What is the 'True', Going Concern Value of a Pastoral Zone, Grazing Enterprise Investment in Australia: and, Why Beast Area Valuation (BAV) is Wrong?

For an Investment in Anything, look to the Risk Factors, and first ask, "What would a Prudent Person do, to Price the Risks?"

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The Question:

"What Discounted Risk, Leverage, and Inflation Adjusted Value, is a Fair Investment Price, to Pay for a Grazing Enterprise, situated in Pastoral Lands on the Australian Continent; as a Going Concern, Walk-In-Walk-Out, and with All Things Necessary; and why BAV, as currently applied, is wrong?"

"Valuation starts with uncertainty, and ends in uncertainty." – Tom Whipple (2006).

Evidence of Bias may be encountered in this paper, however all attempts have been made to keep the paper factual and academic, and as a contribution to the continuing discussion in the debate about how to best value a large grazing property in the pastoral zone for Investment purposes. It should be noted that the author is very experienced in the area of animal production and husbandry, and rural management in this space, having been immersed in the industry for over 25-years and counting.

Foreword

Over thirty years, since birth, and until I moved to the City, and professional life some twenty-six years ago, I passionately lived and breathed Bush lore and culture, working on grazing properties in the pastoral zones of Queensland, and northern New South Wales, where I observed first-hand the harshness of climate and markets; and sometimes at the same time, on this, the driest Continent on Earth.

Only on rare occasions, could you remotely think of the pastoral grazing industry, in terms of an Investment and career, as the 'Land-of-Milk-and-Honey'.

Most days it is very hard, physical work, where your business investment faces the risk of being completely eroded away, due to the plethora of risks faced; yet when it is good, the lifestyle is relaxed and rewarding.

The understanding of risk as a concept, as opposed to uncertainty, and the appreciation of managing and mitigating the plethora of risks inherent in this environment, were ingrained from an early age, and the annual work programme, (implemented for the process of maximising animal production, health, and husbandry; and therefore, profit), was structured around minimising as many of the identified risks as possible; though there were always trade-offs.

The purpose of writing this paper is to encourage robust debate around the application of better valuation practice, by Valuers and Investors, towards a better understanding of risk and return, for an investment in a grazing enterprise, in the arid and semi-arid regions of the Australian Pastoral zones.

For decades (whilst not begrudging the Vendors the trousered profits and capital gains after a lifetime of risk without much pecuniary reward), and definitely since around 1972, I have tracked the movement of property sales, and since 1983 did not wonder further, why most properties were being sold, and it was rarely for retirement purposes.

If it was such a good business, and a great investment, why sell it, after all, and walk away; especially if that is all you know how to do well?

Most sales have been forced sales, as the Purchaser paid too much initially, and with their Equity being barely a Call Option to the upside, and whilst dying the slow death of a thousand cuts, as their life-blood of capital eked away, their financiers finally foreclosed, after taking their pound of flesh; from a flight of fancy that never had the wings to fly from the outset.

Why is this so?

Why are properties being sold on a 'liquidated asset, break-up' basis, rather than as a 'going concern'? This raises more questions than it answers; or does it?

Maybe the answer is obvious. Is it a business at all? Business must be profitable, surely? It is definitely not an Investment, using current practices, when all is said and done …! Why is this happening?

Also, the risk transference of bank financing policy, has a lot to answer for, when pegged against the social issues which are unleashed from imprudent investing.

Banks (and all other Corporates), whilst being commercial, have an implied social policy agenda to do no harm; and should have a main focus of Stewardship towards the long-term sustainability of the business itself, rather than the short-term focus of maximising returns to the short-term shareholders.

This policy creates interesting behaviours; in Management and Shareholders' self-interest. If the bank is strong, with robust lending practices, being profitable through the cycle, and over the longer term, the Shareholders will benefit regardless. And do not get me started on Agency Theory issues in management.

It may be reflective to imagine that BHP was once a very high risk, speculative mining stock; and is now the largest mining 'house' in the world; through prudent investment on most occasions, and a strong culture of governance.

Consequently, due to uncertainty and the plethora of risks faced, an Investor in a grazing enterprise should always take the long-term view of 'patient capital', when deciding to invest; and understand that an average, yet right-skewed, 5% Net Profit (After Tax) is approximately normal for most farms (depending on the level of debt), though it may range from +/- 20.0%, and if you pay a less than economic, 'Full', True, or Intrinsic Value, as the 'price-to-pay-no-more-than' (as you should), your long-term Return-On-Equity (ROE) should be greater than 16.0%; a metric which is reflective of an excellent business. (Warren Buffett)

Investment; should actually be, exactly that!

The concept and process of Investment implies an appropriate return on investment and capital employed, whilst also protecting the downside risk to the capital.

Therefore, you are encouraged as an Investor, to always:-

- know the 'about-right' Value of a 'thing';
- know where Value sits relative to Price today, so you may understand if you are a Buyer, or a Seller;
- never pay too much (an economically feasible value), nor more than the 'price-to-pay-no-more-than';
- build-in an appropriate Margin-of-Safety to all decision-making; as planning for the future is always a 'best-guess', and you will always be wrong.

Whilst I have the humility to understand, that in writing this paper, I am standing on the shoulders of the giants of scholarship, academia, and industry, the 'thinkers' who have gone before me, including the formally un-educated, but very experienced, bush-men and women (whose knowledge I have inhaled [though observation, listening, and doing], and further though reading, learning, and inwardly digesting the peer reviewed tomes and conversations), and albeit through further understanding from me, that these men and women have shown the way as the pioneers, most of the observation and insights that have gone into this paper are, as much as they can be, my own.

Of course, I shall pay respect and mention those whose work I may use for illustrative purposes; however, where that respect is possibly, and inadvertently lacking, please forgive me for the oversight.

Also, I want everyone to know, there is probably not an original thought in this paper, someone, somewhere else, has not thought of, and/or spoken about, beforehand. For that I apologise.

I am especially grateful to my Supervisor, Dr. Garrick R. Small, an Associate Professor from the Central Queensland University (CQU), School of Business and Law, who has guided me on this journey, as a distant voice on the telephone and via email; and from original enrolment. His thoughtful insights have been akin to a Sculptor with a blob of wet-clay, as he has moulded my thoughts and writings from impassioned emotion, as I told my story, to one of rational thought, and passionate argument towards a better society.

A further source of enlightenment, and through wonderful support and encouragement, has come from Dr. Vincent Mangioni, a Senior Lecturer in Property Economics and Development in the School of Built Environment, at the University of Technology Sydney (UTS). I am very grateful for the telephone conversations which enlightened me at strategic and important intervals, and the many cross-roads on this journey.

A constant source of practical, patient, thought provoking excellence, has come from an ex-Lecturer, and now Friend, Dr. William Wild, who has asked a lot of questions of me, and about my work, to encourage a thinking process about truly understanding 'Why is it so?'.

Also, of greatest importance to me on this journey, is the feedback gained from my erstwhile proof-reader, and most fervent, yet constructive critic, Ms. Loretta Seamer, my Wife, and confidante, who is smarter and more intelligent, than I'll ever be. A very large "Thank-You", for your patience, sheep-dogging, and encouragement.

Any remaining mistakes, or mis-statements remaining in this paper are my own, and I take full responsibility for them.

I am happy to take questions, and debate the topics herein; and also to be proved wrong. You may contact me on michael@treponte.com.au or telephone +61 (0)4-88-77-88-11.

Enjoy the read.

Michael J. Vail

25th September, 2014.

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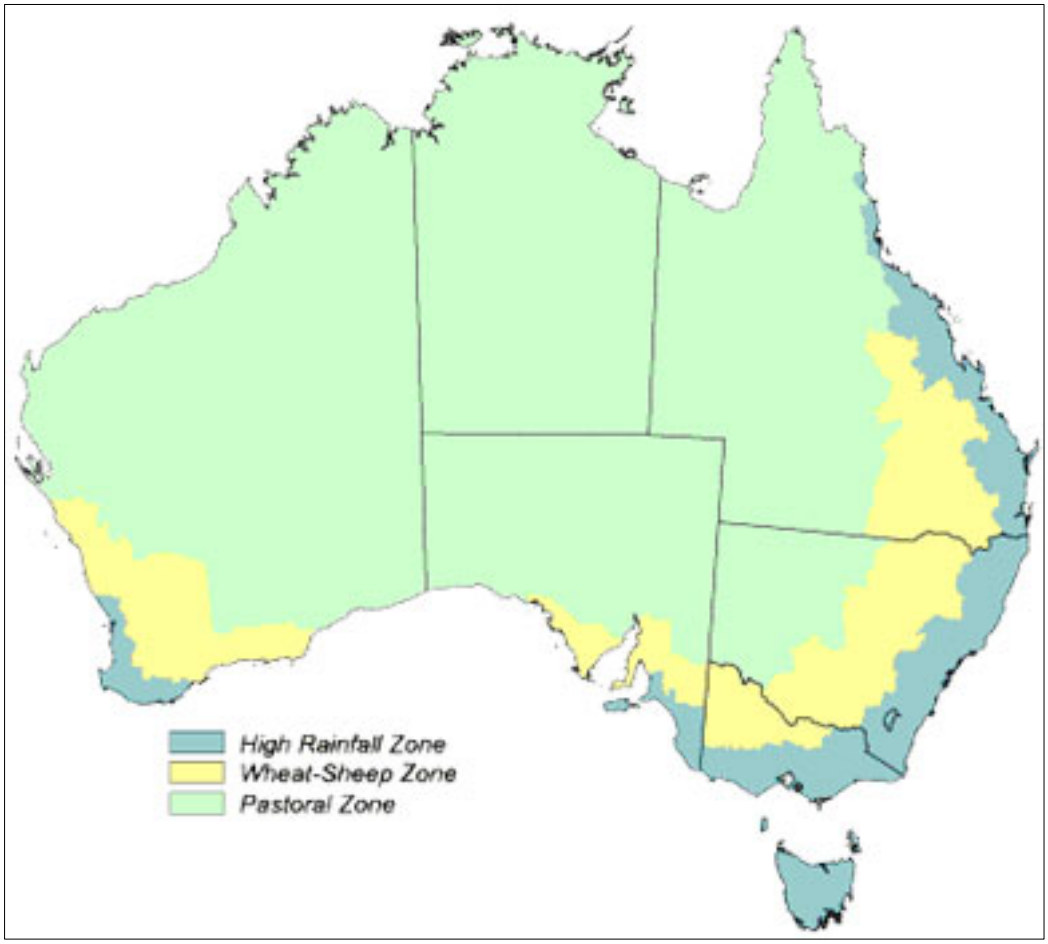
1 Abstract

In this paper, Michael J. Vail, an ex-Grazier, and now Investment Advisor, Accountant, Business Valuer, and Student, will attempt to show, that Beast Area Valuation (BAV), as currently applied, is 'wrong'. This oft-used Industry 'Rule-of-Thumb' Method of Beast Area Valuation (BAV) will be critically analysed, and proven to be incorrectly applied to derive a likely market price (from comparable sales) in today's markets, and to have significantly 'evolved' away from its genesis, to a point of manipulation of final true value, and causing Investors' to pay a premium where none does, nor should exist. Sustainable Debt levels measured as Debt to Equity, and Debt to Debt plus Equity, are discussed, and an upper limit suggested. A few old 'Bankers' Methods of appraisal are also discussed; which when combined, leads to a maximum prudent valuation multiple of 2.5-Times the average herd value, looking through the cycle. Further investigation and discounting for 'risk' reduces this number to around 2-times; and preferably 1.8-times. We understand, whilst all value lies in the eye of the beholder, there are prudent limits on the upside for a rational Investor, to ensure they pay up to, but not exceeding, an economic 'price-to pay-no-more-than' for any investment. We have all heard the saying, "Never pay full price". Value for an Investor will be less than Intrinsic (or 'Full') price, and the larger the spread, the larger the potential Margin-of-Safety (and therefore profit), in the deal, as an exit strategy is required; and a therefore wider net may be cast over the pool of possible buyers. Any price paid, which is greater than this number, will be an irrational speculation, and the larger the spread in that direction, the higher the likelihood of loss of Capital, or forced-sale, on the exit; or more extremely, bankruptcy, liquidation, and penury. The focus of this paper is Investment Valuation, for the purpose of buying a going concern (with all things necessary) grazing enterprise in the Pastoral Zones of Australia. This paper introduces a new approach to the valuation of pastoral grazing properties, titled the Discounted Risk, Leverage, and Inflation Adjusted Valuation Method. This method focusses on the very important area of risk minimisation, and the 'drivers-of-value' for a sustainable grazing enterprise; and specifically on Gross Revenue, and combining the economic fraternal twins of Sustainable Stocking Rate $_{Long\text{-}Term}$ (SSR) (a constant), and Sustainable Net Farm Gate Price $_{Long\text{-}Term}$ (NFGP) through the cycle. For Production equals Value. (Tom Whipple – 2006). The result is a Dollar per Unit of Area (DUA) for that particular property, which when extended using the Total Area, gives the 'going-concern' (with 'all-things-necessary'), walk-in, walk-out (WIWO) value of a grazing enterprise in the Pastoral Zones of Australia, as the 'price-to-pay-no-more-than'; with land (like Equity), as a 'residual'. Necessary replacements or repairs, if any, to bring the property to 'fully developed status, will of course be deducted, to arrive at the Investment Value. By applying this method, more Investors in this space will survive the vagaries' of the seasons and markets, and continue on as sustainable Stewards of this land for future generations. As appropriate Land and Improvements values emerge from the WIWO Apportionments on Sale, so to, will a robust market-place develop for Rent/Lease and/or Buy participants, as the risk factors will be appropriately priced to reflect the

conditions of an enterprise operating as a going concern, in the Pastoral Zones of Australia.

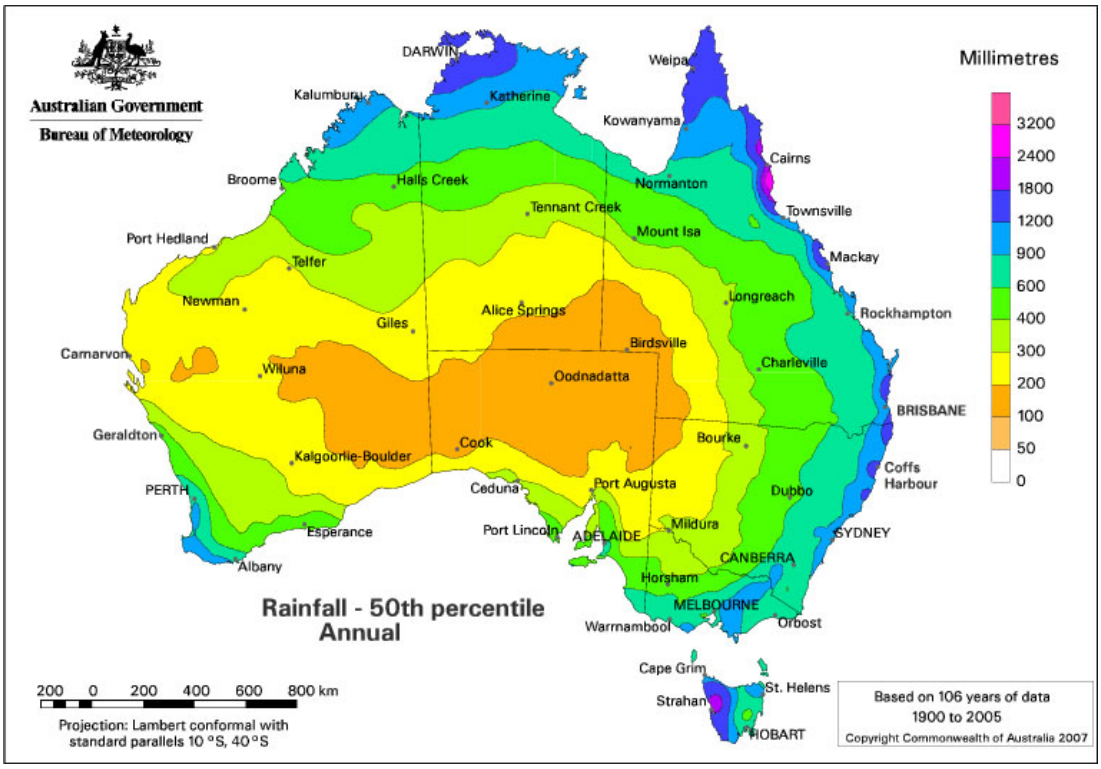
2 Maps

Figure 1 – Pastoral Zone Map of Australia

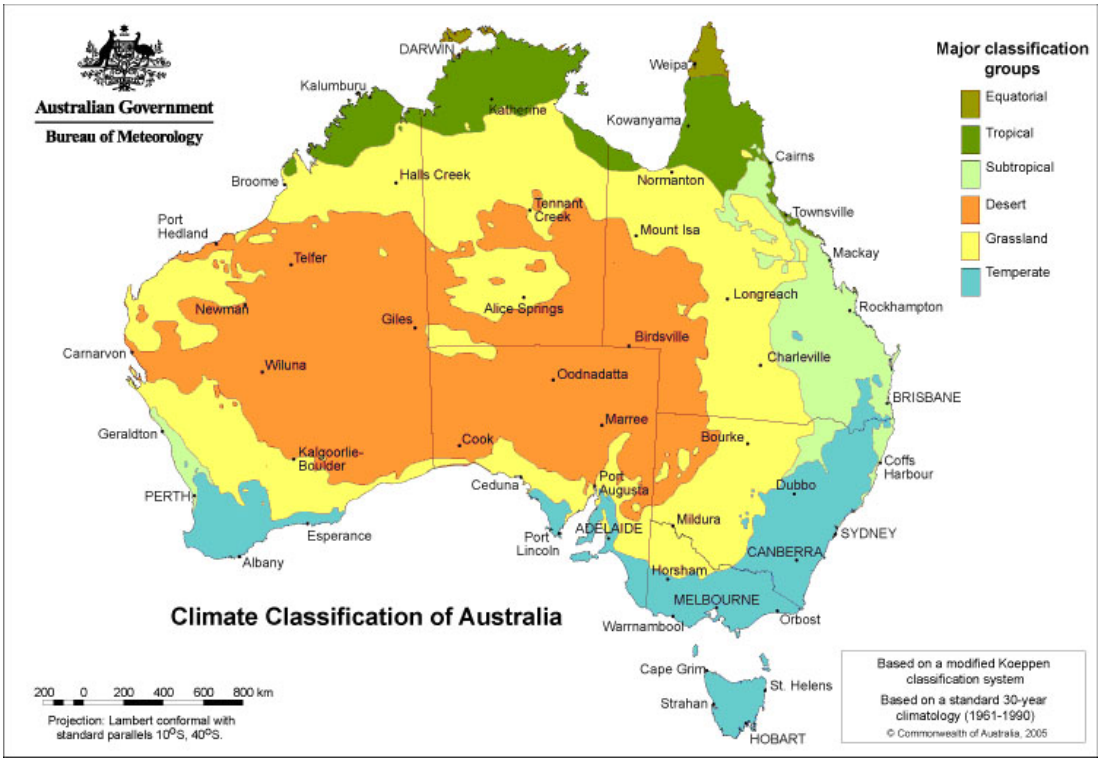


(BHSAgriculture, 2014)

Figure 2 - Rainfall Map of Australia



(Bureau of Meterology, 2014)



(Bureau of Meteorology, 2014)

3 Keywords and Phrases

Value Investing, Agribusiness, Pastoral Enterprise Valuation, Investment Valuation, Economic Feasibility Study, Beast Area Valuation (BAV), 'Rules-of-Thumb' Valuation, Corporate Finance, Security Analysis, Fundamental Analysis, Positive (what is: the past) and Normative (what might be: the future) Definitions of Value, Income Valuation Multiples, Asset Valuation (Summation), Liquidation Value, Discounted Cash Flow (DCF), Net Present Value, Comparative Sales Analysis, Asset Valuation Methodology, Understanding Pre- and Post-Tax Income Multiples, Price Earnings Ratios, Return-on-Assets, Return-on-Investment, Sustainability, Drivers-of-Value in an Agricultural Setting, Modigliani & Miller's Irrelevance Principle of Capital Structure theory, Risk / Return Trade-Offs, Probability, Decision-Making under Un-Certainty, Capital Asset Pricing Model (CAPM), Derivation of Discount Rates and Capitalisation Rates, Cost-of-Capital for Venture Capital, Monte-Carlo Simulation, Break-Even Analysis, Degree of Operating Leverage, Du-Pont Analysis (5-factor), Most Probable Value, Value V's Price, An Indicative 'Range' of Values (rather than a Point-Estimate), 'Spencer' High Court Case (1907), Valuation: (Black) Art, or Science?, Effect of Strategic and Operational Management Decisions on Income, Agency Theory, Value: Looking Through the Cycle.

4 Introduction

4.1 What is the Problem?

The oft used industry 'Rule-of-Thumb' method, Beast-Area Valuation (BAV), will be explained, including; how it was intended for use originally (as an index, and guide to value, rather than a driver of value); comparing that original application to how it has 'evolved' in everyday usage, to an *a priori* valuation model in this space; and why this evolution has distorted the market values/prices being paid. The outcome of the incorrect use of this valuation method has been a very large rise in the number of fore-closures, liquidations, and the penury which follows, as the Capital invested is lost forever.

If investors use the assumptions of this BAV model, as currently applied, and expect an appropriate value (to base a rational decision upon), then they are just plain wrong! Too many investors in the rural space have been, and are currently being guided to pay a very high price premium for grazing properties, in the high-risk pastoral zones of Australia.

Prices paid, incidentally, which do not accurately reflect the property's true value from an enterprise (asset) value point of view (specifically as a going concern, and with all things necessary), has led to an Income and Capital disconnect that is so far removed from reality, that the business models being promulgated include an inbuilt capital gain premium expectation on apparent exit (i.e. at purchase), and banks are lending on those Business Plans; a fact which further subscribes to the 'Bigger Fool' (Keynes, 1936) theory of continually rising prices, and the hope that an imaginary 'Auctioneer at the End-of-Time' (Buiter, 2009) will knock the property down to

'someone' (it might be the very 'Devil' himself), and justify the original price paid; albeit now a sunk cost, rather than an investment.

Have we forgotten how to price risk?

Have we forgotten how to mitigate loss?

Not from the banks' viewpoint, as they have a legislated, long-dated 'put option' (a virtual 7-year 'warrant'), to use the all-but 'free' Valuation Opinion' of a Registered Valuer as an up-front, one-off premium, to 'insure' against the down-side risk, as they shovel money out the door; and at a very nice return, "Thank-You very much". This is a wonderful example of risk transference (Mangioni, 2006); but "Who pays?"

This would suggest that Banks are conflicted; when they approve risky loans that are beyond the 'pale' of prudence and common-sense.

Anecdotal evidence over 40-years, combined with positive empirical research, and the introduction of a new normative valuation model which better fits the circumstances of Investment Value, with a focus on Production, Revenue and Risk, are the object of this paper, where the numbers will be tested and analysed.

The need for this new way of thinking, and the application of a discounted risk, leverage and inflation adjusted valuation method, is due to the likely range of possible outcomes in any valuation calculation, and that it is very unlikely that a formula will ever give an exact or precise answer sought, as to how much to pay.

However, the new method being put forward in this paper, is not about answering this question; rather, it is offered as a guide to another, much more important

question for better decision-making in this space, "How much, is the 'price-to-pay-no-more-than'?"

Meaning, what is the economic, 'full', 'true', or Intrinsic value for this asset as a going concern (and with all things necessary) enterprise value, looking through the cycle, and with a focus on risk factors, leverage, and inflation. Ideally an Investor would pay less than this calculated number: albeit, merely to have an exit strategy, which protects the Capital, and maximises the pool of likely buyers on exit.

For if we pay less than this price, the enterprise may then be a great investment; whilst always arguably being a good business.

When assets are valued, should it matter that the theory of valuation should differ, when the end-game is the same? Should different asset classes be valued differently, or is Return-on-Investment (ROI), or Return-on-Assets (ROA), as an Income or Asset Yield measurement going to be the same, to allow comparison between asset classes; which are, broadly speaking, Equities, Property, and Fixed Interest?

Of course the answer is, it does not matter. An Investor must always be able to rank, compare, and measure; and to do so, must be able to use the same metrics, else comparing 'apples-and-oranges'.

What is important, in this context, is understanding the purpose of the valuation (why), the date it occurred upon (when), exactly what is 'for sale', and being valued (what), and at what stage of the investment cycle the valuation occurred (when). The 'how', or methodology used, to arrive at an appropriate valuation, for the purpose and timing of each engagement is what will be discussed in this paper; and

specifically regarding an investment into a grazing enterprise in the Pastoral Zones of Australia.

The purpose of this paper, is to prove that rural property valuation practice, as it affects grazing properties in the pastoral zones, are not being applied correctly (in a theoretical and practical sense), and therefore, when one wants to invest, they must compete with irrational, un-informed, other 'investors', and possibly their conflicted advisors, using misunderstood 'rules-of-thumb', to drive land values higher than is necessary, and certainly beyond a fair investment price.

The 'youngest' published, peer-reviewed articles on rural valuation, which may be found, date back to 2009 with an article on 'Most Probable Price' (Squirrell, 2009) writing in the Australia and New Zealand Property Journal, with most other quality text and reference books being written back in the period just after the Second World War, with the following tomes being most important exceptions:-

- 'Rural Land Utilization' (HG Collins – 1949)
- 'Land Valuation & Compensation in Australia' (Rost & Collins – 1993
- 'The Farming Game Now' (Makeham & Malcolm - 1993),
- 'Property Valuation and Analysis', 2nd-Ed. (Tom Whipple - 2006)
- 'Land Acquisition', 6th-Ed. (Douglas Brown - 2009)
- 'The Law Affecting Rural Land in Australia', 4th-Ed. (Alan Hyam - 2009)
- 'Rural Valuation' (Baxter & Cohen – 2009).

Interestingly, there are few peer-reviewed articles in this pastoral property valuation space.

The current practical state of play, extraordinarily enough, usually involves neither vendor, nor investor, engaging the services of a Registered Land Valuer for the purpose, but rather using the services of a pastoral house property representative, to apply a 'rule-of-thumb' industry method, being Beast Area Valuation (BAV), based on apparently comparable sales in the district.

There is an old Italian saying, that translates to, "If you ask the water-seller, is the water fresh, what do you think he will say?"

Sometimes it is the very same pastoral house or property agent who represents the vendor in the listing; which is helpful in the guidance of the expected price. However, it must be assumed there is a conflict of interest; as the advice received is not independent, nor objective. Remember, an appointed Agents' role is to ' … get the best possible price for her Client...'

This leads to the 'bigger-fool' theory (first mentioned by Keynes in Chapter-12 on 'The State of Long-Term Expectations', including Liquidity, in the "General Theory on Employment, Interest, and Money"), when poorly informed investors, usually without a thought for the risks involved, pay the asking price, merely because emotion enters the equation, and irrational behaviour, fed by the emotion imparted in 'want' (rather than 'need'), and a 'hot' auction process, maybe sees the property sell past 20 per cent above expectations; expectations which were considered high on the vendor's part, anyway, and at any time.

