"Bridging theory and practice: International valuation standards and asset valuation in the telecommunications sector"

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Mohammed Hayder Mohammed Shanshool (Iraq), Bushra Najem Aubdullah Al-Mashhadani (Iraq)

# BRIDGING THEORY AND PRACTICE: INTERNATIONAL VALUATION STANDARDS AND ASSET VALUATION IN THE TELECOMMUNICATIONS SECTOR

### Abstract

In the rapidly evolving telecommunications industry, accurate valuation of tangible assets remains a critical challenge that requires adherence to universally recognized standards. This study addresses the pressing need for transparent and precise asset valuation methodologies that are pivotal for informed investment decisions and financial reporting. It aims to bridge the theoretical and practical divide in asset valuation by applying International Valuation Standards (IVS) 300 and 400 to Asiacell Communications PJSC, a leading entity in the sector. Focusing on five key tangible assets from 2018 to 2022 - lands, buildings, plant and equipment, means of transport and transfer, and furniture and office equipment – the study employs the income approach, augmented by a random walk model for future cash flow forecasting and the weighted average cost of capital for discounting. This innovative methodology offers a comprehensive valuation framework, revealing that despite Asiacell's consistent growth rate of 4.63%, all asset categories experienced a depreciation upon revaluation. The study's findings underscore the significance of implementing IVS in elucidating the asset valuation process, demonstrating the potential discrepancies between book values and standards-based valuations. The application of IVS 300 and IVS 400 not only enhances the transparency and accuracy of asset valuation but also provides valuable insights into the contributions of tangible assets to future income within the prevailing market conditions. By offering a replicable model for asset valuation in dynamic industries, this study contributes to the broader discourse on financial reporting and investment analysis, setting a foundation for future exploration in the field.

#### Keywords

asset valuation, income approach, financial performance, corporate assets, discounting process

JEL Classification M41, M49

### INTRODUCTION

The valuation of tangible assets in financial statements, beyond historical costs, represents a critical issue in financial management and reporting. Establishing precise asset values is essential for the integrity of financial reports in the face of global economic advancements and the expansion of international financial markets. Standards that facilitate the comparison of local and international financial statements are vital, as they bolster confidence and credibility among investors and other stakeholders. The reliance on historical cost methods for asset valuation risks the creation of financial statements that do not accurately reflect the true condition of economic entities, potentially leading to diminished entity value compared to other valuation criteria specified in the International Valuation Standards (IVS 300 and IVS 400) (Mohammed et al., 2020). Tangible assets, constituting a significant portion of an economic entity's value, are pivotal for sustained growth (Al-Saadi & Al-Mamouri, 2022). In a global landscape marked by profound economic phenomena, the adoption of international valuation standards is essential for accurately depicting relevant economic events (Dakhil & Ibrahim, 2022). These standards, set forth by an internationally recognized independent organization and accredited by IVS, are heralded as optimal for asset valuation by economic entities. The credibility and reliability of these valuation standards are of utmost importance; they have a direct impact on the accurate valuation of assets and, by extension, economic entities, thereby attracting the interest of both existing and potential investors along with other key stakeholders.

Given this backdrop, the present study delves into the valuation of specific tangible assets - lands, buildings, plant and equipment, means of transport and transfer, and furniture and office equipment - within the financial portfolio of Asiacell Communications PJSC. Asiacell Communications PJSC, the subject of this case study, operates within the telecommunications sector. This context is essential for applying International Valuation Standards (IVS) 300 and IVS 400 in a relevant and meaningful way. The sector's dynamics, including regulatory requirements, economic conditions, and market competition, significantly influence the valuation methodologies and outcomes. Understanding these factors helps in accurately interpreting the impact of the applied valuation standards. Leveraging the IVS, this study aims to develop and validate a new framework for appraising the worth of these critical tangible assets, underscoring the importance of adopting international valuation standards for enhanced financial transparency and stakeholder trust. The telecommunications industry is characterized by rapid technological advancements and high capital investment in tangible assets such as telecommunications towers, data centers, and network infrastructure. These factors present unique challenges in asset valuation, where traditional valuation methods might not adequately reflect the true value of these rapidly depreciating and technologically evolving assets. By focusing on this sector, the study addresses these specific challenges, providing insights that are directly applicable to telecommunications entities. The telecommunications industry serves as an excellent example of a sector where tangible assets play a crucial role in the operational and financial success of companies. By examining this sector, the study not only contributes to the academic and practical understanding of asset valuation in telecommunications but also provides a model that can be adapted or replicated in other sectors with similar characteristics. Although the study is centered on a telecommunications company, the findings and methodologies are applicable to other industries with intensive investment in tangible assets. The detailed exploration of valuation standards in this context allows for broader applications and implications, potentially benefiting stakeholders across various sectors.

