CHAPTER THREE

LIVESTOCK VALUATION AND THE ACCOUNTING MEASUREMENT SYSTEM

"No business can ever, except perhaps with luck, survive and prosper without a measurement system which produces timely, reliable and relevant accounting data so that management can fulfil its task."

Patterson R., in Juchau R.H. et al, (1989) *Agricultural Accounting: Perspectives and Issues*, Lincoln University, Canterbury, New Zealand, p.2.3.

"If the function of an accounting theory and the system based on it is to tell the story as it is, how do accountants explain the proliferation of rival accounting theories, and their inability after so many years of controversy and debate to achieve any agreement?"

Ma, R., & Mathews, R., (1980) *The Accounting Framework: A Contemporary Approach*, Longman Cheshire, Sydney, p.424.

3.1 Introduction

As shown in Chapter 2, general purpose financial reports must be produced for those users who are not in a position to demand special purpose financial reports. A key financial report is the statement of financial position. This chapter examines the valuation methods which are available and, according to Roberts et al (1995), all except deprival value are found in the general purpose financial reports of companies which own livestock. Deprival value is included in this study for the reasons given in Section 1.2.

Lee (1974) acknowledged that one of the most vexed and crucial areas of financial reporting was the measurements of assets generally, and valuation bases in particular.

As mentioned in Section 2.3.1 the Australian Accounting Standards Board (AASB) and the Public Sector Accounting Standards Board (PSASB) have been asked to "develop measurement concepts which address perceived deficiencies of the historical cost basis in respect of investment properties and self-generating and regenerating assets" (AARF (1994 para 11)). In addition, the International Accounting Standards Committee (IASC) has set up a Steering Committee to look at the issue of accounting for agriculture, and the need for an international accounting standard.

Valuation of livestock is complicated by whether it is owned for trading or breeding, or indeed for multiple use, and if its intended use could change depending on market, climatic or other conditions. Thus questions arise as to whether it should be classified as a current asset (similar to inventory), a non-current asset (e.g. a long term asset), or whether it should be included in a separate classification for self-generating and regenerating assets.

This chapter will examine the reporting of livestock in the statement of financial position in general purpose financial reports from the point of view of both its classification (Section 3.3) and its measurement (Section 3.4), and will review the debate over the various measurement bases, their applicability

to the valuation of livestock and the debate in the literature spanning some 30 years. The measurement techniques which are currently used for valuing livestock will be reviewed, as well as deprival value, which is included because it is the valuation method chosen by the government for valuation of the non-financial assets of government trading enterprises.

3.2 Classification of Livestock

The first issue to be addressed when considering the valuation of livestock in the statement of financial position in general purpose financial reports is the question of how livestock should be classified. Should it be classified as a current asset, similar to inventory; a non-current asset; both current and non-current according to its intended use; or should there be a classification for livestock (and possibly other self-generating and regenerating assets) separate from current and non-current assets?

Livestock can be used in two ways. It can be either held for sale (like inventory, a current asset), or held for productive use, i.e. used for the sale of its bodily produce (a non-current asset). Which category each animal fits into is dependent on the circumstances and the intent of the producer.

With regard to classification, livestock is specifically excluded from the accounting standards on inventory and on depreciation of non-current assets. If livestock is not recognised as either inventory or a non-current asset, then how should it be classified?

Newman (1988, p.43) suggests that "the weaknesses and limitations of the current/non-current basis of asset classification should be counteracted by separately disclosing assets of different types in order that users may modify assessments of solvency, financial structure and capacity for adaptation derived on the basis of current/non-current classification," and that "alternatives to the current/non-current basis may be preferable for some types of entities."

Bowie-Wilson (1966 p.478) points out that one of the reasons why it is so difficult to value livestock is that "as well as having the characteristics of trading stock, livestock can also be regarded as plant". In this latter role of plant the animal may be regarded as an asset "either producing goods for sale, e.g. (beef), wool, lambs, etc., or reproducing further items of plant".

Even where individual items of livestock may be considered as current assets or non-current assets, the herd is a mixture of the two, and therefore may warrant an appropriate heading between non-current assets and current assets. This raises a further issue. If the circumstances of the producer change, the market (demand for/supply of livestock) changes, or weather conditions change (e.g. drought or flood), then the "intended use" of the producer may also change. For example, a producer may have a breeding herd of 150 cows, classified as a non-current asset, and valued at historical cost (if it can be computed), capitalised and amortised over their useful life. A severe drought is then encountered, and the producer must reduce the herd to 75 cows, as that is the maximum carrying capacity given the availability of feed. The other 75 cows that were previously classified and valued as breeding stock, a non-current asset, are sold in the current accounting period at market value, with the resulting gain or loss on sale being shown in the current period.

This change of use occurs frequently in agriculture as markets and conditions change. Should livestock therefore be classified according to its "intended use", or should it be included in a separate classification, for example "self-generating and regenerating assets" where the intended use of the asset is not taken into account when it is valued?

Unless and until livestock (and other SGARAs) is given a separate classification, the livestock held for sale (trading stock) will remain classified (and treated) like inventory, and the breeding stock (plant) will remain classified (and treated) like all non-current assets, subject to depreciation. This is done even though the standards covering both of these items

specifically exclude livestock, a fact of which it appears the majority of users of financial statements are not aware.

New Zealand practice is to treat all livestock as a category of its own. The reason for this is that it is recognised that livestock is held for several purposes including sale, herd or flock replacement, expansion or sale of bodily produce.

The Farm Financial Standards Task Force in the United States (1990 pp.14-15) recommend that at a minimum "the asset categories relating to (1) machinery and equipment, (2) breeding livestock, (3) buildings and improvements, and (4) land; should be separately identified from other non-current assets on the balance sheet", acknowledging that livestock differs from other assets.

The Institute of Chartered Accountants in Australia (ICAA) published a research study, M1 in November 1971 which proposed that livestock be classified and valued according to the principal purpose for which it was held at balance date - sale or produce. Livestock held for sale would be classified as a current asset and valued at current net selling value (not at lower of cost and net realisable value as for the current asset inventory), whilst livestock held for their bodily produce would be classified as a non-current asset. The valuation of such stock was to be based on current net selling value at the time of maturity into a productive unit. That figure was to be used in the statement of financial position and depreciated in equal instalments over the expected productive life. This complex approach was superseded by Research Study M1A in March 1973 which pointed out (para 16) that "it is not always possible to identify clearly for which purpose particular livestock are held", and therefore decided that it was "impracticable to apply separate methods of valuation for the two categories." M1A made no recommendation about changes to the classification of livestock.

