The role and appropriateness of different valuation methods: A systematic literature review

DB Cilliers

orcid.org/0000-0002-8032-7737

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Supervisor: Prof DP Schutte

Co-Supervisor: Prof S van Rooyen

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COMMENTS

The following should be kept in mind whilst reading this mini-dissertation:

- The referencing style used in this mini-dissertation follows the NWU Harvard style as prescribed by the NWU referencing guide.
- This mini-dissertation includes a research article; accordingly, the format of this mini-dissertation has been adapted to include the desired guidelines as prescribed by *Taylor & Francis online.* As such, chapter one of this mini-dissertation follows the NWU Harvard referencing guidelines whilst chapter two (Research article) has been compiled in accordance with the principles established by the *Publication Manual of the American Psychological Association, Seventh Edition (2020)* as adapted by *Taylor & Francis online.* More information on this referencing style can be found at http://apastyle.apa.org/ for ease of reference.

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ABSTRACT

Valuation methods are used for a plethora of different reasons within the financial world. Besides their widespread use in decisions on mergers and acquisitions, valuation methods are used for the allocation of resources, estimating the value of equity for investors, financial decisions and bond offerings, and taxation purposes, amongst others. All valuation methods have their strengths and weaknesses affecting the accuracy of the estimation generated, and the appropriateness of the specific valuation method chosen depends on the circumstances surrounding the valuation. Scholars found that different valuation methods yielded materially different values when utilised in the valuation of the same entity. Given the importance of valuations and their influence on decision making within entities, proper guidance is needed to ascertain when the different valuation methods may be deemed appropriate.

In pursuance of the aforementioned, this study evaluated the literature published on valuation methods from 2019 to 2023 and conducted a systematic literature review. Including only published journal articles to maintain the quality of the literature studied, 36 journal articles were selected for final inclusion and analysed. ATLAS.ti™, a qualitative data analysis software, was used to codify, group and analyse the data.

The results indicated the following: Asset-based valuation methods are more appropriate when companies are experiencing economic distress; in establishing a minimum or liquidation value; and in industries commonly having a greater share of fixed assets. Differing opinions towards Asset-based methods' appropriateness in the valuation of start-up entities are found. Discounting methods find difficulty in valuing start-up entities; more so in the e-commerce industry; or companies in times of economic distress or business rescue. The Discounted Dividend (DDM) method is less appropriate in multi-segmented firms whilst the Economic Value Added (EVA) method could be ideal in multi-segmented firms. The Residual Income Valuation (RIVM) method is ideal when companies have high levels of intangible assets. Valuation multiples are ideal for valuing larger, profitable firms; minority shareholding; firms with multiple business units and, given that the correct multiples are chosen, start-ups in the e-commerce industry. Furthermore, we conclude that EBITDA and Price/Earnings multiples are favoured in emerging markets; EBITDA multiples found favour in valuing individual business units and Price/Book multiples generate less biased estimations than that of Sales multiples. We concluded that further research is needed to conclusively determine when the various methods should be deemed appropriate.

This study contributes to the existing body of literature on the topic of valuation methods and seeks to provide practitioners with useful guidance as to the appropriateness of different valuation methods within various contexts and the implementation thereof. Furthermore, this study seeks

to highlight the adjustments made by scholars to the methods to increase the appropriateness of the methods and increase the accuracy of the value estimations derived.

Keywords: Asset-based Methods; Appropriateness; Discounting Methods; Multiples Method; Systematic literature review; Valuation methods.

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LIST OF ABBREVIATIONS

AEG	Abnormal Earning Growth method
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flow method
DDM	Discounted Dividend method
EBITDA	Earnings before interest, taxes, depreciation and amortisation
EPS	Earnings per share
EV	Economic value
EVA	Economic Value Added method
FCFE	Free Cash Flow to Equity method
FCFF	Free Cash Flow to Firm method
FMCG	Fast-moving consumer goods
GMV	Gross merchandise value
IFRS	International Financial Reporting Standards
MENA	Middle East and North Africa
NEEQ	National Equities Exchange and Quotations
NWU	North-West University
P/E	Price/Earnings
RIVM	Residual Income Valuation method
ROIC	Return on invested capital
SOPV	Sum of parts valuation method
WACC	Weighted average cost of capital

CHAPTER 1: INTRODUCTION

1 INTRODUCTION

Determining the value of an entity has long been a topic of consideration in the finance field and as such, business valuation methods have been the topic of many an investigation (Wells *et al.*, 2008). Entities are complex concepts, and accurately estimating their value is no feeble task. These estimations are used for a variety of purposes, including decisions on mergers and acquisition, selecting an appropriate selling or buying price for a company, deciding upon raising investment capital, ascribing an amount to the value of an entity's assets, and other regulatory reasons (DHJJ, 2021; Hayes, 2022). Valuing a company is commonly done for various other reasons, including, but not limited to, taxation planning and other compliance matters, forensic and other damage analyses, to aid in financial planning and others as pointed out by Kirk and Wishing (2018).