# 1. LITERATURE REVIEW AND HYPOTHESIS

International valuation standards are one of the essential standards issued by independent international organizations, as Hemphill et al. (2014) and Crosby et al. (2018) explained them as an acceptable guide to quality control that stems from professional principles, mandatory rules, best practices, directives, and relevant comments issued by an experienced valuation association or a regulatory body for valuators within its jurisdiction. Ogunba and Ajayi (2007) and Gabriel (2008) highlighted that the idea for valuation standards came from the Royal Institution of Chartered Surveyors in 1972, which first pub-

lished its Valuation and Valuation Guide in 1976 in response to the collapse of property values in the UK in the 1970s, which today is widely referred to as the Red Book. Dugeri et al. (2012) and Gambo (2014) indicated that the International Asset Valuation Committee (TIAVSC) was established in 1981, which turned into the International Valuation Standards Committee in 1996 and the International Valuation Standards Council (IVSC) in 2008, after the first international valuation standards were published in the year 1985, and in the year 2000, the IVSC published the global valuation standards. Muhabbat and Jakhongir (2024) and Parker (2023) stated that The Council continued issuing updates to those standards until 2022. Nwakpuda (2021) explained that the valuation standards initially focused on evaluating property, machinery, and equipment and continued to develop to include intangible assets and unique additions. Concerning professional ethics and disclosures regarding the valuation report, in 2022, the valuation criteria expanded to include multiple aspects of assets.

The imperative of employing valuation standards for tangible assets lies in their ability to bring consistency and reliability to the valuation process. Gambo (2015) emphasizes that such standards are foundational for ensuring accuracy in valuations. Central to this framework are the International Valuation Standards (IVS), which Hafez and Madani (2020) and Yirga (2020) describe as pivotal in promoting transparency and consistency across valuation practices. These standards not only aid in enhancing the confidence among users of valuation services but also establish a globally accepted methodology and terminology for asset valuation.

Jassim and Al-Janabi (2021) and Fargher (2018) further elucidate the advantages of IVS, noting their role in defining market value, endorsing validated valuation methodologies, and clarifying key terminologies pivotal to the valuation practice. This set of standards also provides detailed procedures for valuation and reporting, ensuring a consistent approach across different asset types. Furthermore, Shapiro et al. (2019) explain that the functions of IVS are to guide different ways of valuing various assets or liabilities, thus facilitating comprehensive understanding for practitioners.

Particularly noteworthy is IVS 300, as highlighted by IVSC (2022), which is dedicated to the valuation of tangible assets such as plant and equipment. This standard is instrumental in guiding valuators through the intricacies of ensuring consistency and transparency in their valuation efforts. IVS 300 necessitates the valuation of plant and equipment by considering a myriad of factors, including environmental, physical, functional, and economic aspects, thus ensuring a thorough appraisal process. Valuators are urged to meticulously examine these assets to ascertain their condition and the relevancy of the provided information before making a valuation. Parker (2022) and Fazzini (2018) contribute to the discourse by identifying critical factors affecting the valuation of tangible assets. These include the asset's technical specifications, its remaining production life, and the potential for functional or technological obsolescence, among others. Additionally, environmental regulations and the impact of economic factors on the asset's profitability are considered essential in determining its value. Such comprehensive valuation criteria underscore the complexity of tangible asset valuation and the importance of adhering to established standards like IVS 300.

