921.72	5,595,654.22		3,334,003.74	7,053,834.18		3,824,685.13	4,301,427.02
TAXATION	70,804.94			96,994.24			155,261.17	
BANK OVERDRAFT	-			-			-	
	7,931,324.55	7,882,865.73		7,979,961.81	7,945,896.99		8,088,171.83	8,096,133.27
Difference		(0.00)			(0.00)			-

NESLEX (Pty) Ltd

SUMMARY BALANCE SHEET

MONTH	Actual APR 1998	Budget APR 1999	Actual APR 1999	Actual MAY 1998	Budget MAY 1999	Actual MAY 1999	Actual JUN 1998	Budget JUNE 1999	Actual JUNE 1999
	R		R	R		R	R		R
CAPITAL EMPLOYED									
ORDINARY SHARE CAPITAL		10,000.00	10,000.00		10,000.00	10,000.00		10,000.00	10,000.00
SHARE PREMUIM		1,740,000.00	1,740,000.00		1,740,000.00	1,740,000.00		1,740,000.00	1,740,000.00
LOAN PIONEER - EQUITY		2,625,000.00	2,625,000.00		2,625,000.00	2,625,000.00		2,625,000.00	2,625,000.00
LOAN PIONEER - NORMAL	8,684,759.02			8,179,422.76			5,910,683.52		
LOAN PALSGAARD - EQUITY		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00
LOAN PALSGAARD - NORMAL									
LOAN IFU - EQUITY		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00		1,312,500.00	1,312,500.00
LOAN IFU - NORMAL									
RETAINED INCOME/(LOSS)		1,088,171.83	1,096,133.27	(83,622.48)	1,160,101.48	1,183,058.77	(44,690.95)	1,246,015.84	1,373,236.65
INCOME/(LOSS) FOR THE PERIOD	(83,622.48)	71,929.65	86,925.50	38,931.53	85,914.36	190,177.88	(15,941.26)	133,713.46	114,254.13
	8,601,136.54	8,160,101.48	8,183,058.77	8,134,731.81	8,246,015.84	8,373,236.65	5,850,051.31	8,379,729.30	8,487,490.78
EMPLOYMENT OF CAPITAL									
FIXED ASSETS	3,377,855.13	4,144,675.22	3,631,012.83	3,609,549.13	4,089,780.61	3,822,042.41	3,573,476.54	4,047,585.99	3,727,377.17
- PLANT & MACHINERY	2,640,165.35	3,370,275.86	2,899,775.24	2,883,760.75	3,336,127.47	3,107,653.33	2,838,296.43	3,296,979.08	3,038,709.26
- VEHICLES	406,354.16	396,877.25	396,876.20	397,708.34	385,538.25	385,536.93	389,062.50	374,199.25	374,197.62
- OFFICE FURNITURE & EQUIPMENT	331,335.62	377,522.11	334,361.39	328,080.04	368,114.89	328,852.15	346,117.61	376,407.66	314,470.29
NETT CURRENT ASSETS	5,223,281.41	4,015,426.26	4,552,045.94	4,525,182.68	4,156,235.23	4,551,194.24	2,276,574.77	4,332,143.30	4,760,113.61
CURRENT ASSETS	6,602,949.63	7,921,538.42	10,399,037.63	6,749,029.69	8,047,672.88	11,898,616.58	6,325,419.34	7,931,400.87	12,172,373.76
STOCK	2,612,037.76	2,801,599.73	2,970,692.91	2,552,152.11	2,755,610.23	3,292,262.33	2,332,232.64	2,480,757.68	3,178,042.90
DEBTORS	3,967,921.85	4,763,858.41	2,844,846.24	4,035,083.50	4,548,979.14	3,305,076.54	3,993,186.70	4,209,929.87	3,002,529.73
CASH BALANCE	22,990.02	356,080.28	4,583,498.48	161,794.08	743,083.51	5,301,277.71	-	1,240,713.33	5,991,801.13
CURRENT LIABILITIES	1,379,668.22	3,906,112.16	5,846,991.69	2,223,847.01	3,891,437.65	7,347,422.34	4,048,844.57	3,599,257.57	7,412,260.15
CREDITORS	1,379,668.22	3,712,119.65	5,846,991.69	2,223,847.01	3,651,183.55	7,347,422.34	3,636,716.38	3,287,003.92	7,412,260.15
TAXATION		193,992.52			240,254.10			312,253.65	
BANK OVERDRAFT	-	-		-	-		412,128.19	-	
	8,601,136.54	8,160,101.48	8,183,058.77	8,134,731.81	8,246,015.84	8,373,236.65	5,850,051.31	8,379,729.30	8,487,490.78
Difference	-		(0.00)	-		0.00	-		(0.00)

NESLEX (Pty) Ltd

SUMMARY BALANCE SHEET

MONTH	Actual JUL 1998	Budget JULY 1999	Actual JULY 1999	Actual AUG 1998	Budget AUG 1999	Actual AUG 1999	Actual SEP 1998	Budget SEP 1999	Actual SEP 1999
	R		R	R			R		
CAPITAL EMPLOYED									
ORDINARY SHARE CAPITAL	10,000.00	10,000.00	10,000.00	10,000.00	10000	-	10,000.00	10000	-
SHARE PREMUIM	1,740,000.00	1,740,000.00	1,740,000.00	1,740,000.00	1740000	-	1,740,000.00	1740000	-
LOAN PIONEER - EQUITY	2,625,000.00	2,625,000.00	2,625,000.00	2,625,000.00	2625000	-	2,625,000.00	2625000	-
LOAN PIONEER - NORMAL	(2,896,853.73)			(597,544.81)		-	(235,141.91)		-
LOAN PALSGAARD - EQUITY	1,312,500.00	1,312,500.00	1,312,500.00	1,312,500.00	1312500	-	1,312,500.00	1312500	-
LOAN PALSGAARD - NORMAL	646,830.00			700,000.00		-	658,637.50		-
LOAN IFU - EQUITY	1,312,500.00	1,312,500.00	1,312,500.00	1,312,500.00	1312500	-	1,312,500.00	1312500	-
LOAN IFU - NORMAL	646,830.00			700,000.00		-	658,637.50		-
RETAINED INCOME/(LOSS)	(60,632.21)	1,379,729.30	1,487,490.78	15,216.42	1533671.105	-	101,671.44	1662608.616	-
INCOME/(LOSS) FOR THE PERIOD	75,848.63	153,941.81	173,514.20	86,455.02	128937.5111	-	198,647.22	126261.0196	-
	5,412,022.69	8,533,671.11	8,661,004.98	7,904,126.63	8662608.616	-	8,382,451.75	8788869.636	-
EMPLOYMENT OF CAPITAL									
FIXED ASSETS	3,401,308.14	3,991,844.50	3,685,810.09	3,487,444.84	3961290.517	-	3,614,691.51	3910569.862	-
- PLANT & MACHINERY	2,668,159.97	3,262,283.82	3,018,282.38	2,691,076.06	3252776.063	-	2,828,694.79	3213268.303	-
- VEHICLES	380,416.66	362,860.25	362,857.32	487,589.55	351521.25	-	476,250.25	340182.25	-
- OFFICE FURNITURE & EQUIPMENT	352,731.51	366,700.43	304,670.39	308,779.23	356993.2033	-	309,746.47	357119.3089	-
NETT CURRENT ASSETS	2,010,714.55	4,541,826.60	4,975,194.89	4,416,681.79	4701318.099	-	4,767,760.24	4878299.774	-
CURRENT ASSETS	5,022,885.36	8,296,965.87	9,635,916.12	7,709,183.15	8462757.844	-	8,284,108.04	8821205.366	-
STOCK	2,116,684.18	2,584,610.68	3,398,680.07	2,078,241.77	2536051.123	-	2,406,542.89	2623342.774	-
DEBTORS	2,258,247.33	4,252,661.93	3,275,336.72	4,115,791.88	4043944.854	-	3,984,962.99	4148567.27	-
CASH BALANCE	647,953.85	1,459,693.26	2,961,899.33	1,515,149.50	1882761.867	-	1,892,602.16	2049295.322	-
CURRENT LIABILITIES	3,012,170.81	3,755,139.27	4,660,721.23	3,292,501.36	3761439.744	-	3,516,347.80	3942905.593	-
CREDITORS	3,012,170.81	3,359,993.88	4,660,721.23	3,292,501.36	3296866.46	-	3,516,347.80	3410345.606	-
TAXATION		395,145.39			464573.284	-		532559.9869	-
BANK OVERDRAFT	-	-		-	0	-	-	0	-
	5,412,022.69	8,533,671.11	8,661,004.98	7,904,126.63	8662608.616	-	8,382,451.75	8788869.636	-
Difference	-		(0.00)	-		-	-		-