This Research Study did not result in the issue of an accounting standard, and as this issue remains unresolved it seems timely to inquire into the perception of users about the classification of livestock, **how do users of general purpose financial reports believe livestock should be classified? (Research Question 1, Survey Question 7.)**

Having considered the classification of livestock, the next issue is that of the valuation or measurement of livestock in the statement of financial position.

3.3 Measurement and Valuation in General Purpose Financial Reporting

This section will review measurement in general purpose financial reporting and the various measurement bases currently in use, focusing on the specific issues related to the valuation of livestock in general purpose financial reports.

Valuation in accounting is the representation of anything in terms of a monetary unit, but there is some question as to whether it is a form of measurement. There is substantial debate over whether it is possible to find a measurable attribute in accounting, i.e. an attribute that fulfils the relations necessary for fundamental measurement (Vickrey (1970)).

It is theoretically incorrect to perform any arithmetic operations (addition, subtraction, multiplication or division) using amounts expressed in different measurement scales. The conditions necessary for additivity are:

a) the properties of objects under measurement are identical, i.e. the same property or attribute must be being measured; and

b) the measurement standard must be constant.

Abdel-Magid (1979 p.346) believes that "a deeper familiarity with modern measurement theory would help synchronise accounting literature with the scientific approach and avoid many misunderstandings still occurring in the accounting literature". Stevens (1946 p.678) established a classification of

scales of measurement to enable objective assessment of empirical operations for determining "equality (classifying) for rank ordering, and for determining when differences and when ratios between the aspects of objects are equal".

The four scales: nominal, ordinal, interval and ratio were classified according to their "basic empirical operations, mathematical group structure and permissible statistics" (Stevens (1946) p.678).

The four scales are as follows:

1. Nominal: Used for identification only, e.g. Numbers on football players, train carriages, prisoners.

2. Ordinal: Ordered - on a scale, e.g. softest to hardest. On a numbered scale which has no intervals, i.e. no relationships on the scale except softer/harder, e.g. no.50 is harder than no.25, but not twice as hard, nor is it 50 times as hard as no.1.

3. Interval: Ordered, and with equal intervals, but with the zero point arbitrary, e.g. Fahrenheit, Centigrade - 20^{o} not twice as hot as 10^{o}, but 21^{o} is 1^{o} hotter than 20^{o}, and 11^{o} is 1^{o} hotter than 10^{o}.

4. Ratio: Equality, rank-order, equality of intervals and equality of ratios, e.g. weights, lengths, time intervals, areas, angles, electric currents: 2 + 2 = 4, 4 = twice as "....." as 2. Numerical values on this scale can be transformed (e.g. from pounds to kilograms) by multiplying each value by a constant, and their relationships remain the same.

Stevens cited the ratio scale as the only scale that allows fundamental measurement as it satisfies all four relations: equality, rank-order, equality of intervals and equality of ratios. "Foremost among the ratio scales is the scale of number itself - cardinal number - the scale we use when we count things such as eggs, pennies and apples." (1946 p.680) Cohen and Nagel (1960 p.34) support Stevens scales, and suggest that objects without additive attributes (i.e. those on the nominal, ordinal and interval scales) have 'intensive qualities' and

questions of 'how much?' or 'how many times?' of these objects are meaningless. They point out that fundamental measurement which has additive properties, requires 'extensive qualities' (ratio scales).

Sterling's (1979) requirements for a theory to be 'acceptable' are empirical testability and relevance. To be logically rigorous and internally consistent the measurement basis (or valuation method) used must be additive, i.e. must conform to the ratio scale, as the items (resulting figures) must be able to be added together and result in a meaningful figure. Therefore, when assessing the various valuation or 'measurement' models proposed for financial reporting, they should be tested to ensure that they are logically rigorous, are relevant for decision making, provide a true interpretation of the real world and, importantly, that they conform to the conditions required for fundamental measurement.

There are a number of different valuation methods/measurement bases by which livestock could be valued, and this study will evaluate the following bases in terms of whether they are acceptable as measurement systems, and whether they are either relevant or reliable with regard to the valuation of livestock.

3.4.1 Historical Cost

3.4.2 Modified Historical Cost

3.4.3 Current Replacement Cost

3.4.4 Net Current Market Value (net realisable value/net market value for the purpose of this dissertation)

3.4.5 Net Present Value

3.4.5 Deprival Value

Table 3.1 outlines the major features of each valuation method and should be used in conjunction with the following discussion.

Table 3.2 lists the major proponents and opponents of the valuation methods found in the literature on measurement in financial reporting in general, and on livestock valuation in particular.

Table 3.1 Valuation of Livestock - Accounting Measurement Systems

Valuation Method	Attribute Measured	Asset Valuation	Advantages	Disadvantages	Relevance	Reliability	Acceptable Measurement
Historical Cost (HC)	Acquisition Cost	Assets are stated at acquisition cost (past entry value) until they are either disposed of in an external exchange or their services are consumed in operations.	Acquisition cost values are relatively objective (not easily manipulated - resistant to deliberate attempts to bias). Easy to understand. Search costs for historical cost information are low.	Ignores changes in input prices. Balance sheet values for assets are out of date. Net income is based on matching current output prices against past input prices (e.g. cost of goods sold and depreciation). Permissiveness of standards negates objectivity of acquisition cost, e.g. depreciation, inventory valuation, capitalise vs. expense.	NO Historical costs are 'sunk' costs and are therefore irrelevant for decision making, and are based on arbitrary allocations of those sunk costs.	NO Yes, for most types of assets. However, historical costs are extremely hard to estimate for 'bred' livestock.	NO Historical cost violates the conditions necessary for additivity (not measuring the same property, i.e. the measurement standard is not constant).
Modified Historical Cost (MHC)	Acquisition cost revalued and allocated	Assets are stated at their acquisition cost revalued as per AASB 1010 (for non-current assets) and at the lower of cost and net realisable value as per AASB 1019 (for inventories).	Allows for revaluation to up to date values.	Too permissive for non-current assets. Allows any valuation method up to recoverable amount, and is therefore not consistent either within entities or between entities.	Dependent on type of asset and valuation method used.	NO Not reliable as different valuation methods can be used.	NO Modified historical cost violates the conditions necessary for additivity (not measuring the same property, i.e. the measurement standard is not constant).
Current Replacement Cost (CRC)	Current Entry Value (Replacement Cost)	Assets are stated at their current replacement cost.	Eliminates from operating profit those gains made as a result of stock appreciation, and therefore ensures that dividends are not paid from these gains, i.e. paid out of capital. Depreciation is calculated on the current cost (value to the business) of the asset, therefore length of time an asset has been owned has no effect on the reported profit. Balance sheet values represent 'value in use' to the business.	Figures given for assets are not representative of money equivalent of assets held, but of prices the firm would have to pay if it did not already have those assets. Replacement cost is irrelevant to any ex post measure of an entity's present financial position in respect of assets currently owned. Problems arise when replacement is not with identical units, in times of decreasing replacement cost, and with firms that operate in one market (as both buyer and seller).	NO Replacement cost is only relevant if replacement (of those assets) is contemplated. As the assets are already owned this seems unlikely. Not relevant for livestock as only difference between current replacement cost and net current market value is transaction costs (transportation, etc.)	YES Reliable provided replacement with identical asset.	YES Physical capacity is empirically testable, however there is a problem when replacing with non-identical units.