Through the lens of these studies, it becomes evident that the IVS framework is indispensable for valuers aiming to provide accurate, reliable, and transparent asset valuations. This literature review not only underscores the significance of adopting IVS but also highlights the intricate factors that must be considered in the valuation process, thus laying a solid foundation for the current study's focus on Asiacell Communications PJSC. In addition, a critical examination of the different valuation factors becomes particularly tangible when considering the methodologies used in valuing plant and equipment according to the IVS 300 standard, as outlined by Parker (2022) and Moro-Visconti (2022), who explain the three approaches: the market approach based on the principle of supply and demand, assuming the value of the asset is affected by the prices at which similar assets are dealt with in the market. Hence, appraisers using this approach examine comparable sales, offers, or listings for similar plants and equipment to assess the value of the asset, and the income approach operates on the principle of expectation, assuming that the asset's current value can generate future cash flows. Appraisers use this method. They estimate the future income generated by plant and equipment and then discount those cash flows to their present value using an appropriate discount rate and, finally, a cost approach based on the principle of substitution, assuming that the potential buyer would not pay more than the cost of acquiring or replicating a similar asset with similar benefits. Under this method, the value of machinery and equipment is ascertained by estimating the expenses associated with reproducing or replacing the asset and then deducting any depreciation, obsolescence, or other factors affecting its value.

The IVSC (2022) delineates IVS 400 (Real Property Interests), which provides guidance for valuing properties like land and buildings, crucial for an array of financial transactions ranging from sales to legal disputes (Albu, 2018). The standard mandates a clear definition of property interests, acknowledging the complexities arising from superior and secondary interests that may influence valuation outcomes.

Taqeem (2022) and AL-Khafaji et al. (2022) have elucidated three approaches for valuing real property interests; the IVSC (2022) sets out the IVS 400 (Real Estate Interests) standard, which guides the valuation of real estate, such as land and buildings, which is critical for a range of financial transactions ranging from sales to legal disputes (Albu, 2018). The standard defines real estate interests while recognizing the complexities arising from superior and secondary interests that may affect the valuation results. Blackledge (2016) and Wyatt (2022) explained three approaches for valuing real estate interests; the market approach is frequently used in valuing real estate interests, although their characteristics may differ. Standard comparison units include price per square meter, price per room, and price per unit. The reliability of any comparable data in the appraisal process depends on comparing the property being appraised with the various characteristics of the property and transaction data from which the information is derived. Factors to consider include the type and location of the interest, the quality of the land/buildings, their use, the circumstances in which and when the price was set, and prevailing market conditions. The income approach determines the property's value based on its actual or estimated income. The income method is frequently used when the income-generating potential of a property is closely related to a specific use or business activity. Discounted cash flow models are also used, where future cash flows are adjusted to present value using a discount rate. This discount rate represents the time value of money and the risks and rewards associated with the income stream, making it easier to determine the appropriate discount rate. The discount rate can also be derived from a typical "risk-free" return adjusted to account for the additional risks and opportunities associated with the property. Finally, the cost approach: The replacement cost method values real estate interests in situations without evidence of transaction prices or an identifiable income stream. The cost of replacing a property is determined by a modern equivalent, which includes all associated fees. This replacement cost may require physical, functional, technological, and economic modifications to estimate the property's value accurately. Compared to its modern counterpart, the cost approach can serve as a secondary or supporting means until market transaction prices or sources of income become available.

Moreover, Al-Taie and Al-Mathno (2013) advocate for the careful selection of valuation methods to fit specific conditions, as the applicability of a single method across various scenarios is limited. Fazzini (2018) concurs, noting that method selection is contingent upon the economic unit and industry characteristics, document availability, and valuation objectives.

Parker (2022) reinforces the IVS's allowance for employing multiple valuation approaches, stressing the necessity for thorough scrutiny and adjustments when data are scant for reliable valuation. The transparency of the valuation process is underlined by the requirement that valuers articulate the chosen approaches' suitability in their reports. Further categorization of tangible assets is provided by Vaz and Anjos (2021), divided according to various standards, Plant and Equipment IVS 300 and Real Property Interests IVS 400. This division is justified by the distinct depreciation rates for plant and equipment versus property, a disparity attributed to the rapid technological advancements affecting the business sectors differently.