NESLEX (Pty) Ltd

SUMMARY BALANCE SHEET

MONTH	Actual OCT 1998	Budget OCT 1999	Actual OCT 1999	Actual NOV 1998	Budget NOV 1999	Actual NOV 1999	Actual DEC 1998	Budget DEC 1999	Actual DEC 1999
	R			R			R		
CAPITAL EMPLOYED									
ORDINARY SHARE CAPITAL	10,000.00	10000	-	10,000.00	10000	-	10,000.00	10000	-
SHARE PREMUIM	1,740,000.00	1740000	-	1,740,000.00	1740000	-	1,740,000.00	1740000	-
LOAN PIONEER - EQUITY	2,625,000.00	2625000	-	2,625,000.00	2625000	-	2,625,000.00	2625000	-
LOAN PIONEER - NORMAL	45,139.26		-	375,973.70		-			-
LOAN PALSGAARD - EQUITY	1,312,500.00	1312500	-	1,312,500.00	1312500	-	1,312,500.00	1312500	-
LOAN PALSGAARD - NORMAL	624,331.07		-			-			-
LOAN IFU - EQUITY	1,312,500.00	1312500	-	1,312,500.00	1312500	-	1,312,500.00	1312500	-
LOAN IFU - NORMAL	624,331.07		-			-			-
RETAINED INCOME/(LOSS)	300,318.66	1788869.636	-	428,343.80	1904991.052	-	623,354.79	2056338.346	-
INCOME/(LOSS) FOR THE PERIOD	128,025.14	116121.4159	-	195,010.99	151347.2945	-	126,140.72	142053.1412	-
	8,722,145.20	8904991.052	-	7,999,328.49	9056338.346	-	7,749,495.51	9198391.487	-
EMPLOYMENT OF CAPITAL									
FIXED ASSETS	3,669,745.26	3853738.096	-	3,553,317.87	4084572.997	-	3,681,274.45	4183142.272	-
- PLANT & MACHINERY	2,901,924.94	3173760.543	-	2,754,554.02	3134252.782	-	2,902,191.32	3262479.397	-
- VEHICLES	464,910.95	328843.25	-	453,571.68	609170.9167	-	442,232.37	589498.5833	-
- OFFICE FURNITURE & EQUIPMENT	302,909.37	351134.3033	-	345,192.17	341149.2978	-	336,850.76	331164.2922	-
NETT CURRENT ASSETS	5,052,399.94	5051252.956	-	4,446,010.62	4971765.349	-	4,068,221.06	5015249.215	-
CURRENT ASSETS	9,332,635.44	9109485.189	-	8,962,853.31	9380338.975	-	9,040,378.62	9442440.265	-
STOCK	2,362,363.53	2716192.416	-	2,470,439.09	3146581.512	-	2,299,649.60	3097786.858	-
DEBTORS	4,815,328.78	4260191.957	-	5,184,984.33	4553589.505	-	4,124,062.57	4446823.071	-
CASH BALANCE	2,154,943.13	2133100.816	-	1,307,429.89	1680167.958	-	2,616,666.45	1897830.336	-
CURRENT LIABILITIES	4,280,235.50	4058232.233	-	4,516,842.69	4408573.626	-	4,972,157.56	4427191.05	-
CREDITORS	4,280,235.50	3463145.33	-	4,516,842.69	3731992.026	-	4,972,157.56	3674119.297	-
TAXATION		595086.9031	-		676581.6002	-		753071.7531	-
BANK OVERDRAFT		0	-		0	-		0	-
	8,722,145.20	8904991.052	-	7,999,328.49	9056338.346	-	7,749,495.51	9198391.487	-
Difference	-		-	-		-	-		-

