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Evaluation of Biological Assets (livestock) valuation strategies on providing realistic value: A case study of Gweru Farmers, Zimbabwe

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Abstract

The manuscript presents an important and timely study on livestock valuation strategies in Zimbabwe, focusing on their effectiveness in providing realistic valuations. The research is well-structured and explores key valuation methods including the Market Approach, Income approach, Fair Value Approach and Cost Approach. The study is methodologically sound, using a mixed method research design that included surveys and interviews with farmers, valuers and accountants. The discussion highlights gaps in existing valuation practices and suggests hybrid strategies for achieving realistic valuations. Target population focused on 70 commercial livestock farmers, valuers and accountants in Gweru, Zimbabwe. Quantitative analysis focused on the perceived effectiveness of each method, while qualitative insights explored challenges related to valuation accuracy. The Market Approach emerged as the most reliable valuation method for reflecting real-time market conditions, followed by the Fair Value and Cost Approaches, which showed moderate effectiveness. The Income Approach was the least preferred, cited for its speculative nature and limited applicability in volatile markets. The study highlights gaps in existing literature, particularly the absence of empirical evaluations of hybrid valuation methods that integrate multiple approaches to mitigate individual limitations. To achieve realistic valuations, policy makers and farmers are encouraged to adopt hybrid strategies that combine market trends, production costs, and future earning potential. These findings are particularly relevant for developing regions with underregulated markets.

Key Words: Biological assets, cost approach, fair value, income approach, livestock valuation, market approach

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Introduction

The livestock sector is a pivotal component of the global economy contributing approximately 40% of agricultural Gross Domestic Product worldwide according to Food and Agriculture Organization of the United Nations (2023). It also supports livelihoods of approximately 1.3 billion people globally generating income employment and food security according to Herrero et al, (2023). African Union report of 2020, states that in Africa the livestock sector contributes around 30% of Agricultural GDP supporting the livelihoods of millions of people and providing income, employment and food security.

In Zimbabwe, livestock is a key driver of economic growth contributing 27.01% of the country's GDP according to Zimbabwe National Statistics Agency (2023). This underscores its significance in the country's economic development. Therefore, under this backdrop accurate livestock valuation is essential for various stake holders including farmers, insurance companies and policy makers to facilitate informed decision, risk management and financial management.

The important of accurate livestock valuation cannot be overstated, as it directly affects financial reporting, farm value assessments, taxation, and market pricing practices (Elad, 2022). Globally, valuation practices are guided by accounting frameworks such as the International Financial Reporting Standards (IFRS) and the United States Generally Accepted Accounting Principles (US GAAP). These frameworks, particularly International Accounting Standard 41 (IAS 41), emphasize the importance of fair value measurements to ensure transparency and comparability in financial statements. However, the practical application of these standards varies widely across countries, shaped by local economic conditions, cultural norms, and the structural complexities of agricultural markets (Laux, 2021). For instance, developed countries often have robust regulatory frameworks and market mechanisms that facilitate accurate valuations, while developing countries face challenges such as limited market data, lack of expertise, and inconsistent regulatory enforcement (Scott, 2023).

Developing countries particularly in Africa, encounter significant obstacles in adopting sophisticated valuation methodologies. While nations like South Africa have implemented comprehensive frameworks such as IFRS 13 and standards set by the South African Institute of Chartered Accountants (SAICA) standards, while others, such as Nigeria and Kenya, face inconsistencies in their application (Flores, 2021).

Despite extensive research on valuation methodologies, significant gaps persist. Most studies focus on individual valuation technics or theoretical principles without addressing the practical challenges of implementation, particularly in developing countries. For instance, while regulations such as IAS 41 provide guidance for fair value measurements, they do not address structural issues such as inequitable livestock pricing by intermediaries or the lack of transparency in market transactions (Scott, 2023). Additionally, there is limited empirical research evaluating the effectiveness of hybrid valuation approaches that combine multiple methodologies to overcome the limitations of individual strategies (Schrobback, 2024).

