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The Impact of IAS/IFRS Adoption on the Blockchain: Criticalities and Trends in the Business Valuation Methods*

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Abstract

This study, after outlining the defining characteristics and conceptual framework of blockchain, questions the evaluation methods that can best appreciate its impact on company value. Numerous academic studies examine the evaluation criticalities of specific companies; conversely, there are few scientific contributions of interest on the appraisal techniques for blockchain. The main objective is to identify appropriate corporate valuation techniques, also considering the IAS/IFRS adoption.

Keywords

Blockchain, IAS/IFRS, Business Valuation, Net Income, Equity, Cash Flows

1. Blockchain Technology: Concept and Applications

This section introduces blockchain technology by highlighting its main attributes, how it operates, and the various types of blockchain. The following discussion will address the current principal application domains, the potential benefits of blockchain adoption, and the risks associated with its implementation.

1.1. What Is Blockchain?

Blockchain is a distributed digital ledger technology that enables the recording, verification, and archiving of transactions in a decentralized, cryptographically

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secured environment (Tripathi et al., 2023; Han et al., 2023). It operates as a shared digital ledger, in which records are aggregated into blocks in chronological order (Du et al., 2019; Autore et al., 2021) and sequentially linked through cryptographic hashes, thereby forming a continuous and tamper-resistant chain (Yermack, 2017; Pattison, 2017; Sanka et al., 2021). When transactions have been checked and added to a block through a consensus mechanism (Hinings et al., 2018; Han & Fang, 2024), they can not be changed or removed without the agreement of the majority participants, forming an immutable chain (Bellucci et al., 2022; Guo et al., 2025) and making it extremely hard to alter (Laourou, 2025). Transactions are recorded in a peer-to-peer network of nodes; in turn, they maintain a synchronized copy of the ledger, thereby eliminating the need for a central authority or intermediaries (Sharma et al., 2023). Consequently, blockchain is characterized by its main attributes of decentralization (Dong et al., 2023), verification (Rahman et al., 2024), tamper resistance (Han et al., 2023), immutability, and transparency (Sanka et al., 2021). These attributes enable new forms of digital trust and coordination across organizational contexts (Windawi, 2022; Gamage et al., 2020).

1.2. Types of Blockchain: Public, Private, and Consortium Models

Based on access rights and the authorisation to validate transactions, blockchain can be classified as either public, private, or consortium (Behnke & Janssen, 2020; Dyball & Seethamraju, 2021). Prior studies suggest that aspects such as control, data ownership, privacy, and accessibility are important design choices that enable organizations to identify the most suitable blockchain type for their specific needs (Coyne & McMickle, 2017; O'Leary, 2017). A Public blockchain, like Bitcoin and Ethereum, is completely decentralized, with permissionless access and openness to any participants interested in joining the network (Komalavalli et al., 2020; Wegrzyn & Wang, 2021; Rahman et al., 2024). In so doing, public blockchain is not subject to restricted access to data (Bauer et al., 2019), which consequently makes it liable to privacy challenges (Morkunas et al., 2019). The fact that all network participants can easily view transactions could represent a challenge for companies that prefer to keep their financial and public data private (Marikyan et al., 2022). Due to a higher number of participants, data manipulation is made more difficult (Wang et al., 2019a), but this type gives rise to scalability issues (Ali et al., 2022). On the other hand, private and consortium blockchains are classified as permissioned networks (Dyball & Seethamraju, 2021). Compared to public ones, private blockchains are totally centralized and controlled by a single entity (Dong et al., 2023), thereby requiring participants to get permission to access the network (Samanta et al., 2021) to verify the data from transaction records (Bauer et al., 2022). Moreover, given the knowledge of the participants' identities, private blockchain mitigates opportunistic behaviours (Han et al., 2023). A blockchain consortium is regarded as a compromise between "private" and "public" in nature. Its management is overseen by a group of organizations. In doing so, it is more decentralized than private ones but less than public ones (Rasheed, 2022).