INCOME STATEMENTS NESLEX(PTY)LTD	Budget JAN 99 R	Actual JAN 99 R	Actual FEB 98 R	Budget FEB 99 R	Actual FEB 99 R	Actual MAR 98 R	Budget MAR 99 R	Actual MAR 99 R	Actual APR 98 R	Actual APR 99 R	Actual MAY 98 R	Budget MAY 99 R	Actual MAY 99 R	Actual JUN 98 R	Budget JUN 99 R	Actual JUN 99 R
		212.00											560.00			252.00
Nett Income/(Loss) after taxation	131,494.41	133,370.22	-	48,637.55	63,031.26	-	108,210.05	150,236.28	(54,354.61)	86,925.50	25,305.49	85,915.05	190,177.88	(10,361.82)	133,714.75	114,254.13
TRADING DAYS	20	20	-	20	20	-	23	23	19	19	20	21	21	21	21	20
SALES IN BASE UNIT OF MEASURE	541,829.00	447,285.00	-	532,876.60	505,352.00	-	588,120.00	534,801.00	481,822.00	410,332.00	530,049.00	551,343.00	510,434.00	490,478.00	532,645.00	444,337.00
TOTAL SALES	3,130,483.07	2,929,469.79	-	3,061,528.00	3,314,189.21	-	3,483,320.00	3,386,457.97	3,101,095.58	2,536,231.94	3,049,238.89	3,333,399.00	3,226,919.43	2,594,830.88	3,153,506.00	2,698,274.04
Sales : Domestic	-	749,971.84	-	-	588,422.30	-	-	866,343.95	1,299,464.92	669,709.18	990,447.75	-	776,800.61	957,819.22	-	620,678.15
Sales : Intercompany	-	2,108,756.06	-	-	2,634,926.20	-	-	2,469,458.02	1,758,542.84	1,814,240.61	1,901,420.25	-	2,243,809.09	1,599,185.78	-	2,058,169.30
Sales : Foreign	-	70,741.89	-	-	90,840.71	-	-	50,656.00	43,087.82	52,282.15	157,370.89	-	206,309.73	37,825.88	-	19,426.59
Rebates, Discounts & Commissions	(344,353.14)	(452,408.64)	-	(336,768.00)	(555,328.03)	-	(383,165.00)	(651,916.63)	(466,786.46)	(424,827.19)	(483,463.14)	(366,673.00)	(376,032.61)	(394,791.56)	(346,886.00)	(371,884.61)
Discount % of Sales	11.00%	15.44%	-	11.00%	16.76%	-	11.00%	19.25%	15.05%	16.75%	15.86%	11.00%	11.65%	15.21%	11.00%	13.78%
Rebates	-	(83,000.00)	-	-	(250,000.00)	-	-	(363,087.04)	(25,000.00)	(160,000.00)	(144,000.00)	-	(139,612.96)	(109,000.00)	-	74,415.00
Total Commissions Paid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Discounts Paid	-	(369,408.64)	-	-	(305,328.03)	-	-	(288,829.59)	(441,786.46)	(264,827.19)	(339,463.14)	-	(236,419.65)	(285,791.56)	-	(446,299.61)
NETT SALES	2,786,129.93	2,477,061.15	-	2,724,760.00	2,758,861.18	-	3,100,155.00	2,734,531.34	2,634,309.12	2,111,404.75	2,565,775.75	2,966,726.00	2,850,886.82	2,200,039.32	2,806,620.00	2,326,389.43
C.O.S. / Inventory Change		(1,613,377.09)	-		(1,968,124.42)	-	-	(1,943,718.23)	(1,943,340.36)	(1,441,306.66)	(1,781,941.64)	-	(1,908,524.69)	(1,507,403.11)	-	(1,615,327.69)
Variances		24,827.61	-	-	(53,332.72)	-	-	3,647.59	7,386.67	(4,476.21)	8,877.07	-	9,938.01	(35,422.58)	-	39,708.99
Purchase Price		(15,180.03)	-	-	(6,621.75)	-	-	8,109.45	(9,686.78)	(1,011.01)	(3,098.54)	-	6,160.18	(45,942.17)	-	30,453.97
Stock Differences/Write Offs		40,007.64	-	-	(46,710.97)	-	-	(4,461.86)	17,073.45	(3,465.20)	11,975.61	-	3,777.83	10,519.59	-	9,255.02
TOTAL COST OF SALES	(1,878,289.84)	(1,588,549.48)	-	(1,852,224.00)	(2,021,457.14)	-	(2,124,825.00)	(1,940,070.64)	(1,935,953.69)	(1,445,782.87)	(1,773,064.57)	(2,066,708.00)	(1,898,586.68)	(1,542,825.69)	(1,860,568.00)	(1,575,618.70)
Total Cost of Sales % of Total Sales	60.00%	54.23%	-	60.50%	60.99%	-	61.00%	57.29%	62.43%	57.01%	58.15%	62.00%	58.84%	59.46%	59.00%	58.39%
GROSS PROFIT	907,840.09	888,511.67	-	872,536.00	737,404.04	-	975,330.00	794,460.70	698,355.43	665,621.88	792,711.18	900,018.00	952,300.14	657,213.63	946,052.00	750,770.73
Gross Profit % of Total Sales	29.00%	30.33%	-	28.50%	22.25%	-	28.00%	23.46%	22.52%	26.24%	26.00%	27.00%	29.51%	25.33%	30.00%	27.82%
Gross Profit % of Nett Sales	32.58%	35.87%	-	32.02%	26.73%	-	31.46%	29.05%	26.51%	31.53%	30.90%	30.34%	33.40%	29.87%	33.71%	32.27%
Manpower Costs	(365,852.00)	(437,977.01)	-	(371,842.00)	(377,709.23)	-	(401,402.00)	(342,193.25)	(325,239.79)	(322,138.42)	(317,699.75)	(372,414.00)	(336,037.68)	(305,829.47)	(381,989.00)	(350,512.97)
Marketing Costs	(11,888.00)	(17,920.88)	-	(36,038.00)	(10,827.03)	-	(31,838.00)	(5,956.44)	(4,072.13)	(1,627.73)	(8,377.51)	(26,588.00)	(5,998.22)	(12,113.36)	(21,038.00)	(21,922.02)
Maintenance	(45,763.00)	(63,387.53)	-	(98,301.00)	(61,152.40)	-	(75,151.00)	(61,958.16)	(116,285.09)	(41,725.51)	(126,092.22)	(80,251.00)	(48,204.92)	(48,354.84)	(63,301.00)	(58,250.55)
Despatch	(62,397.00)	(58,432.11)	-	(61,023.00)	(60,003.75)	-	(69,430.00)	(47,048.51)	(31,372.00)	(40,394.26)	(72,625.66)	(66,442.00)	(108,323.53)	(61,684.98)	(62,856.00)	(56,416.34)
Distribution Costs	(5,659.00)	(4,220.08)	-	(4,850.00)	(6,325.58)	-	(6,518.00)	(5,178.08)	(2,343.59)	(5,100.00)	(4,826.17)	(5,280.00)	(12,332.04)	(5,516.85)	(6,545.00)	(5,014.01)
Factory Overheads	(47,652.00)	(47,462.92)	-	(47,652.00)	(45,613.68)	-	(47,652.00)	(43,519.00)	(48,436.14)	(45,805.25)	(49,862.76)	(47,652.00)	(46,039.50)	(50,413.01)	(47,652.00)	(44,748.41)
Depreciation	(55,829.00)	(52,121.00)	-	(58,311.00)	(52,078.43)	-	(59,749.00)	(53,827.25)	(122,144.87)	(52,295.73)	(42,879.70)	(59,894.00)	(52,378.99)	(43,318.99)	(60,194.00)	(52,273.71)
Administration Costs	(105,379.00)	(86,053.99)	-	(115,865.00)	(104,688.89)	-	(108,831.00)	(84,777.30)	(83,750.76)	(99,596.45)	(107,078.05)	(110,655.00)	(133,597.93)	(94,983.44)	(105,345.00)	(82,956.05)
TOTAL OVERHEADS	(700,419.00)	(767,575.52)	-	(793,882.00)	(718,398.99)	-	(800,571.00)	(644,457.99)	(733,644.37)	(608,683.35)	(729,441.82)	(769,176.00)	(742,912.81)	(622,214.94)	(748,920.00)	(672,094.06)
Net Interest	4,878.00	52,629.81	-	6,173.00	55,092.42	-	1,718.00	47,024.26	(48,348.54)	55,082.60	(28,415.31)	11,335.00	51,547.21	(62,255.65)	18,583.00	59,046.11
Interest Received	4,878.00	52,629.81	-	6,173.00	55,092.42	-	1,718.00	43,836.09	52.15	52,982.60	17.91	11,335.00	66,889.25	334.24	18,583.00	60,631.17
881,000.00 Interest Rec: Customers	500.00	3,242.56	-	500.00	1,960.51	-	500.00	2,396.28		962.62		500.00	714.52		500.00	1,303.15
881,015.00 Interest Rec: Bus Areas		14,967.82	-		33,000.00	-		22,927.66		34,927.66			38,668.78			25,827.09
881,020.00 Interest Rec: Bank	4,378.00	34,419.43	-	5,673.00	20,131.91	-	1,218.00	18,512.15	52.15	17,092.32	17.91	10,835.00	27,505.95	334.24	18,083.00	33,500.93
Interest Paid	-	-	-	-	-	-	-	3,188.17	(48,400.69)	2,100.00	(28,433.22)	-	(15,342.04)	(62,589.89)	-	(1,585.06)
479,100.00 Interest Paid: Bank			-			-								(127.80)		
479,130.00 Interest Paid: Other			-			-		3,188.17		2,100.00			2,100.00	(5,000.00)		(1,585.06)
479,145.00 Interest Paid: Bus Areas			-			-			(48,400.69)		(28,433.22)		(17,442.04)	(57,462.09)		
Other Income	10,000.00	16,963.93	-	10,000.00	15,947.19	-	10,000.00	17,596.28	15.00	12,158.16	4,077.48	10,000.00	10,747.14	10,774.84	10,000.00	16,287.00
873,000.00 Rebates Received			-		-	-			15.00		15.00			11.00		
874,000.00 Discount Received	10,000.00	16,793.24	-	10,000.00	15,820.69	-	10,000.00	17,596.28	-	12,158.16	3,827.85	10,000.00	10,747.14	10,614.27	10,000.00	16,287.00
876,000.00 Commission rec.: H/O		170.69	-		126.50	-			-		234.63			149.57		
Capital Profits/Losses - Assets	(20,000.00)	(1.00)	-	(20,000.00)	-	-	(20,000.00)	-	-	-	-	(20,000.00)	1.00	540.86	(20,000.00)	9,210.41
481,300.00 Profit/Loss on Disposal	(10,000.00)		-	(10,000.00)		-	(10,000.00)					(10,000.00)		540.86	(10,000.00)	9,210.41
481,310.00 Loss on Assets Scrapped	(10,000.00)	(1.00)	-	(10,000.00)	-	-	(10,000.00)					(10,000.00)	1.00		(10,000.00)	
481,320.00 Assets:Retirement Suspense			-			-										-
492,000.00 Foreign currency gains/(losses)			-			-										
Nett Income/(Loss)	202,299.09	190,528.89	-	74,827.00	90,044.66	-	166,477.00	214,623.25	(83,622.48)	124,179.29	38,931.53	132,177.00	271,682.68	(15,941.26)	205,715.00	163,220.19
Nett I/(L) exd Extraord. Items as % of T	7.1%		-	3.1%	2.7%	-	5.4%	6.3%	-2.7%	4.9%	1.3%	4.6%	8.4%	-0.6%	7.2%	5.7%
Nett Income/(Loss) as % of Total Sales	6.5%		-	2.4%	2.7%	-	4.8%	6.3%	-2.7%	4.9%	1.3%	4.0%	8.4%	-0.6%	6.5%	6.0%
Nett Income/(Loss) as % of Net Sales	7.3%		-	2.7%	3.3%	-	5.4%	7.8%	-3.2%	5.9%	1.5%	4.5%	9.5%	-0.7%	7.3%	7.0%
Provision for taxation																
1998 38%									(29,267.87)		13,626.04			(5,579.44)		
Permanent differences @ 38%																
Tax provision (Normal and deferred)									(29,267.87)		13,626.04			(5,579.44)		
1999 38%	70,804.68	57,158.67	-	26,189.45	27,013.40	-	58,266.95	64,386.98		37,253.79		46,261.95	81,504.80		72,000.25	48,966.06
Permanent differences @ 30%			-			-										
Tax provision (Normal and defer	70,804.68	57,158.67	-	26,189.45	27,013.40	-	58,266.95	64,386.98		37,253.79		46,261.95	81,504.80		72,000.25	48,966.06