In Zimbabwe, livestock farmers often face exploitation by intermediaries who purchase animals at undervalued prices and resell them at significantly higher rates inf in urban markets and auction houses. This practice distorts market dynamics and deprives farmers of fair competition for their livestock. In response to these challenges, the Zimbabwean government in July 2024 implemented a policy requiring Agricultural Extension agents to supervise cattle sales, aiming to protect farmers from undervaluation and ensure fair market pricing. While this policy represents a step forward, uncertainties remain regarding the accuracy and effectiveness of the valuation methodologies employed by commercial farmers in Gweru, Zimbabwe. This highlights the need for further research to develop and evaluate robust valuation frameworks that account for the unique characteristics of biological assets and the economic realities of different regions.

This study seeks to address these gaps by conducting a comprehensive analysis of livestock valuation strategies and their effectiveness in achieving realistic valuations. It will examine the practical application of the Market Approach, Income Approach, Fair Value Approach, and Cost Approach, the research aims to identify best practices and offer actionable recommendations for improving valuation accuracy. The findings will contribute to the broader understanding of biological asset valuation and inform policy and practice in agricultural markets, particularly in developing countries. Ultimately this study aims to support the equitable and sustainable development of agricultural enterprises, ensuring that farmers receive fair and accurate assessments of their assets' value.

This study hypothesizes that the market Approach provides the most realistic valuation for livestock in Zimbabwe compared to other methods.

Theoretical Framework for valuation

This study uses two primary theories: The Efficient Market Hypothesis (EMH) and the Behaviorism Theory. These theories, originating from different disciplines, offer unique perspectives that help explain the valuation of biological assets. Each theory contributes to understanding the complexities of how biological assets are valued and provides a basis for addressing the gaps in existing valuation methods.

Efficient Market Hypothesis theory

Eugene Fama (1965) developed the Efficient Market Hypothesis to explain how financial markets operate. The theory suggests that asset prices reflect all available information, making it impossible to consistently outperform the market through speculation. Although originally applied to stock markets, this theory is highly relevant to the valuation of biological assets, such as livestock. This theory was used to emphasize that livestock prices reflect all available information, such as breed, age, health, and market conditions. Widagdo k & Okfitasari A, (2023) confirmed in his study on valuation using the same theory on the weak form of market efficiency which assumes that historical price data is already incorporated into current valuations, making it impossible to gain an advantage using past trends. Widagdo k & Okfitasari A, (2023) shed light on the challenges of gaining competitive edge based on historical information.

Nyakurukwa K & Seetharan (2023) adopted the theory of the semi-strong form suggesting that publicly available information, such as market demand or disease outbreaks, is already factored into current prices. Lastly, the strong form argues that even private or insider information is reflected in asset prices, although achieving this level of efficiency is rare in practice.

The theory's relevance lies in its focus on ensuring that valuations are based on accurate and up-to-date information. It highlights the importance of reducing information asymmetry, where one party has more information than another, and promotes fairness in the valuation process. Kica P, Szczypa (2021) notes that applying EMH principles to biological asset valuation ensures realistic pricing and facilitates better decision-making for farmers and traders.

Behaviorism theory of valuation

Ivan Pavlov's Behaviorism Theory, introduced in 1927, focuses on how external stimuli influence behavior. Although rooted in psychology, the theory's principles help explain decision-making processes in various fields, including

economics and asset valuation. Pavlov's work on classical conditioning demonstrated that behaviors can be shaped through associations with external factors, laying the foundation for understanding how humans respond to their environment.

Craske & Barlow, (2022) emphasized biological asset valuation and stated that Behaviorism theory highlights the role of external factors such as market trends, government policies, and environmental conditions in shaping valuation decisions. For instance, weather patterns, disease outbreaks, or shifts in consumer preferences can significantly affect livestock prices. Past experiences, such as profitable or unprofitable valuations, also reinforce behaviors, influencing how valuers approach future assessments.