Net Current Market Value (NCMV)	Current Net Selling Price (current cash equivalent)	Assets are stated at current exit value (current cash equivalent).	Balance sheet values for assets reflect current exit values. Provides a useful measure of solvency. Gives a proper indication of an entity's credit worthiness, by providing an up-to-date measure of asset values. Gives an indication of efficient use of resources by incorporating current cash equivalent in return on investment. Avoids the use of arbitrary depreciation methods. Keeps a proper account of stewardship.	Exit values for specialised assets may be difficult to determine. Exit values may be minimal (or even zero) even though assets have substantial value in use. Assets may command a different (greater) price when sold in combination than when sold separately. The use of a simple measure of market selling prices is not appropriate in circumstances where a entity continues to use particular assets. Management is evaluated on its ability to maintain liquidation values of assets even though assets were acquired for use rather than for sale.	YES Relevant to: • the determination of the set of available alternatives; • the assessment of risks.	YES Reliable provided there is an active trading market for the assets. If not a surrogate for current market value would be required.	YES Current cash equivalent fulfils the conditions necessary for additivity.
Net Present Value (NPV)	Net Present Value of Discounted Future Cash Flows	Assets are stated at the present value of expected future cash flows attributable to the assets.	Balance sheet values reflect the present value of the cash flows that provide an asset with service potential.	The amount and timing of future cash flows are often difficult to predict. The attribution of future cash flows to particular assets is often difficult to make. The discount rate to be used is controversial.	YES Relevant for decision making.	NO Too many variables, e.g. expected future selling price, discount rate.	NO Discounted values are not measurements, they are mathematically adjusted forecasts. It is therefore an ex ante system, with no empirical referent.
Deprival Value (DV)	Net Present Value, Net Selling Price and Replacement Cost	Assets are stated at one of NPV, exit value or replacement cost, i.e. 'deprival value'.	Pragmatic approach. DV is a compromise between PV, CCA and CoCoA, and therefore may find some support.	'Measurement' of assets will be time-consuming and costly . DVA treats present value, exit price and replacement cost as if they were one attribute, which is not the case. It is not an accounting system, but a mixture of a number of a number of models, and introduces further subjectivity into accounting.	NO Not relevant to any specific decision model, although relevant for decision making to the extent that each of the systems used are relevant for decision making.	NO Too many variables.	NO Treats present value, exit price and replacement cost as one attribute, which they are not, and are therefore not additive.

Table 3.2 The Major Proponents and Opponents of the Valuation Methods for Livestock*.

Valuation Method	Proponents	Opponents
Historical Cost (HC)	American Institute of Certified Practising Accountants, Statement of Position 85-3, April 1985 *(use either Lower of Cost and Market OR Net Current Market Value)* Canadian Institute of Chartered Accountants, Research Study, 1986 South African Institute of Chartered Accountants, Accounting Guideline AC 205, September 1988 Bowie-Wilson (1966) Loughlin (1974) Haefling et al (1985)	Institute of Chartered Accountants in Australia, Research Study M1A, 1973 New Zealand Society of Accountants, Technical Practice Aid TPA-5, May 1986 Gynther (1968) and (1971)(G) Kenley (1972)(G) Stone (1972)(G) Largay & Livingstone (1970)(G) Davidson et al (1982)(G) Willoughby (1963) Wolnizer (1977) and (1978) Joubert (1985) Neilson (1986) Roberts (1988) Clark (1989) Harbison (1989)
Modified Historical Cost (MHC)	Australian Accounting Standards (G)	As for Historical Cost and Chambers, Ramanathan and Rappaport (1978)(G) Davidson (1982)(G) Chambers (1991)(G)
Current Replacement Cost (CRC)	Institute of Chartered Accountants of England & Wales, SSAP8 (G) Largay & Livingstone (1976)(G) Bell (1982)(G)	Gray & Wells (1973)(G) Not discussed for livestock as only difference between CRC and NCMV is transaction costs
Net Current Market Value (NCMV)	Institute of Chartered Accountants in Australia, Research Study M1A, 1973 American Institute of Certified Practising Accountants, Statement of Position 85-3, April 1985 *(use either Lower of Cost and Market OR Net Current Market Value)* New Zealand Society of Accountants, Technical Practice Aid TPA-5, May 1986 Financial Accounting Standards Board (USA), Farm Financial Standards Taskforce, 1990 Edwards (1975)(G) Ma & Mathews (1980)(G) Davidson et al (1982)(G) Chambers (1991)(G) Willoughby (1963) Carrick (1967) Wolnizer (1977a)(1977b) and (1978) Mareham & Malcolm (1980) Joubert (1985) Neilson (1986) Roberts (1988) Clark (1989) Harbison (1989) Roberts et al (1995)	Delahunty (1981)
Net Present Value (NPV)		Sterling (1979)(G) Chambers (1991)(G) Wolnizer (1978) Neilson (1986) Clark (1989)
Deprival Value (DV)	Steering Committee of National Performance Monitoring of Government Trading Enterprises, October 1994 (G) Largay & Livingstone (1976)(G)	

* Whilst the majority of the authors and pronouncements listed deal with the valuation of livestock, a number are supporters or opponents of the methods in general, and these are indicated with a (G) following the reference.