Concepts of investment, even first principles of fundamental analysis, are either ignored, or un-known to a large proportion of the market participants; and this is causing distortions in the market to such an extent that the disparity and disconnect, between income and capital, is extraordinary.

Urban valuation methodologies, like comparative sales analysis, whilst encouraged by the decisions of the Courts of the Land (usually because the learned Judges do not understand rural production, and how land value in a drought may be '$NIL'), may have applicability to rural valuation for the settled areas closer in, where farm-size was always too small for grazing and pastoral activities in the broad-acre sense (and therefore more suited to intensive pursuits), but urban valuation techniques have absolutely no place, being used in the broad-acre space of large-scale grazing and pastoral operations, where sustainable productivity, in quantum and dollars, is paramount.

There appears to be significant anecdotal evidence that the metrics and methods being currently used to value a property of this nature, tend to over-state the value, and lead to unintended consequences of bankruptcy, liquidation, and penury, through a complete loss of Capital. (Lusht, 1994)

The main 'driver-of-value' for a grazing enterprise in the pastoral zone, and rural valuation generally, is long-term productive capacity (a Constant); however, to that should be added, risk assessment and management; because return and risk are not equal partners in the rural valuation space.

Investment Valuation (IV) on the buy-side, is all about conjecture, the future, expectations, 'crystal-balling', the ever-shifting tectonic-plates of economics, and the

application of experienced skill-sets to make the assumptions robust; albeit hypothetical. In other words, it is at best an educated guess, looking forward; and in the decision-making process, it is better to be roughly 'about right', than exactly wrong. (Keynes, 1936)

Investment Valuation is not about accounting and financial reports analysis (though the past may be a guide to the future), nor taxation matters (though they may be considered); matters which by their very nature, vary greatly, and by the individual entity, especially in the private company space, and create more 'noise' than clarity; as private business has private knowledge, and prospective purchasers' require a significant level of certainty to make an appropriate decision; else a significant discount shall be applied to the buy-price.

Investment Valuation is about the enterprise value (EV) (meaning valuing the return on 'assets'), and 'all things necessary' for the enterprise to be a 'going concern'; and a grazing operation in the pastoral zone is to be considered a factory, where the grazier and pastoralist makes their living 'on the land' (or is that 'off the land'), due to the land being the productive resource (water, grass and shelter) which adds-value to the raw material (beef cattle/meat production).

Unlike a factory in the commercial urban sense, where the factory merely 'sits', or resides upon the land (and could be anywhere), and must pay rent for this purpose. The land, depending upon quality, provides a certain level of utility, which has a symbiotic relationship with animal production and husbandry, and is therefore a marriage of convenience, and necessity; not superfluous.

Most importantly is the concept that rural land for grazing purposes may not be divorced from the enterprise residing upon it, as the land is an integral part of the 'all things necessary' to be a 'going concern'; for surely, the same operation residing elsewhere, would not necessarily produce the same results, as the inputs and 'drivers of value' will change, in mix and quantum. This point is essential to my thesis.

Furthermore, in the urban setting, the factory/shed housing the going concern business may be located anywhere, and the business could still operate. The structure sits upon the land, and rent is paid accordingly; usually based upon an 'all-risks' yield. The urban business owner makes a living 'off-the-land'.

In a going concern, grazing enterprise situated in the pastoral zone, the owner makes their living 'on-the-land'; meaning that the quality and quantum of production from the land, is closely tied into the quality of the soils and vegetation, topography, and the season, which give forth a bounty (or not) of water, grass and shelter; which in turn add-value to the 'raw material', being the animal production at the start of the food chain.

This close symbiotic relationship means that the land may not be divorced from the valuation of the going concern, with all things necessary, pastoral grazing enterprise valuation, and the apportionments must include the land component last; for like Equity, it is a residual amount.

Land value, like Equity value in an enterprise, is a 'residual' concept, as a part of the overall apportionments of the inputs to production, on sale or purchase; and sometimes, like Equity, the Land value may be $NIL/Zero, or close to it, due to the

lack of 'drivers of value', drought, and/or poor market conditions; though it may not be a negative amount.

A 'residual' by definition, is what is 'left-over', after all else has been taken-away.

There may be times in the marginal areas, where because of lack of production, poor management decision-making, a failed season, poor market prices at the farm-gate, or some other 'fat-tail' risk factor, the land may have a NIL value (of course, in theory, the value may not be negative).

> *"However good our future research may be, we shall never escape the ultimate dilemma; that all our knowledge is about the past, and all our decisions are about the future." – Ian Wilson, Strategy Consultant)*

It is only after a prospective purchaser has objectively and independently 'valued' the property as an investment, taking measure of the productive capacity and risk factors, should the further questions then be asked, as a fundamental component of the buying decision:-

- Does the idea make sense? Is it feasible?
- How much is necessary to borrow? From whom?
- How will the deal be structured, as to legal and capital structure; with a mind to asset protection and estate planning?
- Value V's Price? Where is price, relative to long-term value, today?

- Is the property affordable? How much surplus cash will the investment throw-off?

- Does the investment meet the appetite for risk, and commensurate reward, for a rational risk averse person/entity?

- What is the exit strategy, and likely price?

Only then, logically proceed to the preparation of a Business Plan for the enterprise; either to buy the going concern and manage the operations and growth, or to raise working capital to fund the growth.

It must be remembered (and will be a focus of a subsequent section here below), the Degree of Operating Leverage (DOL) is always the wild-card, Joker, or 'X'-Factor in the capital structure, and will dilute the very important 'Margin-of-Safety' with each incremental increase.

Unfortunately, many planning episodes for the 'Investor' start the other way around, driven by the enthusiasm of the prospective purchaser, who already has thought momentum, using a hypothetical situation of cash-flow budgets, and corporate finance valuations, like DCF – Free Cash-Flow of the Firm (which works fine for mining projects, listed entities, and other business models with consistent and/or growing cash-flows and profits), however, suddenly there are a lot of incorrect assumptions being made, and "… we can make the model work …" type conversations, with a reverse engineering process involved; and a complete escape from reality usually ensues.

Emotion has entered the conversation, and the intending buyer has usually not seen anything in the way of verifiable documentation from the current owners/managers about past trading, rainfall, and carry capacities to support any decision, let alone a rational one.

So much risk; yet, so little due-diligence…

> *"Erroneous assumptions can be disastrous." – Attributed to Peter F. Drucker (1909 – 2005), Business Thinker, Writer, Author, Professor, the Father of Management Consulting.*

This is a little like banks' having a valuation prepared (by their elected Panel) after the sale is complete, for loan and mortgage purposes, to see if the Loan-to-Value Ratio (LVR) is within policy; like putting the cart before the horse, or reverse engineering the process.

These conversations are separate from asking what the investment is worth to any thoughtful investor; based on rational ideas of risk and return. The more certainty based on long-term 'constants' evident in the due-diligence, makes for a better decision-making process; and less risk generally, is faced by the intending buyer.

These conversations need to be reined-in, and participants pointed in the direction of Prudence and Rationality; by their advisors' fiduciary duty.

5 Limitations/Delimits

This paper is not a discourse on valuation generally, nor as the science and art apply to the valuation of land for resumption, rating, or renewal, but rather looks at the specialist area of rural valuation; and specifically at the buy-side appraisal and valuation of large grazing property enterprises in the high-risk pastoral zones, and the effects of unique risks upon expected returns, for investment purposes only.

This paper will focus on the Buy-side, and from the point-of-view of the Investor; as you make your money when you buy, not when you sell.

This paper will **not**, be looking at valuation matters from the view-point of:-

- History and Classical Economics; for a large body of work already exists in this space (for example, regarding the Aristotelean and Socratic view of 'Fair Price' (Small, 2009), as this paper is to be readable to, and understood by, the target audience (the intending Buyers and Investors, and hopefully the Agents, Bankers and other providers of service to them); rather than a 'dry' academic paper (which may come later);

- A Vendor; as it is understood the Ask-price will be as high as possible, to achieve an economic rent from the transaction; if possible (however, Buyers set the market, Vendors merely offer and ask);

- A Financier; though Corporate Finance methodology will be applied in a theoretical and practical sense, to the decision-making process;

- The 'Revenue'; as Taxation is an outcome, not an input and/or 'Driver of Value';

- A Statutory Resumption, where the 'valuation process' is defined in legislation; and is therefore, in large part, a recipe;

as these will be assumed, for this short paper, as *ceteris paribus*, and ignored, for they are the subject of more weighty arguments in past and future tomes, as the main goal is to ask investors to really sit back and think, specifically about risk and productivity, looking through the cycle; and before they become invested in:-

1. A Business Plan (BP); which may cost in the multiple tens of thousands of dollars,

2. The buying process; after the Vendor's Agent has given the 'Selling Pitch', and

3. The inevitable emotional investment/attachment, which seems to follow.

6 Australian Rural Facts and Figures

- Approximately #97,300 Australian agricultural businesses (72.0%) reported having pastures on their holdings; an area of 76.8-m. (Ha), or 189.78-m. (Ac.)

- The Total Agricultural area of Australia is 405-m. (Ha), or 1,000-m. (Ac.), or 1.56-m. (Sq. Miles)

- The Total Grazing area of Australia is 355-m. (Ha), or 877-m. (Ac.)

- Total Improved Pastures area of Australia is 50-m. (Ha), or 124-m. (Ac.)

- Total Pastoral Zone area of Australia is 305-m. (Ha), or 754-m. (Ac.) or 75.3% of the Total Agriculture area.

- There are # 105,000 live-stock enterprises in Australia, with 71% being cattle, and 40% being sheep.

- The average calving rate across all Australia is 76%; implying some above and some below this number.

(Beef Central, 2013)

7 Valuation Approaches

Noting, there are many methods within each approach.

Valuation Approaches Which May Be Used to Value a Going Concern, Pastoral Enterprise:-

- Industry, or 'Rules-of-Thumb' Methods
- Comparable Sales
- Asset (Summation)
- Cash-Flow (DCF)
- Income/Earnings/Revenue

7.1 Industry, or 'Rule-of-Thumb' Methods

A 'rule-of-thumb', or Industry method of valuation is never to be scoffed-at, and is there, and used because it has stood the test of time, and 'normal' markets.

In the context of this paper, the predominant use of a 'rule-of-thumb' methodology, called Beast-Area Valuation (BAV), is over-stating values, and distorting the market beyond reasonableness, and causing un-necessary bankruptcies/liquidations, because the prices paid did not reflect the inherent riskiness of the investment. This methodology will be critically reviewed and shown that it is not being applied as originally intended (as an index), and is being used in reverse, to drive the market along to higher levels.

From 1972 when the price was $2.00 per Acre (BARE), through to 1987 when the same property was valued at roughly $40.00 per Acre (BARE), the price had risen an average of 19.27 per cent per annum (a range of 22.47 per cent to 10.76 per cent) for each of seventeen (17) consecutive years; based on the incorrect use of BAV, and a very friendly Wool Reserve Price Scheme. 'Incredible', 'gravity defying', etc. are the words most commentators who observed it, use to describe this period (even from those who benefitted), and there were some fairly dramatic price declines during this period as well; so you may well imagine the powers at work.

When will production and the farm-gate price catch-up to these unreal valuations, as evidenced by market conditions?

Sure, the market has already come-back from market highs this time by between 30 per cent, to more than 50 per cent in some areas, depending upon where you are located in the pastoral zones. However, based upon current farm gate prices being received for production, there may be further falls yet.

7.2 Comparable Sales

This method is preferred by the Courts, and therefore by most Valuers in their written opinions.

An extract from '*Mayne Property Development Pty Ltd v Chief Executive, Department of Natural Resources' (AV94-64, AV94-366) 20 December 1996,* is instructive for 'Comparable Sales', where the Judge referred to what Wells J. said in the case of '*Brewarrana Pty Ltd v Commissioner of Highways', SA (1973) 25 The Valuer No.4, Page-331*:-

"... It is general valuation practice for sales characterised as comparable sales to be used as bases for the valuation of lands said to be similar. But allowances must always be made before such sales can be so used. No two parcels of land are identical in all respects: the sale price of any given piece of land is not necessarily the price at which it ought to have been sold, or the same thing as its true value.

Before using any allegedly comparable sale, therefore, the Valuer must consider whether, having regard to the circumstances (using that word in its broadest sense) appertaining to the parcel of land in question, and to the transaction of sale, there are sufficient similarities to the circumstances appertaining to the subject land and to the notional sale pre-supposed by the test formulated in Spencer v The Commonwealth of Australia, and in later cases to warrant a Court's reasoning from the sale price paid under the allegedly comparable sale, with or without other evidence, to a value for the subject land.

Adjustments must, of course, be made every time reasoning of that kind is undertaken. For example, in relation to the land itself and the circumstances appertaining to it, it may be necessary to consider such matters as topography, location, size, slope, view, land use (actual and potential), scope for, and difficulties of, development, services and amenities; and in relation to the transaction of sale, the Valuer must weight such things as character, business, and relationships of the parties, their motives, the terms and conditions in their contract of sale, and any other special considerations that induced them or may have induced them to

> *conclude the contract at the selling price agreed, as well as the dates when the contract of sale and the transfer were concluded or effected.*
>
> *I do not for a moment pretend that I have been exhaustive.*
>
> *What I am concerned to emphasise is that, as I understand the evidence, and according to the inferences that I feel I can safely draw from it, there is no hard and fast rule by the application of which a Valuer may, whatever the circumstances, draw the line that clearly separates the sales that are comparable, from those that are not.*
>
> *It is, in my view, all a matter of degree: some adjustment is always necessary; too much adjustment will render it unsafe to use a sale, subject to such a degree of adjustment, for the purpose of the reasoning process in the Comparable Sales method.*
>
> *Just where the line is to be drawn is, it seems to me, the very sort of question that is fit for the expert Valuer to determine; the assessment of the risks of adjustment is peculiarly his sphere of skill…*"

Note, the second last paragraph being the most important reference.

The trouble with applying comparable sales analysis to the valuation of a going concern (with all things necessary) grazing property in the Pastoral Zones, is price momentum is already reflected in the recorded sales of the past six months; whether up, or down. This may create a 'lag' effect.

Also, with comparable sales analysis, a Valuer is being guided by prior decisions with varying degrees of irrationality and idiocy; and it is not the attributes of separate and slightly different properties which are being compared, it is the price paid for those attributes.

But where is 'value'; relative to the price being paid? Surely that is the correct question to be asked by the Valuer?

A Buyer is an Investor, so an investment approach to the task must be the correct one to take; albeit similar residential properties like 'little boxes, all in a row'. Surely valuation is about where 'value' is today, relative to prices being paid?

Comparable Sales Analysis, in this context, is also being used in a market which experiences thin-trading (and therefore little liquidity), and is being possibly manipulated for gain; either knowingly, or unknowingly.

Well you may ask, "Why Comparative Sales Analysis Does Not Work, in the Valuation of Large Grazing Properties in the Pastoral Zone."

Many Valuers and Investors will use what they will call 'comparative sales analysis' to derive a value for another property in a district; providing the adjustments are meaningful, and not too large.

This may well be appropriate in the closer settled areas; and/or to be used as a 'check-test' secondary method.

However, this approach will not work in the pastoral zones, due to properties, even ones right next-door, being different in nature, composition of resources, and reason

for sale. The only 'comparability' factor due to the tyranny of distance and other market and weather factors may well be a Net Farm Gate Price (NFGP) received per head of sales; once freight and cartage, fodder, and any other cost of sales is removed so that each sale may be deemed a 'paddock' sale. Or maybe 'Kilos of Meat, per Acre of Land, per Millimetre of Rainfall per Annum'; a KPI. This would be 'comparison' on an 'index' basis. This would identify properties deserving of a premium; or, on the other hand, a further discount on price.

You may well argue that they may be comparable on a Stocking Rate basis, as it is certainly logical to do so; however, many good managers use the 'less-is-more' mantra, and under-stock when compared to district averages; and others, probably weighed-down by debt, tend to over-stock (though you will only get away with this management technique for a season or so, and only if you receive the rainfall) and will eventually degrade the property, destroying pasture and soils in the long-term, whilst chasing short-term profit behaviours.

Each individual property must be visited by the Valuer, and calculations prepared, to derive the metrics that apply within the boundary fence of that enterprise; looking through the cycles, and taking a longer term view. Bankers may need to heed this opinion also.

The concept of a 'Living Area' (Vail, 2012) is very important, though not well understood, and the risk inherent in properties which are less than this 'area' is not well explained, nor understood either. The fact is, many of these properties are marginal for profit; and capital loss is the 'norm', rather than the exception.

A 'Living Area' is the minimum size that will give an appropriate level of scale, and comfort to an investor, to 'hedge' against the cumulative nature of risks faced.

7.3 Asset (Summation)

The next valuation methodology available in this space is the oft-used Sum-of-the-Parts Asset Valuation approach (Summation), whereby each component part is 'valued' separately, and then combined to arrive at a value.

This may be appropriate in the urban areas where the factory or shop sits upon the land, and the business is operated from those premises, but is in no way suitable for rural valuation, and especially in the grazing enterprises of the pastoral zones, because there is synergy between the assets, and possible 'double-counting' may result.

If the sheep and cattle were not in residence on these pastures, they would simply be grazed by native kangaroos (which incidentally eat the same amount each day as a sheep), or feral goats, rabbits, camels, donkeys, and/or pigs.

Except for maybe growing date-palms, there is no alternate use, except meat production, for the land in the pastoral zones; though an opportunity crop may be grown, from time to time, if certain conditions prevail.

7.4 Cash-Flow (DCF)

A Valuer, for Investment purposes, which is what this paper is focussed upon, must approach their task much like a valuation of a going concern business in the urban space, and only looking back to learn, must focus on the future expected gains from

holding this asset, bringing these future benefits back to a present value, as at the date of valuation.

Like all Discounted Cash-Flow (DCF) analyses, there will be more likelihood for error above the mid-line EBIT number; and that is why each line-item must have robust written assumptions made about the performance measurement over the time period being analysed.

Of course the assumptions regarding the derivation of the Discount Rate or Cap-Rate must also be robust, but there is more risk of a 'wrong-answer' above the EBIT line because the Discount Rate is the denominator and has all the 'power'; however, if the Net Cash-Flows are larger, or smaller, than appropriate (albeit sensitivity analysis will be applied), the net affect will be magnified.

DCF is the 'perfect' valuation technique, despite the many flaws, for projects with finite lives, and certain cash-flows, as it focuses on the actual cash, both in and out, and 'values' that cash-flow stream, at the discount rate applied; and is therefore superior to accounting concepts of 'net income' where the numbers may be manipulated.

Consequently, this method may not be a suitable application to the valuation of a going concern pastoral grazing enterprise; because of the many moving parts above the net cash-flow line, and the number of years where Net Cash-Flow is less than $Zero.

However, the process is robust, and transparent, and should therefore be considered as a Secondary, or 'Check-Test' method.

The main 'risk' to suitability will be the selection of a suitable discount rate, where most use a company's Weighted Average Cost of Capital (WACC); but who is to say what the 'beta' should be? Is an enterprise in this space twice as 'risky' as the stock-market, or is four a better guess?

I will use an example to illustrate. There is a property at Blackall which is 42,000-Acres, and will carry 2,100-Cows. The question is; based upon the expected Cash-Flows over a ten year period, with an expectation that the property may double in price (highly unlikely in 'normal', rational circumstances) in the next ten years, what is the most I might pay WIWO, where Net Present Value is around 'Zero'?

The answer is $4.34-million: with an Internal Rate of Return (IRR) of around 13.0%. As there may be somewhere between five and nil years of less than $Zero cash-flow, the IRR may be incorrect; however, the Discount Rate used of 22.0% is indicative of the cumulative 'risk' factors faced. Refer to Table 1

Table 1 – Valuation of an Income Stream with Risk and Uncertainty

NET PRESENT VALUE												
CATTLE STATION												
	42,000	- acres at Blackall					DRLIAV- Method:	$ 4,341,172.99				
	2,098	-Cows										
	$ 1,000	- Value per Head (NFGP)										
DISCOUNT RATE pa:	22.00%											
	0	1	2	3	4	5	6	7	8	9	10	
DATA:-	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
NET CASH-FLOW (AFTER TAX) ($0.0-million)	(4.34)	1.13	0.78	0.48	1.07	0.74	0.79	1.20	0.59	(0.01)	0.93	
EXIT PRICE											8.50	
DISCOUNT MULTIPLE	1.00	0.82	0.67	0.55	0.45	0.37	0.30	0.25	0.20	0.17	0.14	
DCF:	(4.34)	0.93	0.52	0.26	0.48	0.27	0.24	0.30	0.12	(0.00)	1.29	
NPV:	0.08	or	$ -	per Acre WIWO								
IRR:	13.27%											
MAXIMUM TO PAY FOR THIS CASH-FLOW:	$ 4.34	-million (WIWO, and as a Going Concern, including All Things Necessary to derive the Cash-Flow.)										
APPORTIONMENTS:				GROSS		$ per Acre						
	STOCK			2,580,420		61.44						
	PLANT & EQUIPMENT			200,000		4.76						
	LAND & IMPROVEMENTS			1,560,753		37.16						
			TOTAL:-	$ 4,341,173		103.36						

7.5 Income/Earnings/Revenue

The final recommended valuation approach (using applied finance theory, though rarely used in the rural land valuation space, though it should be, and specifically in valuing a grazing enterprise located in the pastoral zones), is the Income approach; whereby the long-term Operating Income, or Earnings Before Interest and Taxes (EBIT), which has been adjusted/normalised for all un-audited private enterprises, has an appropriate capitalisation rate (Cap-Rate), or Discount Rate, applied to it, to arrive at an Enterprise Value (EV).

This method is most commonly used, in conjunction with DCF, Present Value methods, in most middle-market and large company business valuations.

This EV measures the value of Total Assets, less Surplus Assets (if any), and is an 'All-Equity' model, where Assets equals Equity, and Liabilities have a NIL value; of course, with Liabilities (if any) taken away from this number to find the value of Equity.

Of course, once any debt is added, all this does is increase the value of the Discount Rate percentage, and reduce the value of the Cap-Rate Multiple, to reflect the extra risk being absorbed; and therefore reduces the corresponding value of the 'risky' asset.

One must be careful about reported earnings, and understand the 'Notes' to the annual accounts:-

> *"Earnings can be as pliable as putty when a Charlatan leads the company or business reporting them." – (Warren Buffett – 2011), "An Investors Blog",*

Chairman of Berkshire-Hathaway, Value Investor Extraordinaire, Wealthiest Person in the World, and Strong Critic of Governance Standards.

Return on Assets (ROA), Return on Investment (ROI), and Return on Equity (ROE) are the foundation of Valuation-101, whatever the setting, with the common numerator being 'return' on 'earnings' (yet accounting concept), usually represented by Net Profit After Tax (NPAT), Earnings Before Interest Tax Depreciation and Amortisation (EBITDA), and/or Earnings Before Interest and Tax (EBIT).

If you will use ROE, then use the 5-factor Du Pont analysis, to really understand the numbers.

The Enterprise Value (EV) that derives from using a multiple of these metrics, includes all assets necessary to derive 'profit'; with EV being a 'money-in' (Total Assets less Surplus Assets) concept, and a multiple of the 'money-out' (EBIT) concept of what may be taken-out of the business to either pay-down debt and/or provide a return to Labour and Capital.

Profit/Earnings/Income is a book-keeping/accounting construct: open to manipulation (even within the Standards), with Managers wanting to optimise (albeit with 'Agency' issues sometimes rather obvious), and must be 'normalised' as an essential valuation practice; though it must be understood that 'normalisation', a process of add-backs and adjustments, to remove abnormal or extra-ordinary income and expenses, is sometimes a very subjective operation, and therefore not precise, and consequently makes final numbers still incomparable.

It is said that 'cash-flow' is the 'truth', and why DCF should be used: but different operational decisions may render the truth as incomparable, due to the variability of expenses and therefore net cash position may vary, whilst production factors stay relatively 'constant'.

This makes 'profits' also incomparable when comparing sales based upon income. It is impossible to 'normalise' cash, though the classification of each transaction, as represented on the bank statement, may change with closer inspection.

Gross Revenue is an economics construct of 'pure' inflows, therefore if an Investor wishes to truly understand the inherent 'value' of an investment in a grazing enterprise in the pastoral zone, she must focus on the Revenue, and not on the Profit; which is no more than a balancing entry between two columns of book-keeping, represented by an albeit verified Trial Balance.

Sure, the numbers are important for expressing the result of management decisions, are therefore useful from a management accounting viewpoint (and the budgets arising from this area of accounting), and certainly provide information for operational decision making, and to pay tax; but should not be the centre-piece, or foundation-stone, of a Capital Budgeting decision, under un-certainty. This is because Value is Productivity; and Revenue is Productive Quantity times Price. (Whipple, 2006)

The focus of an Investment Valuation, must therefore be on top-line, Gross Revenue.

8 Insights to a New Way of Thinking

This paper will introduce a new approach to sustainably valuing rural grazing enterprises in the pastoral zones, taking a long-term view of Gross Revenue through the cycles, and based upon long-term productivity constraints, the long-term real farm-gate price, and an appropriate level of long-term debt as a percentage of livestock value, and Debt to Debt plus Equity, or Debt to Assets.

Valuation is not just about pricing the obvious and cumulative financial, market, and business risk(s) in a transaction; it is also about pricing the tail-risk: and that is why it is imperative to look through a rolling cycle as to what is sustainable. A 10-year cycle has been selected to align with weather cycles which are viewed as '7-good-years-in ten'.

Gross Revenue is selected because it is 'pure', and without any 'noise' from artificial accounting decisions or the operational decisions of management, and truly reflects all of the factors of production (both 'on' and 'in' the land, and the seasons experienced over a 10-year cycle), and pre-vailing market prices.

Gross Revenue, as an Income approach, is focussed upon because it has a direct relationship with the spot price, and price expectations into the future.

This effective spot price is important because it encapsulates the amount of 'value' the properties 'resources' (water, soil, vegetation, and rainfall) have added-value to the animals 'on-the-hoof' that year. The quality of stock offered will be reflected exactly in the price offered, and bid-up, for them. The total revenue is then a mere multiplication exercise thereafter, as the quantity of that article offered, is tallied.

Conveniently, all the fixed and variable 'drivers-of-value' (e.g. soil, vegetation, rainfall, factors of Supply and Demand, management decisions, animal husbandry, distance to market, etc.), except the sustainable stocking rate (SSR) (a long-term Constant, under *ceteris paribus*), are fully captured in the one number, the Farm Gate Price received.

When that number is adjusted for the cost of Freight and Cartage to market, the Farm-Gate Price is reduced to a Net Farm-Gate Price (NFGP) per Head, reminiscent of a 'Paddock' sale; making all properties comparable (to a point), based upon price received per unit of production, at the farm gate, at a point in time.