The theory also draws attention to cognitive biases, such as herd mentality or anchoring, which can impact how livestock is valued. These psychological factors can lead to over- or undervaluation, making it important to adopt systematic and objective valuation methods (Soprano 2024). Recognizing the impact of external stimuli on livestock valuations encourages market participants to consider a wide range of variables when determining the value of livestock and other biological assets.

Connecting the theories to the Study

The two theories, Efficient Market Hypothesis and Behaviorism theory, work together to provide a comprehensive framework for understanding the valuation of biological assets. Each theory addresses a different aspect of the valuation process. The Efficient Market Hypothesis focuses on how market information is reflected in asset prices, ensuring that valuations are based on accurate and unbiased data. Behaviorism Theory emphasizes the role of external factors and human behavior in shaping valuation decisions, highlighting the need to account for psychological biases and environmental influences.

Together, these theories offer a holistic approach to understanding the complexities of biological asset valuation. They help identify gaps in current valuation practices and provide a foundation for developing more realistic, accurate, and dependable valuation models. This theoretical framework establishes a clear connection between academic concepts and the practical challenges of valuing biological assets, ensuring that the study contributes to both theory and practice.

Literature review

The International Valuation Standards (2022) highlights three approaches used in valuations. Consideration is actually given to these most appropriate valuation approaches which are Market Approach, income Approach and Cost Approach. The International Valuation Standards (2022) states that valuers consider the use of multiple approaches or methods more than one valuation approach to arrive at a specific value. IVS defines market approach as an approach which indicates value by comparing the assets with identical or comparable assets for which price information is available. IVS also defines an Income approach as the approach where value of an assert is determined by reference to the value of income, cash flow or cost savings generated by an asset. Finally Cost Approach is an approach defined as providing an indication of value using the economic principle that the buyer will pay no more for an asset than the cost of obtaining an asset.

Josep et al (2020) from the University of Barcelona in Spain made empirical research on the comparative study of difficulties in accounting preparation and judgement in Agriculture using the Fair Value approach and Historical cost approach for biological assets valuation. The paper presented the accounting difficulties that arise from the use of fair value (FV) and Historical cost (HC) approach valuations on farms. It also compared how dependable each valuation method was in the decision-making process on farms. The findings revealed that there were more challenges in calculations when using HC approach than using FV approach. In-depth interviews uncovered flowed accounting practice in using HC and it was recommended that accounting can easily be applied when using FV approach than HC approach. This study performed an empirical comparison of the difficulties faced by farmers and accountants when preparing accounts using FV and HC valuation of livestock.

Schrobback P. (2024) in Australia presented a paper on methods and data needs to estimate the economic (market) value of livestock at different spatial scales. The paper was an assessment of the economic value of livestock, that is cattle, goats, sheep, pigs, chickens and ship. This was to offer information about their financial performance and economic importance on farms. The aim of the study provided an overview about the key livestock valuation strategies. The study identified the following methods of livestock valuation, Historical cost, Net current market value, Present value, Replacement value, and Cost of production. Schrobback P. (2024) added that Cost of production has its root in Historical

cost and Replacement cost has its roots in Market approach. The findings of the article show that the five key livestock valuation strategies have different data requirements, and follow different principles and hence they can lead to different results. Each method has its own advantages and disadvantages.

Murty and Sastry (2022) from India presented a paper on Accounting for Biological Assets: A comprehensive review and Analysis. The research article provided a comprehensive review and analysis of accounting practices for biological assets. The research emphasized the unique characteristics of livestock, livestock valuation methods, disclosure requirements and application of International Accounting Standard 41(IAS 41). The findings indicated that there are challenges in livestock valuation due to the biological transformation process hence the need for standardized frameworks. They also asserted that the accounting standards only gives guidance and not application procedure. Acritical examination of existing literature was conducted to assess the challenges and controversies surrounding the valuation of livestock strategies.

