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# Deloitte Africa Agribusiness Unit (DAAU)

## Prosper and grow

**Financial ratios as predictor of business failure**

# Can financial ratio analyses be used as the only predictor of financial failure of a business?

## Business failure is a reality that has to be faced in all economies...

Investment in Africa as the ultimate solution to food security for the looming global crisis necessitates an investigation into investment opportunities in this strategic environment. Several models for prediction of financial failure exist which has been developed over time. Both quantitative and qualitative models exist.

It needs to be stressed that quantitative prediction models are but one of the tools that can be used as a predictor and serves as an indicator which necessitates a more detailed analyses which probes deeper than financial analyses alone. Quantitative models are based on published financial information which is relevant to public and private companies and qualitative models which are based on the internal assessment (strategies, business plans, management competency etc.) of companies. Both methodologies are used to determine whether the probability exists for financial failure in the future. It needs to be kept in mind however that financial ratios are but a reflection of the result of the internal functioning and strategies of a business. It would then be logical to use both of the methodologies in order to examine any business, first quantitative as an indicator of symptoms of distress and then qualitative to find the underlying illness, which can be treated and cured.

It is ironic that the first recorded instances of the use of a financial ratio as indicator of risk was in the late eighteenth century and several models have been developed since, of which William H Beaver (1966) - one of the pioneers of quantitative financial failure models in which financial ratios as predictors were used. Following Beaver, Altman (1968) proposed 'multiple discriminant analysis' (MDA) where a total of four to five financial ratio's which were weighted by coefficients were combined in a single Z score or value.

Before embarking on an academic analyses of the actual formulas used in MDA, general mistakes in the start up or operation of a business can be identified. These can be listed as follows:

## Equity and liquidity

To quote an old banking colleague of mine in reply to the question why he did not own his own farm - “I would have owned a farm if it could be done with a 100 % loan”. Due to the capital intensity of agribusiness, entry into the industry is limited. In all literature references the weight of equity or own contribution is stressed as one of the most important factors which enables a business to survive albeit other external or internal management issues. This fact seems to be ignored in a South African context as many a project has been initiated with as little as a 10 % equity stake. As a rule, equity is an indicator of risk carrying capacity of a business as it relates directly to:

- Credit worthiness (the ability to obtain financing from external sources)
- Cash flow (the larger the equity contribution the smaller the cash flow impact in terms of interest and capital repayment)
- Improved profit margins due to lower interest cost
- Ability to expand the business due to available resources or weathering a cyclical slump in a specific industry

Although guidelines exist with regard to the actual percentage equity that is required, it would be prudent for the investor to do research into the specific industry/enterprise as different rules apply. As a norm it can be said that the less profitable the enterprise, the higher the equity required as you would immediately be doomed to failure should you not even be able to service interest costs. The opposite is also true but it must be kept in mind that the higher the reward in terms of possible profits, the higher the risk. Therefore one needs to make allowance for these risks in terms of equity and that a cut of point of a minimum required equity base does exist. Using a calculation such as return on equity as only criteria would in actual fact be fatal from a sustainable business perspective as you return would normally look at its best just before bankruptcy. In studies, the lack of cash flow management skills and lack of sufficient equity was the undoing of 82 % of businesses within five years of startup.

Retention of profits as part of a business strategy to improve the equity base also enables a company to be able to capitalize on opportunities such as expansion into the value chain to further improve profitability. A healthy capital base enables the company to seize opportunities which would under normal operating conditions not have been possible.

## Industry

Know the industry or enterprise that you wish to invest in. It is all too common for investors to commission a feasibility study into a new venture which they would then use as a tool to obtain financing. There is nothing wrong with involving industry experts and we would advise to do so, but the secret lies in the fact of the actual involvement of the investor in "doing the homework". A normal occurrence in instances where experts are used who do not have the necessary credentials in terms of practical experience, is that costs can be understated and income overstated - "the in a perfect world scenario ", with resultant overstated and incorrect profitability projections. Risks and opportunities needs to well identified and understood.