INCOME STATEMENTS	Actual	Budget	Actual	Plan	Budget												
NESLEX(PTY)LTD	JUL 98	JUL 99	JUL 99	AUG 98	AUG 99	AUG 99	SEP 98	SEP 99	SEP 99	OCT 98	OCT 99	OCT 99	NOV 98	NOV 99	NOV 99	DEC 98	DEC 99	
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Nett Income/(Loss) after taxation	49,301.61	153,942.10	173,514.20	56,195.76	128,938.55	149,538.07	129,120.69	194,247.72	-	83,216.34	178,648.33	-	126,757.14	232,841.99	-	98,992.67	218,543.29	-
TRADING DAYS	23	22	22	21	21	21			-			-			-			-
SALES IN BASE UNIT OF MEASURE	484,731.00	540,915.00	511,605.00	430,085.00	534,468.00	523,886.00	511,682.00		-	590,187.00		-	641,302.00		-	554,599.00		-
TOTAL SALES	2,719,367.65	3,257,913.00	3,131,832.91	2,932,285.83	3,170,064.00	3,232,247.90	2,811,171.76	3,252,077.82	-	3,344,286.39	3,339,580.84	-	3,588,320.28	3,569,576.30	-	3,048,129.54	3,485,881.69	-
Sales : Domestic	1,080,508.76	-	773,273.48	1,066,877.99	-	814,059.17	1,129,961.17	-	-	1,027,870.89	-	-	1,382,819.28	-	-	693,088.77	-	-
Sales : Intercompany	1,517,503.97	-	2,257,161.18	1,779,647.27	-	2,274,443.04	1,627,034.13	-	-	2,230,139.20	-	-	2,083,749.08	-	-	2,324,894.49	-	-
Sales : Foreign	121,354.92	-	101,398.25	85,760.57	-	143,745.69	54,176.46	-	-	86,276.30	-	-	121,751.92	-	-	30,146.28	-	-
Rebates, Discounts & Commissions	(290,831.35)	(358,371.00)	(487,486.76)	(321,106.27)	(348,707.00)	(474,024.58)	(297,857.83)	-	-	(360,667.73)	-	-	(363,190.05)	-	-	(390,756.36)	-	-
Discount % of Sales	10.69%	11.00%	15.57%	10.95%	11.00%	14.67%	10.60%	11%	-	10.78%	11.00%	-	10.12%	11.00%	-	12.82%	11.00%	-
Rebates	203,000.00	-	-	-	-	-	-	-	-	-	-	-	(111,651.71)	-	-	42,994.81	-	-
Total Commissions Paid	-	-	-	-	-	-	-	-	-	(1,135.00)	-	-	-	-	-	-	-	-
Discounts Paid	(493,831.35)	-	(487,486.76)	(321,106.27)	-	(474,024.58)	(297,857.83)	-	-	(359,532.73)	-	-	(251,538.34)	-	-	(433,751.17)	-	-
NETT SALES	2,428,536.30	2,899,542.00	2,644,346.15	2,611,179.56	2,821,357.00	2,758,223.32	2,513,313.93	2,894,349.26	-	2,983,618.66	2,972,226.95	-	3,225,130.23	3,176,922.91	-	2,657,373.18	3,102,434.70	-
C.O.S. / Inventory Change	(1,657,828.79)	-	(1,797,043.82)	(1,736,865.53)	-	(1,907,753.64)	(1,711,245.41)	-	-	(1,985,759.78)	-	-	(2,235,597.72)	-	-	(1,994,486.95)	-	-
Variances	10,254.97	-	(22,203.42)	(367.88)	-	(16,904.93)	85,584.26	-	-	(65,713.86)	-	-	25,944.34	-	-	(61,167.60)	-	-
Purchase Price	8,610.92	-	(33,926.56)	(3,731.30)	-	(6,820.76)	78,098.18	-	-	(73,157.41)	-	-	(5,655.81)	-	-	13,630.28	-	-
Stock Differences/Write Offs	1,644.05	-	11,723.14	3,363.42	-	(10,084.17)	7,486.08	-	-	7,443.55	-	-	31,600.15	-	-	(74,797.88)	-	-
TOTAL COST OF SALES	(1,647,573.82)	(1,938,458.00)	(1,819,247.24)	(1,737,233.41)	(1,902,038.00)	(1,924,658.57)	(1,625,661.15)	1,967,507.08	-	(2,051,473.64)	2,037,144.31	-	(2,209,653.38)	2,195,289.43	-	(2,055,654.55)	2,161,246.65	-
Total Cost of Sales % of Total Sales	60.59%	59.50%	58.09%	59.25%	60.00%	59.55%	57.83%	60.50%	-	61.34%	61.00%	-	61.58%	61.50%	-	67.44%	62.00%	-
GROSS PROFIT	780,962.48	961,084.00	825,098.91	873,946.15	919,319.00	833,564.75	887,652.78	926,842.18	-	932,145.02	935,082.63	-	1,015,476.85	981,633.48	-	601,718.63	941,188.06	-
Gross Profit % of Total Sales	28.72%	29.50%	26.35%	29.80%	29.00%	25.79%	31.58%	28.50%	-	27.87%	28.00%	-	28.30%	27.50%	-	19.74%	27.00%	-
Gross Profit % of Nett Sales	32.16%	33.15%	31.20%	33.47%	32.58%	30.22%	35.32%	32.02%	-	31.24%	31.46%	-	31.49%	30.90%	-	22.64%	30.34%	-
Manpower Costs	(336,623.04)	(387,545.00)	(332,998.74)	(319,968.74)	(383,060.00)	(304,822.13)	(423,491.24)	398,707.97	-	(395,550.20)	385,308	-	(397,226.00)	383,208	-	(402,921.63)	382,620	-
Marketing Costs	(7,004.56)	(16,888.00)	(4,595.42)	(6,526.27)	(26,188.00)	(1,719.82)	(19,855.41)	24,887.75	-	(5,112.41)	27,038	-	(9,049.19)	31,038	-	(2,520.60)	11,038	-
Maintenance	(72,294.84)	(46,251.00)	(29,328.19)	(76,852.21)	(45,251.00)	(34,826.12)	(42,779.25)	45,251.00	-	(65,258.37)	66,801	-	(32,657.72)	45,151	-	(33,586.12)	45,151	-
Despatch	(40,477.00)	(64,937.00)	(63,877.37)	(73,477.19)	(63,186.00)	(52,225.69)	(43,422.74)	64,820.80	-	(121,019.54)	66,565	-	(56,979.28)	71,149	-	(43,741.71)	69,481	-
Distribution Costs	(1,908.39)	(5,801.00)	(6,951.43)	(1,196.39)	(5,021.00)	(5,525.36)	(11,486.68)	6,151.40	-	(6,150.02)	5,290	-	(4,434.62)	5,654	-	(14,552.86)	6,722	-
Factory Overheads	(51,384.26)	(47,652.00)	(44,221.59)	(49,012.70)	(47,652.00)	(43,662.95)	(45,380.44)	47,652.20	-	(46,405.82)	47,652	-	(44,417.90)	47,652	-	(39,513.25)	47,652	-
Depreciation	(50,599.48)	(60,241.00)	(57,560.28)	(53,227.63)	(60,554.00)	(56,301.64)	(86,945.89)	60,720.65	-	(86,909.95)	60,832	-	(87,704.76)	69,165	-	58,687.83	70,931	-
Administration Costs	(84,623.78)	(105,510.00)	(91,426.82)	(71,870.55)	(106,431.00)	(38,769.76)	(148,186.20)	103,076.43	-	(109,307.40)	115,000	-	(107,259.12)	107,974	-	60,622.10	104,066	-
TOTAL OVERHEADS	(644,915.35)	(734,825.00)	(630,959.84)	(652,131.68)	(737,343.00)	(537,853.47)	(821,547.85)	751,268.21	-	(835,713.71)	774,486	-	(739,728.59)	760,991	-	(417,526.24)	737,661	-
Net Interest	925.45	20,575.00	48,054.35	1,905.98	26,391.00	9,971.53	(2,791.42)	38,673.75	-	62,098.27	28,051.25	-	76,556.51	22,200.00	-	35,075.33	25,015.83	-
Interest Received	5,925.45	20,575.00	48,054.35	6,905.98	26,391.00	35,593.51	8,208.58	28,673.75	-	67,267.51	28,051.25	-	76,556.51	22,200.00	-	43,388.40	25,015.83	-
881,000.00 Interest Rec: Customers	4,912.60	500.00	(4,313.94)	(2,354.09)	500.00	141.08	(235.27)		-			-	(941.94)		-	13,853.26		-
881,015.00 Interest Rec: Bus Areas			29,168.76	8,871.00		28,610.00	8,000.00		-	65,360.36		-	19,234.35		-	15,068.29		-
881,020.00 Interest Rec: Bank	1,012.85	20,075.00	23,199.53	389.07	25,891.00	6,842.43	443.85		-	1,907.15		-	58,264.10		-	14,466.85		-
Interest Paid	(5,000.00)	-	-	(5,000.00)	-	(25,621.98)	(11,000.00)		-	(5,169.24)	-	-	-	-	-	(8,313.07)	-	-
479,100.00 Interest Paid Bank									-	(2,487.09)		-			-			-
479,130.00 Interest Paid Other	(5,000.00)			(5,000.00)			(11,000.00)		-	(2,682.15)		-			-	(8,313.07)		-
479,145.00 Interest Paid Bus Areas	-					(25,621.98)			-			-			-			-
Other Income	11,533.83	10,000.00	12,330.84	9,302.64	10,000.00	11,197.91	10,809.38	10,000	-	13,382.70	10,000.00	-	16,682.89	10,000.00	-	16,122.97	10,000.00	-
873,000.00 Rebates Received	11.00			11.00			11.00		-	11.00		-	11.00		-	7.50		-
874,000.00 Discount Received	11,375.18	10,000.00	12,330.84	9,159.09	10,000.00	11,197.91	10,798.38		-	13,189.40		-	16,836.69		-	15,535.11		-
876,000.00 Commission rec.: H/O	147.65			132.55			-		-	182.30		-	(164.80)		-	580.36		-
Capital Profits/Losses - Assets	34,333.28	(20,000.00)	(6,646.83)	(40,228.07)	(20,000.00)	(103,254.91)	41,799.33	(20,000.00)	-	(112,500.00)	(20,000)	-	(173,976.67)	(20,000)	-	(109,249.97)	(20,000)	-
481,300.00 Profit/Loss on Disposal	39,661.40	(10,000.00)	-	(21,061.40)	(10,000.00)	(103,254.91)	41,799.33		-			-	523.33		-			-
481,310.00 Loss on Assets Scrapped	(5,328.12)	(10,000.00)	(6,646.83)	(19,166.67)	(10,000.00)				-	(112,500.00)		-	(174,500.00)		-	(109,249.97)		-
481,320.00 Assets:Retirement Suspense			-						-			-			-			-
492,000.00 Foreign currency gains/(losses)	(106,991.06)			(106,340.00)			82,725.00		-	68,612.86		-			-			-
									-			-			-			-
Nett Income/(Loss)	75,848.63	236,834.00	247,877.43	86,455.02	198,367.00	213,625.81	198,647.22	262,234.43	-	128,025.14	241,175.25	-	195,010.99	314,336.69	-	126,140.72	295,033.45	-
Nett I/(L) excl Extraord. Items as % of Total	5.5%	7.9%	8.1%	7.9%	6.9%	9.8%	2.6%	8.7%	-	5.1%	7.8%	-	10.3%		-	7.7%	9.0%	-
Nett Income/(Loss) as % of Total Sales	2.8%	7.3%	7.9%	2.9%	6.3%	6.6%	7.1%	8.1%	-	3.8%	7.2%	-	5.4%		-	4.1%	8.5%	-
Nett Income/(Loss) as % of Net Sales	3.1%	8.2%	9.4%	3.3%	7.0%	7.7%	7.9%	9.1%	-	4.3%	8.1%	-	6.0%		-	4.7%	9.5%	-
									-			-			-			-
Provision for taxation									-			-			-			-
1998 35%	26,547.02			30,259.26			69,526.53		-	44,808.80		-	68,253.85		-	44,149.25		-
Permanent differences @ 35%									-			-			-	(17,001.20)		-
Tax provision (Normal and defe	26,547.02			30,259.26			69,526.53		-	44,808.80		-	68,253.85		-	27,148.05		-
1999 30%		82,891.90	74,363.23		69,428.45	64,087.74		67,986.70	-		62,527	-		81,495	-		76,490	-
Permanent differences @ 30%									-			-			-			-
Tax provision (Normal and deferred)		82,891.90	74,363.23		69,428.45	64,087.74		67,986.70	-		62,526.92	-		81,494.70	-		76,490.15	-