Welgrzynska M and Nowotarska A (2021) in Poland looked and analyzed Cost approach and fair value method of valuing biological assets and recommended fair value method in accordance with International Accounting Standards (AIS 41) for Agriculture. The research emphasized that IAS 41 makes a fundamental assumption that fair value of biological assets can be determined. The findings of this research indicate that no research has been conducted on the factors influencing valuation methods of livestock.

Kharabadze (2023) disclosed that there is no uniformity in valuation strategies hence variations in valuation strategies distort the financial statements and value of livestock as illustrated by Table below

Table 1 below

Biological Asset	Historical cost	Market Value	Fair value	Revenue from the sale of livestock	
				Historical Cost loss	Fair value loss
Cattle	$590.00	490.00	387.00	-$100	-$103
Weight	100kgs	100kgs	100kgs		

Source: *Kharabadze (2023)*

The table shows that historical cost has a higher value as compared to market value and fair value on comparison of the same livestock. This shows that valuation strategies used has different impact on financial statements.

The Fair Value Approach has gained significant attention in academic literature due to its emphasis on the current market price of biological assets, reflecting their real-time value. Beigman (2023) argues that the Fair Value Approach is particularly relevant for financial reporting, as it provides stakeholders with a clear understanding of the asset's worth at a specific point in time. This method aligns with International Accounting Standard 41 (IAS 41), which mandates the use of fair value for biological assets whenever an active market exists. Beigman highlights that one of the key advantages of this approach is its ability to enhance transparency and comparability in financial statements, making it investor-friendly. However, the study also identifies challenges, such as the inherent volatility of agricultural markets and the difficulties in determining fair value for assets in regions with limited market data.

Rezende J Amaury (2022) in Brazil build on Beigman's findings, emphasizing the reliability of the Fair Value Approach when active markets are present. This article demonstrates that fair value provides a realistic assessment of livestock and other biological assets, particularly in developed agricultural markets. However, they caution against the over-reliance on this approach in regions where market data is inconsistent or unavailable. The study highlights that fair value measurements can be subject to manipulation, particularly when valuers lack the expertise to accurately estimate prices or when market conditions are highly volatile. This limitation is particularly relevant in developing countries, where agricultural markets are often fragmented, and price discovery mechanisms are weak.

Joseph and Blandon (2020) explore the application of the Cost Approach in livestock valuation, emphasizing its simplicity and objectivity. They argue that the historical cost method is particularly useful in regions with limited market data, as it provides a stable and consistent basis for valuation. However, the study also identifies significant drawbacks, such as the inability of the Cost Approach to reflect current market conditions or the biological transformations that occur over time.

Welgrzynska and Nowotarska (2022) expand on Joseph and Blandon's work, comparing the Cost Approach with the Fair Value Approach in the context of European agricultural markets. Their findings indicate that the Cost Approach

is less dependable than fair value when market conditions are dynamic or when biological assets undergo significant changes in value due to factors such as growth, reproduction, or disease. The study highlights that reliance on historical costs can lead to undervaluation or overvaluation of assets, particularly in volatile agricultural markets. For instance, the cost of raising livestock may not accurately reflect their market value, especially when feed prices, labor costs, or market demand fluctuate significantly. Despite its limitations, the Cost Approach remains a popular method in regions where market access is limited, or fair value measurements are impractical.

Ndala N. (2024) in the article Assessing the extent of compliance with IAS 41 by agricultural entities in Southern Malawi disclosed that 40% of companies used fair value method to determine values. This method was applied to a range of biological assets which included tea bushes, macadamia nuts trees and livestock. The research also noted that other companies used market prices of similar assets to determine livestock values.