Work has been done to understand the relationship between multiples applied to after-tax concepts of income when compared to gross revenue, and it appears a maximum multiple of around 2.8-Times Gross Revenue will explain a Price Earnings Ratio (PER) of around 16-Times the After-Tax Income (NPAT) of a city-based and/or listed business. (See Appendix - 6, Multiples compared)

Based upon further analysis by the Author around Pastoral Valuations, using a production model, and focussing on EBIT Multiple valuations, it appears that the prudent 'all Equity' multiple is around 5.3-Times EBIT (with Intrinsic, 'Full', or True Value at around 7.0-Times); which becomes 4.4-Times EBIT at 40.0 per cent Debt (with Intrinsic, 'Full', or True Value at around 5.0-Times). A very important point to remember.

This of course disagrees with M&M's 'Debt Irrelevance Proposition of Capital Structure Theory', which stated that "… the amount of debt a company takes-on, does not affect its value, or price paid by investors …". (Modigliani & Miller, 1958)

Of course, assuming the cash-flow and profit is available (to pay-down the debt within terms agreed), it is not about the quantum of debt, which is important, but rather the further risks imposed, by taking-on a further dollar of debt.

Risk is cumulative, and not all risk is financial, especially in the pastoral production enterprise space.

As the Accounting Equation (i.e. Assets = Liabilities + Equity) must remain in balance, even though the Enterprise Value (EV) may remain relatively constant, as each further dollar of debt is incrementally increased, so the Equity falls in corresponding lock-step with each change, increasing the risk of insolvency as Equity becomes an Option on the business; and furthermore, as the holding costs of debt eat into meagre cash (especially in the lean times).

The Discounted Risk, Leverage, and Inflation Adjusted Valuation (DRLIAV) Method being proposed, looks purely at the long-term productive 'horse-power' of a particular pastoral property, using its 10-year cycle sustainable stocking rate (SSR) as a constant, and the sustainable long-term net farm-gate price (NFGP), so properties may be compared as if each sale was a 'paddock' sale; as transport, feed, watering, and 'spelling' costs are first deducted.

For example, the DRLIAV method, with a secondary method, will be applied to 'valuing' the shares of The Australian Agricultural Company (AAC) on an 'all-Equity' basis. (Source is published AAC Annual Accounts 2013 Year.) This is outlined as follows:-

- Full Asset Value (EV), on an 'all-Equity' basis, using the Live-stock Valuation Multiplier (LVM) method, is herd value at balance date, $496.494-million (AUD) multiplied by 2.5-Times, equals $1,241.235-million (or $1.241-billion) (AUD) WIWO. As there is NIL debt in this model, and the shares outstanding were # 532.5-million, then the assets would equal equity, and the shares would be valued at $2.33 per share (fully diluted).

- If debt will be used at a rate above 20.0% debt to assets, then the LVM changes to 1.8-times to reflect the extra risk, recalculating the WIWO value to $893.689-million (AUD), and the shares would be valued at $1.68 per share (fully diluted).

- However, using the new revenue method (DRLIAV) being proposed, we arrive at the WIWO value of a share.

  Net Farm Gate Price per Head:-

  - Cattle Sales $ 321.172-million (AUD)
  - Less: Freight & Cartage $ 5.368-million
  - Equals NFGP $ 315.804-million
  - NFGP per Head $ 463.06

  Sustainable Stocking Rate (SSR):-

  - Roughly 7.0-million Hectares (or 17.3-million Acres)
  - Divided by roughly # 682,000 head of cattle

- Sustainable Stocking Rate is 1-Beast:25.36-Acres
- DUA $ 66.95 per Acre (WIWO)
- Round-up to $ 67.00 per Acre (WIWO)
- Value (WIWO) $ 1,159.0-million (AUD)
- Number of Shares (FD) # 532.5-million
- Value of a Share $ 2.18 per Share

The investment recommendation, at current knowledge, would be to Buy/Accumulate below $1.68 per share, and if taking a longer-term view, up to $2.18 per share; due to the pending completion of the up-stream meatworks in Darwin, and a now complete, vertically integrated supply chain system from paddock to plate, with opportunities for either live export, or chilled carcases, and/or frozen boxed-beef exports into Asia.

9 Literature Review:

9.1 Value V's Price

Commencing with a few short definitions for context:

The Shorter Oxford Dictionary defines the word *valuation* as:-

> "… the material or monetary worth of a thing; the amount at which it may be estimated in terms of some medium of exchange, or other standard of a like nature."

The normative definition derived from Australian High Court Case of *Spencer v's Commonwealth (1907*) *5 CLR 418* is:-

> *"… the price that would be negotiated in an open and un-restricted market, between a knowledgeable, willing, but not anxious buyer, and a knowledgeable, willing, but not anxious seller, acting at arm's length…"*

Investment Value, as defined by the International Valuation Standards Council in the *International Valuation Standards 2011* is as follows:-

> *"Item-37. Investment value, is the value of an asset to the owner, or a prospective owner, for individual investment or operational objectives."*
>
> *"Item-38. This is an **entity-specific** basis of value. Although the value of an asset to the owner may be the same as the amount that could be realised from its sale to another party, this basis of value reflects the benefits received by an entity from holding the asset and, therefore, does not necessarily involve a hypothetical exchange. Investment value reflects the circumstances and*

> *financial objectives of the entity for which the valuation is being produced. It is often used for measuring investment performance. Differences between the investment value of an asset and its market value provide the motivation for buyers or sellers to enter the market place."* (International Valuation Standards Council, 2011)

The Australian and New Zealand Valuation Guidance Note (ANZVGN) # 10 of the Australian Property Institute (API), is labelled "**Valuation of Agricultural Properties**" (at 8.10.1), and this Guidance Note discusses the importance of past productivity being a guide to the future.

The reader should note that professionally competent valuation best practice is based on experience, plus the 'sniff-test', and is therefore arguably more art than science; with such subjective art-form involving guesswork and estimation.

Of course, there is the application of scientific processes, and applied finance theory and formulae; but it is the art that keeps it real.

This means that valuations will never be exact, and several very experienced Valuers approaching the same task, and for the same purpose, will not arrive at the same answer.

Consequently, this leads to a range of potential values; if these Valuers were empanelled, and depending upon the dispersion, may be 'about-right', or approximately correct.

For, as Sir John Bonham (1887 – 1992), the Director-General of the Confederation of British Industry said (and this insight has also been attributed to the Economist, John Maynard Keynes, after his death in 1946):

> *"We are in danger of valuing most highly, those things we may measure most accurately; which means we are often precisely wrong, rather than approximately right".*

The original saying came from 'Logic: Deductive and Inductive' (Carveth Read – 1898) page 351 [1], where it was said, "*It is better to be vaguely right, than exactly wrong*". (Read, 1898)

9.2 Types of Value

There are many types of Value, and each has a description, and a purpose. Some examples are:-

- Book Value (Historical, or Mark-to-Market)
- Depreciated Replacement Value (Buildings and Plant & Equipment, in-situ)
- Insurance Value (for Insurance purposes)
- Replacement Value (a type of Insurance Value)
- Going Concern Value (or Investment Value)
- Liquidation Value (for break-up purposes, on the winding-up of a business)

- Fire-Sale Value (in circumstances where assets are to be sold quickly)
- Intrinsic Value (aka 'True', or 'Full')Value
- Market Value (aka Market Price)
- Fair Market Value (an estimate founded on precedent or extrapolation) (Wikipedia, 2014)
- Special Value (used in cases of compulsory acquisition and resumption).

As you may observe, although the above list is non-exhaustive, there are many different values; and for many different purposes; and this is why the purpose of a Valuation Opinion Report must be stated, and very early in the document.

All value, of all property, and material 'things', lies in the eye of the beholder.

It does not matter whether already owned, or coveted by someone else; all parties to the transaction, and including the onlookers, will all have an opinion of value; educated or otherwise.

We have all heard people pass comment after a sale transaction along the lines of, "Well, they got a bargain there!", or "Nah, they paid too much for that!". It is surely mere opinion? How do they know? The question then arises, "Compared to what?"

How do they know, to pass those particular comments, and at that time; when all purchases are about an expectation of what may happen in the future. Of course, in exuberant markets, the answer is obvious.

There are many definitions of value throughout the world, depending upon legislation, regulation, religion, culture and purpose; however, the definition arising out of the Australian Federation's new High Court Case of *Spencer V's Commonwealth (1907) 5 CLR 418*, of "… knowledgeable and willing, yet not anxious, buyer … knowledgeable and willing, yet not anxious, seller… dealing at arm's length …", is the most discussed, both in Court precedence, and in other professional conversations (including the written reports), regarding valuation of property; and it deserves some commentary.

The interesting argument though, is as follows: if Spencer's case was to be tried today, would the same judgements have arisen? Would the interpretation be the same? Yet 'everyone', at the guidance of the Courts, and Common Law precedent, will not move away from it; even though it is a 'normative' suggestion, not a 'positive' solution, and was a land resumption case.

It is a normative argument (i.e. what 'should be'), as the behaviour noticed in practice, is that prices paid do not show a strong correlation to economic value, and price paid seems to depend upon the psychological behaviours, rather than the 'drivers of value', at that time; with price oscillating around the long-term trend-line of value, as the tides of boom and bust, wax and wane through the cycle; with the price momentum always seeming to over-shoot, whether on the way up, or on the way down.

Sometimes the prices paid reflect an irrational exuberance, with unreal behaviours evident, and a simple pay-back drifting-out to heights indicating that a capital return is impossible; and then the converse applies as distressed sellers attempt to extricate

themselves from their operational or financial situation (or the financiers are doing it for them, through the appointment of Receivers, Liquidators, and Trustees in Bankruptcy being appointed).

9.3 Value & Price

"It is what you pay for a thing, that matters. If you pay too much for a fine company, it remains a fine company; but a poor investment." – Anecdotally referenced to Kerr Neilsen, Founder, Platinum Asset Management, and Founder, Bankers Trust, Australia.

Price and Value will rarely be equal.

The Value of a thing will rise, sometimes non-linearly, in a long-term sustainable fashion, whereas Price will change with factors of Supply and Demand (and 'shocks' both from within, and outside the system), depending upon the stage of the investment cycle; with its peaks and troughs, tending to oscillate around the long-term trend in prices/values for this type of asset.

Sometimes at the top of the cycle, price is so far removed from reality, that you speculate how it is possible that investors could be driven to transact, let alone the banks' lending the buyers the funds; it beggars belief, but this is the lemming-like herd behaviours which abound in 'frothy' times at the top of the market.

There are more transactions at the top end of the market, during times of irrational exuberance, and liquidity and the number of transactions is at its peak also; whereas at the opposite end, during the depths of recession, with 'distressed' asset sales everywhere, and supply greater than demand, the exact opposite is true.

At this time, for the example above, with Price well below the trend-line of Value, an astute Investor will likely borrow all funds possible to buy at these prices.

It is worth remembering that greed and fear are emotions which always drive market momentum beyond a rational turning-point; whether going up, or down. Meaning markets tend to be over-bought, and over-sold, at the extremes.

Prof. Garrick Small (Small, 2009) in his aptly named paper, "Jekyll, Hyde, and Property Value", delivered to the 2009 Pacific Rim Real Estate Conference held in Sydney, says current day valuation practice mirrors the echo of transaction evidence, whilst the Community expectations are more focussed on the financial investment value of a property when compared to the market today. This is important for the debate which must be had, on how Valuers today may add value to a valuation 'number'. What does the 'number' really mean; depending upon 'purpose' of course?

This is an interesting tension; because professionally, whilst Registered Land Valuers are seen as 'experts in property' and Property Investment Advisors, by the community at large, that is not how the Australian Property Institute (API) as its membership body sees the profession. This is self-evident in the way a Valuation Opinion Report is written; with no room for either a 'valuation range', nor an 'Investment Value". The written narration will of course allude to market conditions generally, but not a hard number compared to likely 'fair market price' if sold today, as at date of valuation. This must be changed.

Further statements by Prof. Small (2009) on the difference between Price and Value are instructive when comparing the two words: *"... Price is a negative concept,*

naturally aligned to cost or burden. Value is the usefulness of a 'thing' to its owner, and is a positive concept ...", and *"... A large component of genuine value is psychological and the result of conditions existing within the end owner."* However, it is understood that Price is what you pay, and Value is what you get; with Value lying in the eye of the beholder.

A rural grazing enterprise, operating in the Pastoral Zones is a different cup of tea to a suburban residential housing block, with the plethora of 'risk' issues to be faced each day, simply demanding a seriously 'large' risk premium to be added, discounting an Intrinsic, 'Full', or True Value by some margin; as the net income, for example, may be a zero-sum-game through a 10-year cycle.

The example below will demonstrate the difference in EBIT multiples, if a Perpetual Zero Coupon Bond is used.

Well you may ask, why a zero-income financial instrument would be used as a model to price risk, in a pastoral zone grazing property.

The answer is, to inform the reader; because an investment for a 'City' firm, in a security/asset with a similar risk profile, would yield similar results.

An investment in the high-risk grazing country of the pastoral zones of Australia, where the 'driest Continent on Earth' gets to show everyone, from time to time, just what spectacular depths of misery in can bestow on humankind, and specifically the plant and animal kingdom; through lack of rainfall, leading to long-term drought, and the social costs that walk arm-in-arm, in concert, with it.

For a semi-arid or arid zone grazing property in the pastoral zone, may only yield around a 'five-good-years-in-ten' average (from the point of productivity and profit), [which is why scale of operation is important, as it becomes a numbers game in the drier regions, rather than quality turn-off], with the better areas averaging around 'seven' (meaning 30 per cent of the time spent in varying stages of drought). Sir Sydney Kidman understood this completely, and that is why he moved his stock around (like Kangaroos following the rainfall), but always towards market. (Bowen, 1987)

This is no better than a throw of the die at a casino, when it comes to the levels of risk and un-certainty (which are not the same thing) being faced by the Investor.

Consequently, for a model to reflect this low likelihood of income (and yet pay a fair price for the asset, in expectation of a reasonable level of profitability), and by applying a suitably high Discount Rate (to reflect the risks faced, and the likelihood of a zero-sum game), a Zero-Coupon, Perpetual Bond formula may be your guide:-

$$NPV = (EBIT_{Long\text{-}Term}) \; x \; (1 + (1/\text{Opportunity Cost, or Discount Rate})) - \text{Original Cost (PV)}$$

The investment rule for any DCF exercise is, to invest in positive NPV projects.

As an investor is indifferent, whether to invest or not, where NPV equals Zero, using algebra, set NPV equal to Zero, re-arrange the equation, and make it equal to PV; reverse engineering the process if you will; and this may give the theoretical 'price-to-pay-no-more-than'.

$$(EBIT_{Long\text{-}Term}) \; x \; (1+(1/Discount\ Rate)) = Original\ Cost_{PV}$$

For example: If the long-term EBIT (Operating Profit) is $600,000 pa (in real dollars) and the Discount Rate is 22.2%, then the following relationship would ensue:-

$$Original\ Cost_{PV} = \$600{,}000 \; x \; (1 + (1/ 0.222)) = \$600{,}000 \text{ x } (1 + 4.504505) = \$3{,}302{,}702$$

Meaning, that an enterprise with that level of EBIT Income, and that risk profile, is deserving of an Enterprise Value (EV) (or Total Asset Value, less any Surplus Assets, and assuming an 'All Equity' model) with a Multiple of 5.51-Times, of no more than $3.30-M.

However, what if we wanted to introduce an extreme weather risk premium on top of the business and financial risk premiums already allocated to the discount rate? Let us assume our hypothetical property enjoys a long-term average rainfall pattern of 'seven good years in ten'; and therefore we load the discount rate by a further 30.0%. What happens then?

$$Original\ Cost_{PV} = \$600{,}000 \; x \; (1 + (1/ 0.222)) = \$600{,}000 \text{ x } (1 + 4.504505) = \$3{,}302{,}702$$

$$New\ Discount\ Rate = ((1.222) \text{ x } (1.3)) - 1 = 0.5886$$

Original Cost $_{PV}$ = \$600,000 *x* (1 + (1/ 0.5886)) = \$600,000 x (1 + 1.698947) = \$1,619,368

Once extreme risk is taken into account, the Value falls by 50.97%. This is more than half the previously calculated Value; a very significant amount to reflect a further 30.0% of weather risk, where the property owner may lose everything.

This is a very important point to note when considering the investment of hard-earned equity capital, or slightly less expensive debt capital, and will be explored more later.

9.4 Price = Productivity = Value

"Price (meaning Market Price) is Value (meaning Productivity) quantified." (Whipple, 2006). Therefore, we may logically assume that Market Value is Price, as represented by the Productivity of a parcel of land. As Tom Whipple theoretically intimates in regard to the concepts of 'Most Probable Use', and 'Most Probable Buyer' in his book, Property Valuation and Analysis (2nd Ed.) 2006, land must be valued at its Highest and Best Use (HABU) (Graaskamp) to be able to measure the performance of management; if so, then the Most Probable Buyer will emerge, and should pay the valuation opinion at HABU. (Whipple, 2006, pp 146)

Value and Price, by definition, are two different things; though they may agree occasionally.

Value in this context, is a long-term concept: about perceptions of risk, future returns and investment payoffs; whereas Price is always the reality - a crystallised transaction arising from an accepted final Bid-price, at a sale or auction process.

Looking at the data through a Log-Normal construct, Value is like the long-term trend-line through the cycle, like a moving average over time; whereas the Price-line, which joins the dots of actual prices paid, seems to oscillate around the long-term trend, as the booms and busts through the cycle, wax and wane like the tides.

The longer the time-line, the closer Price reflects Value. Like tram-lines going off into the distance, they become 'one'.

As price is what you pay, and value is what you receive, and the 'trick' in all investment is to buy low and sell high, it is obvious that you make your money when you buy, not when you sell; and 'never a forced seller be'.

Value therefore, is nebulous. It may not be certain, and only a final accepted Bid-price may crystallise it into a recorded transaction.

Consequently, all valuation, in a professional context, is an educated 'best guess' based on what we know, and (especially on the buy-side) on both parties future expectations.

10 Valuation Methodology: General

- The valuation of a financial instrument is based on the original amount invested (PV), the Discount (or Yield) rate, the Coupon (income per Annum) if any, and the Term to Maturity.

- The valuation of a business depends in large part, upon the time in existence, location, and Brand (Goodwill), and the quality of earnings.

- Property (Land) valuation approaches depends upon asset and purpose; and is a choice between; Comparable Sales Analysis, Summation (Assets), Cash-Flow (DCF), Income, and of course, any Industry Methods (usually 'rules-of-thumb')

10.1 Beast Area Valuation (BAV), an Industry Method

The first task is to de-mystify the concept of Beast-Area Valuation (BAV)

The first assumption to understand, is that any valuation number, for any purpose, is not exact, and the calculated number is merely 'about right'; when based upon the assumptions made.

It will be shown that the industry methods usually applied, of Beast Area Valuation (BAV), and Dollars per Unit of Area (DUA), will certainly give the wrong answer, as currently derived.

The BAV and DUA, if applied properly and as originally intended, are a number that one works back to (from primary data); to act like an index, and allow comparability between properties with similar carrying capacity. (SR x Implied DUA = BAV)

BAV is, and was always intended as, a Walk-In, Walk-Out (fully developed, going concern basis, with all things necessary); and never on a BARE basis. (Rost & Collins, 1993)

DUA depends upon whether the property was sold WIWO, or BARE, and should say so (though rarely does); and the reason for the sale should also be mentioned in the same sentence/report, to ensure intending investors may understand those which are forced sales, and why, and/or those which are sold BARE. In other words, "What is the Investor buying?" For only then, may true comparisons be considered.

Markets will continue to fluctuate (JP Morgan, n.d.), and depending upon stage of cycle, and factors of supply and demand, investors will continue to pay a premium at the top of the market, and a discount at the bottom; however, what is important is that they understand 'how much' of a premium or discount, and what true value is, as the 'price-to-pay-no-more-than', to avoid folly.

In other words, where is Price today, relative to Value; and "… am I a Buyer, or Seller, today…? "

If a conscious decision is then made to invest, understanding what the future may hold, then it is the correct decision at the time; only if there is an appropriate Margin-Of-Safety (MOS).

> *"Confronted with the challenge to distil the secret of sound investment into three words, we venture the motto, 'Margin-of-Safety'."* (Graham & Dodd, 2009); (1st Edition written in 1934 by Ben Graham, the Father of

Fundamental Analysis, and Teacher of Warren Buffett at Colombia University).

Firstly, the Author will attempt to show, through experience, research, analysis, and analogy, the oft used current industry method of Beast Area Valuation (BAV), used to value grazing land in the pastoral zones of Australia, or anywhere for that matter, and as applied today, is not a valuation methodology at all; but rather an index; which if used properly, will give a guide to either what a property may be worth (with a fair degree of error), or the likely Stocking Rate (SR), or Carrying Capacity (CC).

However, what must be realised, and most importantly so, is that the BAV method/approach is not being used today as originally intended.

Originally (and the way it was explained, when the term was first encountered by the Author), back in the mid- 1960's (and as used by a Goldsborough Mort, Stock and Station Agent, and Manager of the Blackall Branch in Queensland, a fellow named Mr. Barney Davies), BAV is a WIWO concept, based on the long-term productive, branded carrying-capacity (CC) of the station property (what was 'inside-the-wire'), for the property as a whole, year-in, year-out, and this was reduced to a stocking-rate (SR) per unit of area (expressed as Acres per Beast).

For context, the conversation was important at the time, because a further 55,000-Acres was being resumed from the family's holdings, and being put-up for Ballot by the Queensland Government, in 1966.

At that time, the average amount in Dollars ($), or Pounds (£) as it was then, that your herd would return to you (on an individual beast basis, over their life-time, the BAV), would be divided by the SR to arrive at an implied dollar value per unit of area (DUA), for each property's individual circumstances. One would then simply multiply by the area of the property to arrive at an implied value of the enterprise; on a Walk-In, Walk-Out (WIWO) basis.

For example: the current per head, average value for a bullock operation may be around $1,100.00 per Head (ex-GST) (it should be, better than $1,600 per head); and the value for a breeding operation may be around $900.00 per Head (ex-GST) (it should be, better than $1,200 per head).

Therefore, depending upon your type of operation, if you divide your average SR into this number, you should arrive at your approximate value, DUA. For example, if you are running a Bullock operation, and the average return per Head is $1,300.00 and your Stocking Rate is 1:14-Acres, then the DUA is $92.86 per Acre WIWO.

This would imply that the market for a bullock operation has fallen 57.69% from the BAV highs of $2,600 of recent years.

Anecdotal evidence remembers seeing one bullish Agent touting BAV at $3,600; WOW! And the general consensus for owners' in the better Brigalow/Belah/Bottle-tree, scrub soil country today, is still around $3,000; which is, of course, wrong, as a general statement, unless the numbers show it is possible. If the SSR is 1:8-Acres, then this would imply a Sale Price (DUA) of around $375.00 per Acre; or a Net Farm Gate Price of around $1,670 per Head.

This was an asset 'bubble' in rural grazing land, between 2005 to 2011, where prices paid went to extremes, and mostly again caused by market distortions; yet, the 'distressed' prices of today are the 'new' normal (with maybe further to fall); and probably still above where prices should be, relative to revenue and cost structure.

BAV is a Revenue and Asset (going concern), WIWO concept; not an Income (EBIT), nor an Asset (in Liquidation) approach.

At that time, around the period 1965 to 1980, when any pastoral zone property was sold on a Walk-In, Walk-Out (WIWO) basis, the number of branded cattle was divided into the total acreage, to derive an implied SR (which was explicitly wrong, as many larger pastoral properties were paid for within two years of purchase, merely by applying better management and 'clean-mustering' the property; thereby selling the surplus).

The WIWO price was also divided by the total stock carrying capacity, to derive an implied BAV. Then the BAV was divided by the SR, to arrive at an implied index, of 'Dollars per Unit of Area' (DUA) (e.g. $/Ac. or $/Ha.), and not a mention of 'risk' anywhere. Incestuous and circular, as there are similar terms both sides of the equation.

DUA is a number you work back to; not a Driver of Value, something which possesses utility by definition.

BAV is not being used currently as an index (and has not been for over thirty years), but rather an Industry Method of Valuation, with the SR being divided into it, to 'arrive' at the appropriate DUA, to 'drive' the market onwards and upwards; and

then, as if by 'magic', "…here is the implied price to pay, and on a 'BARE' basis now, if you do not mind".

Fortunes were, and are still being made, and lost, on this sleight of hand.

This has the effect of greatly inflating pastoral zone values, and this started to happen when farmers from 'South' came North looking for scale and a quick profit in the late seventies, early eighties of last century, and this continued right through to around 2011, when drought and market reality forced a re-think on risk exposures.

Somehow this metric has 'evolved' way past its intended usage, possibly as a fraud on the industry, to become the industry 'quick' method of choice; and you really have to ask yourself why (or even how), when the outcome over the past 30-odd years, has been over-inflated, asset 'bubble' type, prices being paid for grazing properties/stations in the high-risk pastoral zones, and on a predominantly 'BARE' basis (i.e. not as a 'Going Concern'); and the number of foreclosures/liquidations following, has been a testament to the un-sustainable prices being paid.

> On excessive debt, bankruptcy/liquidation, and penury: "*What a pity, that in life we only get our lessons, when they are of no use to us.*" – Oscar Wilde, 'Lady Windermere's Fan' (1892)

Anecdotal evidence indicates quality sheep station values had risen remarkably from around $2.50 per Acre in 1973 to around $42.00 per Acre in 1987 ('BARE' basis, in Central Western Queensland), a compound gain of 22.33% per Annum over 14 years (a virtual doubling every 3.2-years), due to loans being under-written on the back of the Wool Reserve Price Scheme, which came into being in 1973.

This scheme had been used very responsibly from implementation in the early 1970's, to smooth market prices for wool, by the use of a floor-price scheme. However, the floor-price was hijacked by self-interest (as is always the eventual situation in these cases), and raised to an expected market-price level (rather than as 'buyer-of-last-resort', as it was originally intended), and suddenly the graziers were competing with their own customers (the Italians, Japanese, and Chinese; who then switched their mills to cotton), thereby buying their own wool at a market clearing price; and the system failed spectacularly due to greed, crushed by the tonnage of wool bales in storage, around March 1992.

Then beef cattle station values rose in lock-step with them; and why not? Think, Valuers, Comparable Sales Analysis, and Highest And Best Use (HABU).

As the national flock diminished again and again, eventually halving in number over the following decade (currently around 70.4-million head (QCL 03-07-2014)), beef cattle moved down onto these vacated lands, and better pastures closer to markets, and property prices barely hiccupped, further fuelled by the corking of the 'Inflation Genie' back into the bottle in the early to mid-Nineties, and the consequent lower interest rates arising from that outcome.

The next fifteen years of growth in prices (through to 2011) being paid for rural lands (and especially in the North), will probably never be seen again; as the Managed Investment Schemes used superannuation money (guided by very poor advice, and apparent tax-driven strategies, though using the current Tax Law), and drove Price Earning Ratios (PER's) to nearly 20-Times EBIT (which incidentally fits

quite neatly with accepted 5.0 per cent Capitalisation Rates for property transactions in the city) and above.