Al-Shadidi and Mohammed (2016) delineate the enduring nature of tangible assets within economic units, highlighting their operational role rather than their function as tradable commodities. Their relevance is influenced by the economic unit's activities, with industrial and commercial assets being of paramount importance. Abdullah and Abdullah (2020) add that tangible assets' role in goods production and service provision spans multiple periods, often constituting a larger proportion of the economic unit's assets.

Alyami (2017) references the American Institute of Real Estate Appraisers' (AIREA) definition of tangible asset valuation, depicting it as a skillful estimate of asset value at a specific point in time. This process valuates the relative value of non-current assets and their ability to generate services over their anticipated future lifespan.

Mert (2020) contributes to the conversation by identifying critical factors to consider in the valuation process according to IVS, such as usage, purpose, maintenance, and demand forecasts.

The cumulative insights from these scholarly works underscore the significance of adhering to established international standards for asset valuation. This study applies IVS 300 and IVS 400 using the income approach in a systematic valuation of Asiacell Communications PJSC's tangible assets, aiming to illustrate a model that ensures: i) a systematic framework for asset valuation; ii) the execution of rigorous discounting procedures as per international valuation standards; and iii) a valuation of each tangible asset's contribution to the overall cash flows of Asiacell.

The study's objectives are to illustrate the applicability and importance of International Valuation Standards (IVS) in determining the value of tangible corporate assets, with a special focus on entities within the dynamic telecommunications industry. This research seeks to highlight how the nuanced and methodical use of IVS can enhance the precision and relevance of asset valuation, offering strategic advantage to firms in sectors characterized by rapid changes and innovation.

The study formulates the following hypotheses:

- H0: Tangible assets can be valued according to International Valuation Standards 300 and 400 using the income approach.
- H1: Tangible assets cannot be valued according to International Valuation Standards 300 and 400 using the income approach.

# 2. METHODS

This study draws upon a sample dataset from Asiacell Communications PJSC, which is publicly traded on the Iraq Stock Exchange. The financial data encompassing the period from 2018 to 2022 serves as the empirical foundation for assessing the value of the company's tangible assets.

The dataset reveals year-to-year fluctuations in asset values, as detailed in Table 1. These oscillations are attributable to both the acquisition of new assets and the progression of construction projects, alongside the annual depreciation as calculated by Asiacell Communications PJSC. The pattern observed – the consistent devaluation of assets – highlights the depreciation's impact when additional asset values are not concurrently recognized.

The study proceeds through various phases, employing the income approach to asset valuation. This approach is deemed appropriate due to its forward-looking nature, considering potential future cash flows and offering a fair value measurement of assets (Baum et al., 2013). The income approach has been selected for its applicability across a wide array of assets, transparency in the inputs used (like the discount rate), and its incorporation of asset-associated risks and time value of money. The challenges encountered in applying the market approach stem from the lack of an active market for all assets, while the complexities of the cost approach necessitate expertise across several domains.

Consequently, the researchers gravitate towards the income approach despite its inherent challenges, such as predicting future cash flows and determining a discount factor. The fair value estimation of Asiacell Communications PJSC's tangible assets hinges on these factors, relying on professional judgment.

 Table 1. Tangible assets in book value of Asiacell Communications PJSC (million dinars)

Asset	2018	2019	2020	2021	2022
Lands	22,635	22,635	35,083	125,825	126,229
Buildings	52,620	49,836	46,332	43,443	42,169
Plant and Equipment	764,810	653,161	582,040	636,863	658,456
Means of Transport and Transfer	565	2,658	2,748	1,765	2,000
Furniture and Office Equipment	16,838	13,186	14,873	37,776	47,724

Cash flow determination aligns with International Valuation Standard 105, which indicates that the selection of cash flows depends on the income approach, considering aspects like tax implications, total cash flows, and property rights – real or nominal (Bellman & Lind, 2019; Almeant, 2020). The study adopts net income before tax for cash flow calculation due to its operational linkage, comparability, resource utilization efficiency, and connection to long-term growth (Mazzaro et al., 2020; Aini et al., 2023).

The equation employed for cash flow calculation is:

Cash flow = Net income before tax +Depreciations and amortizations (1) -change in working capital.

As elucidated by Yun (2020) and Bhattacharya et al. (2020), a random walk model predicts future cash flows and the contribution of each asset.