The Market Approach, which bases valuations on comparable market prices for similar assets, is widely regarded as one of the most effective methods for reflecting real-time market conditions. Flores (2021) identifies the Market Approach as particularly relevant for livestock valuation, as it accounts for factors such as breed, age, weight, and market demand. The study highlights that this approach is highly effective in regions with active livestock markets, where comparable sales data is readily available. The research demonstrates that the Market Approach provides a realistic and equitable assessment of biological assets, enabling farmers to make informed decisions about production, investment, and sales.

The Income Approach, which values assets based on their future earning potential, is a less commonly used method for biological asset valuation, particularly in volatile agricultural markets. Schrobback (2024) explores the application of the Income Approach in livestock valuation, emphasizing its relevance for long-term investment decisions. The study highlights that this method is particularly useful for high-value assets, such as breeding stock or specialized livestock breeds, where future earnings can be reliably estimated.

Gaps in Existing Literature

The existing body of research provides valuable insights into the strengths and limitations of various valuation methods for biological assets. However, several gaps remain. First, there is a lack of comprehensive studies comparing the effectiveness of multiple valuation strategies in specific contexts, such as commercial livestock farming in developing countries. Most studies focus on individual methods or general principles, without addressing the practical challenges and opportunities associated with their application in real-world settings.

Second, the literature reveals a limited understanding of the impact of cultural, economic, and regulatory factors on valuation practices. While some studies, such as those by Amaury (2022), acknowledge the role of market conditions and regulatory frameworks, they do not explore these factors in depth. This gap is particularly relevant in regions like Africa, where agricultural markets are often underdeveloped, and valuation practices are influenced by cultural and historical factors.

Finally, there is a need for empirical studies that evaluate the effectiveness of hybrid valuation approaches, which combine multiple methods to address the limitations of individual strategies. While researchers such as Schrobback (2024) advocate for the integration of market-based and cost-based valuations, there is limited evidence on the practical application and outcomes of these hybrid approaches.

Research Methodology

This research employed a mixed-method design, combining both quantitative and qualitative techniques. According to Saunders et al. (2019), mixed method provides a more comprehensive understanding of complex phenomena by integrating numerical data with rich descriptive insights. Quantitative method includes surveys and structured questionnaires, which provide measurable data on the impact of biological asset valuation strategies. Qualitative method involves semi-structured interviews, allowing for the exploration of participants' personal experiences and opinions about the skills and standards involved in biological asset valuation. Using a survey strategy aligns with the pragmatist philosophy, as it allows for both objective measurement and subjective exploration. Bell, Bryman, and Harley (2022) emphasize that surveys are effective in studies that aim to combine quantitative breadth with qualitative depth.

The research population consisted of commercial livestock farmers, farm accountants and valuers in Gweru, Zimbabwe, who specialize in raising and breeding livestock such as cattle, sheep, goats, and poultry for profit. These farmers are experienced in managing complex farming operations and are well-versed in modern farming practices and technologies. To determine the sample frame, the researcher extracted farms information from the Veterinary offices in Gweru who keeps a record of all livestock farms in the district. The researcher extracted a list of 85 commercial farmers from Veterinary Offices which consisted of all commercial farms with livestock ranging from 100 cattle and above per farm. These farms were used as a sample frame representing the entire population. This approach ensured that the sample was representative of the commercial livestock farming sector in Gweru, allowing the researcher to explore the relationship between biological assets valuation strategies and realistic value in the livestock sector.

The study used statistical tables adopted from Krejcie and Morgan (1970) as cited in (Bukhari, 2020) in determining the sample size. A sample size for a target population of 85 used in this study was 70 participants. The researcher used convenience sampling since some farms were not accessible and some questionnaires were sent through emails provided by Veterinary Office in Gweru. The interviews provided qualitative insights into the challenges and practical considerations of applying different valuation strategies. Therefore, the sample size for my research study was composed of 70 participants. Descriptive statistics and inferential statistics were used for data analysis. The estimated target population for the 85 farms in Gweru District is represented in Table below;