3.4 Different Measurement Bases and their Application to Livestock

3.4.1 Historical Cost

Under historical cost assets are recorded at the amount of cash (or cash equivalent) paid or payable for an asset at the time of acquisition.

One of the most significant and enduring criticisms of conventional financial reporting based on historical or acquisition cost is that it ignores changes in the purchasing power of the monetary unit ($), as it rests on the assumption that the monetary unit used in recording the result of transactions and events in the accounts is constant or stable. That is, the measuring unit (dollar) used in recording the acquisition of a calf for $60 two years ago is assumed to have the same economic significance as the measuring unit used in recording the acquisition of two (2) round bales of hay today for $60. As general price levels change the purchasing power of the dollar, or its command over goods and services, also changes. Given that change, the purchasing power sacrificed to acquire the calf two years ago may not be equivalent to the purchasing power sacrifice required today to acquire the hay. In terms of purchasing power, therefore, the dollar does not represent a constant measuring unit through time.

In addition, the calf has grown over this period, partly as a result of the expenditure on some of these expenses, and this growth (accretion) is not recognised in the financial reports until the calf is sold. Under historical cost the calf is valued on the statement of financial position at its acquisition cost, or an estimate of cost based on the inputs required (e.g. a portion of the cost of the cow and the bull, and the cost of feeding the cow for a period, etc.) for bred livestock.

Whilst proponents of historical cost argue that historical data is needed in order for an evaluation of past decisions to be made as part of a prediction of the future, critics say that it is insufficient for the evaluation of business

decisions, and that the historical cost of an asset is only relevant when an asset is acquired. After that period has passed it is no longer current and therefore no longer of any consequence.

Kenley (1972 p.22) concurs, pointing out that historical cost is not relevant in many business decisions, in fact "it is of passing interest only or totally irrelevant in some types of investment decisions". Gynther (1971) goes further, arguing that when prices are changing, financial statements based on historical cost do not show relevant information for decision making by users of these financial statements. He believes (p.12) that "if it is intended that accountants should produce information that is relevant, then notice must be taken of the effects of changing prices".

A further criticism of historical cost is that, due to the changing value of the dollar (the monetary unit), the historical cost dollar does not conform to the ratio scale and is not additive, therefore any resulting total is meaningless.

With regard to the use of historical cost for the valuation of livestock, a further problem is that it is virtually impossible to ascertain the cost of breeding livestock on farm, and therefore any historical cost asset value will be arbitrary. One result of this is that there can be two ostensibly 'identical' animals in the paddock, one purchased and one bred on-farm, whose values on the statement of financial position differ significantly.

Joubert (1985 p.47) supports this view, finding during a study tour of New Zealand that "one fact emerged unambiguously: the cost of a livestock unit cannot be calculated". Some would say that it could but when considerations such as size of the herd, which can vary due to weather, percent of offspring, which can vary from one season to another, are taken into account, with the result that monetary inputs are determined by weather patterns, identification of costs and allocation to units of livestock is meaningless.

The Institute of Chartered Accountants in Australia (ICAA) issued a research study in 1973 (M1A "The Valuation of Livestock in the Accounts of Primary Producers). This Research Study (paras 17-20) rejected cost as an appropriate basis for determining livestock values on the basis that it is very difficult to determine the cost of livestock as it grows and matures, even if the original cost is known. Determination of the amount of expenditure to be allocated to different products or classes of livestock raises problems, and it is extremely difficult to attribute a cost to natural increase, in addition to which assessment of subsequent costs is arbitrary. This is supported by the New Zealand Technical Practice Aid (TPA-5 May 1986) which recommends the use of net current market value due to the difficulty in attributing cost to livestock.

The South African Institute of Chartered Accountants (1988 85-3 para 62), on the other hand, support the use of historical cost for livestock, recommending that trading livestock be valued at lower of cost and net realisable value, and that productive livestock be capitalised at cost at the commencement of their productive lives and amortised over their productive lives.

The American Institute of Certified Practising Accountants (1985) also recommend that livestock be valued at the lower of cost and net realisable value. However they do allow the use of net current market value if there are reliable, readily determinable and realisable market prices for the animals, the costs of disposal are relatively insignificant and predictable, and the animals are available for immediate delivery.

Obviously some argue that historical cost is objective, and therefore reliable, and is also comparable and easily understood, however is it relevant to decision making? Once again, as this issue is unresolved in the literature it was decided to seek the **opinions of the users of general purpose financial reports about the usefulness of historical cost to their decision-making in general and with respect to livestock,** with specific reference to the reliability, relevance, comparability and understandability of the accounting information.

3.4.2 Modified Historical Cost

Asset purchases are recorded at their original acquisition cost (historical cost). In subsequent periods assets may be revalued and reported at their revalued amounts, e.g. inventories should be recorded at the lower of cost and net realisable value, and non-current assets may be revalued and must not be reported at values greater than their recoverable amount. This is the current method required by the Australian Accounting Standards, although according to Sharpe (1990) other countries frown on the Australian practice of revaluing non-current assets, and believe that only historical cost valuation will be allowed when (or if) harmonisation of accounting standards occurs. Europe, Japan and USA all believe valuations are too subjective.

Chambers, Ramanathan and Rappaport (1978 p.38) point out that a statement of financial position prepared according to professionally endorsed principles cannot be taken as giving an indication of up-to-date realisable values of assets, nor as an indication of net worth, and that the results (profits) are not a measure of increase or decrease in wealth in terms of purchasing power, and are not necessarily serviceable in price-fixing, wage negotiation or taxation. They argue therefore that general purpose financial reports are useless for most of the purposes for which they are used.

As Davidson et al (1982 26-6) point out "The amounts assigned to individual assets in the conventional financial reports cannot be meaningfully summed to obtain a measure of total assets. Likewise, the portion of the acquisition cost of various assets recognised as an expense of the current period (cost of goods sold, depreciation expense) cannot be meaningfully matched with revenues of the period." This is because the historical cost dollar is not additive and does not conform to the ratio scale, as the purchasing power of the $ fluctuates. Therefore any resulting total is meaningless.

Many criticisms of historical cost are applicable to modified historical cost, as it is historical cost revalued to some often arbitrary figure. The standards do not prescribe what valuation method should be used to revalue assets, and if they are revalued to net current market value, current replacement cost, net present value or deprival value, then that is the method being applied, not modified historical cost. It remains however that, unless the same method is being consistently applied to all non-current assets, the resultant figures are not additive because they are not measured in the same way, and are therefore not on the ratio scale and should not be summed.