INCOME STATEMENTS NESLEX(PTY)LTD		Actual 9 Months 98 R (FINAL)	Actual YTD 99 R 1,034.00
Nett Income/(Loss) after taxation		504,173.28	1,072,798.64
TRADING DAYS			233,008
SALES IN BASE UNIT OF MEASURE			3,888,032.00
TOTAL SALES		27,188,726.80	24,455,623.19
Sales : Domestic		9,628,858.75	5,859,258.68
Sales : Intercompany		16,822,117.01	17,860,963.50
Sales : Foreign		737,751.04	735,401.01
Rebates, Discounts & Commissions		(3,369,450.75)	(3,793,919.05)
Discount % of Sales		12.39%	15.51%
Rebates		(143,656.90)	(921,285.00)
Total Commissions Paid		(1,135.00)	-
Discounts Paid		(3,224,658.85)	(2,872,634.05)
NETT SALES		23,819,276.05	20,661,704.14
C.O.S. / Inventory Change		(16,554,469.29)	(14,195,176.24)
Variances		(24,624.61)	(2,007.79)
Purchase Price		(40,932.63)	(13,209.51)
Stock Differences/Write Offs		16,308.02	11,201.72
TOTAL COST OF SALES		(16,579,093.90)	(14,197,184.03)
Total Cost of Sales % of Total Sales		60.98%	58.05%
GROSS PROFIT		7,240,182.15	6,464,520.11
Gross Profit % of Total Sales		26.63%	26.43%
Gross Profit % of Nett Sales		30.40%	31.29%
Manpower Costs		(3,224,549.86)	(2,804,389.43)
Marketing Costs		(74,631.44)	(70,567.56)
Maintenance		(614,160.66)	(398,833.38)
Despatch		(544,800.10)	(486,721.56)
Distribution Costs		(52,415.57)	(50,646.58)
Factory Overheads		(424,826.28)	(361,073.30)
Depreciation		(515,043.44)	(428,837.03)
Administration Costs		(746,437.20)	(721,867.19)
TOTAL OVERHEADS		(6,196,864.55)	(5,322,936.03)
Net Interest		34,750.62	378,448.29
Interest Received		208,656.73	415,709.20
881,000.00	Interest Rec: Customers	15,234.56	6,406.78
881,015.00	Interest Rec: Bus Areas	116,534.00	228,097.77
881,020.00	Interest Rec: Bank	76,888.17	181,204.65
Interest Paid		(173,906.11)	(37,260.91)
479,100.00	Interest Paid: Bank	(2,614.89)	-
479,130.00	Interest Paid: Other	(36,995.22)	5,803.11
479,145.00	Interest Paid: Bus Areas	(134,296.00)	(43,064.02)
Other Income		92,701.73	113,228.45
873,000.00	Rebates Received	103.50	-
874,000.00	Discount Received	91,335.97	112,931.26
876,000.00	Commission rec.: H/O	1,262.26	297.19
Capital Profits/Losses - Assets		(359,281.24)	(100,691.33)
481,300.00	Profit/Loss on Disposal	61,463.52	(94,044.50)
481,310.00	Loss on Assets Scrapped	(420,744.76)	(6,646.83)
481,320.00	Assets:Retirement Suspense		
492,000.00	Foreign currency gains/(losses)	(61,993.20)	-
Nett Income/(Loss)		749,495.51	1,532,569.49
Nett I/(L) excl Extraord. items as % of Tot		4.3%	6.7%
Nett Income/(Loss) as % of Total Sales		2.8%	6.3%
Nett Income/(Loss) as % of Net Sales		3.1%	7.4%
Provision for taxation			
1998	35%	262,323.43	
	Permanent differences @ 35%	(17,001.20)	
	Tax provision (Normal and defer	245,322.23	
1999	30%		459,770.85
	Permanent differences @ 30%		
	Tax provision (Normal and deferred)		459,770.85