(NB: The Author strongly believes 'normal', acceptable multiples should be between three (3) and seven(7)-Times EBIT in this space, depending upon the quality of the 'drivers of value', and maybe up to 10.0-Times EBIT for very well improved, and irrigated pastures, with certainty of water supply.)

In fact, these prices were probably only held back from reaching further higher-highs, due to the Millennium Drought, whose pall fell over vast areas of the land for nearly ten(10) years, and Graziers started to think about risk and loss again, in more refined terms, as their Capital leached away.

Higher valuations theoretically allows you to borrow more: both activities merely lead to higher business and financial risk in this space.

BAV has been about 'un-real'-estate marketing (if you do not mind the pun), and a total lack of Risk Assessment; where most times the Vendor's Agent, becomes the de-facto intending Buyer's Agent; no intended Conflict of Interest, to be sure.

The practice has been akin to the 'Bigger Fool' theory, where the property is marketed on hype (or was that 'hope'), with no risk assessment in the decision-making process, and too much buy-side emotion in the deal, with the hope of the 'Auctioneer at the End-of-Time' (Willem Buiter's Maverecon Blog, accessed 14-08-2014) being able to knock the property down to 'someone' when the music stops; probably the very 'Devil' himself.

Markets will become irrational from time to time, but what goes up must come down, and vice versa; eventually. This is called 'mean-reversion'; and is like price oscillating around the long-term trend-line of sustainable prices and growth trends, with volatility being the price paid for liquidity (in a usually thinly-traded, very illiquid market-place for large-scale grazing properties in the pastoral zones).

It is very important in decision-making, to look through the cycle, and take a long-term view in real terms (i.e. usually 10-years or more, and preferably 30-years).

Of course, if you pay too much, you may find the number of willing buyers, at your expected price, quite diminished; as you make your money when you buy, not when you sell.

An investment in semi-arid, and arid, pastoral zone grazing properties is a high-risk venture [five (5) good years in ten(10) is like a throw of the dice, or flip of a coin (50/50), and some areas have less than that, although better areas are around seven(7)years]; and if the long-term capital return is only around 3 per cent to 8 per cent, like infrastructure investment, this is the natural home of long-term, patient capital, and not an investment grade decision of a 'BBB'-Rating, or better; as based on the metrics used by a large proportion of Fund Managers, whose myopic view focusses on a very short-term point of view; their 'performance' is judged every Quarter, usually, which is in itself, an irrational, and unsound investment practice, when some investments made at the bottom of the market as un-loved 'orphans' may take several years to mature and reach expectations.

If Return-on-Equity (ROE) [also akin to Return on Capital Employed (ROCE)], or Return on Net Assets (RONA)], which is one of the greatest investment yard-sticks,

is less than the individual entity's Weighted Average Cost of Capital (WACC) for the Enterprise/Firm, then there will rarely be any surplus capital to apply to future growth, either on-farm or off-farm, let alone replacement of assets (as they expire or become obsolete), without borrowing extensively; which just increases Operations, Finance, and Business Risk, if the worst happens.

For an Investment to actually be an investment by definition, there must be a suitable return per Annum to Labour and Capital, commensurate with the risks taken (i.e. probably greater than 22.0 per cent).

A business must be able to diversify asset allocation, to reduce risk exposures (i.e. in a negatively correlated fashion, meaning as one goes down, others are rising); else an 'investment' in this space is a mere gamble, or speculation.

Somehow, the BAV method/approach, as applied today, has taken all the risk assessment out of the decision-making process, made the exercise just about the Land (and Improvements) apportionment (when Land, like Equity, is a residual value; which may be $Zero) on a BARE basis, and then, if you want to make the property a Going Concern, then you may buy the Plant & Equipment and the Stock-on-Hand separately, and at hopefully (from the Vendor's point of view), inflated prices on the day. "Is the Bar open …anyone?"

The original BAV was an Enterprise Value, 'all Equity', as-is-where-is, WIWO, Revenue and Assets concept, where the operation was considered a going concern at one-second-to-midnight on the day of settlement; and therefore, also at one-second-past-midnight the following day.

The long-term carrying-capacity (CC) defined the 'horse-power' of the grazing property through the cycle; and so season, rainfall, soil and vegetation, and management and market risk was assessed in one number. Simpler times then, obviously.

BAV was a going concern concept, which is now used in its current incarnation, to drive valuations on an Asset break-up, Liquidators value. This is un-real, and unacceptable: if applied, use it properly!

Surely, if a property is being valued on a break-up liquidation approach, it is not a 'going concern'; and definitely a pointer for the intending purchaser, of the inherent quantum of risk (and in many varied forms) in the deal? It begs the question, "Why is it so?"

Vendor greed behaviours (albeit encouraged by advice from their self-interested Agent), in the asking price at the top of the market, also drive this decision; when it has always been good business practice to 'leave a bit on the table for the next guy', as a margin-of-safety, and allow them to make a profit. It reduces the risk of being sued, and agrees with the ancient concept of 'Fair Price', as espoused by Aristotle. (Small, 2009)

Valuation practitioners, pastoralists, and other industry stakeholders, including the financiers, need to be aware of the 'evolution' of the BAV (if they are not already), and its applicability to the task at hand. It may be considered a guide only; and only if used correctly.

The BAV is truly an index only; yet it has been used to drive the market onwards and upwards, like a self-fulfilling prophecy.

Some still believe the BAV 'in scrub soils' country, is above $3,000 ('BARE' basis); (this is pure fantasy unless the numbers can back it up), and the actual number today, is probably no more than $1,600 to $1,800 (WIWO basis) for all descriptions of grazing land in the pastoral zones, based upon the NFGP.

Though it is accepted that scrub soil country may well be used for dry-land farming (as HABU), on an opportunity basis; but so can country at Morven, Wyandra, and Augathella, in Queensland; also on an opportunity basis. The context here is grazing lands, in the pastoral zones.

There must be a return to sustainability in the practices of rural valuation for investment purposes, with a focus on risk assessment as the foundation of decision-making, and looking through the cycle; at seasons, market prices, and productivity growth, to derive a sustainable long-term value.

Maybe this means two big changes to a Valuation Opinion Report: the first being the introduction of a stated range of values (with a wide range being a signal that the amount of variability, or price risk, is quite large); and secondly, the inclusion of two values, 'The Value if Sold Today' (expected Market Value/Price), and 'The Investment Value Today' (for a rational buyer). A topic also canvassed by Professor Garrick Small in his 2009 PRRES Conference (Sydney) paper, named "Jekyll, Hyde, and Property Value", page-9.

These changes would certainly send better signals to the market, and inform the client towards better decision-making. Especially as the Valuer is seen by the community as an Investment Advisor in the property space, and usually (or should be) a land economist, it is their role to inform the market, and to guide better decision-making in property investment.

10.2 The Normative View: A New Method for Pricing Risk:-

'The Pastoral Property, Discounted Risk, Leverage & Income Adjusted Valuation Model'.

On the risky event, and un-certainty as to its likelihood of occurrence:-

> *"Life is not about waiting for the storm to pass; it is about learning to dance in the rain." – (Unknown.)*

On the Naysayers:-

> *"Do not be astonished at new ideas; you know an idea does not cease to be true, because it is not accepted by the 'many'". – Benedict de Spinoza.*

The Pastoral Property, Discounted Risk, Leverage & Income Adjusted Valuation Model as a new concept of individually valuing grazing lands in the pastoral zones, by applying a 'multiple' to Revenue, to arrive at a nominal walk-in walk-out (WIWO) valuation for each property, and then allowing comparability of

transactions for each final sale price, to derive an index, and a line-of-best-fit and a function for general property prices and direction.

The Process for Applying the New Model:-

- The basis of valuation is Sustainable Productivity, for Investment Purposes; as sustainable investment takes the irrational 'noise' out of the market and decisions.

- All productivity inputs and measures are contained in two metrics:-

    1. The Long-Term, Sustainable Arithmetic Average of the Carrying Capacity, expressed as Sustainable Stocking Rate (SSR) (Adult Equivalent (AE) basis) looking through a rolling 10-year cycle.

    2. The Long-Term, Arithmetic Average, Real, Net Farm-Gate Price (NFGP) per Head Sold (ex-Freight, Cartage, and Fodder, as if it was a Paddock Sale), looking through a rolling 10-year cycle.

- The innovation is based upon a couple of very old Banker's insights, about sustainable lending and debt levels in this space, which simply said:-

    1. The Producer should borrow no more than 50% of the long-term average value of the total herd, looking through the cycle.

    2. The Producer's debt level should be no more than 20% (D/(D+E), or D/A) of the capital structure, as an average, looking through the cycle.

- When both sayings are combined, this would give a level of debt which the Bank would not prudently lend past, and as the 'price-to-pay-no-more-than' (assuming a stand-alone investment), and would lend only on up to eighty

percent of this number, and any further amounts came out of the Purchaser's savings; else, just too risky.

- The joining of the above, leads to a multiple of 2.5-Times (0.5/0.2) the herd value, as the most to pay; assuming a maximum for the Bank would be the maximum 'all-equity' value.

- This insight has been further analysed in a Table, where (D/(D+E)) levels of 10 per cent to 65 per cent have been arrayed across the top, and Borrowing Percentage of Livestock Value levels of from 30 per cent to 80 per cent have been arrayed down the side, and the formula, Borrowing Percentage of Livestock Value/((D/(D + E)) applied to give likely combinations, and a function ($\mathcal{f}$).

- Please see the table below:-

Table 2 - Live-stock Value Multiples (LVM)

BORROWING % of LIVESTOCK VALUE	DEBT/(DEBT + EQUITY)											
	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%
30%	3.00	2.00	1.50	1.20	1.00	0.86	0.75	0.67	0.60	0.55	0.50	0.46
40%	4.00	2.67	2.00	1.60	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.62
50%	5.00	3.33	2.50	2.00	1.67	1.43	1.25	1.11	1.00	0.91	0.83	0.77
60%	6.00	4.00	3.00	2.40	2.00	1.71	1.50	1.33	1.20	1.09	1.00	0.92
70%	7.00	4.67	3.50	2.80	2.33	2.00	1.75	1.56	1.40	1.27	1.17	1.08
80%	8.00	5.33	4.00	3.20	2.67	2.29	2.00	1.78	1.60	1.45	1.33	1.23

  - The most likely Livestock Value (LVM) capital multiples ($\mathcal{f}$) in BLUE are in a range between 1.67 and 2.80-Times Herd value.

  - The area in RED, and the area in BROWN, are unsustainable.

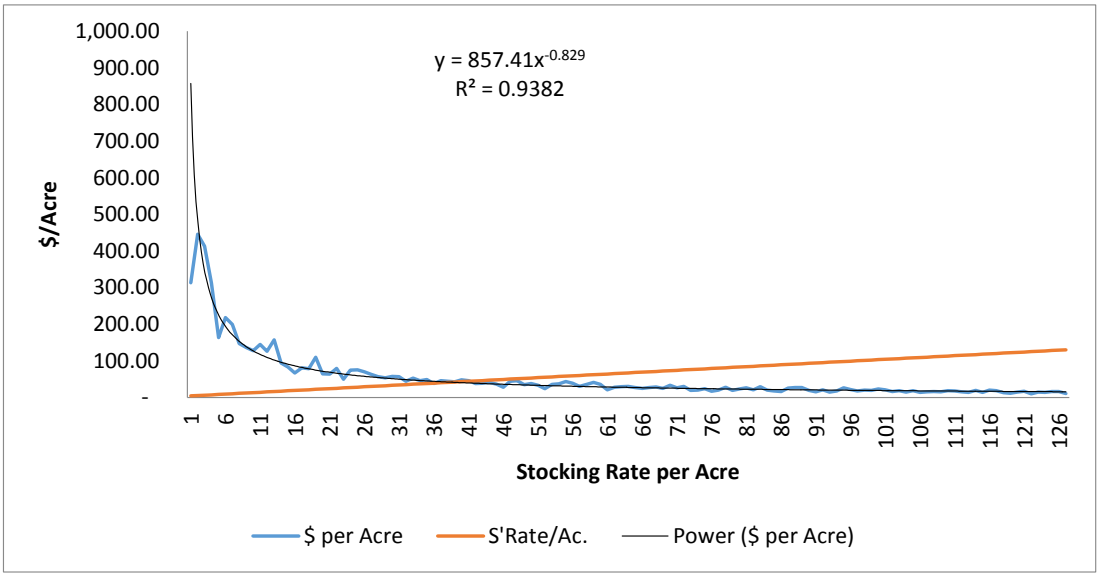
- The areas in YELLOW may be likely, but show caution here.
- The top levels of GREEN are possible, but unlikely.
- The bottom areas of GREEN are possible and likely.

- Using this data from Table Table 2, a further analysis is then constructed using the range of likely Sustainable Stocking Rates in the range from 4-Acres per Beast, to 130-Acres per Beast, across all areas of the Pastoral Zones. A range of likely Net Farm-Gate Prices is selected, using formula in a Monte Carlo Simulation of likely random values; and then, a possible WIWO value per Acre is derived using the further formula:-
  - ((Area/SSR).NFGP).(∫)/Area = Value/Unit of Area ($/Ac.) DUA, or
  - ((Area/SSR).NFGP).(∫) = Total Value
  - Where SSR is the Sustainable Stocking Rate, through the cycle.
  - NFGP is the average price received for Stock Sales Revenue per Head, and through the cycle, net of freight and cartage, and fodder etc., as if it was a 'paddock-sale'; for only in that way, may price comparability be observed.

- Where ($\mathcal{f}$) is the Live-stock Value (LVM) Multiple, between the sustainable values of 1.67 to 2.80-Times the sustainable herd value.

- This is then mapped on a graph for line of best fit (see Figure 3 below), and a function extracted, which best describes the line; and which may be used for forecasting purposes.

Figure 3- Valuation Function between $/acre and Stocking Rate



- Likely NFGP is a range of $700 to $1,200; using real values, through the cycle.

- In this case the graph-line looks like an 'R'-skewed, Poisson distribution.

- The linear 'Line-Est' function out of EXCEL says the line slope is a negative change, <4.316001>.

- Where 'y'- Axis is $/Ac.; and 'x'- Axis is Sustainable Stocking Rate per Acre.

- The line of best fit function, which best describes the data, is a Power Function; **$y = \$828.53\ (x)^{-0.838}$**; where 'y' is $/Ac., and 'x' is Sustainable Stocking Rate (plus a 10% Margin-Of-Safety).

- The MOS depends upon several subjective factors such as level of rainfall, access to permanent river water, and/or artesian bore-water, length of the growing season, distance to market, and type of country; and seems to range between 10% and 15%.

- It is assumed the 'y'-intercept (DUA) is useless for its intended purpose, as it will never intersect; yet, it seems to strongly represent the average Farm-Gate Price per Head received (+ or – 5.0%).

- The Co-Efficient of Determination (R^2) value for this equation is 0.9533 (or 95.33%), which shows a very high degree of co-linearity between the two variables of $/Ac. (y-Axis) and SSR (x-Axis). In Power functions this number is relatively meaningless.

- The next step is to see where the EBIT Multiple is roughly equal to the Livestock Value Multiple ($\int$), for the same level of WIWO value, so these two income valuation models may be 'linked' and compared.

- Refer to Table 3 below:-

Table 3 – Expected EBIT Values & Equivalency between EBIT Multiples and Livestock Multiples

EXPECTED EBIT VALUES, & Equivalency between EBIT Multiples and Livestock Multiples.

Minimum expected EBIT values, for the enterprise to be considered sustainable; on the average.

	MULTIPLE of LIVESTOCK VALUE							
MULTIPLE of EBIT	1.67	1.80	2.00	2.20	2.40	2.60	2.80	3.00
4.0	1,043,750	1,125,000	1,250,000	1,375,000	1,500,000	1,625,000	1,750,000	1,875,000
4.5	927,778	1,000,000	1,111,111	1,222,222	1,333,333	1,444,444	1,555,556	1,666,667
5.0	835,000	900,000	1,000,000	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000
5.5	759,091	818,182	909,091	1,000,000	1,090,909	1,181,818	1,272,727	1,363,636
6.0	695,833	750,000	833,333	916,667	1,000,000	1,083,333	1,166,667	1,250,000
6.5	642,308	692,308	769,231	846,154	923,077	1,000,000	1,076,923	1,153,846
7.0	596,429	642,857	714,286	785,714	857,143	928,571	1,000,000	1,071,429
7.5	556,667	600,000	666,667	733,333	800,000	866,667	933,333	1,000,000
8.0	521,875	562,500	625,000	687,500	750,000	812,500	875,000	937,500
8.5	491,176	529,412	588,235	647,059	705,882	764,706	823,529	882,353
9.0	463,889	500,000	555,556	611,111	666,667	722,222	777,778	833,333

- From the above Table 3 you may observe at the junction of 1.8 LV Multiple and 4.5 EBIT Multiple, the number is $1,000,000 and this is the indicative expected EBIT value for the property in question. However, whilst important, this is not the most important insight. It is following this number down from Left to Right where the reader may observe that at a 2.8 LV Multiple, and 7.0 EBIT Multiple, the buyer may have found the maximum multiple of each. This would be where Intrinsic, Full, or True value is found. This should be explored further, at some future time.

- Income Valuation studies of this data by the Author, have shown the sustainably ideal maximum EBIT Multiple at around 5.30-Times (for an 'all equity' model); over several properties with different size and output parameters. (See Appendix 11)

- This number (5.30-Times) equates, per Table 3, to a LV Multiple of between 2.0 and 2.2-Times, at the same price level of $1,000,000. This is our likely range of Livestock Valuation Multiple for an 'all-Equity' transaction.

- Once Debt is added the EBIT multiple drifts back to around 4.5-Times; which agrees with the model in Table 2 above, where it shows a LVM of 1.8-Times.

- Now while this research is not conclusive to this point, there is an insight indicated, and it is certainly indicative of a maximum value to pay, WIWO.

- All that may be concluded at this point, from the above analysis, is the insight, that there is a sustainable WIWO value which an investor should not 'pay-no-more-than', to remain economically viable through the cycle; and not 'bleed' capital, eventually becoming non-viable.

- The only conclusion to the methodology is Table 4 – Risk, Leverage & Inflation Valuation (RLIV) Method, page 83, which shows a "Sustainable DUA Value To Pay No-More-Than"; for a certain SSR (Acres per Beast, AE), and Top-Line Revenue measured as Net Farm-Gate Price per Head (average, ex-Freight and Cartage, and Fodder), as if it was a Paddock Sale.

- From the data in the Table 4, the reader may observe that when compared with prices paid in the current market for properties being sold BARE basis, when these numbers in the Table are derived for sales on a WIWO basis, then investors are paying far too much, with cattle prices at current levels, and the NFGP should be a minimum of around $2.50 per Kilo (live-weight); and probably above $3.00 per Kilo (live-weight) in the sale-yard. (See Appendix 10: A Carcase Break-down)

An example of a DRLIAV pro-forma valuation is outlined below:

- This shows the valuation for a 'liveable area' property, carrying about 2,000-Cows and turning-off 18-month, 2-tooth Jap-Ox.

- First the Total Sales (adjusted for CPI, so the dollar amounts are in real terms) for 10-years, less the Freight & Cartage, is divided by the number of head sold. This is then averaged over the 10-year period, so you are able to look through the cycle. The answer is the Net farm Gate Price (NFGP)

- The next step is to derive the Sustainable Stocking Rate (SSR) through the cycle. We calculate the Total Stock carried for each year and average those numbers.

- The DRLIAV formula is:-

$$((SSR)(1 + MOS))^{-0.83} \ (NFGP) = DUA$$

- What follows is the a pro-forma of the DRLIAV Method work-sheet, and Apportionments on Sale, and a comparison of the BAV valuation at $1,600 per Beast Area (a Guess).

Table 4 – Risk, Leverage & Inflation Valuation (RLIV) Method

RISK, LEVERAGE & INFLATION ADJUSTED VALUATION METHOD (As Modelled)

(For a 62,440 Acre, sustainable, self-replacing beef-cattle enterprise in Central Highlands/Central-West of Queensland; with S'Rate 1:14 + a 10.0% MOS)

mv

VALUE = PRODUCTIVITY (PRICE x VOLUME)

DATA:

AREA	62,440	ACRES
STOCKING RATE	14.00	ACRES

A. NET FARM-GATE PRICE (NFGP) — 2.00%

	YEAR	TOTAL SALES ($)	CPI DEFLATOR	CPI ADJUSTED	WEAN %	NUMBER SOLD (#)	FRGHT. & CRTG.	AVG. NFGP / HEAD
1	2004	1,978,900	2.50	1,899,744	77%	1,540	39,578	1,207.90
2	2005	1,608,280	2.50	1,543,949	62%	1,240	32,166	1,219.18
3	2006	1,515,000	4.00	909,000	75%	1,500	30,300	585.80
4	2007	1,250,220	2.10	1,428,823	67%	1,340	25,004	1,047.63
5	2008	1,738,080	4.50	926,976	71%	1,420	34,762	628.32
6	2009	1,417,160	1.50	2,267,456	71%	1,420	28,343	1,576.84
7	2010	1,358,400	3.10	1,051,665	80%	1,600	27,168	640.31
8	2011	1,907,600	3.60	1,271,733	76%	1,520	38,152	811.57
9	2012	1,021,440	1.20	2,042,880	64%	1,280	20,429	1,580.04
10	2013	1,510,400	2.40	1,510,400	64%	1,280	30,208	1,156.40
	ARITHMETIC MEAN	1,530,548	2.74	1,485,263	71%	1,414	30,611	1,045
	GEO. AVG.	1,504,351	2.54	1,418,759	70%	1,409	30,087	984

B. STOCKING RATE (Long-Term, through the Cycle) (CLOSING-STOCK + SALES + PURCHASES)

	YEAR	CLOSING-STOCK	PURCHASES	SALES	TOTAL CARRIED	AVG. S'RATE
1	2004	3,125	6	1,540	4,671	13.37
2	2005	2,823	6	1,240	4,069	15.34
3	2006	2,713	6	1,500	4,219	14.80
4	2007	2,636	6	1,340	3,982	15.68
5	2008	2,735	6	1,420	4,161	15.00
6	2009	2,938	7	1,420	4,365	14.31
7	2010	2,917	7	1,600	4,524	13.80
8	2011	3,021	7	1,520	4,548	13.73
9	2012	2,916	5	1,280	4,201	14.86
10	2013	2,751	7	1,280	4,038	15.46
	ARITHMETIC MEAN	2,858	6	1,414	4,278	14.64
	GEO. AVG.	2,854	6	1,409	4,272	14.62

(NB: The reason **Geo. Avg.** is used, because it reflects a time value.)

C. CALCULATION

NFGP	$ 1,045	- per HEAD
S'RATE 1:	14.64	- per ACRE
SLOPE of LINE	(0.83)	- power function
MOS	10.00%	
IMPLIED VALUE per ACRE	$ 104.14	- per ACRE
IMPLIED FULL VALUE	$ 6.503	- MILLION

D. APPORTIONMENTS

STOCK VALUE	4.662	- MILLION	$ 74.67	- per ACRE
P&E @ DRC	0.100	- MILLION	$ 1.60	- per ACRE
LAND & IMPROVEMENTS	1.740	- MILLION	$ 27.87	- per ACRE (BARE basis Value)
TOTAL VALUE	$ 6.503	- MILLION	$ 104.14	- per ACRE (WIWO basis Value)

The improved land value is reflected in the number and quality of cattle turned-off each year; and should not be counted twice.

Pastoral & Grazing land, like any other productive asset, has a Bond nature; with a PV for the 'Tree', and the annualised 'Fruit of the Tree'.

E. BEAST AREA VALUATION (BAV)

BAV	$ 1,600	- SSR x DUA
STOCKING RATE	15	- ACRES per BEAST
IMPLIED BAV DUA ($/Ac.)	$ 109	- per ACRE (WIWO)
COMPARED TO DRLIAV METHOD DUA	$ 104	- per ACRE (WIWO)
IMPLIED PREMIUM DIFFERENCE	$ 5.18	- per ACRE (WIWO)
TOTAL PREMIUM	**$ 323,285**	
PERCENTAGE PREMIUM	4.97%	WHY?

Though this premium is within the range of what may be considered 'normal', some premiums are higher than 30.0%, which begs the question, "Why?".

Table 5 below, uses the methodology previously described, and shows the likely DUA for a certain full range of SSR and NFGP.