1.3. The Evolution of Blockchain Technology: From Cryptocurrencies to Digital Systems

Conceptually, the prior literature has framed the evolution of blockchain technology as a progression across successive generations, labelled Blockchain 1.0 to Blockchain 4.0. Specifically, Blockchain 1.0 emerges to ensure digital cryptocurrency transactions, tracing back to pioneering works in the field of digital currency (Chaum et al., 1983; Dai, 1998; Szabo, 1998) and decentralized systems for digital transactions (Lamport et al., 2019). Subsequently, advancement toward a cryptographic method for timestamping digital documents (Haber & Stornetta, 1990) and the introduction of immutable record-keeping (Bayer et al., 1993) have anticipated the concept of a distributed ledger. The big change came with the introduction of a peer-to-peer network architecture that enabled the direct exchange of digital cash without a central intermediary, using cryptography and consensus protocols to ensure integrity (Nakamoto, 2008). In 2008, Nakamoto incorporated the concept of blockchain within the cryptocurrency domain by launching Bitcoin as the first successful application. Since then, blockchain has been widely adopted as a support to cryptocurrencies currently in circulation, thereby establishing blockchain as an enabling technology and laying the groundwork for the subsequent evolution of the blockchain system beyond the financial domain. Blockchain 2.0 employs smart contracts (Rozario & Vasarhelhy, 2018; Cong & He, 2019; Bellucci et al., 2022), which are systems that automatically control digital assets according to predefined rules (Buterin, 2014). In more detail, in 2004, the Ethereum platform was launched by Vitalik Buterin, enabling the development of a decentralised system for domains such as finance, business operations, and digital assets, rather than enabling the exchange of just digital currency. In doing so, the blockchain formally emerged within the business field, rapidly establishing Ethereum as the second-largest blockchain platform after Bitcoin, as evidenced by initiatives such as the Linux Foundation's Hyperledger Project, which aimed to develop corporate blockchain platforms (Chan & Chen, 2020; Lee & Kim, 2025). Blockchain 3.0 has expanded the technology across industrial sectors, such as government, health care, and supply chain (Angelis & Ribeiro da Silva, 2019). Examples of this include the development of digital identity systems, electronic medical record management, transparent voting systems, and advanced traceability in supply chains. In doing so, emerging decentralised business models and digital organisations (Akter et al., 2024; Rodríguez Bolívar et al., 2025). Blockchain 4.0 is the current stage of development and involves the use of both blockchain and advanced technologies, including Artificial Intelligence (AI) and the Internet of Things (IoT) (Frank et al., 2019; Kimani et al., 2020; Wamba & Queiroz, 2022), to improve decision-making processes, operational efficiency, and advanced industrial automation (Han et al., 2023).