Valuation techniques are used to estimate the quantitative value of companies. The value of an entity can be estimated using several different valuation techniques, all of which have different strengths and limitations. Valuation methods are generally categorised into three categories: (i) present value (discounting) methods, or discounted cash flow methods; (ii) multiplier methods, or market multiple methods; and (iii) asset-based valuation methods (balance sheet methods) (CFA Institute, 2023; Hermoza & Molina, 2017). Other groupings of valuation methods do exist (Fernández, 2007), but for the purposes of this study, valuation methods will be grouped and described under the aforementioned categories.

This categorisation of valuation techniques is further advocated by the widespread use of valuation methods that fall under those categories (Pinto *et al.*, 2019). Pinto *et al.* (2019) surveyed the use of different valuation methods in practise. The conclusion was quite clear. Of the 1980 practitioners questioned, those who indicated that they use valuation methods make use of the following methods (Pinto *et al.*, 2019): (i) market multiple methods are used by 92.8% of the respondents; (ii) discounting or discounted cash flow methods are used by 78.8% of the respondents; (iii) asset-based valuation methods are used by 61.4% of the respondents; (iv) real options valuation methods are used by 5% of respondents; and (v) other valuation approaches are used by 12.7% of respondents. Note that the total percentage exceeds 100% as practitioners seldom use a single valuation method in their assessment.

When asked in what percentage of cases the respondents use these valuation methods, given that they do use the particular valuation method, the following results were obtained (Pinto *et al.*, 2019): (i) market multiple methods are in used 68.6% of the cases of practitioners who

indicated that they use market multiples; (ii) discounting or discounted cash flow methods are used in 59.5% of the cases of practitioners who indicated that they use discounting methods; (iii) asset-based valuation methods are used by 36.8% of the cases of practitioners who indicated that they use asset-based methods; (iv) real options valuation methods are used in 20.7% of the cases of practitioners who indicated that they use real option methods; and (v) other valuation approaches are used in 58.1% of the cases of practitioners who indicated that they use other methods.

It is clear that the categories of market multiple methods, asset-based methods and discounting methods are most relevant as these are predominantly used in practice. It should be noted that different valuation methods may be used for different objectives, including estimating the value of any one of the following (Kirk & Wishing, 2018):

i. The total assets of an entity
ii. The total interest-bearing long-term debt and total owners' equity
iii. The total owners' equity
iv. A particular class of owners' equity

Notwithstanding the different values that could be determined, as previously indicated, all of the approaches and concluded values listed above can be seen as a "business value"; the objective of the business valuation merely prefers a particular method based on the circumstances that advocated the valuation (Hermoza & Molina, 2017; Kirk & Wishing, 2018).

1.1 Background

1.1.1 Discounting methods or discounted cash flow methods

Discounting methods calculate the value of an entity as the estimated cash flows expected to be generated by the entity, discounted at an appropriate risk rate relating to said cash flows (Fernández, 2007). These discounted cash flow methods are widely used in the finance world and has been described by Luehrman (1998) as a crucial element of the majority of capital budgeting systems. Hermoza and Molina (2017) noted that discounted flow methods (synonymous with discounted cash flow methods) are commonplace within both the professional and academic fields.

In 1938, Williams initially introduced the notion that fundamental values should not be confused with market prices and noted that these are two distinct aspects (cited by d'Amico & De Blasis, 2020). Williams' dividend discount model noted that the fundamental value of an entity's equity can be calculated as the present value of the cash flows one expects to receive in the future, discounted at a rate representing the entity's cost of equity capital (cited by Herz

et al., 2001). The dividend discount model Williams suggested in calculating the value of equity, requires two main inputs; this being a measure of risk related to the company and the future dividends to be received (d'Amico & De Blasis, 2020).