Table 5 – Land Value for Pastoral Properties per Acre

STOCKING RATE: ACRES per BEAST (AE = 400kg Steer) Average Long-Term Rate.	FARM-GATE PRICES per HEAD (Average, ex-Freight & Cartage)																								
	400	450	500	550	600	650	700	750	800	850	900	950	1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600
0.25	1,296	1,458	1,620	1,783	1,945	2,107	2,269	2,431	2,593	2,755	2,917	3,079	3,241	3,403	3,565	3,727	3,889	4,051	4,213	4,375	4,537	4,699	4,861	5,024	5,186
0.33	1,022	1,150	1,277	1,405	1,533	1,661	1,788	1,916	2,044	2,171	2,299	2,427	2,555	2,682	2,810	2,938	3,066	3,193	3,321	3,449	3,577	3,704	3,832	3,960	4,088
0.50	729	820	912	1,003	1,094	1,185	1,276	1,367	1,459	1,550	1,641	1,732	1,823	1,914	2,005	2,097	2,188	2,279	2,370	2,461	2,552	2,644	2,735	2,826	2,917
0.75	521	586	651	716	781	846	912	977	1,042	1,107	1,172	1,237	1,302	1,367	1,432	1,497	1,563	1,628	1,693	1,758	1,823	1,888	1,953	2,018	2,083
0.80	494	555	617	679	741	802	864	926	987	1,049	1,111	1,173	1,234	1,296	1,358	1,419	1,481	1,543	1,605	1,666	1,728	1,790	1,851	1,913	1,975
1	410	462	513	564	615	667	718	769	820	872	923	974	1,026	1,077	1,128	1,179	1,231	1,282	1,333	1,385	1,436	1,487	1,538	1,590	1,641
2	231	260	288	317	346	375	404	433	462	490	519	548	577	606	635	663	692	721	750	779	808	837	865	894	923
3	165	185	206	227	247	268	288	309	330	350	371	391	412	433	453	474	494	515	536	556	577	597	618	639	659
4	130	146	162	178	195	211	227	243	260	276	292	308	325	341	357	373	389	406	422	438	454	471	487	503	519
5	108	121	135	148	162	175	189	202	216	229	243	256	270	283	297	310	324	337	351	364	378	391	404	418	431
6	93	104	116	127	139	151	162	174	185	197	209	220	232	243	255	267	278	290	301	313	325	336	348	359	371
7	82	92	102	112	122	133	143	153	163	173	184	194	204	214	224	235	245	255	265	275	286	296	306	316	326
8	73	82	91	100	110	119	128	137	146	155	164	173	183	192	201	210	219	228	237	246	256	265	274	283	292
9	66	75	83	91	99	108	116	124	132	141	149	157	166	174	182	190	199	207	215	224	232	240	248	257	265
10	61	68	76	83	91	99	106	114	121	129	137	144	152	159	167	174	182	190	197	205	212	220	228	235	243
11	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210	217	224
12	52	59	65	72	78	85	91	98	104	111	117	124	130	137	143	150	156	163	170	176	183	189	196	202	209
13	49	55	61	67	73	79	85	92	98	104	110	116	122	128	134	140	146	153	159	165	171	177	183	189	195
14	46	52	57	63	69	75	80	86	92	98	103	109	115	120	126	132	138	143	149	155	161	166	172	178	184
15	43	49	54	60	65	70	76	81	87	92	98	103	108	114	119	125	130	135	141	146	152	157	163	168	173
16	41	46	51	56	62	67	72	77	82	87	92	98	103	108	113	118	123	128	134	139	144	149	154	159	164
17	39	44	49	54	59	63	68	73	78	83	88	93	98	103	107	112	117	122	127	132	137	142	146	151	156
18	37	42	47	51	56	61	65	70	75	79	84	88	93	98	102	107	112	116	121	126	130	135	140	144	149
19	36	40	45	49	53	58	62	67	71	76	80	85	89	93	98	102	107	111	116	120	125	129	134	138	142
20	34	38	43	47	51	55	60	64	68	73	77	81	85	90	94	98	102	107	111	115	119	124	128	132	137
21	33	37	41	45	49	53	57	61	66	70	74	78	82	86	90	94	98	102	107	111	115	119	123	127	131
22	32	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99	102	106	110	114	118	122	126
23	30	34	38	42	46	49	53	57	61	65	68	72	76	80	84	87	91	95	99	103	106	110	114	118	122
24	29	33	37	40	44	48	51	55	59	62	66	70	73	77	81	84	88	92	95	99	103	106	110	114	117
25	28	32	35	39	43	46	50	53	57	60	64	67	71	74	78	82	85	89	92	96	99	103	106	110	113
26	27	31	34	38	41	45	48	51	55	58	62	65	69	72	75	79	82	86	89	93	96	100	103	106	110
27	27	30	33	37	40	43	47	50	53	57	60	63	67	70	73	76	80	83	86	90	93	96	100	103	106
28	26	29	32	35	39	42	45	48	52	55	58	61	65	68	71	74	77	81	84	87	90	94	97	100	103
29	25	28	31	34	38	41	44	47	50	53	56	60	63	66	69	72	75	78	81	85	88	91	94	97	100
30	24	27	30	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85	88	91	94	98
31	24	27	30	33	36	39	42	44	47	50	53	56	59	62	65	68	71	74	77	80	83	86	89	92	95
32	23	26	29	32	35	38	40	43	46	49	52	55	58	61	64	66	69	72	75	78	81	84	87	90	92
33	23	25	28	31	34	37	39	42	45	48	51	53	56	59	62	65	68	70	73	76	79	82	84	87	90
34	22	25	27	30	33	36	38	41	44	47	49	52	55	58	60	63	66	69	71	74	77	80	82	85	88
35	21	24	27	29	32	35	38	40	43	46	48	51	54	56	59	62	64	67	70	72	75	78	80	83	86
36	21	24	26	29	31	34	37	39	42	45	47	50	52	55	58	60	63	65	68	71	73	76	79	81	84
37	20	23	26	28	31	33	36	38	41	44	46	49	51	54	56	59	61	64	67	69	72	74	77	79	82
38	20	23	25	28	30	33	35	38	40	43	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80
39	20	22	25	27	29	32	34	37	39	42	44	47	49	51	54	56	59	61	64	66	69	71	74	76	78
40	19	22	24	26	29	31	34	36	38	41	43	46	48	50	53	55	58	60	62	65	67	70	72	74	77
41	19	21	24	26	28	31	33	35	38	40	42	45	47	49	52	54	56	59	61	63	66	68	71	73	75
42	18	21	23	25	28	30	32	35	37	39	41	44	46	48	51	53	55	58	60	62	65	67	69	71	74
43	18	20	23	25	27	29	32	34	36	38	41	43	45	47	50	52	54	57	59	61	63	66	68	70	72
44	18	20	22	24	27	29	31	33	35	38	40	42	44	47	49	51	53	55	58	60	62	64	67	69	71
45	17	20	22	24	26	28	30	33	35	37	39	41	44	46	48	50	52	54	57	59	61	63	65	67	70
46	17	19	21	24	26	28	30	32	34	36	38	41	43	45	47	49	51	53	56	58	60	62	64	66	68
47	17	19	21	23	25	27	29	31	34	36	38	40	42	44	46	48	50	52	55	57	59	61	63	65	67
48	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	50	52	54	56	58	60	62	64	66
49	16	18	20	22	24	26	28	30	32	34	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65
50	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64
51	16	18	20	22	24	26	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63
52	15	17	19	21	23	25	27	29	31	33	35	37	39	41	42	44	46	48	50	52	54	56	58	60	62
53	15	17	19	21	23	25	27	29	30	32	34	36	38	40	42	44	46	48	49	51	53	55	57	59	61
54	15	17	19	21	22	24	26	28	30	32	34	36	37	39	41	43	45	47	49	51	52	54	56	58	60
55	15	17	18	20	22	24	26	28	29	31	33	35	37	39	41	42	44	46	48	50	52	53	55	57	59
56	15	16	18	20	22	24	25	27	29	31	33	34	36	38	40	42	44	45	47	49	51	53	54	56	58
57	14	16	18	20	21	23	25	27	29	30	32	34	36	38	39	41	43	45	47	48	50	52	54	55	57
58	14	16	18	19	21	23	25	26	28	30	32	34	35	37	39	41	42	44	46	48	49	51	53	55	56
59	14	16	17	19	21	23	24	26	28	30	31	33	35	37	38	40	42	43	45	47	49	50	52	54	56
60	14	15	17	19	21	22	24	26	27	29	31	33	34	36	38	39	41	43	45	46	48	50	51	53	55
61	14	15	17	19	20	22	24	25	27	29	30	32	34	36	37	39	41	42	44	46	47	49	51	52	54
62	13	15	17	18	20	22	23	25	27	28	30	32	33	35	37	38	40	42	43	45	47	48	50	52	53
63	13	15	16	18	20	21	23	25	26	28	30	31	33	35	36	38	40	41	43	44	46	48	49	51	53
64	13	15	16	18	19	21	23	24	26	28	29	31	32	34	36	37	39	41	42	44	45	47	49	50	52
65	13	14	16	18	19	21	22	24	26	27	29	30	32	34	35	37	38	40	42	43	45	47	48	50	51
66	13	14	16	17	19	21	22	24	25	27	29	30	32	33	35	36	38	40	41	43	44	46	48	49	51
67	13	14	16	17	19	20	22	23	25	27	28	30	31	33	34	36	38	39	41	42	44	45	47	48	50
68	12	14	15	17	19	20	22	23	25	26	28	29	31	32	34	36	37	39	40	42	43	45	46	48	49
69	12	14	15	17	18	20	21	23	24	26	27	29	31	32	34	35	37	38	40	41	43	44	46	47	49
70	12	14	15	17	18	20	21	23	24	26	27	29	30	32	33	35	36	38	39	41	42	44	45	47	48
71	12	13	15	16	18	19	21	22	24	25	27	28	30	31	33	34	36	37	39	40	42	43	45	46	48
72	12	13	15	16	18	19	21	22	24	25	27	28	29	31	32	34	35	37	38	40	41	43	44	46	47
73	12	13	15	16	17	19	20	22	23	25	26	28	29	31	32	34	35	36	38	39	41	42	44	45	47
74	12	13	14	16	17	19	20	22	23	24	26	27	29	30	32	33	35	36	37	39	40	42	43	45	46
75	11	13	14	16	17	19	20	21	23	24	26	27	28	30	31	33	34	36	37	38	40	41	43	44	46
76	11	13	14	15	17	18	20	21	23	24	25	27	28	30	31	32	34	35	37	38	39	41	42	44	45
77	11	13	14	15	17	18	20	21	22	24	25	26	28	29	31	32	33	35	36	38	39	40	42	43	45
78	11	12	14	15	17	18	19	21	22	23	25	26	28	29	30	32	33	34	36	37	39	40	41	43	44
79	11	12	14	15	16	18	19	20	22	23	25	26	27	29	30	31	33	34	35	37	38	40	41	42	44
80	11	12	14	15	16	18	19	20	22	23	24	26	27	28	30	31	32	34	35	36	38	39	41	42	43
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84	10	12	13	14	16	17	18	19	21	22	23	25	26	27	29	30	31	32	34	35	36	38	39	40	41
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87	10	11	13	14	15	16	18	19	20	21	23	24	25	26	28	29	30	31	33	34	35	37	38	39	40
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94	9	11	12	13	14	15	17	18	19	20	21	22	24	25	26	27	28	30	31	32	33	34	35	37	38
95	9	11	12	13	14	15	16	18	19	20	21	22	23	25	26	27	28	29	30	32	33	34	35	36	37
96	9	10	12	13	14	15	16	17	19	20	21	22	23	24	26	27	28	29	30	31	32	34	35	36	37
97	9	10	12	13	14	15	16	17	18	20	21	22	23	24	25	26	28	29	30	31	32	33	35	36	37
98	9	10	11	13	14	15	16	17	18	19	21	22	23	24	25	26	27	29	30	31	32	33	34	35	37
99	9	10	11	12	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	31	32	33	34	35	36
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101	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	36
102	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24	25	26	28	29	30	31	32	33	34	35
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106	9	10	11	12	13	14	15	16	17	18	19	20	21	22	24	25	26	27	28	29	30	31	32	33	34
107	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27	28	29	30	31	32	33	34
108	8	9	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	31	32	33	34
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113	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
114	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
115	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
116	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
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122	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	29	30
123	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	26	27	28	29	30
124	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	30
125	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	21	22	23	24	25	26	27	28	29	30
126	7	8	9	10	11	12	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	28	29	30
127	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	21	22	23	24	25	26	27	28	29	29
128	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	27	28	29
129	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	23	24	25	25	26	27	28	29
130	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29

10.3 Case Studies:

Case Studies are used here to illustrate the application of BAV and DRLIAV Methods, and how final price may compare, showing discounts and premiums paid.

10.3.1 Lake Woods Pty Ltd, t/a "Consolidated Pastoral Company" (Terra Firma Private Equity)

These numbers taken from the 2011 Annual Company Report and Financial Statements of the Company.

Revenue = $68.0-M.

Transport Costs = $4.0-M.

Head Sold = 66,206 Head

NFGP Received = $966.68 ea.

Say $1,000 per Head

Area of Holdings = 5.6 M. (Ha); or 13.838-M. Acres; or 21,622 Square Miles

Carrying Capacity = 360,000 Head of Cattle

Implied Stocking Rate = 1-beast:38.44 Acres

Margin-of-Safety = 15.0%

DUA = $43.49 per Acre (WIWO)

Say $44.00 per Acre WIWO

(which incidentally agrees with the Annual Report).

Enterprise Value = $609.0-M. (WIWO)

Company Report says EV is $668.0-M. (a difference/premium of around 10%)

Current BAV consensus is around $1,800 (an expectation); therefore $1,800/38.44 Acres, is $46.83 per Acre: an implied EV of $648.0-M. (or 1800 times 360,000-Head).

The Apportionments are:	A WIWO price of	$609.0-M.
	Less: Stock-on-Hand	$360.0-M.
	Less: Plant & Equipment	$ 17.0-M.
	= Land & Improvements	$232.0-M.

(or $16.76 /Acre);

A conclusion may be drawn that the DRLIAV method is more conservative; yet it is consistently 'about right' with the Valuer's Opinion and the Accountant's Audited Financial Statements.

10.3.2 RM Williams Agricultural Holdings Pty Ltd

The reason the two(2) topics covered in this paper (i.e. BAV, and 'price-to-pay-no-more-than') are relevant and important, is because via a possible sleight of hand, and the inappropriate application of a 'Rule-of-Thumb' industry method called Beast-Area Valuation (BAV), many grazing properties in the pastoral zones are being mis-priced, and with virtually nil attention to risk assessment, management, and mitigation of same; except caveat emptor; Latin for, 'Buyer, Beware'.

Look to examples like Great Southern Plantations' cattle stations, and specifically RM Williams Agricultural Holdings' "Henbury" Station near Alice Springs, and the "La Belle" and "Well-Tree" operations on the west coast of the NT, south of Darwin (a Managed Investment Scheme, and a Green, Carbon Lock-up Trading enterprise, respectively), and the prices paid by 'the smartest guys in the room'.

It was somehow 'different this time'.

Investors lost millions of dollars, and many, their life savings, due to this 'idea'; yet no-one went and asked experienced local graziers for their opinion on the risk factors and likelihood of success. The big question to be asked is: "Who made the money; why, and how?"

10.3.2.1 "Henbury" Station, Alice Springs NT

"Henbury" Station was purchased by RMWAH in 2011 for around $13.0-M.(AUD) (with $9.0-M.(AUD) coming from the Australian Government for

the carbon farming project), and sold in 2014 for around $7.0-M.(AUD), with the Liquidator commenting at the time, that they received "a very good price for it"; especially considering it was purchased by RMWAH fully stocked (though unsure who owned the cattle, and whether the sale was on a 'BARE' basis), with 17,000-head of cattle; which were sold when the property was subsequently destocked for 'carbon-farming', and "Henbury" was subsequently sold by the Liquidator on a BARE basis. A 'BARE' basis is assumed for this case study.

If BAV was to be used correctly, as an index, an implied BAV would be calculated, and a likely DUA ($/Ac.) would emerge.

Selling Price = $13.0-M. ('BARE' basis)

Area = 1.303-M. (Ac.)

Carrying Capacity = 17,000 Head of Cattle

Indicative SR = 1-beast:77-Acres (1,303,000 / 17,000)

Implied BAV = $765 ('BARE' basis) ($13,000,000 / 17,000)

Divide by SR = $10 per Acre ('BARE' basis) ($765 / 1:77-Ac.)

Implied Value = $13.03-M.

If cattle are worth $650 NFGP, then Total Cattle are worth $11.0M. and with probably around $250,000 in P&E, then the WIWO value looks to be around $24.25-M.

DRLIAV Method says ($650).((77).(1.15))$^{-0.83}$ = $15.73 per Acre (say $16.00): $20.85-M.

If there were $11.0-M. of cattle, then they should have only paid $9.25-M. instead of $13.0-M. A premium was paid of around 40.5% on a 'BARE' basis.

If the BAV was tweaked through use of the DRLIAV method and the application of a Livestock Valuation Multiple from BAV = (SR).(DUA) to BAV=(NFGP)(2), then DUA=2NFGP/SR=($650)(2)/77= $16.88 (say $17 per Acre); an EV of $22.15-M. (NB: A proof for this substitution may be reviewed in Appendix 9.)

10.3.2.2 "La Belle" & "Well-Tree" Stations, via Litchfield, NT

Around $72.0-M.(AUD) WIWO (a value that was accepted by Valuers at the time, but seen as 'high' by industry insiders), was paid for "La Belle" and "Well-Tree" aggregation in the Northern Territory, by RMW Agricultural Holdings (on a property that eventually reverted to a 'BARE' basis price of around $27.1-M.(AUD) as paid by AAco (AAC) out of Liquidation); when, even with the most optimistic assumptions, the properties were worth (in a rational context) no more than around $34.0-M.(AUD) WIWO at that time, looking through the cycle; even with roughly $20.0-M.(AUD) worth of cattle residing on them. These valuations were no doubt prepared using inflated BAV (on what is predominantly Perpetual Lease title), or DCF methodologies (and a very generous WACC to use as the discount rate, or capitalisation rate).

Area = 99,400 Ha (or 245,628 Acres)

Carrying Capacity = 30,000 Backgrounders

Stocking Rate = 1-beast:8.188 Acres

DRLIAV Method DUA = \$136.96 per Acre $((\$850).((8.2).(1.1))^{-0.83})$

Implied EV (WIWO) = \$33.64-M. (WIWO)

Apportionments of:	WIWO value	\$33.64-M.
	Less: Stock-on-Hand	\$25.50-M
	Less: P&E	\$ 0.25-M.
	= Land & Improvements	\$ 7.89-M.

(or \$32.12 per Acre 'BARE" basis)

RMWAH Price Paid $_{2011}$ = \$72.0-M or \$293.11 per Acre (WIWO)

(Conveniently a BAV of \$2,400; so a lot of thought went into the valuation)

AAco Price Paid $_{2014}$ = \$27.1-M. or \$110.33 per Acre ('BARE' basis), meaning a valuation premium paid of around 243.5%

Valuers will look at these sales and hopefully apply common sense and discard as outliers; however, there is a trend here to pay a premium based upon the application and widespread use of an incorrectly applied BAV methodology.

Garrick Small says, "*This is behaviour and outcomes which are unacceptable in the context of classical realism (aka common sense), and certainly disadvantages the purchaser (in a modern economics sense)!*" (Small, 2009)

These practices have the effect of pricing, sensible, experienced, skilled and educated young men and women, who may be the inheritors of the property, and the natural buyers, out of the market, and away from the industry at the grass-roots, because they understand that if you pay too much for something, you may become bankrupt; and many who did not understand have faced penury recently, with possibly more to come.

10.3.3 Four (4) selected pastoral properties in CW Q'ld, compared, using BAV and DRLIAV Method.

Table 6 – Comparison of Valuation Metrics – Four Properties

SUMMARY TABLE of PROPERTY METRICS re BAV & DRLIAVM

METRIC	BRIDES CREEK	AVINGTON	GLEN THOMPSON	NORTH DELTA
AREA	32,558	31,000	77,803	77,237
CARRYING CAPACITY	2,326	1,430	5,557	5,517
IMPLIED SUSTAINABLE STOCKING RATE	14	22	14	14
ASSUMED NET FARM GATE PRICE per HEAD	850	850	850	850
WIWO VALUE - EBIT MULTIPLE	2,462,534	769,442	8,694,757	9,266,497
DUA ($/Ac.)	75.64	24.82	111.75	119.97
WIWO VALUE - DRLIAV METHOD	2,860,888	1,894,626	6,835,179	6,785,890
DUA ($/Ac.)	87.87	61.12	87.85	87.86
ASSUMED BAV	1,700.00	1,700.00	1,700.00	1,700.00
WIWO VALUE - BAV	3,954,200	2,431,000	9,446,900	9,378,900
DUA ($/Ac.)	121.45	78.42	121.42	121.43
LIVE-STOCK VALUATION MULTIPLIER (all Equity)	2.50	2.50	2.50	2.50
WIWO VALUE - LVM	4,942,750	3,038,750	11,808,625	11,723,625
DUA ($/Ac.)	151.81	98.02	151.78	151.79
LIVE-STOCK VALUATION MULTIPLIER (> 20.0% D/A))	1.80	1.80	1.80	1.80
WIWO VALUE - LVM	3,558,780	2,187,900	8,502,210	8,441,010
DUA ($/Ac.)	109.31	70.58	109.28	109.29

You may well observe from the Table 6 above, DUA for EBIT multiples (taken from the Table on the following page) reflects the variability of management decisions and other factors affecting the outcome; whereas the DRLIAV revenue approach tends to value like with like, meaning quality properties with scale and similar SSR will be about the same value, with those that are marginal, asking less: as is logical.

For comparison, the Table also includes what happens using Live-stock Valuation Multiples (LVM), both from an 'all-Equity' position, and where debt to assets may average around 20 per cent. You may observe from the Table above, that the 'all-Equity' position is over 50 per cent above the sustainable position; whereas the assumed debt position in the LVM below it, fairly reflects the extra risk taken-on.

BAV, as currently applied (and assumed at $1,700 per Beast Area), is also included for comparison sake, and you may observe that in all cases, except the marginal case,

the premium paid is above 38.0% of the DRLIAV method of sustainability. If the anecdotal evidence from discussions with graziers is correct, the assumption in the market-place still, is that BAV is around $2,400 per Beast Area, down from $3,600. This, of course, is incorrect.

Table 7 - Four Properties compared using EBIT Multiples for an Income valuation

SUMMARY TABLE of PROPERTY METRICS re EBIT MULTIPLES
A Typical Income Valuation Method

METRIC	BRIDES CREEK	AVINGTON	GLEN THOMPSON	NORTH DELTA
ALL EQUITY MODEL	**Y**	**Y**	**Y**	**Y**
PERCENTAGE of DEBT	**0.00%**	**0.00%**	**0.00%**	**0.00%**
AREA	32,558	31,000	77,803	77,237
WIWO VALUE	2,462,534	769,442	8,694,757	9,266,497
DUA ($/Ac.)	75.64	24.82	111.75	119.97
TIMES EBIT	5.29	5.30	5.27	5.28
STOCK SOLD	819	504	1,958	2,023
REVENUE	923,164	568,376	2,206,961	2,294,657
REVENUE/HEAD/ACRE	3.46	3.64	1.45	1.47
WIWO VALUE as a MULTIPLE of REVENUE	2.67	1.35	3.94	4.04
TOTAL VARIABLE COSTS per HEAD SOLD	199.72	245.59	125.19	112.91
TOTAL FIXED COSTS	433,795	342,881	807,069	827,466
EBIT ($)	465,429	145,311	1,649,677	1,754,079
EBIT (%)	50.42%	25.57%	74.75%	76.44%
EBIT/HEAD/ACRE	1.75	0.93	1.08	1.12
NET PROFIT AFTER TAX (@ 30.0%)	325,800	101,717	1,154,774	1,227,855
NET PROFIT AFTER TAX (@ 30.0%) (%)	35.29%	17.90%	52.32%	53.51%
NET PROFIT AFTER TAX/HEAD/ACRE	1.22	0.65	0.76	0.79
CONTRIBUTION MARGIN ($/HEAD)	927.47	882.14	1,001.96	1,003.38
CONTRIBUTION MARGIN (%)	82.28%	78.22%	88.89%	88.46%
BREAK-EVEN SELLING PRICE	729.38	925.91	537.38	539.94
BREAK-EVEN VOLUME	468	389	805	825
RETURN on EQUITY (ROE)	18.90%	18.89%	18.97%	18.93%
EXPECTED GROWTH (%)	0.00%	0.00%	0.00%	0.00%
INTRINSIC, (TRUE), OR 'FULL' VALUE ($) WIWO	3,153,922	984,680	11,178,839	11,886,303
INTRINSIC, (TRUE), OR 'FULL' VALUE ($/Ac.)	96.87	31.76	143.68	153.89
INTRINSIC, (TRUE), OR 'FULL' VALUE: TIMES EBIT	6.78	6.78	6.78	6.78
ALL EQUITY MODEL	**N**	**N**	**N**	**N**
PERCENTAGE of DEBT	**40.00%**	**40.00%**	**40.00%**	**40.00%**
WIWO VALUE	2,028,141	630,986	7,205,979	7,493,991
DUA ($/Ac.)	62.29	20.35	92.62	97.03
TIMES EBIT	4.36	4.34	4.37	4.36
STOCK SOLD	819	504	1,958	2,023
REVENUE	923,164	568,376	2,206,961	2,294,657
REVENUE/HEAD/ACRE	3.46	3.64	1.45	1.47
WIWO VALUE as a MULTIPLE of REVENUE	2.20	1.11	3.27	3.27
TOTAL VARIABLE COSTS per HEAD SOLD	199.72	245.59	125.19	112.91
TOTAL FIXED COSTS	514,921	368,121	1,095,309	1,127,225
EBIT ($)	465,429	145,311	1,649,677	1,754,079
EBIT (%)	50.42%	25.57%	74.75%	76.44%
EBIT/HEAD/ACRE	1.75	0.93	1.08	1.12
NET PROFIT AFTER TAX (@ 30.0%)	244,674	76,478	866,535	902,606
NET PROFIT AFTER TAX (@ 30.0%) (%)	26.50%	13.46%	39.26%	39.34%
NET PROFIT AFTER TAX/HEAD/ACRE	0.92	0.49	0.57	0.58
CONTRIBUTION MARGIN ($/HEAD)	927.47	882.14	1,001.96	1,003.38
CONTRIBUTION MARGIN (%)	82.28%	78.22%	88.89%	88.46%
BREAK-EVEN SELLING PRICE	828.44	975.99	684.59	688.11
BREAK-EVEN VOLUME	555	417	1,093	1,123
RETURN on EQUITY (ROE)	22.95%	23.03%	22.89%	22.92%
EXPECTED GROWTH (%)	0.00%	0.00%	0.00%	0.00%
INTRINSIC, (TRUE), OR 'FULL' VALUE ($) WIWO	2,368,582	740,349	8,388,527	8,737,712
INTRINSIC, (TRUE), OR 'FULL' VALUE ($/Ac.)	72.75	23.88	107.82	113.13
INTRINSIC, (TRUE), OR 'FULL' VALUE: TIMES EBIT	5.09	5.09	5.08	5.09

Observe what happens to the EBIT multiples when debt is added. Look to the 'Times EBIT' line. Then look to 'Intrinsic, (True), or 'Full' Value: Times EBIT' line.

11 BAV Method V's DRLIAV Method: a Discussion

Please see below Table 8 (also Appendix-3, for comparison) which sets out thirty-nine(39) properties listed for sale between 2008 and 2014 in the Central and Western Districts of Queensland, and which includes a comparison of DUA's where BAV equals the expected $2,400, and the introduced Revenue approach, the Discounted Risk, Leverage and Inflation Adjusted Valuation Method, where expected Net Farm Gate Price equals $1,100.00 per Head.

You may observe that the properties are listed/sorted in highest to lowest value per Acre, and Premium; and that the average premium expected is 26.70%, with the highest premium for Roma Freehold at 58.32%; and the minimum at Richmond in far Northern Queensland, at 12.89%.

Table 8 – Pastoral Property List of 'For Sales' in Western Queensland # 1

PASTORAL PROPERTY LIST of 'FOR SALES', & 'SOLD', in WESTERN QUEENSLAND.