1.4. Blockchain Applications: Evidence from Emerging Literature

Prior studies have widely recognized financial applications as the most significant field of blockchain technology, investigating areas such as smart contracts, cryptocurrency regulation, and Bitcoin (Frizzo-Barker et al., 2020; Han et al., 2023; Rogalski & Schiereck, 2024). However, numerous studies have progressively expanded to encompass more complex financial concepts, including prediction markets, business services, and settlement of financial assets (Carvalho, 2020; Gad et al., 2022; Rahman et al., 2024). In doing so, the financial system is exploring ways of using blockchain attributes in traditional banking services (Casino et al., 2019). For example, it has been demonstrated that blockchain facilitates cross-border payments, enables the development of digital wallets, and provides loan management schemes (Cawrey, 2014; Gazali et al., 2017; Semerl, 2018). Consequently, capital markets have undergone a profound transformation (Gad et al., 2022). The use of blockchain highlights a significant shift in the ways financial securities and derivative instruments are issued and traded (Fanning & Centers, 2016; Peters & Panayi, 2016; Stratopoulos et al., 2022). Particularly, blockchain is increasingly linked to the tokenization of assets, which allows financial and non-financial assets to be digitally recorded on distributed ledgers, thereby simplifying ownership transfer and improving market liquidity (Lee & Kim, 2025). Furthermore, the massive presence of ICOs and crowded platforms based on blockchain technology has introduced new ways to raise capital for start-ups and other projects (Lee & Kim, 2025). By protecting issuers and investors, these platforms are perceived as tools for increasing financial inclusion and expanding access to entrepreneurial finance (Garanina et al., 2022). Through these applications, blockchain reduces transaction costs and enhances trust, thanks to its decentralized architecture that operates without intermediaries (Semerl, 2018; Prokopenko et al., 2024; Babaei et al., 2025). Recently, blockchain has been increasingly studied beyond the financial area, suggesting that, after the financial sector, blockchain application in supply chains represents the most promising area, as the new technology enables a shift towards distributed governance systems (Chang et al., 2019; Liu et al., 2022; Laourou, 2025). It has been demonstrated that many firms leverage blockchain to improve traceability and transparency in the supply chain management field (Kim & Shin, 2019; O'Leary, 2019; Wang et al., 2019b; Atif & Hassan, 2023). By enabling participants, such as suppliers, manufacturers, and customers, to share verified records transactions, blockchain enhances end-to-end visibility across different stages and product provenance (Rooney, 2018; Li et al., 2022). In doing so, it reduces fraud risk and improves real-time tracking of products (Chang et al., 2019; Soesanto et al., 2022). Owing to its core attributes, such as immutability, which make it difficult to manipulate information on the origin or quality of materials once recorded, blockchain finds relevance in sensitive sectors, including food, pharmaceuticals, and luxury goods (Lin et al., 2019; Zoughalian et al., 2022; Prokopenko et al., 2024). In addition, through smart contracts, blockchain can automate and simplify supply chain processes by codifying regulated conditions and contractual agreements (Chang et al., 2019). In doing so, the paper-based process of administrative procedures is reduced, and managerial risks are also mitigated, and actions are automatic, including triggering immediate payments to suppliers upon confirmation of goods delivery, thereby improving overall supply chain performance (Wang et al., 2019a; Hong & Hales, 2021). In addition, Blockchain, along with new technologies such as the Internet of Things (IoT) and AI, will enable tracking logistics activities as they occur (Atlam et al., 2018). Recent studies have also explored the relationship between blockchain technology and sustainability (Campos & Proença, 2024), focusing on the management of the sustainable supply chain (Atif & Hassan, 2023; Khan et al., 2025; Shahzad et al., 2025). Based on sustainable supply chain management, numerous studies have demonstrated how blockchain can enhance transparency, traceability, and accountability across value chains, while also identifying barriers to adoption (Kamble et al., 2019; Khan et al., 2025; Han and Fang, 2024). In this stream, some studies have examined blockchain as an enabling tool for supply chain mapping, emphasizing the role for sustainability (Difrancesco et al., 2023; Wang et al., 2023). In addition, other studies have examined the link between blockchain adoption and the achievement of the SDGs and the improvements in ESG performance (Al-Htaybat et al., 2019; Parmentola et al., 2022). In more detail, this technology has emerged as a pivotal approach in the contexts of occupational health and safety (Pinnington et al., 2023; Laourou, 2025). This technological exploration is driven by the objective of establishing mechanisms that ensure the protection of workers' rights and prevent unethical practices, such as forced labour or exploitation (Christ & Helliar, 2021). The implementation of these mechanisms is predicated on the ability to verify every stage of the process, thereby fostering a culture of transparency and accountability within the workplace (Parmentola et al., 2022; Shahzad et al., 2025). Regarding environmental sustainability, given the high energy consumption and negative impact of certain blockchain implementations (e.g., Bitcoin), environmental sustainability is the main challenge for blockchain implementation (Frizzo-Barker et al., 2020). Along this line, Rogalski and Schiereck (2024) have analyzed how blockchain can enhance environmental accountability through carbon emission monitoring. These findings suggest that, although blockchain has negative environmental impacts, it can support sustainable business practices, manage resources responsibly, and trace green initiatives. Moreover, a growing body of research addresses sustainability reporting and assurance, suggesting that blockchain can enhance the reliability and verifiability of non-financial disclosures and reduce the risk of greenwashing (Bakarich et al., 2020; Castka et al., 2020; Georgiou et al., 2024). In the government and public sector, blockchain manages services to citizens, securing the issuance of digital identities, an e-voting system, transparent taxation, and cutting bureaucracy, offering efficient ways to the resolution of disputes (Moura & Gomez, 2017; Pokrovskaia, 2017; Casino et al., 2019). In doing so, the decentralized nature of the technology promotes trust in administrative procedures (Casino et al., 2019). In the education sector, studies have identified several key areas in which blockchain can support the transformation of educational systems by enhancing trust, security, and data integrity (Casino et al., 2019; Kumar et al., 2025; Georgiou et al., 2024). Key uses include the secure management and verification of academic records and credentials, as well as support for digital accreditation and transparent assessment processes (Turkanović et al., 2018; Sharples & Domingue, 2016). Furthermore, scholars emphasise the necessity to adapt educational programmes, notably in the field of accounting, to incorporate blockchain and associated digital technologies, with a view to aligning curricula with the evolving professional requirements (Qasim & Kharbat, 2020; Qasim et al., 2022; Garanina et al., 2022). In addition, blockchain has been proposed as a tool to improve research and scientific publishing by enhancing the authenticity and traceability of scholarly outputs (Gipp et al., 2017; Gad et al., 2022). Also, blockchain is used to securely share and manage data in healthcare systems (Omar et al., 2021; Prokopenko et al., 2024). For example, it supports the secure management of electronic health records, enabling patients to retain control over their data, and ensures data integrity in clinical trials (Gad et al., 2022; Sanka et al., 2021; Laourou et al., 2025).