It is very important that an industry or enterprise be examined at operational level in order to determine what the hidden costs are and what achievable income/yield should look like given the environment in which the business is going to operate. Both of these factors have huge cash flow implications and can lead to distress within the first year of operations. Taking a cautious approach in scaling down income and adding a percentage of unforeseen expenditure is therefore advised.

Any analyses should also be compared with actual operating figures from similar businesses if available. Trade or producer organisations are a good source of information as they will not only be able to verify cost and profitability but will be able to supply an overview of the complete competitive market, its driving forces and possible niche markets that can be exploited. This will enable the compilation of a proper marketing strategy, which defines the target market, growth rate, profitability, technology required, customer profile and needs, impact of direct and indirect competitors as well as the possibility of product diversification and niche markets.

Issues that were ignored in the industry category and that was listed as reason for insolvency in the UK Insolvency website are:

- Failure to focus on a specific market because of poor research
- Companies diversifying into new, unknown areas without a clue about costs
- Failure to carry out decent market research
- Failure to control costs ruthlessly

Knowledge of the industry is also important in compiling accurate business plans and in 78 % of business failures, the lack of well developed business plans was given as a reason for insolvency.

## Planning and risk mitigation

"Leadership is the most important single factor in determining business success or failure in our competitive, turbulent, fast-moving economy"

Crisis management is a factor that can paralyse pro active thinking and may be one of the biggest causes of wring decisions. The ideal of a perfect working business with no problems is a pipe dream. During the planning process one needs to plan for problems and occurrences that can impact negatively on your business. The magnitude of such events and the probability needs to examined and plans need to be formulated to mitigate such events. From an agribusiness point of view environmental factors over which no control exist is one of the main factors that can cause financial distress. Due to the strong presence of value chains, drought as an example may not only impact on the primary producer but will have a ripple effect throughout the supply chain. Mitigation of risk is possible but it is normally associated with a cost. Examples are:

- Multi peril risk insurance
- Credit guarantee insurance
- Taking of tangible security
- Fixed off take agreements
- Diversification of one's business as not to be too reliant on one sector of an industry alone
- Alternate sources of supply
- Do not rely on a few single customers for revenue
- Strong equity base
- Real time business intelligence in order to be able to anticipate possible events in the market

As mentioned most of the above will be associated with a cost but by calculating cost / benefit, a decision can be made whether it is worthwhile to institute such mitigants.

## Leadership skills and staffing

An often ignored fact of successful business relates to the building of a team that is compatible and has the skills to finance, produce, sell, and market. In close conjunction is the fact that some owners/managers over estimate their own contribution while ignoring or understating the contribution of others in the business. It pays to employ self starters who do not require a full support service in order to perform.

Failure of owners to recognise that their own failings in terms of own relevant business experience and the failure to seek help is given as one of the reasons in 70% of business failures.

In the article ***Business Failure Prediction and Prevention*** and we quote[1]:

*"It has been suggested that the ultimate reason for business failure is poor leadership. According to business guru, Brian Tracy, 'Leadership is the most important single factor in determining business success or failure in our competitive, turbulent, fast-moving economy.' Based on a study by the US Bank, the main reasons why businesses fail are:*

- *Poor business, financial and marketing planning*

- *Poor management*

*Proper application of these key factors is a function of good leadership".*

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[1] *BUSINESS FAILURE PREDICTION AND PREVENTION - Michael Pogue: Technical pages 54-57 Student Accountant June/July 2008*

Other general management issues, that has been proven as important contributors to failure as cited on the UK Insolvency website are[2]:

- Failure to control cash by carrying too much stock, paying suppliers too promptly, and allowing customers too long to pay
- Failure to adapt your product to meet customer needs
- Failure to pay taxes (insurances and VAT)
- Failure to gain new markets
- Tougher market conditions
- Company directors spending too much money on frivolous purposes

### Financial ratio analyses as predictor of failure

One of the most well know MDA models that is still in use today is the Altman Z score where the focus was placed on five financial categories i.e. liquidity, profitability, leverage , solvency and business activity.