MOS = 10.00%
BAV = $2,400
NFGP = $1,100
LM = 2.1

										Min	12.89%
										Max	58.32%
					2,889,321	129,920	22.24	$ 98.11	$ 77.43	$20.67	26.70%
#	DATE ADVERTISED	NAME of STATION PROPERTY	DISTRICT	TITLE	AREA (Ac.)	CARRYING CAPACITY (CATTLE)	STOCKING RATE 1: # Ac.	BAV - DUA	DRLIAVM (by Function)	DIFFERENCE (by Function)	PREMIUM or DISCOUNT
83	20/03/2014	NARDU	ROMA	FREEHOLD	8,275	1,380	6.00	$ 363.86	$229.82	134.04	58.32%
84	29/08/2013	ROCKYBANK	ROMA	FREEHOLD	36,133	3,860	9.36	$ 233.08	$158.80	74.28	46.78%
18	3/04/2014	BRIDES CREEK	BLACKALL	FREEHOLD	32,558	3,000	10.85	$ 201.04	$140.46	60.58	43.13%
19	3/04/2014	SUMNERVALE	BLACKALL	FREEHOLD	19,232	1,600	12.02	$ 181.52	$129.04	52.48	40.67%
61	24/04/2014	GLEN THOMSON	LONGREACH	GHPL	77,803	6,200	12.55	$ 173.87	$124.51	49.36	39.64%
9	18/10/2012	STRATAVON	BLACKALL	GHPL	13,681	1,000	13.68	$ 159.48	$115.89	43.58	37.61%
89	20/11/2008	MACFARLANE DOWNS	TAMBO	FREEHOLD	24,655	1,800	13.70	$ 159.29	$115.78	43.51	37.58%
91	6/09/2012	GREEN HILLS	TAMBO	GHPL	42,742	3,100	13.79	$ 158.24	$115.15	43.10	37.43%
8	8/04/2010	NORTH PENTWYN	BLACKALL	GHPL	9,718	700	13.88	$ 157.16	$114.50	42.67	37.27%
13	16/08/2012	MELLEW & MAYFAIR	BLACKALL	FREEHOLD	36,158	2,590	13.96	$ 156.28	$113.96	42.32	37.13%
88	17/06/2010	MACFARLANE	TAMBO	FREEHOLD	23,751	1,700	13.97	$ 156.17	$113.89	42.27	37.12%
15	3/04/2014	WOODBINE	BLACKALL	FREEHOLD	47,650	3,400	14.01	$ 155.68	$113.60	42.08	37.04%
5	5/02/2009	ASHBY DOWNS	AUGATHELLA	FREEHOLD	15,128	1,080	14.01	$ 155.76	$113.65	42.11	37.06%
7	25/02/2010	NORTH DELTA	BARCALDINE	FREEHOLD	77,237	5,500	14.04	$ 155.37	$113.41	41.96	37.00%
11	1/07/2010	WOOROOLAH	BLACKALL	GHPL	22,220	1,480	15.01	$ 145.32	$107.29	38.03	35.45%
20	3/04/2014	ALVA	BLACKALL	FREEHOLD	15,454	1,000	15.45	$ 141.18	$104.74	36.44	34.79%
14	17/06/2010	LYNBRYDON	BLACKALL	FREEHOLD	42,319	2,680	15.79	$ 138.17	$102.89	35.28	34.29%
90	8/04/2010	TOOLONG	TAMBO	FREEHOLD	27,320	1,700	16.07	$ 135.76	$101.40	34.37	33.89%
10	13/05/2010	ELSINORE & TAURUS HILLS	BLACKALL	FREEHOLD	16,308	1,000	16.31	$ 133.79	$100.17	33.62	33.56%
53	24/04/2014	MONS	ISISFORD	FREEHOLD	22,172	1,360	16.30	$ 133.83	$100.20	33.63	33.57%
59	25/02/2010	NEENAH PARK	LONGREACH	FREEHOLD	28,358	1,720	16.49	$ 132.33	$ 99.27	33.07	33.31%
6	13/05/2010	TARA & AVONSLEIGH	BARCALDINE	FREEHOLD	57,906	3,300	17.55	$ 124.34	$ 94.26	30.08	31.91%
17	13/05/2010	GOWAN & BONNIE DOON	BLACKALL	FREEHOLD	63,239	3,600	17.57	$ 124.20	$ 94.18	30.03	31.88%
56	18/10/2012	TOORAK RESEARCH STN.	JULIA CREEK	FREEHOLD	35,397	2,000	17.70	$ 123.28	$ 93.59	29.68	31.71%
60	16/08/2012	WESTBURY	LONGREACH	FREEHOLD	46,876	2,600	18.03	$ 121.02	$ 92.17	28.85	31.30%
55	20/03/2014	BAROONA	JULIA CREEK	GHPL	22,792	1,140	19.99	$ 109.13	$ 84.59	24.54	29.01%
57	20/03/2014	CALEEWA	JULIA CREEK	GHPL	39,988	2,000	19.99	$ 109.12	$ 84.58	24.54	29.01%
12	27/03/2014	AVINGTON	BLACKALL	FREEHOLD	31,000	1,430	21.68	$ 100.65	$ 79.09	21.55	27.25%
109	20/11/2008	CORFIELD DOWNS	WINTON	FREEHOLD	111,748	5,000	22.35	$ 97.62	$ 77.12	20.51	26.59%
110	15/10/2009	MELROSE	WINTON	PAST LEASE	118,258	5,000	23.65	$ 92.25	$ 73.58	18.67	25.38%
16	10/06/2010	MT CALDER	BLACKALL	PAST LEASE	54,410	2,300	23.66	$ 92.23	$ 73.56	18.67	25.37%
64	15/10/2009	CORONA	LONGREACH	FREEHOLD	125,413	5,200	24.12	$ 90.46	$ 72.39	18.07	24.96%
51	20/02/2014	CHUDLEIGH PARK	HUGHENDEN	PAST LEASE	450,000	17,300	26.01	$ 83.88	$ 67.99	15.89	23.37%
107	20/03/2014	EYRIEWALD	WINTON	GHPL	59,705	2,200	27.14	$ 80.40	$ 65.64	14.76	22.48%
62	20/11/2008	STRATHDARR	LONGREACH	FREEHOLD	82,790	3,000	27.60	$ 79.06	$ 64.73	14.33	22.13%
108	20/03/2014	FAIRVIEW	WINTON	GHPL	79,902	2,850	28.04	$ 77.82	$ 63.89	13.93	21.81%
77	18/09/2008	WOODSTOCK	RICHMOND	PAST LEASE	381,121	11,500	33.14	$ 65.83	$ 55.61	10.23	18.39%
63	27/03/2014	MARMBOO	LONGREACH	FREEHOLD	95,281	2,650	35.96	$ 60.68	$ 51.97	8.71	16.76%
78	19/08/2010	STRATHPARK	RICHMOND	PAST LEASE	394,623	9,000	43.85	$ 49.76	$ 44.08	5.68	12.89%

You may observe that the properties are listed/sorted in highest to lowest value per Acre, and Premium per property; and that the average premium expected is 26.70 per cent, with the highest premium being for Roma Freehold at 58.32 per cent; and the minimum at Richmond in far Northern Queensland, at 12.89 per cent.

12 Conclusions and Insights

It has been shown that the Beast Area Valuation (BAV) method, as currently applied is wrong, as it is being calculated on a BARE basis; when it was always an Enterprise Value, 'all-Equity', WIWO, going concern basis, with all thing necessary for the Investor to walk in and keep operating.

An alternative, modified and 'risk adjusted' BAV model has been offered for the market's consideration, and is more robust than the original circular equation where the only independent variable was the area of land. It appears to be 'about-right' when compared to the new model; the Pastoral Property Discounted Risk, Leverage and Inflation Adjusted Valuation Method (DRLIAV).

This new method of valuing grazing enterprises in the Pastoral Zones has been offered for the markets consideration, because it calculates Investment Value for an individual property, based upon long-term production metrics unique to that parcel of land, as a going concern, and on a WIWO basis. It is an Enterprise Value calculation which looks through the cycle from a sustainability view-point. It is a 'positive' number, because it uses data which actually occurred in a transaction, and are fact.

DRLIAV method works as intended, and is proved to be a robust model for valuing a property which might not be fully developed, but based upon the resources unique to this property, and any improvements made, this is the long-term sustainable stocking rate (SSR) and likely net farm gate price (NFGP) through a 10-year rolling cycle.

Having lived the pastoral life, working as a Stockman in various stock-camps for over 15-years, as a Manager, and as a Partner-in-Partnership in a rural enterprise, the Author observed first-hand the trials and tribulations of an investment in a grazing enterprise for over 25-years, and it became obvious that a life on the land is a sustainable pursuit with good animal husbandry and financial management applied.

However, the prudent investor must never pay too much initially, and ensure to shore-up the Balance Sheet with off-farm growth investments, with annuity income, and also some very liquid investments (cash, shares, term deposits, etc.), to ride-out the aberrations in weather patterns and markets that regularly appear, like the Joker in the pack of cards.

Sometimes these 'Jokers' are of a size and impact, that is such a shock to the system, they pose terminal operational and financial risks to the enterprise; and the off-farm assets underwrite the risks, and allows the Investor in this space to 'tighten the belt', yet continue to operate eventually, and without the Bank increasing the interest rate on any out-standing loans (if any) and further eating into meagre cash-flow.

It must be noted here, that the Author is not trying to 'talk-down' the value of grazing land in the pastoral zones; though that may be an outcome in the short-term. The intention is to get Investors in this space to really understand risk and uncertainty, and ask themselves the question, "What would a rational, risk averse, and Prudent person do?"

A further issue to consider around expected future value, is that if the pundits are correct, and the demand for better protein from our northern and Asia/Pacific neighbours leads to a sustainable demand from off-shore, there will be new pricing

in the market, and as more beef (both on-the-hoof, and in a box), is unavailable for domestic consumers, the shortage of supply will either force consumers here to pay the higher clearing price (i.e. international parity price), or seek substitutes elsewhere. Regardless, prices for beef will increase over the medium term, and so may the prices paid for the scale offered by larger properties in the north of Australia; but ideally at a sustainable level.

Debt is important, to leverage the growth of a business, and to take advantage of opportunities: the important message is not to borrow past a sustainable level, and with an appropriate Margin-of-Safety (in amount borrowed, and cost of funds). The only way uninformed Graziers will protect themselves from financial and business risks is to become more educated in the economic fields of 'Business and Corporate Finance'; maybe the Pastoral and Agricultural Colleges have a major role to play here.

The further important message is that all borrowings must come back to Zero at some stage over a 5-year cycle; else that portion becomes 'hard-core' debt.

An oscillation of Debt around 20.0 per cent over the longer term, seems 'about right'; with a maximum level of 40.0 per cent, debt to debt plus equity (D/(D + E)), or debt to assets (D /A), through the peak of demand, knowing there is still a little 'dry-powder' up the sleeve if necessary, before having to sell surplus assets.

Another measure discussed above is a maximum borrowing level to maintain sustainability, is the old Banker's maxim of 2.5-Times the average value of the herd, being a tipping-point in regards to borrowing limits. You may note that 2.5 is the inverse of 40.0 per cent, or 0.40, for debt levels. This may be mere coincidence.

Further work in this space has informed the Author that 2.0-Times is a more likely number, and if debt will 'always' be oscillating around 20.0 per cent, then the better number is 1.8-Times the herd value.

The ubiquitous Industry Method, Beast Area Valuation (BAV), was applied (in its current 'evolved' incarnation) to assess what might have been the values touted to encourage 'best' price by Real Estate Agents for the Vendor, and then the new normative application of the Risk, Leverage & Inflation Adjusted Valuation Method to each property was calculated as the 'price-to-pay-no-more-than' from a sustainable economic viewpoint, and then DUA numbers compared to look for any relationships and other insights.

Other conclusions for this paper are as follows:-

1. Beast Area Valuation (BAV) methodology, as currently applied, is seriously flawed as a valuation tool, and predictor of market price; except as a self-fulfilling prophecy for vested interests. (An alternative is suggested in Appendix 9.)

2. An Investor, looking to buy a long-term risky investment, must make judgements about future expectations of likely returns and the state-of-play. Therefore, analysis must be rigorous, looking back only to learn (whilst understanding that the past may be no guide to the future), and forward to grow. A purchase is about future expectations of risk and return, not about the past.

3. As an Investor, you make your money when you buy, not when you sell; so never pay too much, and always ensure a margin-of-safety in decision-making.

4. Before you buy, have an 'exit' strategy (and price you will accept), planned.

5. There is no 'one' or 'universal' (Dr. William Wild – 2014: Unpublished) value; if twenty highly experienced and qualified Valuers were asked to place a value on the same parcel of land, they would all arrive at a different number. Who is correct? They all are, of course: because real value (Market Price) lies in the eye of the beholder, and buyers set the market on the day.

6. The above reveals the existence of a likely 'range of values', with likely final price lying somewhere between the two extremes. The concept of a range of values is important, and should not be dismissed by the Courts in decisions handed-down. Even in the simply applied, statistical methods, there is central tendency and a dispersion around the mean, with the standard deviation indicating there is a range of values, both above and below the mean (first moment): indicating a possible range of values under un-certainty.

7. There is a number, a value, which may be derived to reflect the inherent 'riskiness' of an asset, as a pointer to the economic 'price-to-pay-no-more-than'. Any price paid, which is less than this value, is OK; and the further you are below it, the bigger the margin-of-safety. This is considered a suitable investment. Any price above this number, would be a speculation; and the further above it, the closer to bankruptcy/liquidation you may be.

8. The 'Bigger Fool' theory is not a theory; it exists, and plays out every day, as uninformed investors pay 'too much' for a 'thing', and distorting the market signals at the same time. It means that hope is a strategy, and that far from having a rational exit strategy, and with a margin-of-safety, the new Speculator hopes that a bigger fool will come along, and meet their already inflated buy price as a minimum. This behaviour has been observed by the Author, and not just in 'hot' and irrational markets.

9. All grazing land in the pastoral zones must be valued with, and part of, the operating enterprise, as the resources of the land have a synergistic role in adding value to live-stock. **This concept is central to this thesis.**

10. All grazing property should be valued on a walk-in, walk-out (WIWO) basis, as if it is a going concern (unless, of course, it is not, and never could be), and with all things necessary, so that something approaching a comparative sales technique may be applied. **This concept is central to this thesis.**

11. If the property is to be sold on a BARE basis, net of Stock-on-Hand and Plant & Equipment, then the apportionments will show value. All that remains to be done is to 'reduce' the WIWO value by the current value of the 'missing' assets (ie stock, waters, fences, plant and equipment, etc.) as if it was the sale of a going concern (and with all things necessary), as these assets will have to be purchased subsequently.

12. Land Value, plus the Improvements on the land is, like Equity, a residual. If the value of the Land portion alone is required, then the Depreciated

Replacement Cost of the Improvements, may be deducted from the combined Land and Improvements number, to give Land a value.

13. Sometimes, especially during periods of extended drought, or if the property has not been well managed, or over-stocked and degraded, the Land Value **is** $Zero (though theoretically, never less than Zero), even if the apportionments may show it differently.

14. All grazing properties in the pastoral zones of Australia should be valued to reduce risk for Investment purposes, by using the proposed Discounted Risk, Leverage & Inflation Adjusted Valuation Model (DRLIAV); for consistency and sustainability sake, as the 'price-to-pay-no-more-than', on a WIWO basis.

15. Important that for comparability's sake, that there is consistency in approach.

16. That an Income Method is a better indicator of Going Concern, than an Asset Method for an Investor; as Asset Methods are a Liquidators' guide to Value.

17. That a Gross Revenue number is a better Income Method metric, than an Earnings (EBIT) Multiple, or after-Tax Capitalisation Rate, as an indicator to 'True', 'Full', or Intrinsic Value; due to the simplicity and 'pureness' of the number. It is objective rather than subjective. It has not been distorted by other 'noise', including the decision-making of management, and represents the productive capacity of the property.

18. To value grazing land effectively, the Valuer/Investor must use 'production-ability' (the drivers of value) to derive an economic 'price-to-pay-no-more-

than'; 'production-ability' being fully described by the economic, fraternal twins of quantity (Sustainable Stocking Rate $_{\text{Long-Term}}$) and price (Net Farm Gate Price $_{\text{Long-Term}}$).

19. For further comparability, that the price used is the Net Farm Gate Price (NFGP), which is after all freight/cartage and selling costs, other than commission, are deducted from the Gross Sales Revenue, and reduced to a 'per Head' number. In this way, the sale may be considered a 'Paddock Sale' for comparable sales purposes.

20. If debt is required to operate or grow, the maximum sustainable debt level should be around 20.0% on the average, returning to Zero at least once during a five(5)-year cycle, and never no more than 40.0 per cent Debt to Debt plus Equity (D/(D + E)), or Debt to Assets (D/A).

21. As Registered Land Valuers are experienced in property, they are seen by the community as Investment Advisors (and should be recognised as such), informing the market through their actions and the advice imparted, the Valuation Regulations should state there should necessarily be two(2) numbers included in a Valuation Opinion Report to a Client:- a) The Likely Market Price (if sold, Today), and b) The Economic Investment Value to an Investor (Today). This then informs the market of where Price sits today, relative to Value, looking through the cycle. If Price is below Value, then the greater the spread, the better the bargain: and *vice versa* would describe a poor investment (in fact a Speculation, hoping for the 'bigger fool' to come along.

22. If an Investor should further invest in the productive capacity of the grazing operation, by adding further improvements on it, or to it, she will receive a commensurate return on capital employed through the extra annuity income received, both in quantum of stock and increase in the quality of the turn-off as reflected in the prices received. When it comes time to sell, the apportionments will reveal the value of each component and there will be a further reward for productivity value-added here, for the Stock, the Plant, and the Improvements; however, the Land should not ask for a 'double-dip', as she should not be paid twice.

23. Valuing income producing land, is like Valuing the price of a tradeable Bond security; there is the present value (PV) of the Face Value (the 'Tree'), and the present value (PV) of the annuity Coupon (the 'Fruit-of-the Tree'), with Interest Rate reflecting the 'riskiness' of the going concern business as an economic unit, and the Coupon Rate reflecting the earnings over time.

24. Using the Discounted Risk, Leverage and Inflation Adjusted Valuation Method, Risk has been Discounted, by looking at the long-term averages of SSR and DUA through the cycle, to see what levels for each is sustainable.

25. Leverage adjustments have been made, by looking at the appropriate weightings of debt to assets and deriving a multiple ($\mathcal{f}$) of livestock (LM) and comparing it to EBIT multiples to describe the relationship.

26. The insidious nature of Inflation has been introduced, and sales values have been adjusted to show the purchasing power in real terms, with 'base' year being the latest (2013). It is important to note here that the target range of inflation being used by the Reserve bank of Australia (RBA) of between 2.5 per cent and 3.5 per cent is considered benign, and in fact a buffer against deflation of asset prices, as has happened to the Japanese economy for nearly the past 20-years. We are in a good place at the moment, with CPI at 2.5 per cent (ABS – June 2014); though that may increase in the future as the world economy 'normalises' from the current Central Bank artificial policy settings.

27. Please note that anyone using traditional, rotational (or cell-grazing), or more intensive grazing models, the SSR is the total number of cattle run per Acre, per Annum, on the average, and through the cycle; not the number of cattle sold.

The task is complete to the level the Author wishes to take this line of thought at this time. Thank-You for taking the time to read this paper.

The End.

Appendix 1 – Seasonal Risk & Adjusted EBIT Under Un-certainty

Table 9- Seasonal Risk & Adjusted EBIT Under Un-Certainty

SEASONAL CLIMATE & VOLATILITY							
BLACKALL/TAMBO/AUGATHELLA REGION of CENTRAL QUEENSLAND							
Expect seven-good-years-in-ten.							
	EVENT	RAINFALL pa	PROB. (%)	E (Return) EBIT ($,000)	Wtd. AVG.	VARIANCE	Std. Dev.
1	DROUGHT - SEVERE (> 4-yrs.)	2"	5.00%	(250.00)	(12.50)	9,592.20	
2	DROUGHT - AVERAGE (< 4-yrs.)	6"	10.00%	(100.00)	(10.00)	10.00	
3	DROUGHT - MILD (< 2-yrs.)	12"	15.00%	250.00	37.50	210.94	
4	AVERAGE SEASON	24"	55.00%	550.00	302.50	50,328.44	
5	BETTER THAN AVERAGE SEASON	30"	12.00%	750.00	90.00	972.00	
6	EXCELLENT SEASON	> 40"	3.00%	600.00	18.00	9.72	
			100.00%		425.50	61,123.30	247.2313
	Likely EBIT: Adjusted for Certainty.	Range of Likely Values of EBIT					
	1 x Std. Dev (68.27%). =	$ 178,269	to	$ 672,731			
	2 x Std. Dev (95.45%). =	(68,963)	to	919,963			
Value-at-Risk (VaR) (Statistically Significant CI = 95%) =		(59,073)					

Table 10 – Seasonal Climate and Volatility

SEASONAL CLIMATE & VOLATILITY							
BLACKALL/TAMBO/AUGATHELLA REGION of CENTRAL QUEENSLAND							
Logic: Expect seven-good-years-in-ten.							
	EVENT	RAINFALL pa	PROB. (%)	E (Return) EBIT (%)	Wtd. AVG.	VARIANCE	Std. Dev.
1	DROUGHT - SEVERE (> 4-yrs.)	2"	5.00%	(100.00%)	(5.00%)	0.38%	
2	DROUGHT - AVERAGE (< 4-yrs.)	6"	10.00%	(33.33%)	(3.33%)	0.01%	
3	DROUGHT - MILD (< 2-yrs.)	12"	15.00%	0.00%	0.00%	0.00%	
4	AVERAGE SEASON	24"	55.00%	42.00%	23.10%	2.93%	
5	BETTER THAN AVERAGE SEASON	30"	12.00%	56.00%	6.72%	0.05%	
6	EXCELLENT SEASON	> 40"	3.00%	35.00%	1.05%	0.00%	
			100.00%		22.54%	3.38%	18.38%
	Likely EBIT (%): Adjusted for Certainty.	Range of Likely Values of EBIT (%)				Geo. - Avg. (%)	Progression
	1 x Std. Dev (68.27%). =	4.15%	to	40.92%		21.15%	0.00%
	2 x Std. Dev (95.45%). =	(14.23%)	to	59.30%		16.89%	(20.14%)
	3 x Std. Dev (99.73%). =	(32.61%)	to	77.69%		9.42%	(44.21%)
Value-at-Risk (VaR) (Very Statistically Significant CI = 95%) =		(13.49%)					
Value-at-Risk (VaR) (Statistically Significant CI = 90%) =		(7.70%)					
Value-at-Risk (VaR) (Statistically Significant CI = 80%) =		(1.02%)					
Value-at-Risk (VaR) (Statistically in-Significant CI = 70%) =		3.48%					
	If un-certainty is too high, then use lower CI.						

What this means [in a pastoral zone where, in the planning process, where a Grazier may have to write-off Closing Stock completely, for at least one(1) year in every ten(10)], may make for a very marginally profitable enterprise, where the profits and losses over the long-term (say 10-years) may cancel each other out adds a 'zero-sum-game'; as the 'Joker' shows her face, when an *'El Nino'* (Spanish for 'Boy'-child) event is evident, with cool water on the Western side of the Pacific Ocean; as opposed to a La Nina (Spanish for 'Girl'-child) event, where the water is quite warm

in the Western Pacific Ocean. (NB: Old Woman, dry; Young Woman, wet.) (*http://www.bom.gov.au/climate/enso/history/ln-2010-12/ENSO-what.shtml*

Accessed 5th July, 2014)

For such a random, non-linear model, maybe Hurst Components, and Fractal Geometry may be a better descriptor of the risks and returns in this space; though this concept will not be explored further here.

Appendix 2 – Understanding Income Multiples to find Value

Table 11 - Understanding Income Multiples (PER's and Cap. Rates) to Find Value

UNDERSTANDING MULTIPLES to FIND VALUE for a LISTED ENTITY				
USING DIFFERENT LEVELS of INCOME				
DESCRIPTION	**PERCENTAGE**	**PE MULTIPLE (x)**		**Product**
GROSS REVENUE	100.00%	3.0		3
Less: OPERATING EXPENSES	47.00%			
= EBITDA / OPERATING NET CASH-FLOW	53.00%	5.6		3
Less: DEPRECIATION & AMORTISATION	8.00%			
= EBIT / OPERATING PROFIT	45.00%	6.2		3
Less: INTEREST PAID	15.00%			
= NET PROFIT	30.00%	11.2		3
Less: TAXATION @ 30.0%	9.00%			
= NET PROFIT AFTER TAXATION	21.00%	16.0		3
[NB: All Multiples lead to the same answer of around 3.0 -Times Gross Revenue; being Expected Value.]				

(NB: The formula is 'PE Multiple' multiplied by 'Percentage', will always equal roughly 3.0 -Times. This gives an illustration of the application of different multiples at different levels of profit; yet they are all basically the same, and give the same value. Meaning 3 – Times Revenue, is the same as 16 – Times Net Profit After Tax.)

As Shannon Pratt (2008) points out in his seminal valuation book on "How to Value a Closely Held Business"; from a business' company value, must be deducted;

a) an initial discount for 'Lack of Control',

b) a further discount for 'Lack of Marketability'

and they must be applied in that order.

A Lack of Control Discount is the inverse of the Premium for Control [1-(1/(1 + Control Premium))] and seems to average around 35.0 per cent.

On the other hand, the Lack of Marketability of a minority shareholding, in a private, or closely-held corporation, will average around 50 per cent. (Pratt (5th-Ed. (2008))

It should be noted that private and family controlled companies, due to lack of transparency, and control issues (because private companies, have private knowledge), may have aggregate discounts of as much as 90.0 per cent for Lack of Control and Marketability of Shares, when compared to a listed company's Fair Market Value on the ASX.

The usual average discounts applied to private business when compared to a listed company are as follows:-

- If the average Price Earnings Ratio (PER) for listed industrial companies is around 16.5-Times EBIT,
- Then a listed company, in its first year 'on-the-boards', and before profitability is proven, may be around 50.0 per cent, or 8.25-Times EBIT, and
- A private company may be around 50.0 per cent of that, or 4.125-Times EBIT. (Hayes 2011)

Appendix 3 – Pastoral Property List of "For Sales" in Western Queensland 2008 - 2014

Table 12 – Pastoral List of "For Sales" and "Sold" in Western Queensland # 2

PASTORAL PROPERTY LIST of 'FOR SALES', & 'SOLD', in WESTERN QUEENSLAND.