The existing literature has also examined the implications of blockchain technology for accounting and auditing (Guo et al., 2025; Prokopenko et al., 2024), highlighting the changing roles of accountants and auditors (Schmitz & Leoni, 2019), emphasizing the role of financial, external, and internal auditing (Brennan et al., 2019), and exploring how new digital technologies, such as blockchain, big data, or AI, are changing the work of accountants (Moll & Yigitbasioglu, 2019).

2. Blockchain Technology and Value Creation: Financial, Accounting, and Auditing Implications

In an era of rapid technological advancement, blockchain technology is widely regarded as a significantly innovative business technology that can improve the efficiency and accuracy of asset transfers and the tracking of financial and non-financial information (Dyball & Seethamraju, 2021; Faccia et al., 2024). Its main features mean that blockchain could change traditional business operations and ways of working (Weking et al., 2019). Therefore, a growing number of firms have adopted the new technology due to its impact on accounting and financial dimensions (Bellucci et al., 2022; Zhang & Guan, 2023).

2.1. Blockchain Technology on the Capital Market

Several studies have suggested that investors tend to react positively and immediately when the announcements are linked to blockchain implementation (Myeong & Kim, 2025; Rogalski & Schiereck, 2025). Specifically, blockchain announcements exert a positive influence on stock prices during the two-day event period, with an initial effect on the day of announcements and a subsequent effect on the day following the announcement (Autore et al., 2021; Cheng et al., 2019; Jeong & Lim, 2023). Regarding the content of announcements, numerous studies have argued that compared to the announcement without technical innovation (Cahill et al., 2020), the announcement with blockchain implementation elicits a more positive market response from firms that issued it (Liu et al., 2022). The positive market reaction was also obtained when the announcements were made at the strategic level rather than the operational level (Ali et al., 2023). These findings suggest that investors tend to prefer firms that commit to blockchain adoption as part of a long-term strategy, rather than a short-term one or temporary market trend (Rasheed, 2022). Additionally, prior studies have demonstrated that national-specific features play a relevant role in influencing the process of technological adoption (Dirir, 2023). In more detail, technological architecture, national regulations, and digital literacy are significant factors to ensure blockchain adoption is successful (Ronaghi, 2022). For example, while developed countries have advanced digital ecosystems and regulations that support blockchain technology (Frizzo-Barker et al., 2020), developing countries often face challenges due to limited infrastructure and unclear regulations (Alam et al., 2022). However, a few studies have suggested that the impact of blockchain announcement on market stock is more widely positive in emerging markets (e.g., China) than developed markets (e.g., USA) (Klöckner et al., 2022; Zhu et al., 2022). These findings can be explained by the positive reaction of the market in emerging economies, which is driven by the institutional role of the state, not because the market is not yet mature (Laourou, 2025). Concerning the industry sectors, some studies have revealed that blockchain adoption varies significantly depending on the sector to which the company utilising the technology belongs (Gad et al., 2022; Kumar et al., 2025), leading to different adoption rates. For example, markets have reacted positively to the accounting blockchain announcement, regardless of whether the announcement is made by a tech, financial, or medical firm, as they have the competencies and resources to implement the new technology. Therefore, they are perceived as more credible than other firms that operate in more traditional industries, like manufacturing, which may have difficulty with the technical complexity of blockchain (Attaran, 2022; Rogalski & Schiereck, 2024). Moreover, the stock market reacts positively when a small firm announces blockchain news (Wadhawan, 2019) or when the announcement relates to a blockchain consortium (Ravichandran & Giura, 2019). In the first case, this can be explained by the fact that blockchain technology enables overcoming barriers and ensuring access to capital (Dedeoglu et al., 2019; Liu et al., 2022; Ali et al., 2023). In the second case, investors are likely to see the additional value created through the firm's cooperation, since collaboration allows firms to share resources and expertise, increasing the chances of successful blockchain implementation (Zavolokina et al., 2020).