EVA Statements NESLEX (PTY)LTD	Budget JAN 99 R	Actual JAN 99 R	Actual FEB 98 R	Budget FEB 99 R	Actual FEB 99 R	Actual MAR 98 R	Budget MAR 99 R	Actual MAR 99 R
EVA	24,090.02	27,669.39	-	(59,710.87)	(43,646.36)	-	(2,217.64)	38,361.07
Nett Income/(Loss) after taxation	131,494.41	133,370.22	-	48,637.55	63,031.26	-	108,210.05	150,236.28
plus Interest paid	-	-	-	-	-	-	-	(3,188.17)
NET OPERATING PROFIT AFTER TAX (NOPAT)	131,494.41	133,370.22	-	48,637.55	63,031.26	-	108,210.05	147,048.11
Current assets	7,432,473.40	9,827,357.50	-	7,288,693.26	11,404,227.48	-	7,872,600.37	8,752,407.88
Fixed assets	3,950,577.81	3,651,162.45	-	4,122,266.53	3,595,503.69	-	4,195,517.75	3,645,152.41
Total assets	11,383,051.21	13,478,519.95	-	11,410,959.79	14,999,731.17	-	12,068,118.12	12,397,560.29
less			-			-		
Trade creditors	3,380,921.72	5,595,654.22	-	3,334,003.74	7,053,834.18	-	3,824,685.13	4,301,427.02
plus			-			-		
Provision for doubtful debt	30,000.00	20,000.00	-	30,000.00	30,000.00	-	30,000.00	30,000.00
CAPITAL	8,032,129.49	7,902,865.73	-	8,106,956.05	7,975,896.99		8,273,432.99	8,126,133.27
Borrowing rate (Prime)	22.3%	22.3%	-	21.5%	21.5%	-	20.5%	20.5%
Tax Rate	30.0%	30.0%	-	30.0%	30.0%	-	30.0%	30.0%
COST OF DEBT	15.6%	15.6%	-	15.1%	15.1%	-	14.3%	14.3%
			-			-		
Risk free rate of return (10 year bond)	14.0%	14%	-	14%	14%	-	14%	14%
Market risk premium	5.0%	5%	-	5%	5%	-	5%	5%
Beta	0.41	0.41	-	0.41	0.41	-	0.41	0.41
COST OF EQUITY	16.1%	16.05%	-	16.05%	16.05%	-	16.05%	16.05%
We	99.1%	100%	-	99%	100%	-	98%	100%
Wd	0.9%	0%	-	1%	0%	-	2%	0%
WACC (for the year)	16.0%	16%	-	16%	16%	-	16%	16%
WACC (monthly)	1.34%	1.34%	-	1.34%	1.34%	-	1.33%	1.34%