MOS = 10.00%
BAV = $1,600
NFGP = $850
LM = 2.1

															Min	(2.61%)
															Max	36.59%
					2,889,321	129,934	22.24	$ 65.41	$ 59.84	$5.57	(8.52%)	$ 59.84	$5.57	9.31%		
#	DATE ADVERTISED	NAME of STATION PROPERTY	DISTRICT	TITLE	AREA (Ac.)	CARRYING CAPACITY (CATTLE)	STOCKING RATE 1: # Ac.	BAV - DUA	DRLIAVM (by Formula)	DIFFERENCE (by Formula)	PREMIUM or DISCOUNT	DRLIAVM (by Function)	DIFFERENCE (by Function)	PREMIUM or DISCOUNT		
83	20/03/2014	NARDU	ROMA	FREEHOLD	8,275	1,380	6.00	$ 242.57	$270.62	(28.05)	11.56%	$177.59	64.98	36.59%		
84	29/08/2013	ROCKYBANK	ROMA	FREEHOLD	36,133	3,864	9.35	$ 155.55	$173.53	(17.99)	11.56%	$122.81	32.73	26.65%		
18	3/04/2014	BRIDES CREEK	BLACKALL	FREEHOLD	32,558	3,000	10.85	$ 134.03	$149.52	(15.50)	11.56%	$108.53	25.49	23.49%		
19	3/04/2014	SUMNERVALE	BLACKALL	FREEHOLD	19,232	1,600	12.02	$ 121.01	$135.00	(13.99)	11.56%	$ 99.71	21.30	21.36%		
61	24/04/2014	GLEN THOMSON	LONGREACH	GHPL	77,803	6,200	12.55	$ 115.91	$129.31	(13.40)	11.56%	$ 96.21	19.70	20.48%		
9	18/10/2012	STRATAVON	BLACKALL	GHPL	13,681	1,000	13.68	$ 106.32	$118.61	(12.29)	11.56%	$ 89.55	16.76	18.72%		
89	20/11/2008	MACFARLANE DOWNS	TAMBO	FREEHOLD	24,655	1,800	13.70	$ 106.19	$118.47	(12.28)	11.56%	$ 89.47	16.73	18.70%		
91	6/09/2012	GREEN HILLS	TAMBO	GHPL	42,742	3,100	13.79	$ 105.50	$117.69	(12.20)	11.56%	$ 88.98	16.52	18.56%		
8	8/04/2010	NORTH PENTWYN	BLACKALL	GHPL	9,718	700	13.88	$ 104.78	$116.89	(12.11)	11.56%	$ 88.47	16.30	18.43%		
13	16/08/2012	MELLEW & MAYFAIR	BLACKALL	FREEHOLD	36,158	2,590	13.96	$ 104.19	$116.24	(12.05)	11.56%	$ 88.06	16.13	18.31%		
88	17/06/2010	MACFARLANE	TAMBO	FREEHOLD	23,751	1,700	13.97	$ 104.11	$116.15	(12.04)	11.56%	$ 88.01	16.10	18.30%		
15	3/04/2014	WOODBINE	BLACKALL	FREEHOLD	47,650	3,404	14.00	$ 103.91	$115.92	(12.01)	11.56%	$ 87.87	16.04	18.26%		
5	5/02/2009	ASHBY DOWNS	AUGATHELLA	FREEHOLD	15,128	1,080	14.01	$ 103.84	$115.85	(12.01)	11.56%	$ 87.82	16.02	18.25%		
7	25/02/2010	NORTH DELTA	BARCALDINE	FREEHOLD	77,237	5,500	14.04	$ 103.58	$115.55	(11.98)	11.56%	$ 87.63	15.94	18.19%		
11	1/07/2010	WOOROOLAH	BLACKALL	GHPL	22,220	1,480	15.01	$ 96.88	$108.08	(11.20)	11.56%	$ 82.91	13.98	16.86%		
20	3/04/2014	ALVA	BLACKALL	FREEHOLD	15,454	1,000	15.45	$ 94.12	$105.00	(10.88)	11.56%	$ 80.94	13.18	16.29%		
14	17/06/2010	LYNBRYDON	BLACKALL	FREEHOLD	42,319	2,680	15.79	$ 92.11	$102.76	(10.65)	11.56%	$ 79.50	12.61	15.86%		
90	8/04/2010	TOOLONG	TAMBO	FREEHOLD	27,320	1,700	16.07	$ 90.51	$100.97	(10.47)	11.56%	$ 78.35	12.16	15.52%		
10	13/05/2010	ELSINORE & TAURUS HILLS	BLACKALL	FREEHOLD	16,308	1,000	16.31	$ 89.19	$ 99.50	(10.31)	11.56%	$ 77.41	11.79	15.23%		
53	24/04/2014	MONS	ISISFORD	FREEHOLD	22,172	1,358	16.33	$ 89.09	$ 99.39	(10.30)	11.56%	$ 77.33	11.76	15.20%		
59	25/02/2010	NEENAH PARK	LONGREACH	FREEHOLD	28,358	1,720	16.49	$ 88.22	$ 98.42	(10.20)	11.56%	$ 76.71	11.52	15.01%		
6	13/05/2010	TARA & AVONSLEIGH	BARCALDINE	FREEHOLD	57,906	3,300	17.55	$ 82.89	$ 92.48	(9.58)	11.56%	$ 72.84	10.05	13.80%		
17	13/05/2010	GOWAN & BONNIE DOON	BLACKALL	FREEHOLD	63,239	3,600	17.57	$ 82.80	$ 92.38	(9.57)	11.56%	$ 72.77	10.03	13.78%		
56	18/10/2012	TOORAK RESEARCH STN.	JULIA CREEK	FREEHOLD	35,397	2,000	17.70	$ 82.18	$ 91.69	(9.50)	11.56%	$ 72.32	9.86	13.64%		
60	16/08/2012	WESTBURY	LONGREACH	FREEHOLD	46,876	2,600	18.03	$ 80.68	$ 90.01	(9.33)	11.56%	$ 71.22	9.46	13.28%		
55	20/03/2014	BAROONA	JULIA CREEK	GHPL	22,792	1,140	19.99	$ 72.75	$ 81.16	(8.41)	11.56%	$ 65.36	7.39	11.31%		
57	20/03/2014	CALEEWA	JULIA CREEK	GHPL	39,988	2,000	19.99	$ 72.75	$ 81.16	(8.41)	11.56%	$ 65.36	7.39	11.30%		
12	27/03/2014	AVINGTON	BLACKALL	FREEHOLD	31,000	1,430	21.68	$ 67.10	$ 74.85	(7.76)	11.56%	$ 61.12	5.98	9.78%		
109	20/11/2008	CORFIELD DOWNS	WINTON	FREEHOLD	111,748	5,000	22.35	$ 65.08	$ 72.61	(7.53)	11.56%	$ 59.59	5.49	9.22%		
110	15/10/2009	MELROSE	WINTON	PAST LEASE	118,258	5,000	23.65	$ 61.50	$ 68.61	(7.11)	11.56%	$ 56.85	4.65	8.17%		
16	10/06/2010	MT CALDER	BLACKALL	PAST LEASE	54,410	2,300	23.66	$ 61.49	$ 68.60	(7.11)	11.56%	$ 56.84	4.64	8.17%		
64	15/10/2009	CORONA	LONGREACH	FREEHOLD	125,413	5,200	24.12	$ 60.31	$ 67.28	(6.97)	11.56%	$ 55.94	4.37	7.81%		
51	20/02/2014	CHUDLEIGH PARK	HUGHENDEN	PAST LEASE	450,000	17,308	26.00	$ 55.95	$ 62.41	(6.47)	11.56%	$ 52.56	3.39	6.44%		
107	20/03/2014	EYRIEWALD	WINTON	GHPL	59,705	2,200	27.14	$ 53.60	$ 59.79	(6.20)	11.56%	$ 50.72	2.88	5.67%		
62	20/11/2008	STRATHDARR	LONGREACH	FREEHOLD	82,790	3,000	27.60	$ 52.71	$ 58.80	(6.09)	11.56%	$ 50.02	2.69	5.37%		
108	20/03/2014	FAIRVIEW	WINTON	GHPL	79,902	2,850	28.04	$ 51.88	$ 57.88	(6.00)	11.56%	$ 49.37	2.51	5.09%		
77	18/09/2008	WOODSTOCK	RICHMOND	PAST LEASE	381,121	11,500	33.14	$ 43.89	$ 48.96	(5.07)	11.56%	$ 42.97	0.92	2.14%		
63	27/03/2014	MARMBOO	LONGREACH	FREEHOLD	95,281	2,650	35.96	$ 40.45	$ 45.13	(4.68)	11.56%	$ 40.16	0.30	0.74%		
78	19/08/2010	STRATHPARK	RICHMOND	PAST LEASE	394,623	9,000	43.85	$ 33.17	$ 37.01	(3.84)	11.56%	$ 34.06	(0.89)	(2.61%)		

The above shows properties which were advertised for sale, and when. The Table does not show what the properties eventually sold for, as that is a different exercise to the one at-hand, of comparing valuation methodologies.

Observe the average Premium is 9.31 per cent, but it is the glaring differences in the 'ranked' order, showing a possible near 37.0 per cent Premium at the top-end for properties in the Roma, Blackall, Tambo, Barcaldine, and Augathella regions. The question of. "How is this possible?" screams to be answered.

Surely any scale and/or higher carrying capacities of stock, is already reflected in the price, or should be?

Appendix 4 - The Going Concern Principle

'Going Concern' is not a construct, but a fact. It is a 'state' which may be assumed; and should always be verified.

This is a state-of-affairs in business, which either exists, or it does not, at a point in time; and an expectation, looking forward through the cycle.

It means that the business is operational, profitable, can pay its debts (as and when they fall due), and that a Walk-In, Walk-Out (WIWO) 'sale and purchase' transaction implies that nothing on the operational side will change much on transfer; though it may be observed, there may be some policy change implemented by new 'management'.

The business was effectively operating at one second to midnight with one owner, and at one second past midnight with another.

It must be noted though, that 'going concern' may be understood to be buying the 'Equity', when most sales in this space are about buying the assets; the Enterprise Value. For all intents and purposes, the legal structure is irrelevant. The Investor is buying 'all things necessary' for it to be a 'going concern'; therefore, logically, it is.

The 'Going Concern' convention/principle is very important when buying as an investment, an income producing property, because in most cases the final price (value) will derive from a multiple applied to the sustainable EBIT (as a proxy for Operating Profit), an Income method, in a process called the Capitalisation of Future Net Sustainable Earnings (FNSE); or else using the Discounted Cash-Flow (DCF) method of valuing the free-cash-flow of a firm, to derive the Enterprise Value (EV).

Both methods are excellent for entities sited in suburbia, in an entity with stable or growing earnings, and/or for a project with a certain investment horizon; however, not practical, nor suitable for valuing a grazing property in the pastoral zone, due to the 'lumpy' nature of the un-certain cash-flows, and/or the existence of a profit each year.

The DCF is arguably the most accurate, depending of course upon the assumptions made, as it removes all accruals from the income statement, and is a record of actual cash expected to be received and paid during a period.

As in most modelling exercises, there is usually nothing wrong with the model (once tested and proved for a range of activity, of course), however the assumptions made to fit the model must be robust, and this factor is more important than the construction and selection of an appropriate 'Cap. Rate', or Discount Rate.

There is more chance of significant error in the assumptions made to build the cash-flow, than in the derivation of the Multiple/Discount; and by that stage anyway, it is a purely mechanical application to arrive at the value.

If any important assumption is out by a small amount at the start, the magnitude or error at the end may be enormous. Think of a line drawn from the centre origin of a circle, at 2° from the horizontal quadrant-line. The degree will remain constant, however the distance of the new line from the quadrant-line is greater, the further away from the centre, and closer to the arc of the circle it becomes.

Critical thought about the selection and quantum of assumptions is crucial.

Appendix 5 - How to Derive a Capitalisation Rate, or Discount Rate

Corporate Finance theory informs us that the Capital Asset Pricing Model (CAPM) [as developed independently by Jack Traynor (1961), William Sharpe (1964), John Lintner (1965), and Jan Messin (1966), and Fischer Black (1972), building on the earlier work of Harry Markowitz (1955) on Modern Portfolio Theory, which earned the Nobel Memorial Prize in Economic Sciences in 1990], is the appropriate model to derive an Equity Discount Rate for the Cost of Equity Capital for the Firm (r_E); which leads to the Weighted Average Cost of Capital (WACC), when combined with the Cost of Debt Capital (r_D) the enterprise will require going forward.

Let us break this down into the component parts, and use an example to tell the story.

A firm may seek to invest in a risky business, and to arrive at an appropriate Net Present Value (NPV) of what the firm is worth today, and to enable a decision, some assumptions will need to be made about expectations into the future.

Let us assume the following:-

- The Risk-Free Cash-Rate is the 90-Day Bank Accepted Bill Rate; say 2.50% per Annum.
- The long-term average 10-Year Bond rate is 10.33% pa. (Rowland, 2010)
- The Beta (b) (or 'riskiness' of the firm, as measured against the Market) is 3.6-Times; because agriculture is as risky as VC (where you stand to lose up

to 100% of Capital), when compared to the Market; whose Beta value is One(1).

- The Tax-Rate of the firm is 30.0% pa.
- The Equity (E) is 60.0%.
- The Debt (D) is 40.0% (NB: Where, Assets = Liabilities + Equity: the Accounting Equation.)
- The Cost of Debt is 10.0% pa

Therefore, to derive the Discount Rate for the firm, we combine these assumptions into the WACC formula:-

$$\text{WACC} = ((E)(R_f + b(R_M - R_f))) + ((D)(\text{Cost of Debt})(1 - \text{Tax rate}))$$

$$= ((0.6)(0.025 + 3.6(0.1033 - 0.025))) + ((0.4)(0.10)(0.7)$$

$$= ((0.6)(0.306880)) + ((0.4)(0.07))$$

$$= (0.184128) + (0.0280)$$

$$= 0.212128 \text{ (or } 21.2128\%)$$

(An inverse of 4.714135-Times, or 4.7-Times, if used as a Multiple.)

Interestingly, this number nearly lines-up exactly (to within a thousandth) with the inverse of the Chaos Theory 'constant', to 10-decimal places; being: (Gleick, 1987)

'k' = 4.6992016920-Times, or 4.7-Times (or 0.21280210247; or 21.28%)

(Author's Note: Convention says that for transactions in the millions of dollars, calculate to 6-Decimal places, in the billions use 9, and in the trillions use 12.)

For further comparison, Metrick & Yasuda state that an appropriate Discount Rate for very high risk Venture Capital is about 15 per cent; but that is for late-stage VC with up-side and options aplenty. (Metrick & Yasuda, 2010)

Please understand that the WACC is not an appropriate model to use in valuing small and micro businesses, with a Revenue Turn-Over of less than $2.0-million; where the loan may be underwritten by the value of a suburban home (or other residential property), other equity in risky assets (like shares in listed companies, or rural land), and/or the personal guarantees of the borrower(s). Caution must be exercised.

Not to say the above-calculated Discount factor is wrong, a more appropriate application to reach a realistic Discount Rate in those cases, may be to use the Opportunity Cost of Capital (for the Borrower's 'next best alternative' investment), and add a risk premium suitable to the risks faced (this may be between 15.0 per cent and up to 40 per cent); or apply the 'Cost to Create' method, if profit is negligible, or non-existant. (Hayes, 2013).

As an aside, another method (which has been well used by the Author for some twenty years) to derive Intrinsic Value, or 'Full', or 'True' Value, although he is unsure of the genesis of it, is as follows:-

$$\textbf{Discount Rate} = ((1 + \text{LT Debt}_B) \times (1 + \text{Industry Risk Premium}_P) \times (1 + \text{Risk of Firm}_F) - 1)^2) / \text{Return on Equity}_1$$

For example:-

$= ((1.1033)(1.025)(1.08)-1)^2 / 0.165$

$= 0.048997 / 0.165$

$= 0.296953$ (or 29.6953%) (An EBIT Multiple of 3.3675-Times)

The '$_B$' above is used to denote the use of the long-term average 10-Year Bond Rate. (Rowland, 2010)(Chap-7, page-176 & page-180)

The '$_P$' above is used to signify that each industry has a risk weighting, or rate, attached to it. A subjective range of weightings between 1.0% and 3.0% is applied.

The '$_F$' above is used to denote a risk weighting for the firm based upon region of residence/location, capital risk, and extent of management experience. A subjective weighting of between 3.0% and 10.0% is applied.

The '$_1$ 'above, means that if the business is too young (though necessarily more than three years old to have any measurable 'goodwill'), and the ROE is not conclusive, negative, or ridiculously high (i.e. >= 40.0%), the writer may use the Net Operating Profit Margin (EBIT). The reason the EBIT margin is used is that, for comparability, an all equity model is assumed, and tax is an outcome of the funding decision.

The idea here-above, is to show that a Discount Rate, or Capitalisation Rate, may be derived using several methods; yet, it is **not** important to be exact in its derivation,

but to be 'about right'. For it is said, "It is better to be 'about right'; than exactly wrong". (John Maynard Keynes)

This is part of the 'art-form' in valuation; as in many areas of the professional application, the subjectivity of it, may only be combined with the science, when based upon experience: and with a Margin-of-Safety (Ben Graham - 1934).

Another very important, yet quick note on Cap. Rates and Discount Rates: if the long-term average income yield on an historical asset value is only 2.0%, then an 'all risks yield' (which values the asset on a WIWO basis) says that is the Cap. Rate (also supported by the Courts'), and when applied, derives the value; assuming market values do not fall: which is, of course, impossible. This use of an 'all risks yield' implies an earnings multiple of 50.0-Times in the above case: also impossible (except in the middle of a 'tech'-Bubble).

A normal multiple (in the urban private business space) of EBIT, to derive an Enterprise Value (Assets), with Land separated from Operations, will be around 1.67-Times to 3.6-Times EBIT; though may rise to 4.2-Times for an excellent business throwing-off lots of cash, and 'pregnant-with-profits'.

The above implies an 'all-risks-yield', or Discount Rate, of 59.88% to 27.78%, and 23.81% respectively. Which shows the inverse relationship between Price and Interest Rates; that the higher the risks, the lower the value of the asset. Logic applied appropriately.

To infer a Cap. Rate of 2.0% (as many are wont to do) and a multiple of 50-Times, with a focus on income, may result in a silly value; when the focus from the out-set

should be on, "What is the risk of losing my Capital?": and apply a rate from that view-point.

To do other, defies logic, and possibly imagination. This is 'formulaic' valuation without understanding the 'big'-picture, and whilst it may be 'normal practice' in the 'big-smoke', where a lease agreement for a property is signed and income to the Landholder is 'regular', in the pastoral zones, income is 'lumpy' or non-existent.

Appendix 6 - Understanding Income Multiples to Find Value

Table 13 – Understanding Multiples to Find Value for a Listed Entity using different levels of Income

UNDERSTANDING MULTIPLES to FIND VALUE for a LISTED ENTITY		
USING DIFFERENT LEVELS of INCOME		
DESCRIPTION	**PERCENTAGE**	**PE MULTIPLE (x)**
GROSS REVENUE	100.00%	2.8
Less: OPERATING EXPENSES	60.00%	
= EBITDA / OPERATING NET CASH-FLOW	40.00%	7
Less: DEPRECIATION & AMORTISATION	5.00%	
= EBIT / OPERATING PROFIT	35.00%	8
Less: INTEREST PAID	10.00%	
= NET PROFIT	25.00%	11.2
Less: TAXATION @ 30.0%	7.50%	
= NET PROFIT AFTER TAXATION	17.50%	16
[NB: All Multiples lead to the same answer of 2.8-Times; being Expected Value.]		

(NB: The formula is 'PE Multiple' multiplied by 'Percentage', in this example, will always equal 2.8-Times. This gives an illustration of the application of different multiples at different levels of profit; yet they are all basically the same, and give the same value.)

As Shannon Pratt (Pratt, 2008) points out in his seminal valuation book on "How to Value a Closely Held Business"; from a business' company value must be deducted, a discount for 'Lack of Control', and another for 'Lack of Marketability'; and they must be applied in that order.

A Lack of Control Discount is the inverse of the equation for the Premium for Control [1-(1/(1 + Control Premium))], and seems to average around 35.0 per cent.

On the other hand, the Lack of Marketability of a minority shareholding, in a private, or closely-held corporation, will average around 50 per cent. (Pratt, 2008)

It should be noted that private and family controlled companies, due to lack of transparency, and control issues (because private companies, have private knowledge), may have aggregate discounts of as much as 90.0 per cent for Lack of Control and Marketability of Shares, when compared to a listed company's Fair Market Value on the ASX.

The usual average discounts applied to private business when compared to a listed company are as follows:-

- If the average Price Earnings Ratio (PER) for listed industrial companies is around 16.5-Times,
- Then a listed company, in its first year 'on-the-boards', and before profitability is proven, may be around 50.0 per cent, or 8.25-Times, and
- A private company may be around 50.0 per cent of that, or 4.125-Times. (Hayes, 2013)

Appendix 7 - Banks V's Valuers: An Interesting Tension

- As 'debt' and 'leverage' are to be subsequently discussed from the point of risk and pricing, it is informative to discuss other actors in this play, and how they may influence outcomes due to behavioural factors 'embedded' within how they interact with the pastoralist and the banker as lender.

- Lenders have a fiduciary relationship to their shareholders with a focus on profit-maximising; however, they also have social responsibility, and a duty-of-care to their customers. If lending the money goes beyond normal risk metrics, as the asking price is outside a reasonable valuation range, then they should refuse to lend the money.

- Of course, the lending institutions are protected somewhat by the absurd situation which has been allowed to develop, whereby a Registered Valuer, albeit with very expensive Professional Indemnity Insurance (we wonder why that might be), is responsible for the valuation opinion for a period of seven(7) years from the date of valuation.

- Due to the meagre fee paid for this 'lending/mortgage security valuation', the lending institution has obtained, by design and default (and, to add insult to injury, without paying for it), a 7-year 'Put Option', so that if the loan 'goes bad', they may simply sue the Valuer, to protect their down-side risk.

- For example, Colliers International (a world-wide property investment firm) will no longer sit on a Banks' Valuation Panel, and will not complete a

valuation for mortgage or security purposes, as several banks were/are having 'a field day', suing them left and right, just because they could.

- Is it a coincidence that the average loan term is just under seven(7) years?

- It must be understood that a Registered Land Valuer is an Investment Adviser (at least from a community stand-point), and Land Economist, and should be recognised as such; not a mere scribe, and recorder of property value.

- The Valuer, because of their position on the Bank's Valuation Panel, charges an agreed set-fee for the valuation service offered, usually quite small relative to the size of the loan, and with nil connection to pricing correctly, the risks faced.

- This is risk transference across the board, and on a large scale, and the Australian Property Institute (API) has allowed this situation to start, and continue, in fact flourish, without much noise or push-back; when the Banks' rules of being on the Banks' Valuation Panel, will clearly influence the behaviour of Valuers, and the further question must be asked, as to whether they have retained their independence and objectivity; or is it all about the money?

- Dr. Vince Mangioni (Mangioni, 2006) makes a valid point about the timing of the valuation: it should take place before the sale, not after the contract is written and signed. In reality, the question must be asked from a regulatory point-of-view, as to why the banks and other lending institutions did not

continue to employ Valuers, and then the 'Client' will clearly be the Bank? The answer is obvious.

Appendix 8 - Support for a Valuation Range in Valuation Opinion Reports

It is a nonsense to deliver a Valuation Opinion Report with a single number, as the stated value, because an asset may have many values, depending upon the interested 'stakeholders'; even for the intended purpose of the Opinion, due to factors too numerous to mention here. Value lies in the eye of the beholder!

It is the Courts which influence this behaviour, and require a single number; because they do not want to decide 'the value', and do the Valuers' job for them: though they will 'sit' in judgement later.

Banks also demand a point-estimate. As do the Client.

Would it not be better to show a range of values in the Opinion Report (with a bigger spread between the maximum and minimum, signalling to the reader, via the standard deviation, that there is more volatility, and therefore more variability or risk, associated with the transaction), with the midpoint being the most likely price, rather than an average.

Would it also not be better to show two Valuation Numbers:-

- A Likely Market Value/Price; if Sold Today. (Price)
- A Likely Investment Value; Today. (Value)

An Investment Value higher than Market Value/Price would be a signal to buy; and *vice versa*. This would be a signal to the reader about risk and return; for surely this

is the Valuer's job and function in Society; to inform the market. To encourage Prudence! They are not mere analysts and scribes recording history. They are in fact, Investment Advisors.

In most cases before the Courts, and in Valuation Regulations from the professional societies and institutes, the Valuer is required to arrive at a 'point-estimate' of the value of a property; and a valuation range is not encouraged. This is because the Courts do not want to be the *de facto* Valuer in each instance, and this has now fallen into common usage.

However, in the case of *Minister for Works v Robinson (1965) 13 LGRA 390*, and before the Chief Justice of the Supreme Court of South Australia, the learned Judge commented thus:-

> *"I think it follows that the valuation is like the assessment of damages for personal injuries, in that there must always be limits – upper and lower – within which the final figure is a matter of opinion, and, that being so, the parties and their Valuers are well advised if they avoid such extravagance in their claims and in their evidence as is calculated to arouse suspicion in the mind of an Arbitrator."*

And, as Dr. Vince Mangioni (Mangioni, 2006) said, in relation to Market Value and the Investor, 'Market Value' (or Price) is based on the premise that the market value determined for a property is precise.

The plus/minus factor is used as a tolerance to measure how far out the valuation amount differs from either the subsequent sale of the property, or the opinion of other Valuers, if the valuation is called into account.'

'Does the provision of a single valuation figure serve the investor, where the investor may be left to guess the tolerances, if these are not expressed in the advice to them? The precision or accuracy of valuation is not determined by a single figure, as was highlighted in *Singer & Friedlander Ltd v John D Wood & Co [1977] 2 EGLR 84*, in which Watkins J stated;

> *"…two able and experienced men, each confronted with the same task, might come to different conclusions without anyone being justified in saying that either of them lacked competence and reasonable care, still less integrity, in doing his work … Valuation is an art, not a science. Pinpoint accuracy is not, therefore, to be expected by he who requests the valuation".*

'In contrast to a single value, a market value range does not commence with a specific value in mind, but the tolerances as to the value range. In essence, the valuation advice which is expressed as a range could be presented as follows:

- The lower end of the range, being the figure at which the investor would have purchased the property at a conservative amount.
- At the upper end of the range, being the amount at which the Valuer is suggesting they would pay no more for the property.'

'The question to be asked is whether the Valuer provides a single value figure to the client, or a value range with discussion as to what each of these options means to the investor.'

'Valuations have traditionally been predicated on a single figure which represents value, and Valuers are judged on this figure, and their assessment of this figure, by clients' perceptions of a perfect fit of value, and who are relying on it.'

'In cases where this fit is not apparent, this may lead to litigation in which the tolerances to the value may be considered by the court in assessing the liability of the Valuer. This process has in part been an issue for the valuation profession in allowing the definition of value continually to be assessed on the basis of a single valuation figure.'

'In reality, the Valuer must tailor the meaning and context of his/her definition of value, or what his/her valuation advice actually represents. This is not strictly for the benefit of his/her own protection, but also to assist the Investor as to what the valuation advice means, and how they may use it.'

'A valuation to a novice Investor, cannot simply be provided as a figure or range without context or basis upon which it may be used. In the mind of the Investor, they may seek to know what the Valuer is suggesting in determining either a single value or value range. Alternatively, an imperative for a novice Investor may be seeking to know from the Valuer, what is the maximum amount you would pay for a property?'

'Traditionally, it has not been the realm of the Valuer to answer such questions, but instead to comment on the relationship between a purchase price of property and the body of sales evidence relevant to it.' (Mangioni, 2006)

When statistical measures are used to determine a suitable decision made with a degree of certainty, the process known as Confidence Interval (CI) estimation, may be used.

Most Stakeholders, including buyers, sellers, their Agents, Banks, and the Courts, all require a point estimate, or single-value estimate, which more often than not, will miss market value by some degrees.

A Confidence Interval (CI) estimate, is the range of values within which a Stakeholder would be confident that the true population parameter will fall. Using Z-scores, and the statistical mean, the end-points of the range may be defined, and an interval estimate (or range of values) makes much more sense in decision-making, than a single-value point estimate.

A 95% CI being Statistically Significant, and 97% and above, being Very Statistically Significant.