2.2. Blockchain Technology in Accounting and Auditing Processes

Blockchain technology has emerged as a significant innovation leading to a paradigm shift in the financial accounting field, prompting increased interest in its implications for accounting and auditing practices (Prokopenko et al., 2024). This technological phenomenon has enabled the development of triple-entry accounting, creating an immutable and shared register that moves beyond traditional double-entry records held by parties (Dai & Vasarhelyi, 2017; Carlin, 2019; Thies et al., 2023; Grigg, 2024). Several studies have suggested that triple-entry accounting is a better way to address the trust and transparency problems in today's accounting systems (Cai, 2021), due to its ability to enhance the reliability and security of recorded transactions (Kokina et al., 2017; Gauthier & Brender, 2021). As transactions are recorded, verified, and archived in a decentralized ledger, blockchain aims to enhance the traceability of accounting data (Rasheed, 2022) and to reduce the information asymmetries embedded in traditional reporting systems (Yu et al., 2018; Nofel et al., 2024). In this regard, blockchain brings a significant change to the management of the financial reporting process, increasing the reliability of accounting information. Thus, the new "accounting technology" may support many firms in preparing financial reporting as it improves the quality of accounting data and reduces risks of errors or data manipulation (Bellucci et al., 2022; Singh et al., 2023). Additionally, professional accountancy bodies have recognized the growing relevance of blockchain technology for corporate accounting (Han et al., 2023). For example, the international accounting profession bodies such as ICAEW, ACCA, CIMA, and CIPFA have dealt with this issue by sharing reports and documents about it on their websites. However, some studies have expressed concerns about using blockchain in accounting, particularly due to challenges related to keeping information private (Bellucci et al., 2022; Coyne & McMickle, 2017) and ensuring the reliable correspondence between on-chain records and real-world transactions. Although blockchain preserves data integrity, it does not guarantee the accuracy of the original input (Georgiou et al., 2024). The blockchain technology could also lead to a profound transformation in auditing practices; the technical phenomenon has increasingly attracted the interest of audit firms (Han et al., 2023). In response to the evolving demands of clients in the field of blockchain-based transactions, leading professional services firms have begun integrating blockchain solutions into their practices (Gauthier & Brender, 2021). For example, they develop blockchain projects, introduce blockchain analytics tools to support audit reconciliation activities, and invest in blockchain-based auditing software and projects with technology partners (O'Neal, 2019; Palmer, 2019). Moreover, blockchain adoption allows auditors to reduce manual checks by providing real-time controls and continuous monitoring (Bonsón & Bednárová, 2019; Bellucci et al., 2022). In doing so, its integration into financial reporting processes may reduce the amount of work required of auditors (Giang & Tam, 2023) and increase the overall credibility of the audit outcomes (Bonyuet, 2020). This approach limits opportunities for earnings manipulation and mitigates the risk of accounting fraud (Tan & Low, 2019; Zhang & Guan, 2023). Although the high initial costs of implementation (Georgiou et al., 2024; Laourou, 2025), blockchain-based systems led to gains in terms of efficiency, transparency, and accuracy (Yu et al., 2018) and reduced the cost of auditing (Giang & Tam, 2023; Rahman et al., 2024; Nofel et al., 2024). Consequently, the auditor's role evolves from that of a mere data controller to that of a strategic advisor (Schmitz & Leoni, 2019). Specifically, auditors shift their focus from routine assurance tasks to activities that demand higher professional judgement, such as risk assessment and complex valuations (Georgiou et al., 2024; Prokopenko et al., 2024). However, the current auditing practices have to face several critical challenges linked to blockchain adoption. The lack of an accepted and shared accounting standard for crypto-assets and the uncertainty of regulatory contexts may hinder the blockchain adoption in the auditing field (Guo et al., 2025; Han et al., 2023). These issues are amplified by limited blockchain expertise within audit teams, as auditors have thus far applied blockchain procedures solely within a restricted set of engagements and clients already adopting such technologies (Dyball & Seethamraju, 2021). As the scope of blockchain application continues to expand, auditors are likely to face more pressure to develop their skill set in this field (Bellucci et al., 2022). Looking ahead, auditors are expected to develop new and specific capabilities, including reading and interpreting blockchain code (Giang & Tam, 2023).