The relevance and reliability of the resultant figures is also dependent on the valuation method/s used, and the relevance and reliability of that particular method. With regard to both comparability and understandability, since one of a number of different methods can be used the reports are themselves internally inconsistent, so they are certainly not comparable from one entity to another, and are unlikely to be understood by users who are not experts.

With regard to the valuation of livestock, the questions and criticisms are the same as for the application of modified historical cost for all assets, its relevance and reliability depend on the valuation method used, and as a number of different methods can be used the resulting general purpose financial reports will not be comparable from one period to the next (unless the revaluation is to, say, net current market value), nor from one entity to another.

Once again, as this issue is unresolved, it was considered timely to seek the **perceptions of users about the usefulness of modified historical cost, both in general terms, and in respect of the valuation of livestock,** specifically with reference to the qualitative characteristics - relevance, reliability, comparability and understandability.

3.4.3 Current Replacement Cost

Assets are recorded at the amount of cash (or cash equivalent) that would currently be required to replace the asset with a similar asset.

This represents the cost of replacing the asset's productive capacity with an efficient asset of equivalent capacity. This is the entry value equivalent of net current market value.

Largay & Livingstone (1976 pp.137-8) believe that "replacement cost is the best entry price because it is the best measure of current cost and it has none of the disadvantages of the other entry price possibilities. In addition, it contains whatever advantages the other entry prices possess, with the possible exception of the objectivity inherent in historical costs. As prices change, however, the objectivity of historical cost becomes less and less relevant."

Bell (1982) believes it would be useful to report both entry and exit values, but prefers the use of entry values on the grounds that "since most entities tend to develop long-range plans and purchase many assets which they plan to use over a number of years, meaningful evaluation of decisions and performance necessitates ... continuing valuation in entry-value terms." (p.37)

Gray & Wells (1973) argue that the resultant figures given for assets are not representative of money equivalent of assets held, but of prices the firm would have to pay if it did not already have those assets, and therefore replacement cost is irrelevant to any *ex post* measure of an entity's present financial position in respect of assets currently owned.

Current replacement cost is a logical measurement base and is therefore additive, provided the attribute being measured is physical capacity (replacement of an asset with an identical asset, i.e. an asset capable of performing the same task, in a similar condition). However there is a problem with replacement cost when replacement is with non-identical units as the resultant figures would not be additive.

Current replacement cost is relevant to decision making if replacement of those assets is contemplated which, since they are already owned, is unlikely. It is, however, a reliable, comparable and easily understood valuation method, although not relevant to the valuation of livestock already owned.

With regard to the use of current replacement cost for livestock valuation, there is no advantage to using current replacement cost over net current market value, as the cash outflow required to acquire livestock will always exceed the cash inflow from the sale of the same livestock. This is because the only difference between current replacement cost and net current market value for livestock is the cartage (to and from the saleyards), transit insurance, and the fees (commission, yard dues, weighing fees, transaction levy, etc.).

Since this valuation method has support in the literature it was considered appropriate to seek **the views of users as to its usefulness to their decision making both in general, and with respect to livestock.**

3.4.4 Net Current Market Value

Assets are recorded at the estimated proceeds of sale less all costs to be incurred in marketing, selling and distribution to customers (this is sometimes referred to as current net selling price/net realisable value).

This is similar to Chambers' Continuously Contemporary Accounting (CoCoA). Proponents believe that the income and financial position of an entity should be adjusted to reflect changes in the current cash equivalents (current net realisable value) of the entity's resources. The implied objective of this theory is to maintain the entity's ability to adapt its operations to changed circumstances, an ability which is vital in present day agricultural operations.

It is argued that the measurement of an entity's financial position is of prime importance, and that the best measure of an asset's worth is its current net selling price, i.e. the amount of cash that could be raised by the sale of the

asset during the normal course of business, not in the event of a forced liquidation.

Anderson and Epstein (1995 p.27) found that shareholders would like to be provided with additional disclosure in general purpose financial reports about current values.

The current cash equivalent of an asset is its net current market value. The proponents of this method believe that the statement of financial position should provide a measure of the entity's ability to adapt in the market place, and provide information relevant to decision making, whether it be to sell, fatten or keep as a replacement an eight month old heifer, and that this is a relevant piece of information when making any decisions about the future of the business.

Proponents of net current market value argue that financial statements should reflect up-to-date values because this information is more relevant than historical information. They argue that the present modified historical cost based income statement reflects neither the economic costs of generating income nor the changes in entity wealth that resulted from changes in the prices of assets while held or liabilities while owed. In addition, the statement of financial position presently used does not provide the most relevant information about many assets and liabilities and does not faithfully represent financial position in a meaningful way. Those who favour net current market value are willing to accept a lower level of verifiability, if necessary, to achieve improved relevance.

Supporters of net current market value argue that values on the statement of financial position represent current amounts available to the business and therefore provide a useful measure of solvency, and a proper indication of the credit-worthiness of the entity. In addition, use of net current market value, which is the current exit value, gives a proper account of stewardship and results in the use of current figures to calculate return on investment.

Chambers (1991) points out that net current market value is relevant to decision making as it allows for an accurate determination of the set of available alternatives, and the assessment of risk.

Critics, on the other hand, argue that exit values are only relevant if the entity intends to sell the assets, and furthermore, assets may command a different price when sold in a particular combination or combinations. This argument would not be relevant for livestock assets, although particular combinations (e.g. cow and calf) may command more (or less) than those assets sold separately, at different times. This would need to be taken into account when estimating the net current market value for those assets.

They further argue that some specialised assets may have a thin or non-existent market and under this system their value may be minimal (or even zero) although they have substantial value in use to the entity. Once again this argument is not supported for the vast majority of livestock assets where there is a strong and active market. The Australian Meat Board collates market selling data from all auctions in capital cities and produces comprehensive details of livestock market prices in its annual report. The Board produces a monthly price list showing details of the average livestock prices for the month, and also publishes a journal which provides information on weekly market prices. Government Departments of Agriculture publish information on market selling prices at saleyards. Therefore, detailed and up-to-date selling price information is readily available at little or no cost which means it is feasible to use net current market value to estimate the value of livestock.

In addition, for those assets where there is no market or a thin market, then some surrogate for net current market value may be permitted, as is permitted for superannuation plan assets under AAS25 (para 38).