Depending upon the CI level imposed, the mid-point of the range is the mean (or average) of the data-set, and assumptions used, and is probably very important from the point of 'likely price'.

The reader should note for future reference, that the higher the quality of data, the higher the applied CI may be, with more certainty; however, in an environment of

low quality data, or higher variability or volatility, the CI may be down around 75 per cent.

Regardless of these points, the larger the range, the higher the implied volatility, and the lower the certainty; and these numbers should signal the Investor to be aware.

A range is essential to decision-making, as it will encapsulate the value to commence negotiations towards the minimum, and the 'true value' (or the price you might pay) (Makeham & Malcolm, 1993) towards the maximum; with the eventual likely transaction, being Market Value/Price being somewhere between these points.

From this educational process, it is then a short step towards a Valuer suggesting a couple of very important Price estimates of Value: the "Market Value/Price, if Sold Today"; and the "Investment Value, Today".

The two values will further inform the reader(s) of the Valuation Opinion Report where the Market Value/Price (the Emotion in the Market) sits in relation to the Investment Value (a rational Market Value/Price) looking through the cycle.

A Buyer sets the Spot Price through acceptance of the Final Bid on the day, by the Vendor, and there are many matters which might affect final price actually paid; however, the Valuer should be seen as a highly skilled professional Financial Advisor, with specialist knowledge to be used to inform the market-place towards better decision-making.

To that end the Valuer is an Investment Advisor; and not a mere commentator, and scribe, a recorder of values in the market.

Their role is to educate and inform the market, and the Valuation Opinion Report, depending upon purpose, should reflect all knowledge around risk and return in this space.

Appendix 9 - A Risk Modified Beast Area Valuation (BAV) Method

The Beast Area Valuation (BAV) method, as applied today to 'value' pastoral property is incorrectly applied on a BARE basis, thereby over-stating value by a very significant degree of premium; and should be on a 'fully improved', Walk-In Walk-Out (WIWO) basis.

It is being used as a *de-facto* Comparable Sales Analysis tool, where comparable utility rarely exists between grazing enterprises in the pastoral zones of Australia.

BAV = Total WIWO Price Paid / Carrying Capacity (CC); and,

BAV = Stocking Rate (SR) x Dollars per Unit of Area (DUA)

The first is using the BAV as an Index (as originally intended); and the second then uses the Stocking Rate to derive 'the' DUA. Unfortunately, when you view the formulae together, the incestuous nature becomes obvious:-

WIWO ($) / CC / SR = DUA (where CC = Area / SR)

WIWO ($) / (Area / SR) / SR = DUA

Cancel out the SR's, and we are left with

WIWO ($) / Area = DUA.

This is neither enlightening, nor robust. It tells us nothing except the obvious. It is a tautology, a fact, and is merely self-fulfilling, slightly incestuous, with a circularity of logic; and may be manipulated for advantage.

BAV is an Index you may work back to, and graph the numbers over time to show/represent the market movements.

As currently being used, BAV is being manipulated for higher returns, and to push the market on to 'higher-highs'; defying gravity, with Price always above Value, and no 'mean reversion' evident; despite the prices paid coming back more than 50 per cent in places.

A **Modified BAV**, however, and one which has a risk focus, may be the answer for those who want to keep it simple, as a valuation 'guide'.

This modification arises due to the ever-present risk of drought and volatile prices, and a usually certain requirement to borrow working capital. As you should ideally never borrow more than 50.0% of the Herd value (NFGP), if because of several years of drought your Debt to Debt plus Equity position has risen to 40.0%, what is the maximum amount you may borrow against the Herd, and still remain solvent on a Debt to Equity basis? The answer is 80.0%.

This results in a Live-stock Valuation Multiple (LVM) of 2.0-Times (0.8 / 0.4).

If ((Area / SR)(NFGP)(LVM)) / Area = DUA, and the 'Area' are cancelled out, the formula becomes:-

((NFGP)(2)) / SR = DUA, and

(BAV) / SR = DUA

Therefore, BAV = (NFGP)(2) = (SR)(DUA), and, to finish,

DUA = ((NFGP)(2)) / (SR) a more robust analysis.

If really unsure as to risk, use a LVM = 1.8-Times; which is 72.0% of herd value.

By re-arranging the formula, you may solve for the missing variable; which may be the implied:-

- NFGP
- SSR
- LVM
- DUA

To see if a deal passes the ‘sniff-test’, or meets-up with other benchmarks when the Investor is doing their due-diligence (DD).

Appendix 10 – A Carcase Break-Down

Table 14 – A Carcase Break-Down & Expected Farm Gate Price

MICHAEL VAIL					
EXPECTED GROSS FARM-GATE PRICE					
A CARCASE BREAK-DOWN - GRASS-FED.					
mv					
	DATA:-				
		LIVE-WEIGHT per BEAST (kg)	665.00		
		YIELD of MEAT	52.0%		
		PREMIUM CUTS(%)	26.0%		
		STANDARD CUTS (%)	26.0%		
		LOWER QUALITY CUTS (%)	26.0%		
		OFFAL & TRIMMINGS (%)	15.0%		
		WASTE, FAT, and SHRINKAGE (%)	7.0%		
		PREMIUM CUTS ($/Kg.)	$ 40.00		
		STANDARD CUTS ($/Kg.)	$ 30.00		
		LOWER QUALITY CUTS ($/Kg.)	$ 15.00		
		OFFAL & TRIMMINGS ($/Kg.)	$ 10.00		
		WASTE, FAT, and SHRINKAGE ($/Kg.)	$ -		
		BUTCHER'S PROFIT MARGIN (%)	40.0%		
		WHOLESALE BUTCHER'S PROFIT MARGIN (%)	30.0%		
		ABBATOIR PROCESSING COSTS & DELIVERY ($/Kg.)	$ 3.30		
		ABBATOIR'S PROFIT MARGIN (%)	11.0%		
		SELLING COSTS & CARTAGE ($/Kg.)	$ 0.60		
	CALCULATIONS:-				
		CHILLED DEAD-WEIGHT (Kg.)	345.80		
		VALUE of a BEAST at RETAIL to CUSTOMERS ($)	$8,160.88		
		AVERAGE VALUE per KILO to CUSTOMERS ($/Kg.)	$23.60		
		LESS: BUTCHER'S PROFIT ($/Kg.)	$9.44		
		= RETAIL BUTCHER'S AVERAGE CARCASE COST ($/Kg.)	$14.16		
		LESS: WHOLESALE BUTCHER'S PROFIT ($/Kg.)	$4.25		
		= WHOLESALE BUTCHER'S CARCASE COST ($/Kg.)	$9.91		
		LESS: ABBATOIR PROFIT ($/Kg.)	$1.09		
		= ABBATOIR GROSS COSTS ($/Kg.)	$8.82		
		LESS: ABBATOIR PROCESSING & DELIVERY COSTS ($/Kg.)	$3.30		
		= ABBATOIR NETT COST per CARCASE ($/Kg.)	$5.52		
		LESS: SELLING COSTS & CARTAGE ($/Kg.)	$0.60		
		= DEAD-WEIGHT VALUE ($/Kg.)	$4.92		
		LESS: CARCASE YIELD ($/Kg.)	52.0%		
		= EXPECTED LIVE-WEIGHT VALUE ($/Kg.)	$2.56		
	ANALYSIS:-				
		GROSS FARM-GATE VALUE-ADD per KILO	$2.56		
		GROSS FARM-GATE PRICE	$1,702		20.9%
		ABBATOIR VALUE-ADD per KILO	$4.99		
		ABBATOIR VALUE per CARCASE (L + K)	$1,726		21.1%
		MIDDLE-MEN VALUE-ADD per KILO	$13.69		
		MIDDLE-MEN VALUE per CARCASE	$4,733		58.0%
			$8,160.88		100.0%

Appendix 11 – A Production Income Valuation Model

Table 15 – Production Income Valuation Model, Part A

CATTLE - 1			NORTH DELTA, BARCALDINE, Q'LD							
PRODUCTION & SALE BUDGET										
ASSUMPTIONS										
mv		AREA	77,237	Acres						
		C'CAP (AE)	14.00	:1						
		JOINING %	3.0%							
		MORT %	2.50%							
		CALVING FACTOR	1.4	Times						
		WEANING %	85%							
		CARRY CAPACITY	5,517							
		BREEDER NUMBERS	2,420							
		BULL NUMBERS	73							
	AGE	DESCRIPTION	#	Bulls	Calves					
	2	RED BRANGUS	508	15	432					
	3	RED BRANGUS	496	15	422					
	4	RED BRANGUS	484	15	411					
	5	RED BRANGUS	472	14	401					
	6	RED BRANGUS	460	14	391					
	TOTALS		2,420	73	2,057					
SALE										
	#	DESCRIPTION	WEAN Wt.	DAYS to SALE	GAIN/DAY	Wt./HEAD kg.	$/Kg. (lv.wt.)	$/HEAD	TOTAL $	
	520	CULL & SURPLUS SPEYED HEIFERS	210	365	0.95	557	1.85	1,029.99	535,594	
	1,028	BULLOCKS	220	365	1.22	665	2.20	1,463.66	1,505,191	
	460	CFA COWS						500.00	229,872	
	15	CFA BULLS						1,600.00	24,000	
	2,023	Head to Average ---------->	$1,134.22						2,294,657	

You may note that these numbers are conservative, and apply to average seasons; and the operation is breeding its own Bulls. Apologies to the Owner if they are incorrect; they are merely assumptions, used to explain a model.

Table 16 - Production Income Valuation Model, Part B

WAGES, SALARIES & SUPER				NORTH DELTA, BARCALDINE, Q'LD										
mv		2007												
			$33	233	Days				10%		DOLLARS / Hr.	AFTER TAX	BENEFIT	
SELECT	#	DESCRIPTION	KEEP	per DIUM		SALARY	GROSS SALARY	AKBS	SUPER	TOTAL PKG.	per 40 Hr. Wk.	per WEEK	per WEEK	
y	1	Manager	10,164	280		65,240	65,240	75,404	6,524	81,928	37	949	1,576	
		Assistant Mgr.	-	250		-	-	-	-	-	-	-	-	
		Book-Keeper	-	220		-	-	-	-	-	-	-	-	
		House-Keeper / Cook	-	150		-	-	-	-	-	-	-	-	
		Cook / Gardener	-	150		-	-	-	-	-	-	-	-	
		Cowboy / Gardener	-	150		-	-	-	-	-	-	-	-	
		Work-shop Mgr. / Boreman	-	190		-	-	-	-	-	-	-	-	
y	1	Overseer	10,164	200		46,600	46,600	56,764	4,660	61,424	26	703	1,181	
		Head-Stockman	-	190		-	-	-	-	-	-	-	-	
y	2	Station-Hand	20,328	180		41,940	83,880	104,208	8,388	112,596	24	642	1,083	
y	1	Senior 'Roo	10,164	155		36,115	36,115	46,279	3,612	49,891	21	565	959	
		Middling 'Roo	-	135		-	-	-	-	-	-	-	-	
		Junior 'Roo	-	120		-	-	-	-	-	-	-	-	
		Baby 'Roo	-	110		-	-	-	-	-	-	-	-	
	5		50,820				231,835	282,655	23,184	305,839	24	2,859	4,799	
		Total Productive Hours	11,650	Hrs.										
		Percentage of Gross Income	13.33%											

This is working on the benchmark numbers of "1-'Man' per # 1,000-Head of Cattle".

A Gross Percentage of Turnover for Fixed Wages and On-Costs at around 14.0 per cent, is 'about-right'.

Table 17 - Production Income Valuation Model, Part C

EBIT Multiple Valuation (all Equity) Model

CATTLE - 1			NORTH DELTA, BARCALDINE, Q'LD				Imp. Value	$8,274,017		
PROFIT & LOSS, & CAP-EX BUDGET			23 September, 2014				Pres. Value	$8,653,298		
mv						$109.00	Per Ac. Val	$8,418,833		
			Area	77,237	Acres		Avg. Value	$8,447,275	geometric	
			WIWO Price	$8,447,276	$109.37	per Acre		$109.37	per Acre	
				Difference:-	(0.00)					
					5.28	-Times EBIT				
							$	$		
INCOME										
		Stock Sales	2,023	Head @	$1,134	Average		2,294,657	100.00%	
EXPENSES										
	VC	CONTRACTORS	4	$300.00	55	Days	66,000		2.88%	
		BEASTS of BURDEN	4	Head @	$6,000		24,000		1.05%	
		DIPS & DRENCHES	$1.20	per Head			6,712		0.29%	
		FODDER & SUPPLEMENTS	$0.10	per Head	122	Days	68,235		2.97%	
		FREIGHT / DROVING	$0.25	per Head	80	klms.	40,460		1.76%	
		SADDLERY & HARNESS					5,000		0.22%	
		BONUS PMTS.					-		0.00%	
		SALES COMMISSION etc.	1.50%				34,420		1.50%	
		VETERINARY & AN. HUS.					20,000		0.87%	
		WEED, SUCKER & PEST CONTROL		Acres @	$11	per Ac.	-		0.00%	
			VC =	130.91			264,826		11.54%	
	FC	ADMINISTRATION					10,000		0.44%	
		INSURANCE					12,000		0.52%	
		MOTOR VEHICLE	$400	per Week			20,800		0.91%	
		PURCHASES of GROWERS	-	Head @	$360		-		0.00%	
		PURCHASES of BULLS	6	Head @	$8,000		48,000		2.09%	
		RENT	0.00%	Capital plus TO%	0.00%		-		0.00%	
		REPAIRS & MAINTENANCE	$400	per Week			20,800		0.91%	
		STAFF STORES	5	$33.00	per Day		50,820		2.21%	
		SUPERANNUATION	10.00%				23,184		1.01%	
		WAGES					231,835		10.10%	
		WORK COVER	4.50%				11,476		0.50%	
							428,914	693,740	18.69%	
				Nett Operating Profit / EBIT			69.77%	1,600,917		
					Less:					
					N	Interest		-	0.00%	
						Tax	30.00%	480,275	20.93%	
				Nett Profit (A'Tax)				**$1,120,642**	48.84%	
BREAK-EVEN ANALYSIS										
							Loan Data:			
		UNITS	2,023				% Borrowed	40.00%		
		SP	1,134.28				Principle	$3,378,910		
		VC	130.91				Term	15.00	yrs.	
		CM	1,003.38	88.46%			Interest Rate	10.00%		
		FC	909,189							
		PROFIT	1,120,642				PMT.	$444,238.09		
		BREAK-EVEN SELLING PRICE:-	$580.33	per Head						
							Expected Growth:	**0.00%**		
		BREAK-EVEN VOLUME:-	906	units						
					Intrinsic (True) or Full Value.					
IMPLIED VALUE					Gordon Growth & Terminal Value Model:-			$ 10,848,418		
		ROE	18.95%							
		Avg. L'Term Bond Rate	10.33%				or	$ 140.46	/ Acre	
		Industry Risk Premium	4.00%							
		IMPLIED VALUE	10,342,521				or	6.78	-Times EBIT	
		DOLLARS per ACRE	107	Maximum Price Should Pay						
		DOLLARS per ACRE	134	Maximum Price Could Pay						
		DOLLARS per ACRE	121	Maximum Price Likelihood						

In this model there is $NIL Debt.

Table 18 - Production Income Valuation Model, Part D

EBIT Multiple Valuation (with 40.0% Debt) Model

CATTLE - 1			NORTH DELTA, BARCALDINE, Q'LD				Imp. Value	$7,521,619		
PROFIT & LOSS, & CAP-EX BUDGET			23 September, 2014				Pres. Value	$6,498,047		
mv						$90.00	Per Ac. Val	$6,951,330		
			Area	77,237	Acres		Avg. Value	$6,977,835	geometric	
			WIWO Price	$6,977,871	$90.34	per Acre		$90.34	per Acre	
				Difference:-	(0.00)					
					4.36	-Times EBIT				
							$	$		
INCOME										
		Stock Sales	2,023	Head @	$1,134	Average		2,294,657	100.00%	
EXPENSES										
	VC	CONTRACTORS	4	$300.00	55	Days	66,000		2.88%	
		BEASTS of BURDEN	4	Head @	$6,000		24,000		1.05%	
		DIPS & DRENCHES	$1.20	per Head			6,712		0.29%	
		FODDER & SUPPLEMENTS	$0.10	per Head	122	Days	68,235		2.97%	
		FREIGHT / DROVING	$0.25	per Head	80	klms.	40,460		1.76%	
		SADDLERY & HARNESS					5,000		0.22%	
		BONUS PMTS.					-		0.00%	
		SALES COMMISSION etc.	1.50%				34,420		1.50%	
		VETERINARY & AN. HUS.					20,000		0.87%	
		WEED, SUCKER & PEST CONTROL		Acres @	$11	per Ac.	-		0.00%	
			VC =	130.91			264,826		11.54%	
	FC	ADMINISTRATION					10,000		0.44%	
		INSURANCE					12,000		0.52%	
		MOTOR VEHICLE	$400	per Week			20,800		0.91%	
		PURCHASES of GROWERS	-	Head @	$360		-		0.00%	
		PURCHASES of BULLS	6	Head @	$8,000		48,000		2.09%	
		RENT	0.00%	Capital plus TO%	0.00%		-		0.00%	
		REPAIRS & MAINTENANCE	$400	per Week			20,800		0.91%	
		STAFF STORES	5	$33.00	per Day		50,820		2.21%	
		SUPERANNUATION	10.00%				23,184		1.01%	
		WAGES					231,835		10.10%	
		WORK COVER	4.50%				11,476		0.50%	
							428,914	693,740	18.69%	
				Nett Operating Profit / EBIT			69.77%	1,600,917		
					Less:					
					y	Interest		279,115	12.16%	
						Tax	30.00%	480,275	20.93%	
				Nett Profit (A'Tax)				**$841,527**	36.67%	
BREAK-EVEN ANALYSIS										
		UNITS	2,023				**Loan Data:**			
		SP	1,134.28				% Borrowed	40.00%		
		VC	130.91				Principle	$2,791,148		
		CM	1,003.38	88.46%			Term	15.00	yrs.	
		FC	1,188,304				Interest Rate	10.00%		
		PROFIT	841,527				PMT.	$366,962.81		
		BREAK-EVEN SELLING PRICE:-	$718.30	per Head						
							Expected Growth:	**0.00%**		
		BREAK-EVEN VOLUME:-	1,184	units						
					Intrinsic (True) or Full Value.					
IMPLIED VALUE					Gordon Growth & Terminal Value Model:-			$ 8,146,436		
		ROE	22.94%							
		Avg. L'Term Bond Rate	10.33%					or $ 105.47	/ Acre	
		Industry Risk Premium	4.00%							
		IMPLIED VALUE	9,402,024					or 5.09	-Times EBIT	
		DOLLARS per ACRE	97	Maximum Price Should Pay						
		DOLLARS per ACRE	122	Maximum Price Could Pay						
		DOLLARS per ACRE	110	Maximum Price Likelihood						

Observe how the EBIT Multiple changes from 5.3-Times EBIT in the all-Equity model, down to 4.4-Times EBIT in the one with 40.0% Debt; and the Intrinsic or

'Full' Value moves from 7-Times down to 5-Times. Break-Even numbers also change. This is the effect of Debt.

Appendix 12 - Insights

The insights observed thus far, are as follows:-

1. The assumption that productivity equals value (Tom Whipple 2006, pp 140) leads to two simple values driving the sustainable value for investment purposes, of a grazing operation in the pastoral zones:-

    a. The long-term **Net Farm-Gate Price**, looking through the cycle; as 'all current knowledge' is contained in that number (if the market is fully informed, and efficient), regarding market supply and demand, quality and finish of the stock presented to market, and the distance to market and a processing plant.

    b. The long-term **Sustainable Stocking Rate**, looking through the cycle; as the number of head that may be turned-off in an average year, is a function of how productively improved the property is over time, including natural resources, and rainfall.

    c. (It should be noted that an Arithmetic Average is used for both, and that the NFGP is measured in real terms (as adjusted for inflation), not nominal.)

2. The recommended, likely Discount Rate to use, in a DCF Analysis or NPV calculation, should probably start around 21.0%; and for higher risk areas, it could be as much as 36.0%. A risk rate over 36.0% is where an investor would probably question the sustainability argument; a la 'Goyder's Line', as used in South Australia.

3. The sustainable EBIT Multiple, seems to be around no-more-than 5.50-Times; with further analysis suggesting Intrinsic, Full, or 'True' Value at around no more than 7.00-Times EBIT.

4. All valuations should be worked-out/calculated as WIWO, in the first instance, and then the current value of purchasing what is missing (e.g. stock, plant, buildings, etc.) to have a going concern, with all things necessary, being deducted from this value, to arrive at the sale price on a BARE basis. In that way, there is comparability of process, and transparency in calculations; and if over-capitalisation has occurred, there is a NIL premium paid.

5. Large-scale grazing operations in the pastoral zones, should be valued purely on productivity factors; and not like farms and smaller operations closer-in, where highest and best use (HABU) may be an alternative to animal production of food and fibre, or other intensive farming pursuits.

6. The sustainable Live-stock (LV) Multiple, through the cycle, may be around 2.0 to 2.2, and no-more than 2.5-Times the NFGP value of the herd, without over-paying on purchase.

7. If borrowings/leverage (D/(D + E)) exceed 30 per cent then there is a real risk of default, unless the season and markets turn favourable. This level of debt, in this business, may be using 'hope' as a strategy, and is high-risk. There appears to be a cautionary area between 30 per cent and up to 40 per cent D/(D + E), where debt may peak for short durations; however, it must be understood that anything over 40 per cent for any period of time, without

bringing the account back into order, will likely lead to a real risk of bankruptcy/liquidation.

8. The sales comparison approach to valuation as currently applied, does not work in this space, because nearly all properties do not compare; and to use this method would be a nonsense.

9. The Beast-Area Valuation (BAV) Method, as an Industry Method, or 'Rule-Of-Thumb' Approach, is not being used as originally intended (as an Index), and is only being used to value the land portion on a BARE basis; when it was always intended originally, to be used as a WIWO indicator of value (not a 'driver'), where SR multiplied by Implied DUA equals BAV, and BAV divided by the SR would equal Implied Asking Price DUA, on a WIWO basis, as a going concern, and with all things necessary.

10. When Graziers invest capital to improve their land and increase the carrying capacity of same, they will be rewarded in the WIWO apportionments at time of sale for the extra stock-on-hand, and will further receive, as their return on funds invested, the extra annuity income received each year when the extra stock is turned-off. The Land and Fixed Improvements component of the apportionment is a residual. Graziers should then not expect to 'double-dip', and be paid twice for the improvements.

11. A Land valuation exercise may be likened to pricing a 'risky' Bond; where there is the Present Value of the Bond (Land), and the Present Value of the Annuity Coupon (Cattle Sales), which are then combined to provide a PV of the whole. In this way you may observe a 'Tree' and 'Fruit-of-the-Tree'

scenario, which describes the pricing of a Bond. The component parts being: Face Value is the price, if sold today, the Price (PV) is the last price paid for the same parcel of land, the Discount Rate is the 'riskiness' of the investment, and the Coupon is the Operating Profit (or EBIT), and 'n' is the time, in years, the asset has been held since last sale.

Appendix 13 - Bibliography

Australian Property Institute, *Specialist Valuations in Australia & New Zealand*. API

Baxter, J. S. & Cohen, R. K., 2009. *Rural Valuation*. API.

Beef Central, 2013. *Agricultural Resource Management Practice,* Australia: Beef Central.

BHSAgriculture, 2014. *BHS Agriculture - Agricultural Systems.* [Online]
Available at: www.bhsagriculture.wikispaces.com\Agriculture+Systems
[Accessed 15-09-2014 09 2014].

Bodie, Kane, & Marcus. 2013. *Essentials of Investment*. 9th ed. McGraw-Hill, Irwin.

Bowen, J., 1987. *Kidman: The Forgotten King.* s.l.:Angus & Robertson.

Buiter, W., 2009. *Maverecon Blog.* [Online]
Available at: http://blogs.ft.com/maverecon/2009/03/the-unfortunate-uselessness-of-most-state-of-the-art-academic-monetary-economics/#axzz3A3lNEJU7
[Accessed 8th August 2014].

Bureau of Meterology, A. G., 2014. *Bureau of Meterology.* [Online]
Available at: www.bom.com.au
[Accessed 15/09/2014 09 2014].

Gleick, J., 1987. *Chaos: Making a New Science.* New York: Penguin Books.

Graham, B. & Dodd, D. L., 2009. *Security Analysis.* 6th ed. New York: McGraw Hill.

Hayes, G., 2013. *A Practical Guide to Business Valuations for SME's.* 2nd ed. s.l.:CCH Aust. Ltd.

International Valuation Standards Council, 2011. *International Valuation Standards.* [Online]
Available at: www.iopcg.me/images/IVS-2011.pdf
[Accessed 08 2014].

JP Morgan, n.d. *Wikiquote.* [Online]
Available at: www.en.wikiquote.org/wiki/J._P._Morgan
[Accessed 14 08 2014].

Keynes, J. M., 1936. *The General Theory of Employment, Interest and Money.* 1st ed. United Kingdom: Palgrave Macmillian.

Lusht, 1994. Forecasting & Investment Selection in Property Markets. *Hawkesbury Management Today,* Volume 1, p. 1.

Makeham, J. P. & Malcolm, L. R., 1993. *The Farming Game Now.* 1st ed. s.l.:The Cambridge University Press.

Mangioni, V., 2006. *Land Tax in Australia.* 1st ed. Sydney: Australian Property Publications.

Metrick, A. & Yasuda, A., 2010. *Venture Capital & the Finance of Innovation.* New York: John Wiley & Sons.

Modigliani, F. & Miller, M., 1958. *Debt Irrelevance Proposition of Capital Structure Theorum,* Chicago: s.n.

Pratt, S., 2008. *Valuing a Business; The Analysis and Appraisal of closely held Companies.* 5th ed. s.l.:McGraw-Hill.

Read, C., 1898. *Logic: Deductive and Inductive.* s.l.:No longer published.

Rost, R. O. & Collins, H. G., 1993. *Land Valuation & Compensation in Australia.* 3rd ed. Marrickville, NSW: Southwood Press.

Rowland, P., 2010. *Australian Property Investment & Financing.* s.l.:????.

Small, G., 2009. *Jekyll, Hyde and Property Value.* Sydney, A Paper presented at the 2009 Pacific Rim Real Estate Conference.

Spencer v's Commonwealth (??) Australian High Court.

Squirrell, M., 2009. Most Probable Price. *Australia & New Zealand Property,* June.p. 104.

Vail, M. J., 2012. *Beef Central.* [Online]
Available at: http://www.beefcentral.com/production/what-is-a-living-area-these-days/ (accessed 14th August 2014)
[Accessed 14 08 2014].

Whipple, R., 2006. *Property Valuation & Analysis.* 2nd ed. s.l.:Thompson Law Book Co..

Wikipedia, 2014. *Fair Market Value.* [Online]

Available at: www.en.wikipedia.org/wiki/Fair_market_value

[Accessed 14 8 2014].