Based on the above arguments, blockchain technology may impact firms' performance, both in terms of revenue enhancement and cost savings. On the revenue side, its application can support the creation of new business models and opportunities, and also ensure the higher reliability of data (Li et al., 2022). Moreover, blockchain is used for the evaluation of intangible assets, thereby supporting value creation (Saheb & Mamaghani, 2021). On the cost side, blockchain adoption can automate and speed up accounting processes, lowering operational costs (Liu et al., 2022). In addition, it acts on the supply chain, enabling quicker settlement of transactions that led to a decrease in the level of receivables and payables, thereby improving operating net working capital (NWC) management (Moro Visconti, 2019; Zhang & Guan, 2023; Culot et al., 2024). This effect can result in higher operating profitability. Specifically, enhancements in the NWC management may positively impact EBTDA as accelerated payment processes and lower operational costs foster overall operating performance (Aktas et al., 2015; Moro Visconti, 2019). Concurrently, a reduction in operating net working capital (NWP) can generate higher operating cash flow. This, in turn, may improve how investors perceive a firm's value (Ali et al., 2023). While blockchain contributes to enhancing operating cash flow, the technology may also exert influence on the cost of capital. By increasing transparency and diminishing information asymmetries (Chen et al., 2024), blockchain can lower perceived risk among investors, thereby potentially bringing down the WACC (Yarygina et al., 2022; Rogalski & Schiereck, 2024). The overall effect of this combination is increased firm value. This is due to higher operating performance (e.g., EBITDA), stronger operating cash flows, and a lower WACC.

However, it is still not clear how blockchain could integrate into the traditional business model. Given the complex and new nature of blockchain, its implementation could be hindered in the traditional model of competitive advantage and firm operational performance (Sharma et al., 2023). From the perspective of traditional operational measures, such as return on equity (ROE) and return on assets (ROA), the blockchain implementation has a weak, or even negative, impact on operational performance, particularly in the short term (Zhang & Guan, 2023).

This result can be justified by the server costs required to ensure a successful implementation. Such investments are likely to exert downward pressure on profitability during the initial adoption period. However, some studies also suggest that the negative impact of blockchain implementation on operational performance persists for years after its implementation (Ali et al., 2023). Despite blockchain's potential, its benefits are not immediately observed through traditional profitability indicators, as they may not capture the broader advantages of blockchain.

3. Business Valuation Techniques

This section focuses on the traditional methods used to estimate the actual value of a company. In doctrine, there are many studies dedicated to the topic of business valuation, which have generally involved the identification of some generalised estimation techniques, from which specific variations for types of companies have also been derived (Agliata & Tuccillo, 2025). The rationale behind each approach is based on distinct theoretical assumptions; in other words, valuation techniques are primarily justified by the theoretical framework that defines the company. In fact, according to the majority view, a company is an economic unit that meets the following requirements: systemic coordination, cost-effectiveness, and autonomy. The synergy between the various elements is recognised as playing a central role, enabling the company to perform specific functions suitable for creating wealth (Potito, 2020).

This lays the foundations for imagining an effective company value that primarily considers a forward-looking view of achievable income results. It is therefore an analytical view that considers company value to be closely linked to its ability to guarantee adequate levels of performance in the future. The privileged stakeholder will be the shareholder, who will only be satisfied when the company has achieved economic equilibrium. More precisely, for a company to be considered in equilibrium, it is not enough for revenues to equal costs; it is necessary to achieve and obtain a profit that satisfies the shareholders' demands.

From a general perspective, a comparison is made between the ROE (Return on Equity) profitability indicator and the CAPM (Capital Asset Pricing Model) capitalisation rate; the ROE must be greater than or equal to the capitalisation rate, thus ensuring overall profitability, including core and non-core operations, which will be able to cover the cost of equity. The actual value of a company must continue to be derived from a comparison between the two indicators mentioned above. In fact, in the case of the income methods, which are generally synchronised over an indefinite period, lead to a company valuation through the forecast of a perpetual income stream with a normalised average income value as the numerator and a discount rate consistent with the income amount as the denominator. The measured value will be an estimate and will not necessarily coincide with the sale price of the company.