Delahunty (1981) believes that current market values are futile for livestock. He asserts that livestock should not be treated as trading stock (a current asset, similar to inventory), and that its value should be based on calculating the alteration in the size of the herd, rather than current market values. He

believes that prices available from market selling data cannot be readily applied to other livestock as these prices fluctuate weekly, and rely on subjective assessment of the quality of the livestock, i.e. the similarity with those quoted.

Current cash equivalent (net current market value) is additive. If all livestock are valued at net current market value, the resultant total livestock value figure is logical and meaningful, as current cash equivalent is a ratio scale measurement and is, by definition, additive.

In 1973 the Institute of Chartered Accountants in Australia (ICAA) issued Research Study M1A (which replaced Research Study M1 issued in 1971) "The Valuation of Livestock in the Accounts of Primary Producers". These studies reviewed the debate from the early 1960s, and the arguments for and against the various methods of valuing livestock. The recommendation of the research study was that net current market value be adopted as the valuation method for livestock, rejecting cost as an appropriate method of ascertaining livestock values primarily because of the difficulty of determining cost of livestock as it grows and matures, and the difficulty of attributing cost to natural increase (paras 17-20).

The study recommended (para 33) that livestock be valued at net current market value, as this would provide a "more realistic result for each accounting period" and would "reflect the market and seasonal conditions prevailing during each period" (para 34(c)).

This Research Study was not followed by the issue of an accounting standard, although the Australian Accounting Research Foundation commissioned the preparation of a discussion paper on accounting for self-generating and regenerating assets. This discussion paper (Roberts et al (1995) p.90) also recommends the use of net current market value for the valuation of livestock assets.

In the 1980's there was some work done in New Zealand which resulted in the publication of a Technical Practice Aid (TPA No.5 "Valuation of Livestock in the Financial Statements of Farming Enterprises") in May 1986. This Technical Practice Aid also recommends the use of net current market value for the valuation of livestock on the grounds that "this method provides the most realistic and useful information for the users of financial statements" (para 17). It is acknowledged that "this method departs from the realisation principle that underpins historical cost accounting", however it is considered that "it reflects the fact that the farming of livestock is an activity where there is a ready and fluctuating market for one of the principal assets of the business (namely the livestock), and the fluctuations in the value of those assets and the relative gains (losses) are integral to the understanding and management of the business." (para 14)

In the United States, although the American Institute of Certified Practising Accountants recommends (Statement of Position 85-3) the use of historical cost, they allow the use of net current market value if there are reliable, readily determinable and realisable market prices for the animals, the costs of disposal are relatively insignificant and predictable, and the animals are available for immediate delivery.

Joubert (1985) argues that the practice of valuing at realisable values has a precedent in mining industry where gold stocks are involved.

Harbison (1989) recommends the use of net current market value for livestock on the grounds that it results in stock being valued at nearer their actual worth, which allows for recognition of the natural growth/loss in the animal.

As net current market value is recommended because, it is argued, it provides the most realistic and useful information for users, **it is appropriate to determine whether in fact users perceive this to be the case.**

3.4.5 Net Present Value

Assets are recorded at the discounted present value of the future net cash inflows that the asset is expected to generate either from its use and subsequent sale, if applicable, or from its sale.

To estimate present value, expected future cash flows from an asset are forecasted and discounted by some 'appropriate' interest rate with the result reported as the asset's value on the statement of financial position.

This is an *ex ante* (before the event) valuation model, and is therefore not a measurement system, but a forecasting system. This view is supported by Chambers (1991) who believes that discounted values are not measurements but mathematically adjusted forecasts, and therefore do not comply with the requirements of measurement theory, and are not additive. Additionally, because future events are uncertain, future cash flows are often difficult to estimate accurately, the choice of discount rate is controversial, and it is often hard to attribute cash flows to individual assets when a number of assets are used together to generate income. The result is that net present value does not achieve the levels of reliability, objectivity, and comparability (across firms) that are required for external reporting purposes. It is, however, often relevant to decision-making, and is used in capital budgeting for comparison of proposed projects.

With respect to the valuation of livestock net present value is considered to be an inappropriate method. This is because, under this method, livestock is valued by capitalising its earning capacity, and it is extremely difficult to predict future incomes for livestock as markets fluctuate from year to year, and natural forces such as weather conditions, which affect market prices for livestock, are unpredictable.

Wolnizer (1978) also rejects the concept of net present value for livestock valuation because of the characteristics of the primary producer's inventory.

There is some support in the literature and from the profession for the use of net present value as a surrogate for net current market value in the absence of reliable current market prices (i.e. where there is no market or a thin market). (Roberts et al (1995 p.90), and AAS25 para 38)

As this is a recognised method for asset valuation it was still considered appropriate to determine **the perceptions of users of general purpose financial reports about its usefulness.**

3.4.6 Deprival Value

Assets are recorded at the minimum amount that the entity would need to receive to compensate it for losing the asset. This could be either net current market value, current replacement cost or net present value, depending on the relationship between them and whether or not the entity would replace them.

Deprival value has been proposed as a compromise measurement basis, and has been recently recommended by the Federal Government as the valuation method for the non-financial assets of government trading enterprises. It was originally proposed by Bonbright (1937) and is described as the amount of loss that the entity would suffer if deprived of the asset, i.e. the minimum compensation an entity would need for losing the asset.

In 1975 the Inflation Accounting Committee in the U.K. (the Sandilands Committee) made a recommendation stating that under current cost accounting "... stock on hand should be shown in the balance sheet at its "value to the business" at balance sheet date, i.e. at its current purchasing price (RC) or net realisable value, whichever is the lower." (para 584) This method seems very similar to the deprival value approach.

Theoretically, deprival value "measures and discloses the deprival value or the value to the business of each asset and liability" (Henderson et al (1992) p.193). Sometimes this will be the net current market value (NCMV), sometimes the current replacement cost (CRC), and at other times the discounted present value of the future cash flows (NPV), depending on the relationship between the three values.

The upper limit for deprival value of an asset will be the current replacement cost of the asset (as the loss cannot be greater than the cost of restoring the business to its former position), and the lower limit will be the net current market value (as the loss cannot be lower than the amount the business would have obtained by selling the asset). Depreciation under deprival value is determined by applying historical depreciation rates to deprival value.

The advantages of deprival value are that it is a compromise between current replacement cost, net current market value and net present value, and overcomes some of the defects of these (although it also has some of the defects of these models), and it has some support from the profession and the Australian Accounting Research Foundation.