Table 2 Composition of the target population

Animal Health and Management Centre	**Categories/Respondence**				
	Farmer	Accountant	Valuer	Total population	Sample Size
Woodlands	4	4	2	10	8
Sunnyside	4	4	2	10	8

Stangot	4	4	2	10	8
Somabula	4	4	2	10	8
Keshunberg	4	4	1	9	7
Julena	3	4	1	8	7
Four streams	3	4	1	8	7
Cumberland	3	4	1	8	7
Amapongobwe	3	3	1	7	6
Muchakata	1	3	1	5	4
Total				**85**	**70**

Source: Gweru Veterinary office 2024

Findings

The research garnered a response rate of 88.57% which is considered excellent. Baruch & Holtom (2023) note that typical survey response rates range from 50-60%, with rates above 80% indicating strong engagement and reliable data. Baruch (2023) emphasize that even high response rates can still carry some bias, as non-respondents may differ systematically from respondents. Groves et al. (2022) argue that higher response rates improve generalizability and reduce coverage errors, making the data more credible. Therefore, the high response rate in this study strengthens the validity and accuracy of its findings.

Evaluation of biological assets valuation strategies on providing realistic value

Table 3 Showing basis of biological assets valuation strategies on farms

	Respondence Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Standard deviation	Skewness	Std. Error
Market Approach	62	1	5	3.98	.967	-1.205	.304
Fair Value Approach	62	1	5	3.11	1.042	-.232	.304
Cost approach	62	1	5	2.97	.809	-.132	.304
Income Approach	62	1	5	2.55	1.276	.915	.304
Valid N (listwise)	62						

The table above presents descriptive statistics on various biological asset valuation approaches used on Gweru commercial farms. The approaches

considered include the Market Approach, Fair Value Approach, Cost Approach, and Income Approach. The table provides insight into the mean scores, standard deviations, and skewness of responses for each approach. These findings are analyzed to assess their effectiveness in providing realistic value in the context of biological asset valuation.

The Market Approach received the highest mean score of 3.98, indicating that it is the most favored valuation method among respondents. This approach is based on comparing biological assets with similar assets in the market, considering factors such as age, breed, and quality. According to Murty (2022), the Market Approach is widely regarded as effective because it reflects current market trends and conditions, thus providing a more realistic value for biological assets. The relatively low standard deviation (0.967) suggests that there is a strong consensus among respondents on the effectiveness of this method. However, the negative skewness (-1.205) indicates that most respondents rated this approach highly, with fewer respondents giving lower ratings. This might suggest that while the Market Approach is favored, some farmers may face challenges in accessing reliable market data, which could affect the accuracy of valuations.

The Fair Value Approach, with a mean score of 3.11, ranks second in terms of preference. This method involves estimating the price at which the biological asset would change hands between knowledgeable, willing parties in an arm's length transaction. While the Fair Value Approach provides flexibility and allows for adjustments based on various market and production factors, studies suggest that its effectiveness may be limited in markets with poor infrastructure or inconsistent market data (Badenhest & Well V 2023). The moderate standard deviation (1.042) shows a wider range of opinions among respondents, reflecting the challenges of applying this method in a context like Gweru. Additionally, the skewness (-0.232) indicates a slight leaning towards positive evaluations, though it is more balanced compared to the Market Approach

The Cost Approach, with a mean of 2.97, appears less favored by respondents. This method values biological assets based on the costs incurred in their production, including inputs like feed, labor, and veterinary services. While this approach can provide an accurate measure of costs, it may not fully account for market conditions, leading to discrepancies between the calculated value and the actual market value. The relatively lower standard deviation (0.809) suggests consistency in respondent views, indicating that the challenges of accurately capturing all costs are widely recognized. The slight negative skewness (-0.132)

suggests that while opinions are fairly balanced, more respondents rate this approach favorably than unfavorably.