[2] *www.insolvencyhelpline.co.uk*

**The original Z-Score formula was a follows[3]:**

$Z = 0.012\ X_1 + 0.014\ X_2 + 0.033\ X_3 + 0.006\ X_4 + 0.999\ X_5$

$X_1$ = Working Capital / Total Assets

$X_2$ = Retained Earnings / Total Assets

$X_3$ = Earnings Before Interest and Taxes / Total Assets

$X_4$ = Market Value of Equity / Total Liabilities

$X_5$ = Sales/ Total Assets

$X_1$ = Working Capital / Total Assets which is an indication of the liquidity that the company has to run its daily operations (Working capital being the difference between current assets and current liabilities). In the study by Altman this ratio was found to be the most valuable as a firm that experiences continued operating losses will have a continual decline in current assets in relation to total assets[4].

$X_2$ = Retained Earnings / Total Assets indicates how much money the company has re invested back into the business. Normally a young firm will have less retained earnings than an older firm which according to the author would mean that it would be discriminated against. Studies however indicated that younger firms do run the risk of going bankrupt. In a study that was conducted by Dun & Bradstreet in 1994 it was found that 50% of all firms failed in the first five years of their existence.

$X_3$ = Earnings Before Interest and Taxes / Total Assets indicates the profitability of the company exclusive of interest and taxes which can mask long term viability. The author found that this ratio consistently outperformed other profitability indicators as indicator of the earning power of assets.

$X_4$ = Market Value of Equity / Total Liabilities indicates the magnitude of debt within the company, solvency and risk carrying capacity to the extent of the decrease required in asset value before the point of insolvency is reached.

$X_5$ = Sales/ Total Assets gives an indication of how quickly a business turns over the goods or services it produces from the capital it owns.

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[3] *Altman, Edward I. (September, 1968). ""Financial Ratios, Discriminant Analyses and the Prediction of Corporate Bankruptcy"". Journal of Finance: 189-209*

[4] *Altman, Edward I. (July, 2000). Predicting Financial Distress of Companies: Revisiting the Z-Score and ZETA® Models*

**Z-Score Bankruptcy Model:**

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + .999X_5$

**Zones of Discrimination:**

$Z > 2.99$ -"Safe" Zones where a business was considered safe

$1.81 < Z < 2.99$ -"Grey" Zones or undefined

$Z < 1.81$ -"Distress" Zones or area of potential failure

In frequent inquiries that was received by the author E. Altman, the question arose whether the Z score model could be used in the private sector since it was developed for corporate or listed companies. A total re estimation of the model was done with substitution of book values of equity for the market value in $X_4$.

**Z' Score Bankruptcy Model:**

$Z' = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$

**Zones of Discrimination:**

$Z' > 2.9$ -"Safe" Zone

$1.23 < Z' < 2.\ 9$ -"Grey" Zone

$Z' < 1.23$ -"Distress" Zone

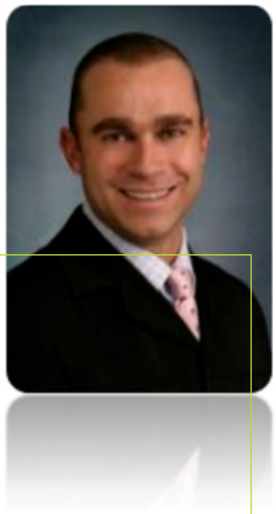
The interpretation of the Z Score is the same as with the original model.

## Through the use of models as an indicator one will be able to do an analyses of a business in terms of possible underlying risk

It would be prudent to use at least three previous years of audited financial statements as to be able to establish a pattern and not act on a single business cycle.

Once risk or distress has been identified, it would necessitate a more detailed analyses, in terms of a qualitative approach in order to find the true reason for poor performance.

# Contacts



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