The major disadvantages of deprival value are that it may allow for even more choice than currently allowed under modified historical cost accounting; valuation of assets will be time-consuming as net current market value, current replacement cost and net present value will all need to be determined; and finally, it is not a measurement system, but a hybrid that depends on the relationship between the values determined under three other valuation models, one of which is not a measurement system, but a mathematically adjusted forecasting system. In addition, the resulting figures will not be additive as they are not measured in the same way, and the valuation method used in some cases will not be an acceptable measurement system.

The Federal Government Steering Committee on National Performance Monitoring of Government Trading Enterprises (1994) recommended the use of deprival value for the valuation of assets of government trading enterprises. Due to the lack of market prices for government assets the focus is likely to be on current replacement cost or net present value.

With regard to the valuation of livestock, deprival value has all of the above disadvantages, and includes net present value which is not considered to be appropriate for the valuation of livestock. As noted in Section 3.4.3 the only difference between current replacement cost and net current market value for livestock is transaction costs. In addition, as the use of net present value is inappropriate for livestock, then the use of deprival value will always result in livestock being valued at net current market value.

Deprival value may be relevant to decision making to the extent that each of the individual methods are relevant to decision making, however it has too many variables to be reliable, and is not additive. In addition, it will not result in general purpose financial reports that are comparable from one period to another, nor from one entity to another, and it is considered that it is extremely difficult for the non-expert user to understand. **User perceptions are sought to confirm this belief.**

3.5 Conclusion

Chapter 3 has addressed the issue livestock valuation and the accounting measurement system. Section 3.2 introduced the issues to be addressed, those of its classification and its measurement. The various options for the classification of livestock, and their suitability, were discussed.

Section 3.3 examined the issue of measurement and valuation in the financial position section of general purpose financial reports, and reviewed the debate over whether any of the existing valuation methods have the attributes required to be acceptable measurement systems, their support, or lack of it, in the literature and their applicability to the valuation of livestock. Section 3.4 reviewed each of the valuation methods currently used for valuing livestock, as well as deprival value, which was included because it is the valuation method chosen by the government for valuation of the non-financial assets of government trading enterprises.

Chapter 4 will explain the research methods applied in this study.

CHAPTER FOUR

THE RESEARCH QUESTIONS

"Many scientific questions are answered by inspired guesswork, followed by probings to test out this or that theory."

Kidson, A.L., (1978) "Is the moa really extinct", *Sunday Mail Colour*, 2 July 1978.

4.1 Introduction

In Chapter 1 it was pointed out that in Australia there is currently no professional guidance from an accounting standard covering the valuation of livestock by reporting entities, and that this has led to the use of a wide variety of different methods for livestock valuation in the general purpose financial reports of reporting entities. To eliminate this problem it was suggested that a separate standard should be issued covering the valuation of livestock (and possibly other self-generating and regenerating assets, although this is beyond the scope of this study) in general purpose financial reports. It was further suggested that a natural starting point for a search for the most appropriate method of valuation would be the conceptual framework for general purpose financial reporting, that is the Statements of Accounting Concepts (SACs), which are a "source of guidance to which members (of the Institute of Chartered Accountants of Australia [ICAA] and the Australian Society of Certified Practising Accountants [ASCPA]) should make reference if there is no Accounting Standard dealing with an accounting treatment or disclosure issue" (APS1, para 21).

Chapter 2 considered the reporting environment, the users for whom general purpose financial reports are prepared, the valuation of assets on the statement of financial position, and specifically the valuation of the self-generating and regenerating asset livestock. This provided the survey sample and the context for the research questions and propositions developed in Section 4.3.

Chapter 3 reviewed the issue of classification and the various valuation methods, their compliance with measurement theory, their applicability to the valuation of livestock, and their acceptance or otherwise in the accounting literature. **Table 3.1** outlined the various methods, their attributes and their compliance with measurement theory, while **Table 3.2** documented the support in the literature for the different methods. This provided the basis for the research questions and propositions on classification and measurement bases developed in Section 4.3 **(Research Question 1.1, Survey Question 7,**

and Research Questions 2.2, 2.3, 2.6 and 2.7, Survey Questions 1, 4, 8, 11 and 12).

It is the aim of this study to identify the most appropriate method for the valuation of livestock in general purpose financial reports which fulfils the requirements of Statement of Accounting Concepts No.2 "Objective of General Purpose Financial Reporting" (SAC2) and Statement of Accounting Concepts No.3 "Qualitative Characteristics of Financial Statements" (SAC3), and which users perceive to be the most useful for decision making. This provided the context for the research questions and survey questions on objectives and qualitative characteristics (criteria) **(Research Questions 2.1 and 2.2 (Objectives), and 2.4, 2.5, 2.6 and 2.7 (Criteria), Survey Questions 2 and 4 (Objectives) and 10, 11 and 12 (Criteria).**

To this end, in this chapter, building on from the conceptual framework and the valuation methods, various research questions will be developed, from which a number of propositions will be put forward.

4.2 Background Summary

A search of the literature and general purpose financial reports of companies owning livestock assets found that a number of different methods are used for valuing livestock in general purpose financial reports. It also found that, whilst there is substantial support for certain of the valuation methods and substantial criticism of some of them, there is little discussion of some, particularly with respect to livestock valuation.

Whilst the literature search did not provide support for net present value nor for deprival value it should be noted that, as the literature search was done in the context of measurement in general and livestock valuation in particular, this particular anecdotal evidence might not have been caught by the search. In addition, deprival value is a relatively new method only recently recommended by the Federal Government for Government Trading

Enterprises, hence there may not be a great deal of literature on this method at this time.

The development of the conceptual framework for general purpose financial reporting and the use of these valuation methods all point to the validity of asking potential users for their perceptions of the selected methods.

4.3 Research Questions and Propositions

In reviewing the literature it became apparent that the major issues to be considered were:

1. classification of livestock; and

2. valuation of livestock.

With these issues in mind the following research questions were developed.

1. Classification

1.1 How do users of general purpose financial reports believe livestock should be classified?

1.2 Are users of general purpose financial reports aware that livestock is specifically excluded from the accounting standards on inventory and depreciation?

2. Valuation

The issue of valuation of livestock is related to the valuation or measurement of assets in general, and the question of whether livestock should be treated in the same manner as other assets. This gives rise to the following research questions.