The Income Approach, with a mean score of 2.55, is the least favored method among respondents. This approach involves estimating the future income the biological asset is expected to generate, discounted to its present value. The high standard deviation (1.276) indicates significant variability in respondents' opinions. Some may view the method as speculative, as future income streams can be difficult to predict, especially in volatile agricultural markets. The positive skewness (0.915) indicates that more respondents rated the Income Approach lower, highlighting concerns about its applicability in the Zimbabwean agricultural sector. Factors such as fluctuating commodity prices, unpredictable weather conditions, and economic instability may hinder the accuracy of income-based valuations (Bakhtiyor Y, 2024)

The data indicates that the Market Approach is perceived as the most reliable valuation method for biological assets, as it reflects real-time market conditions, making it more applicable in providing realistic values. However, the Fair Value and Cost Approaches are also employed, though they may be less consistent due to the difficulty of applying these methods in unpredictable agricultural environments. The Income Approach, being the least favored, suggests that relying on future projections for biological asset valuation is viewed as highly speculative, especially in the Zimbabwean context, where economic volatility is common (Mlambo, 2022). To enhance the realism of biological asset valuations, it may be beneficial to combine these approaches, allowing for a more comprehensive assessment of value. For instance, using the Market Approach as a primary method while incorporating elements of the Cost or Fair Value approaches may help account for production costs and other relevant factors, providing a more balanced and realistic valuation (Badenhest & Well V. 2023).

Discussion

After analyzing the perspectives of different authors on the Fair Value Approach, Cost Approach, Market Approach, and Income Approach for valuing biological assets, it appears that there is no universal consensus on a single recommended method among all researchers. Each valuation approach has its own strengths and limitations, and the suitability of a particular method often depends on factors such as market conditions, regulatory frameworks, availability of data, and the nature of the biological assets being valued. For a more detailed comparison of all four valuation methods simultaneously,

the researcher conducting a comprehensive study that directly evaluated the effectiveness, reliability, and practicality of each approach in a unified framework. Such a study provided valuable insights into the relative merits of each method and offer guidance on selecting the most appropriate valuation approach for different scenarios in the agricultural sector

The EMH suggests that market prices should fully reflect information yet some farmers prefer non -market valuation methods indicating that information asymmetry exist. Behavior theory highlight that human decision making is influenced by cognitive biases and past experiences, which explain why some farmers favor cost-based valuation methods despite market trends. Welgrzynska M and Nowotarska A (2022) agreed with Josep et at after comparing HC and FV in Poland. Amaury and (2022) in Brazil build on Beigman's findings, emphasizing the reliability of the Fair Value Approach when active markets are present specifically looked at FV. Schrobback P. (2024) identified the following methods of livestock valuation, Historical cost, Net current market value, Present value, Replacement value, and Cost of production but did not include FV in the presented analysis.

The Market Approach emerged as the most preferred method for valuing livestock by Gweru farmers, with respondents showing consistent support. Some farmers prefer alternative methods despite the Market Approach being favored. This is because they straggle with accessing reliable market data making it difficult to apply Market Approach effectively. The government and agricultural institutions should focus on improving price reporting systems to ensure farmers have access to updated market information. There is a need for standardized valuation guidelines to help farmers apply effectively. The government should establish market information platforms where farmers can access real-time data on biological asset prices. Valuation training programs should be established to educate farmers on deferent methods and how to apply them effectively.

Conclusion

Accurately valuing biological assets is complex, and each valuation strategy has its strengths and limitations. The research suggests that using hybrid methodologies that combine different approaches could provide a more comprehensive and realistic assessment of livestock value. The study revealed that Market approach is the most dependable for livestock valuation in Gweru.