Regarding the first point, considering a forward-looking perspective, it is inevitable that a defined time frame will need to be established to ensure a certain degree of reliability for the measurements taken. Concerning the second point, it should be noted that the price will be the result of negotiations between the presumed distinct economic values estimated by the buyer and the seller, in which these measurements will constitute the maximum purchase price for the buyer and the minimum sale price for the seller. Still within the scope of analytical estimation of company values, financial methods are also provided for in doctrine, which always follow the approach of discounting prospective cash flows, but focus on cash flows; a distinction is made between levered and unlevered methods. In an international context, the company is considered and classified as a normal investment; the estimation techniques generally used for investment proposals are extended to the economic entity. The privileged stakeholder becomes the investor, who generally has a short-term time horizon and will therefore be mainly interested in financial movements (Ross, Westerfield, & Jaffe, 1997). Regarding its critical issues and procedural problems, please refer to what has already been said about income methods; the latter approach can be considered a simple variant of the income method. It does not overturn the theoretical reference framework and confirms the procedural measurement approach.

Conversely, there are non-dynamic, static techniques; these are based on a theoretical approach that favours a disaggregated view of the company, and the aggregate of separately considered assets is given priority over corporate synergy. From a procedural point of view, asset-based techniques certainly offer data with greater certainty and objectivity, even if the justification for the company's existence is questioned. The point is that the value of a company lies mainly in its functioning and its ability to perform functions that would otherwise not be possible. In doctrine, a distinction is made between a purely theoretical approach, such as the simple asset-based method, which limits its investigation exclusively to tangible assets. This approach is partial and limited to specific business cases, such as real estate companies, where the asset contribution is significantly greater than the residual income contribution. To partially overcome the limitations mentioned above, a complex asset-based methodology has been developed, which extends the measurement to intangible assets. However, this stock approach appears limited and certainly unable to provide a meaningful and comprehensive value. Its main limitation lies in its inability to measure the main function of a company, namely, to create future results. In fact, the complex asset-based methodology excludes precisely those intangible assets with an indefinite useful life, which embody this objective. The balance sheet items will lack the separate accounting recognition of internally generated goodwill, which embodies precisely that value attributable to future excess income. In fact, most doctrinal guidelines consider that positive goodwill represents the excess of economic value over the value of assets revalued at current values. In this way, asset-based techniques lose their relevance, precisely because they are based on theoretical assertions that are not very relevant or acceptable. It is precisely for this reason that mixed methods have been devised, which attempt to combine both main aspects of a company. They include methods suitable for emphasising both assets and income. Mixed methods (independent goodwill estimation and EVA) are frequently approved as techniques capable of offering a comprehensive measurement and have been the solution in many business cases where the role of intellectual capital has become increasingly important (Agliata et al., 2019; Stewart, 1998). Finally, market multiples are used on a residual basis, which are derived from empirical evidence and correlate the company's price with its own balance sheet items. They certainly have the advantage of being concise and immediate in terms of prices, even if they suffer from many application problems, mainly related to the difficulty of comparing values. Furthermore, their main limitation lies in the difficulty of recognising and accepting the existence of a correlation between balance sheet figures, price, and company value. For this reason, they play a marginal role, becoming mere reference values and verifications of the values extrapolated from the company's financial statements.

4. Implications of Blockchain in Business Valuation Methods

This section addresses the correlation between the choice of business valuation methods and the implementation of blockchain systems in companies. This is a very sensitive issue, particularly in relation to the accounting treatment of investments and the corresponding financial reporting requirements. It should be noted that general approaches (analytical, asset-based, and empirical) often serve only as a starting point for the development of an ad hoc model capable of verifying and highlighting the characteristic aspects of the companies under observation in the best possible way. In the specific case of blockchain, the nature of the company's operational activity is not generally disrupted, so the choice of an ad hoc system would appear to be a conceptual stretch, of little practical use. Therefore, the critical considerations that will be expressed will be valid primarily for general approaches, but can also be easily extended to specific valuation methods, as in the case of banks and insurance companies (Maglio et al., 2017), where the peculiarities of the core business have over time justified the creation of specific methodologies designed to better facilitate the measurement of their actual value.

The crucial problem is to identify and define the effectiveness of multi-year investments in blockchain in corporate life. It seems logical to assume that the adoption of blockchain technologies affects a company's ability to create value, but it is necessary to understand its genesis. In other words, its contribution to the prospective performance of economic and/or financial flows, and therefore to company performance levels, seems certain, but questions remain about its impact on assets. When examining a company that uses blockchain, it is unthinkable to have a single, exclusive estimation solution. It is necessary to verify the accounting effect that has resulted from the multi-year investment made.