2.1 How important are general purpose financial reports in achieving users' major objectives?

2.2 Do the measurement bases available assist in achieving these objectives in general?

2.3 Which measurement base do users consider to be the most useful for the valuation of livestock in general purpose financial reports?

2.4 What criteria are important in assessing the usefulness of accounting information in general purpose financial reports in general?

2.5 What criteria are important in assessing the usefulness of accounting information in general purpose financial reports with respect to reporting of livestock?

2.6 Do the measurement bases available satisfy these criteria in general?

2.7 Do the measurement bases available satisfy these criteria with respect to reporting of livestock?

Research questions 1.1 and 1.2 deal with the unresolved debate about how livestock should be classified in general purpose financial reports. Should livestock be classified as a current asset, as a non-current asset, according to its intended use, or should it be included in a separate classification, for example "self-generating and regenerating assets" where the intended use of the asset is not taken into account when it is valued?

Research question 2.1 addresses the objectives users have when they use general purpose financial reports, and is based on a survey by Houghton & Tan (1995). It is considered that the objectives of users will play an important role in determining the most appropriate valuation method, and this resulted in research question 2.2.

Research question 2.3 addresses users' initial perceptions about the usefulness of the measurement bases (not constrained by consideration of the qualitative characteristics discussed in research questions 2.4 and 2.5).

Research questions 2.4 and 2.5 are based on the qualitative characteristics which the conceptual framework proposes that financial information should possess in order to be useful for users' decision making, as outlined in Statement of Accounting Concepts No.3 "Qualitative Characteristics of Financial Information" (SAC3).

Finally, research questions 2.6 and 2.7 address the issue of whether the available valuation methods satisfy the requirements of the conceptual framework in the opinion of the users of general purpose financial reports.

Given these research questions, the following **propositions** (P) with regard to users of general purpose financial reports were developed, which led to the survey questions being asked, as outlined.

1. Classification

P1.1.1 That they are not aware that livestock is excluded from the accounting standard on inventory.

P1.1.2 That they are not aware that livestock is excluded from the accounting standard on depreciation.

P1.2 That they consider that livestock should be included in a separate classification for self-generating and regenerating assets.

2. Valuation

P2.1 That general purpose financial reports are important in assisting their decision making regarding:

(a) allocation of resources, i.e. whether to invest or disinvest;

(b) evaluation of company performance; and

(c) evaluation of financial position.

P2.2 That they perceive that historical cost is important for evaluation of company performance and financial position, but less important for resource allocation decisions, non-financial performance evaluation and determination of industry competitiveness.

P2.3 That they perceive that modified historical cost is important for resource allocation decisions, evaluation of company performance and evaluation of financial position, but less important for non-financial performance evaluation and determination of industry competitiveness.

P2.4 That they perceive that current replacement cost is important for resource allocation decisions, evaluation of company performance, evaluation of financial position, but less important for non-financial performance evaluation and determination of industry competitiveness.

P2.5 That they perceive that net current market value is important for resource allocation decisions, evaluation of company performance, evaluation of financial position and determination of industry competitiveness, but less important for non-financial performance evaluation.

P2.6 That they perceive that net present value is important for resource allocation decisions and evaluation of company performance, moderately important for evaluation of financial position and determination of industry

competitiveness, but of little importance for non-financial performance evaluation.

P2.7 That they perceive that deprival value is of little importance for resource allocation decisions, evaluation of company performance, evaluation of financial position, non-financial performance evaluation and determination of industry competitiveness.

P2.8 That they perceive net current market value as being the most useful measurement base for livestock in general purpose financial reports.

P2.9 That they perceive deprival value (followed by net present value) to be the least useful measurement base for livestock in general purpose financial reports.

P2.10 That they perceive reliability and relevance to be the most important criteria in assessing the usefulness of accounting measurements, in general.

P2.11 That they perceive reliability and relevance to be the most important criteria in assessing the usefulness of accounting measurements, with specific reference to livestock.

P2.12 That they perceive historical cost to be the most reliable measurement base in general.

P2.13 That they perceive current replacement cost and net current market value to be the most relevant measurement bases in general.

P2.14 That they perceive current replacement cost to be the most comparable measurement base in general.

P2.15 That they perceive historical cost to be the most understandable measurement base in general.

P2.16 That they perceive net current market value to be a reliable measurement base in general.

P2.17 That they perceive net current market value to be a relevant measurement base in general.

P2.18 That they perceive net current market value to be the most reliable measurement base for livestock valuation.

P2.19 That they perceive net current market value to be the most relevant livestock base for livestock valuation.

P2.20 That they perceive net current market value to be the most comparable measurement base for livestock valuation.

P2.21 That they perceive net current market value to be the most understandable measurement base for livestock valuation.

4.4 Expected Findings

It is expected that primary users of general purpose financial reports (both shareholders and financial analysts) perceive that livestock should be included in a separate asset classification for self-generating and regenerating assets.

It is expected that primary users of general purpose financial reports (both shareholders and financial analysts) perceive that net current market value is the most relevant method of valuing livestock in general purpose financial reports.

It is expected that primary users of general purpose financial reports (both shareholders and financial analysts) perceive that net current

market value is the most reliable method of valuing livestock in general purpose financial reports.

It is expected that primary users of general purpose financial reports (both shareholders and financial analysts) perceive that net current market value is the most comparable method of valuing livestock in general purpose financial reports.

It is expected that primary users of general purpose financial reports (both shareholders and financial analysts) perceive that net current market value is the most understandable method of valuing livestock in general purpose financial reports.

It is expected that the primary users of general purpose financial reports (shareholders and financial analysts) perceive a different valuation method as being the most useful (in terms of the qualitative characteristics) for valuing livestock in general purpose financial reports, to that which they perceive as being the most useful for valuing assets in general in general purpose financial reports.

4.5 Conclusion

Section 4.2 provided an overview of the earlier chapters and reiterated the aim of this study. In Section 4.2 a summary of the issues surrounding the valuation of livestock in Australia, and the literature on this topic was discussed, outlining that there was no literature support for some of the valuation methods, and therefore no support for certain of the research questions as outlined in Section 4.3.

Following from discussion of the research questions, Section 4.3 went on to discuss a number of propositions associated with this study which gave rise to the questionnaire which will be discussed in Chapter 5.

Section 4.4 outlined the expected findings of the study. Chapter 5 will discuss the research methods used in this study.