In determining the discount rate, the study utilizes the weighted average cost of capital (WACC), chosen for its comprehensive consideration of debt and equity, alignment with the opportunity cost of capital, relative ease of estimation, and its versatility across various economic units (Vartiainen et al., 2020; Rady et al., 2019).

### 3. RESULTS

The researchers proceeded by applying international valuation standards 300 and 400 to valuate five tangible assets through several steps, outlined as follows: Firstly, the relative weight of each asset is determined by dividing the asset's book value by the total assets (in book value), as illustrated in Table 2.

Table 2 shows that plant and equipment represent the highest percentage of tangible assets to total assets for Asiacell Communications PJSC. This is

Table 2. Relative	e weight of	f tangible	assets
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attributed to the nature of communication work units, which heavily rely on advanced technology to deliver their services, including mobile phone networks, internet, and fourth-generation networks.

This indicates that significant investments in plant and equipment, such as mobile phone towers, transmitters, receivers, communications cables (fiber optic and copper), as well as software, are required to operate the network. Conversely, transport and transfer represented the lowest percentage due to their limited use by Asiacell Communications PJSC.

Secondly, the information available in the financial reports for 2018 to 2022 was utilized to forecast future cash flows for another ten years using the random walk model; Morais et al. (2018) explained this as a statistical-mathematical model that describes a path consisting of random steps. This concept is widely used in fields such as physics, economics, and finance to extract a predicted growth rate for future years. The average growth rate for Asiacell Communications PJSC was 4.63%. Table 3 presents the total cash flows of Asiacell Communications PJSC.

# Table 3. Total cash flows of Asiacell Communications PJSC (million dinars)

Year	Flow		
2018	532,765		
2019	582,907		
2020	825,413		
2021	635,803		
2022	574,642		
2023	601,285		
2024	629,163		
2025	658,333		
2026	688,856		
2027	720,794		
2028	754,213		
2029	789,181		
2030	825,771		
2031	864,057		
2032	904,118		

Asset	2018	2019	2020	2021	2022
Lands	%0.74	%0.77	%1.02	%4.75	%5.57
Buildings	%1.73	%1.71	%1.35	%1.64	%1.86
Plant and Equipment	%25.28	%22.48	%17.07	%24.08	%29.07
Means of Transport and Transfer	%0.01	%0.09	%0.08	%0.06	%0.08
Furniture and Office Equipment	%0.55	%0.45	%0.43	%1.42	%2.10

Asset Name	2018	2019	2020	2021	2022
Lands	3,988	4,542	8,497	30,249	32,025
Buildings	9,270	9,999	11,222	10,444	10,699
Plant and Equipment	134,735	131,055	140,976	153,107	167,057
Means of Transport and Transfer	100	533	666	424	507
Furniture and Office Equipment	2,966	2,646	3,602	9,081	12,108

Table 4. Contribution of tangible assets to cash flow of Asicacell Communications PJSC (million dinars)

<b>Table 5.</b> Tangible assets of Asiacell Communications PJSC measured according to the IVS 300 and IVS
400 using the income approach (million dinars)

Asset Name	2018	2019	2020	2021	2022
Lands	5,389	6,137	11,483	40,877	43,278
Buildings	13,503	14,281	14,906	14,776	15,329
Plant and Equipment	180,957	186,721	200,735	215,520	229,451
Means of Transport and Transfer	406	662	677	573	636
Furniture and Office Equipment	5,012	6,550	9,582	13,939	16,083

Thirdly, the contribution of each asset to the cash flow is displayed in Table 4. This was done based on the relative weight of each asset, calculated as shown in Table 2, multiplied by the total cash flows for each year of the research sample. Additionally, the contribution of each asset to future cash flows was predicted based on the growth rate of 4.63% according to the random walk model.

Accordingly, the weighted average cost of capital, as referred to by Baule (2019), was used in the research sample from 2018 to 2022 as a discount factor, amounting to 75%. International valuation standards indicate the possibility of valuing assets using IVS 300 and IVS 400 according to the discounted cash flow or capitalization methods. The discounted cash flow method was applied to assets with specific useful lives, while the capitalization method was applied to assets that did not have useful lives and forecast periods but relied upon the discount rate, especially when valuing land. Table 5 presents the values of tangible assets of Asiacell Communications PJSC measured according to IVS 300 and IVS 400 using the income approach.