EVA Statements NESLEX (PTY)LTD	Actual APR 98 R	Budget APR 99 R	Actual APR 99 R	Actual MAY 98 R	Budget MAY 99 R	Actual MAY 99 R	Actual JUN 98 R	Budget JUN 99 R	Actual JUN 99 R
EVA	(90,979.74)	(39,792.82)	(25,024.16)	(26,874.21)	(27,421.43)	93,126.63	(14,399.68)	17,840.95	1,784.00
Nett Income/(Loss) after taxation	(54,354.61)	71,930.30	86,925.50	25,305.49	85,915.05	190,177.88	(10,361.82)	133,714.75	114,254.13
plus Interest paid	48,400.69	-	(2,100.00)	28,433.22	-	15,342.04	62,589.89	-	1,585.06
NET OPERATING PROFIT AFTER TAX (NOPAT)	(5,953.92)	71,930.30	84,825.50	53,738.71	85,915.05	205,519.92	52,228.07	133,714.75	115,839.19
Current assets	6,602,949.63	7,921,538.42	10,399,037.63	6,749,029.69	8,047,672.88	11,898,616.58	6,325,419.34	7,931,400.87	12,172,373.76
Fixed assets	3,377,855.13	4,144,675.22	3,631,012.83	3,609,549.13	4,089,780.61	3,822,042.41	3,573,476.54	4,047,585.99	3,727,377.17
Total assets	9,980,804.76	12,066,213.64	14,030,050.46	10,358,578.82	12,137,453.48	15,720,658.99	9,898,895.88	11,978,986.87	15,899,750.93
less									
Trade creditors	1,379,668.22	3,712,119.65	5,846,991.69	2,223,847.01	3,651,183.55	7,347,422.34	3,636,716.38	3,287,003.92	7,412,260.15
plus									
Provision for doubtful debt	-	30,000.00	30,000.00	20,000.00	30,000.00	30,000.00	20,000.00	30,000.00	40,000.00
CAPITAL	8,601,136.54	8,384,094.00	8,213,058.77	8,154,731.81	8,516,269.93	8,403,236.65	6,282,179.50	8,721,982.95	8,527,490.78
Borrowing rate (Prime)	18.3%	19.4%	19.4%	18.3%	19.0%	19.0%	19.6%	18.8%	18.8%
Tax Rate	35.0%	30.0%	30.0%	35.0%	30.0%	30.0%	35.0%	30.0%	30.0%
COST OF DEBT	11.9%	13.6%	13.6%	11.9%	13.3%	13.3%	12.7%	13.2%	13.2%
Risk free rate of return (10 year bond)	14%	14%	14%	14%	14%	14%	14%	14%	14%
Market risk premium	5%	5%	5%	5%	5%	5%	5%	5%	5%
Beta	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
COST OF EQUITY	16.05%	16.05%	16.05%	16.05%	16.05%	16.05%	16.05%	16.05%	16.05%
We	0%	98%	100%	0%	97%	100%	0%	96%	100%
Wd	100%	2%	0%	100%	3%	0%	100%	4%	0%
WACC (for the year)	12%	16%	16%	12%	16%	16%	13%	16%	16%
WACC (monthly)	0.99%	1.33%	1.34%	0.99%	1.33%	1.34%	1.06%	1.33%	1.34%