References

Badenhest, V., & Well, V. (2023). The value relevance of fair value measurement. *University of Pretoria.* https://doi.org/10.1111/auar.12382

Bakhtiyor, Y. (2024). Improvement of organizational & methodological aspects of identification and accounting of biological assets. *Journal of Agricultural Accounting and Economics.* https://doi.org/10.1108/S1877-63612024000033A004

Baruch, Y., & Holtom, B. C. (2023). Survey response rates. *Journal of Human Resource Management.* https://doi.org/10.1177/0018726708044863

Beigma, E. (2023). Fair value measurement in inactive markets. *Journal of Finance and Accounting Research.* https://doi.org/10.1177/0148558X23116557

Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods* (6th ed.). *Oxford University Press.* https://doi.org/10.4324/9781003592808

Craske, M. G., & Barlow, D. H. (2022). The mastery of your anxiety and panic stimuli on valuation decisions. *Behavioral Insights in Economics.* https://doi.org/10.1093/med-psych/9780197584057.001.001

Elad, C. (2022). Biological asset valuation under IAS 41: A review of challenges and opportunities. *Journal of International Accounting Research.* https://doi.org/10.1093/sermwm.013

Fama, E. F. (1965). The behavior of stock market prices. *Journal of Business.*

Flores, C. (2021). Agricultural valuation in developing economies: Structural challenges and policy implications. *African Journal of Agricultural Economics, 105*(1), 1-21.

FAO. (2023) Food and Agriculture Organization of the United Nations. *Global livestock sector report.* https://www.fao.org/faostat/en/data

Joseph, E., & Blandon, R. (2020). Comparative study of difficulties in accounting preparation and judgment in agriculture. *Journal of Agricultural Finance and Management.*

Kharabanze, E. (2023). Methods of accounting and assessment of biological assets and agricultural products. *International Journal of Agricultural Accounting.* https://doi.org/10.20472/IAC.2023.017.74

Kica, P., & Szczypa, M. (2021). Valuation of livestock in farms. *Problemy Zarządzania.* https://doi.org/10.7172/1644-9584.94

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research

activities. *Educational and Psychological Measurement.*

Laux, C. (2021). The application of IAS 41 in agricultural enterprises: A global perspective. *Accounting Horizons.* https://doi.org/10.1257/jep.24.1.9393

Murty, N. V., & Sastry, R. (2022). Accounting for biological assets: A comprehensive review and analysis. *Journal of Agricultural Accounting.* https://doi.org/10.48047/IJFANS/V11/ISS7/323

Ndala, N. (2024). Assessing the extent of compliance with IAS 41 by agricultural entities in Southern Malawi. *African Journal of Accounting and Finance.* https://doi.org/10.5897/AJM2018.8622

Nyakurukwa, K., & Seetharan, V. (2023). Analyzing the strong form of market efficiency in agricultural markets. *Journal of Agribusiness Studies.* https://doi.org/10.1108/JCMS-04-2023-0014

Pavlov, I. P. (1927). *Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex. Oxford University Press.*

Rezende, J. A. (2022). Relevance of fair value in biological assets: An experimental analysis. *Journal of Agricultural Economics and Valuation.* https://doi.org/10.48142/2420221848

Schrobback, F. (2024). Hybrid valuation approaches for biological assets: A new frontier in agricultural accounting. *Journal of International Agribusiness.* https://doi.org/10.1016/jfs/2023.100722

Scott, R. (2023). The regulatory landscape for biological asset valuation in developing economies. *Journal of Development Studies.* https://doi.org/10.17159/2222-3436/2023/v19n199

Soprano, A. (2024). Cognitive biases in fact: A psychological perspective. *Journal of Behavioral Economics.* https://doi.org/10.1016/J.ipm.2024

Welgrzynska, K., & Nowotarska, A. (2021). Measuring & valuation of biological assets. *Journal of Agricultural Valuation and Accounting.* https://orcid.org/0000-0003-3967-2632

Widagdo, K., & Okfitasari, A. (2023). The impact of biological assets disclosure and economic sustainability on firm value. *Journal of Environmental and Agricultural Economics.* https://doi.org/10.1088/1755-1315/1297/1012069

Zimbabwe National Statistics Agency. (2023). *Annual agricultural economic report: Contribution of livestock to GDP.ZIMSTAT*