Some academic studies even suggest approaches that emphasize greater effectiveness on revenues rather than cost benefits, which would support a revenue model approach. However, in the author's opinion, such an estimation approach would show a bias in the information (Moro-Visconti, 2022).

The impact on assets is fundamental to understanding the applicable estimation solution. The impact of blockchain on assets becomes the crucial point in deciding between static and dynamic techniques. In fact, if one admits its impact on assets, it is conceivable to use techniques that also include "K". Otherwise, an analytical methodology supported by empirical methods would be desirable, the latter being used to verify the significance and reliability that the market recognises in the estimated values.

The impact on assets will generally depend on the following two factors:

a) the characteristics of blockchain systems;

b) the definition and accounting regulation of intangible assets.

Concerning the first point, there are different data validation systems, with different characteristics and, above all, distinct links to the company. In the case of tangible assets, which also include intangible elements, they will generally represent an identifiable and legally autonomous resource to be recorded in the balance sheet; therefore, the impact on assets will be certain. Consider, for example, RWAs (Real-World Critical Assets).

Critical issues would arise if the investment gave rise exclusively to an intangible asset, in which case it would be necessary to understand the category to which it belongs. In this regard, intangible assets can be divided into tangible property, deferred costs, and goodwill.

Intangible assets are intangible resources that are available and appropriable, like tangible assets, which—enjoying their own legal autonomy—can be recognised separately from an NFT (Non-Fungible Tokens) balance sheet perspective. In this case, please refer to what has already been said above for tangible assets.

On the other hand, deferred costs are costs that do not exhaust their usefulness in the financial year in which they were incurred, for example, a "Blockchain pilot project for the tokenisation and traceability of tangible assets". In this case, their impact on the balance sheet will depend on the relevant accounting rules, which will affect the final methodological choice.

Finally, goodwill represents an intangible asset with an indefinite useful life, which, if internally generated, will never be recognised in the balance sheet; this constitutes the absolute limit of asset-based methods. In the latter case, asset valuation could be avoided, and only analytical methods could be used. Consider the reputational benefit that a company could receive by implementing these data validation systems and/or the customer loyalty that could result.

Concerning the second point, accounting regulations sometimes affect the accounting treatment of intangible assets, particularly in the case of deferred costs. In Italy, these are generally capitalizable and therefore recognised in the balance sheet, while under IAS/IFRS standards, they are to be expensed and recognised in the income statement. According to IAS 38[1], the lack of "identifiability" affects the recognition of multi-year costs in the balance sheet, except where it is appropriate to allocate them as a cost to another separate asset. Therefore, as they are not recognisable as an independently controlled resource because of past transactions, they will not be attributable to the category of assets[2]. This difference in

[1]See International Accounting Standards Board (IASB), IAS 38, Intangible Assets.

[2]See Agliata, Manes, 2023, p. 170.

approach has a direct impact on the balance sheet and, therefore, on the final choice of the most appropriate business valuation methods. In other words, in the case of IAS/IFRS application, by avoiding the impact of blockchain on the balance sheet (if it can be classified as a deferred cost), the superiority of non-static methodologies can be recognised.

This study on the impact of IAS/IFRS on the measurement of actual company value appears innovative and unique. The literature contains numerous studies on the consequences of adopting IAS/IFRS in defining a new configuration of company performance (comprehensive income) following the use of "recognition" principles. In other words, research has focused on the effects on the balance sheet, but never on the value of a company.

Conversely, in this work, while accepting the changes in valuation criteria resulting from the application of IAS/IFRS, the diversity of the balance sheet items to be recorded in the company's assets is also highlighted. The quantitative component changes, but its qualitative composition may also change to such an extent that, because of certain multi-year investments, there may be no noticeable change in assets, thus leading to the possibility of assets being excluded from business valuation methods.

In conclusion, based on the above considerations, the implementation of blockchain may affect the way in which the actual value of a company is measured. There is no single, preferred model, but the selection will depend strictly on the ability of data validation systems to affect the company's assets.

Authors' Contributions

The work is the result of the joint efforts of the three authors. Specifically, paragraphs 1, 1.1, 1.2, 1.3, and 1.4 are attributable to Fabiana Roberto, paragraphs 2, 2.1, and 2.2 are attributable to Alessia Galdiero, and paragraphs 3 and 4 are attributable to Francesco Agliata.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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