EVA Statements NESLEX (PTY)LTD	Actual JUL 98 R	Budget JUL 99 R	Actual JUL 99 R	Actual AUG 98 R	Budget AUG 1999 R	Actual AUG 1999 R	Actual SEP 1998 R	Budget SEP 1999 R	Actual SEP 1999 R
EVA	(18,351.69)	35,380.82	57,138.26	(44,513.89)	8,293.62	not available	26,433.21	61,691.72	not available
Nett Income/(Loss) after taxation	49,301.61	153,942.10	173,514.20	56,195.76	128,938.55	not available	129,120.69	194,247.72	not available
plus Interest paid	5,000.00	-	-	5,000.00	-	not available	11,000.00	(10,000.00)	not available
NET OPERATING PROFIT AFTER TAX (NOPAT)	54,301.61	153,942.10	173,514.20	61,195.76	128,938.55	not available	140,120.69	184,247.72	not available
						not available			not available
Current assets	5,022,885.36	8,296,965.87	9,635,916.12	7,709,183.15	8,462,757.84	not available	8,284,108.04	8,821,205.37	not available
Fixed assets	3,401,308.14	3,991,844.50	3,685,810.09	3,487,444.84	3,961,290.52	not available	3,614,691.51	3,910,569.86	not available
Total assets	8,424,193.50	12,288,810.38	13,321,726.21	11,196,627.99	12,424,048.36	not available	11,898,799.55	12,731,775.23	not available
less						not available			not available
Trade creditors	3,012,170.81	3,359,993.88	4,660,721.23	3,292,501.36	3,296,866.46	not available	3,516,347.80	3,410,345.61	not available
plus						not available			not available
Provision for doubtful debt	20,000.00	30,000.00	40,000.00	20,000.00	30,000.00	not available	68,605.11	-	not available
CAPITAL	5,432,022.69	8,958,816.50	8,701,004.98	7,924,126.63	9,157,181.90	not available	8,451,056.86	9,321,429.62	not available
Borrowing rate (Prime)	23.6%	17.7%	17.7%	24.1%	16.5%	not available	25.8%	16.5%	not available
Tax Rate	35.0%	30.0%	30.0%	35.0%	30.0%	not available	35.0%	30.0%	not available
COST OF DEBT	15.4%	12.4%	12.4%	15.6%	11.6%	not available	16.8%	11.6%	not available
Risk free rate of return (10 year bond)	14%	14%	14%	14%	14%	not available	14%	14%	not available
Market risk premium	5%	5%	5%	5%	5%	not available	5%	5%	not available
Beta	0.41	0.41	0.41	0.41	0.41	not available	0.41	0.41	not available
COST OF EQUITY	16.05%	16.05%	16.05%	16.05%	16.05%	not available	16.05%	16.05%	not available
We	100%	95%	100%	90%	95%	not available	87%	94%	not available
Wd	0%	5%	0%	10%	5%	not available	13%	6%	not available
WACC (for the year)	16%	16%	16%	16%	16%	not available	16%	16%	not available
WACC (monthly)	1.34%	1.32%	1.34%	1.33%	1.32%	not available	1.35%	1.31%	not available

EVA Statements NESLEX (PTY)LTD	Actual OCT 1998 R	Budget OCT 1999 R	Actual OCT 1999 R	Actual NOV 1998 R	Budget NOV 1999 R	Actual NOV 1999 R	Actual DEC 1998 R	Budget DEC 1999 R	Actual DEC 1999 R
EVA	(28,932.34)	54,335.82	not available	19,686.92	105,815.07	not available	4,469.64	88,972.95	not available
Nett Income/(Loss) after taxation	83,216.34	178,648.33	not available	126,757.14	232,841.99	not available	98,992.67	218,543.29	not available
plus Interest paid	5,169.24	-	not available	-	-	not available	8,313.07	-	not available
NET OPERATING PROFIT AFTER TAX (NOPAT)	88,385.58	178,648.33	not available	126,757.14	232,841.99	not available	107,305.74	218,543.29	not available
			not available			not available			not available
Current assets	9,332,635.44	9,109,485.19	not available	8,962,853.31	9,380,338.98	not available	9,040,378.62	9,442,440.27	not available
Fixed assets	3,669,745.26	3,853,738.10	not available	3,553,317.87	4,084,573.00	not available	3,681,274.45	4,183,142.27	not available
Total assets	13,002,380.70	12,963,223.28	not available	12,516,171.18	13,464,911.97	not available	12,721,653.07	13,625,582.54	not available
less			not available			not available			not available
Trade creditors	4,280,235.50	3,463,145.33	not available	4,516,842.69	3,731,992.03	not available	4,972,157.56	3,674,119.30	not available
plus			not available			not available			not available
Provision for doubtful debt	20,000.00	-	not available	20,000.00	-	not available	(60,815.57)	-	not available
CAPITAL	8,742,145.20	9,500,077.95	not available	8,019,328.49	9,732,919.95	not available	7,688,679.94	9,951,463.24	not available
Borrowing rate (Prime)	25.3%	15.5%	not available	23.8%	15.5%	not available	23.1%	15.5%	not available
Tax Rate	35.0%	30.0%	not available	35.0%	30.0%	not available	35.0%	30.0%	not available
COST OF DEBT	16.4%	10.9%	not available	15.5%	10.9%	not available	15.0%	10.9%	not available
Risk free rate of return (10 year bond)	14%	14%	not available	14%	14%	not available	14%	14%	not available
Market risk premium	5%	5%	not available	5%	5%	not available	5%	5%	not available
Beta	0.41	0.41	not available	0.41	0.41	not available	0.41	0.41	not available
COST OF EQUITY	16.05%	16.05%	not available	16.05%	16.05%	not available	16.05%	16.05%	not available
We	85%	93%	not available	95%	93%	not available	100%	92%	not available
Wd	15%	7%	not available	5%	7%	not available	0%	8%	not available
WACC (for the year)	16%	16%	not available	16%	16%	not available	16%	16%	not available
WACC (monthly)	1.34%	1.31%	not available	1.34%	1.31%	not available	1.34%	1.30%	not available

EVA Statements NESLEX (PTY)LTD	Actual 9 Months 98 R (FINAL)	Actual YTD 99 R
EVA	(247,445.46)	295,427.96
Nett Income/(Loss) after taxation	504,173.28	1,072,798.64
plus Interest paid	173,906.11	37,260.91
NET OPERATING PROFIT AFTER TAX (NOPAT)	678,079.39	1,110,059.55
Current assets	9,040,378.62	9,635,916.12
Fixed assets	3,681,274.45	3,685,810.09
Total assets	12,721,653.07	13,321,726.21
less		
Trade creditors	4,972,157.56	4,660,721.23
plus		
Provision for doubtful debt	(60,815.57)	40,000.00
CAPITAL	7,688,679.94	8,701,004.98
Borrowing rate (Prime)	22.4%	19.1%
Tax Rate	35.0%	30.0%
COST OF DEBT	14.6%	13.4%
Risk free rate of return (10 year bond)	14%	14%
Market risk premium	5%	5%
Beta	0.41	0.41
COST OF EQUITY	16.05%	16.05%
We	100%	100%
Wd	0%	0%
WACC (for the year)	12.04%	9%
WACC (monthly)		