# 4. DISCUSSION

The significance of this study lies in its innovative application of International Valuation Standards to tangible assets within the telecommunications industry, with Asiacell Communications PJSC serving as the case study. As a pioneering investigation in this domain, it stands alone without precedent, rendering comparative analysis with existing literature challenging. This unique position necessitates a discussion that integrates novel findings within the existing framework of valuation literature, thereby enriching the understanding of asset valuation and setting a benchmark for future research.

The results indicate that Asiacell's land holdings and building assets have experienced consistent devaluation year after year, with the most pronounced decrease occurring in 2022, reflecting the application of IVS 300 and IVS 400. This trend towards a lower valuation post-revaluation aligns with the expected outcomes when adopting stringent international standards, signifying a move towards more accurate representations of asset values.

This study's exploration of the IVS field highlights several critical implications. Firstly, the divergence between book values and valuations based on international standards necessitates significant adjustments within financial statements, potentially impacting profitability and overall asset valuation and, consequently, investor perception of company value. Such findings prompt a reevaluation of financial health and performance indicators by internal and external stakeholders.

Furthermore, stakeholders' perceptions, shaped by financial statements, are susceptible to influence from variations in asset valuation. The insights gleaned from the adoption of conservative valuation methods may be interpreted differently, with some viewing it as an indication of financial prudence and others as a potential sign of overinvestment or inefficient asset utilization.

From a regulatory and compliance standpoint, the findings emphasize the importance of adherence to international valuation standards. Compliance with IVS not only ensures transparency and harmonization in financial reporting but also enhances the comparability and reliability of financial information across different jurisdictions, an invaluable asset for multinational corporations and their investors.

The pathway carved by this study beckons future academic endeavors to explore the broader implications of IVS adoption across diverse sectors and geographical regions, further informing global financial practices. Additionally, a deeper dive into the underlying reasons for valuation discrepancies and the exploration of methods to bridge the gap between book values and standard-based valuations holds significant promise for advancing both professional practice and research.

By charting a course through previously unexamined waters, this study not only contributes to the academic dialogue on asset valuation but also presents a model that can be emulated for valuing tangible assets in various market conditions.

# CONCLUSION

This study bridges the gap between theoretical valuation principles and their practical application by leveraging Asiacell Communications PJSC's financial data alongside innovative research methodologies by proving that tangible assets can be valued according to International Valuation Standards 300 and 400 using the income approach. The employment of the income approach, augmented by predictive accuracy through a random walk model and refined discounting via the average cost of capital, has crystallized a precise asset valuation methodology. Despite identifying an average growth rate for Asiacell Communications PJSC, the study observed a consistent depreciation in the value of all tangible assets from 2018 to 2022 upon revaluation. This investigation underscores the significance of adhering to International Valuation Standards (IVS) in elucidating the asset valuation process, demonstrating that a meticulously standards-compliant income approach yields valuations that accurately mirror the assets' contributions to future income under current market dynamics. Specifically, applying IVS 300 and IVS 400 to Asiacell's tangible assets sheds light on the potential variances between book and standards-based valuations, offering critical insights into the valuation process. This study contributes to the academic discourse on asset valuation and lays the groundwork for ongoing research to dissect further valuation criteria and their broader implications for the global business environment.

## **AUTHOR CONTRIBUTIONS**

Conceptualization: Mohammed Hayder Mohammed Shanshool. Data curation: Bushra Najem Aubdulla Al-Mashhadani. Formal analysis: Bushra Najem Aubdulla Al-Mashhadani. Investigation: Mohammed Hayder Mohammed Shanshool. Methodology: Mohammed Hayder Mohammed Shanshool. Project administration: Mohammed Hayder Mohammed Shanshool. Supervision: Bushra Najem Aubdulla Al-Mashhadani. Validation: Bushra Najem Aubdulla Al-Mashhadani. Visualization: Mohammed Hayder Mohammed Shanshool. Writing – original draft: Mohammed Hayder Mohammed Shanshool. Writing – review & editing: Bushra Najem Aubdulla Al-Mashhadani.

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