Addressing the problem of forecasting dividend values for an undefined period of time through to infinity, Gordon utilised a constant growth rate in dividend payments and the Gordon growth model came into existence in 1962 (Gordon, 1962). The model calculates the present value of a share as the expected future dividend, divided by the difference between the cost of equity capital, being the expected shareholders' return, and the rate at which dividends are expected to grow for the foreseeable future, essentially calculating a terminal value of a share.

The model is not without its limitations. Nonlinear growth in dividends posed a problem to the applicability of the model in reality (Kudar & Sayılgan, 2021). Business cycles and shifting the state of the company from prosperous to lean times and back, influences the company's ability to pay dividends and as such, growth in dividend payments vary from period to period (Kudar & Sayılgan, 2021). Kudar and Sayılgan (2021) concluded that even though the notion that the fundamental value of a share can be determined as the present value of the future dividend payments to be received holds water, the assumption of a constant dividend growth rate on which the notion is built, is not appropriate.

Furthermore, the model assumes that dividend payments, albeit an obvious form of compensation for the owners of the share, is the main variable that influences the value of a share and is thus used as the basis for the valuation. However, not all scholars agree with this notion. The latter statement is made clear by investigating the works of Miller and Modigliani (1961) and their dividend irrelevance theory. They argued that given the assumption of a perfect market with no taxes, no transaction costs and no information asymmetries, investors are indifferent as to how they receive the returns of a share, being either through capital appreciation or dividend payments (Miller & Modigliani, 1961). That being said, Miller and Modigliani's dividend irrelevance theory has received a substantial amount of criticism by scholars noting that the assumptions held by these methods are unlikely to hold true in the real world (Ahmeti & Prenaj, 2015). Furthermore, Ahmeti and Prenaj (2015) pointed out that the evident influence of a firm's capital structure and dividend policy on the value of a firm had been made clear by authors in the preceding 30 years.

As alluded to above, some scholars argue that dividend should not be seen as a measure of the value of an entity (measure of wealth), but rather as a mere distribution of value made by an entity (Wells *et al.*, 2008). This statement can further be supported by the existence of different dividend pay-out policies applied by entities. Wells *et al.* (2008) noted that, due to the

preceding statement, a case can be made that residual income could be used as a substitute for dividend payments in the model to derive a more accurate estimation of the value of an entity.

Both the economic value added method (EVA) and the residual income valuation method (RIVM) determine the current value of an entity as the aggregate of the total book value of the equity of the company, and the present value the return a company generates above its cost of equity (Gottwald, 2012). In 1995, Feltham and Ohlson noted that, given certain conditions, residual income methods and dividend valuation methods are mathematically equivalent (cited by Wells *et al.*, 2008). Wells *et al.* (2008) showed that given the substitution of dividend payments with residual income within the above model, the accuracy of the estimation increased significantly. Moreover, they also concluded that including a terminal value in the calculation increased the accuracy of the value estimation in both the discounted dividend model (DDM) and the RIVM method. The accuracy of the estimation also increased in relation to the number of years' forecasts, from one to five, taken into consideration (Wells *et al.*, 2008). In both cases, being with or without the inclusion of the terminal value in the equation, the RIVM method produced a more accurate estimation of value (Wells *et al.*, 2008).

A further extrapolation of the original DDM method into a discounted free cash flow valuation model has also been advocated. Wells *et al.* (2008) found that should it be given that accruals are excluded amongst other conditions, the latter model has been shown to be mathematically equivalent to the aforementioned model (DDM) (Feltham & Ohlson, 1995).

Notwithstanding the above, discounted cash flow methods, or present value methods, are used by finance professionals for a variety of purposes, including determining an appropriate initial public offering price as well as valuing companies (Steiger, 2010). Discounted cash flow methods use future predictions of cash flow data to determine the present value of the entity. According to Steiger (2010), the problem lies in the accuracy of the multiple predictions made relating to not only the company's performance and expected cash flow, but also about the broader economic environment. Steiger (2010) concluded that the discounted cash flow method is extremely vulnerable to the assumptions held by the evaluator and minor changes in said assumptions can lead to significant variances in the calculated value of the entity. The major impact of the terminal value input within the discounted cash flow method also poses a challenge, as the terminal value input normally accounts for a substantial portion of the calculated value of the entity (Wells *et al.*, 2008). This poses a challenge because of the terminal value's sensitivity towards alterations of the constant growth rate used in its calculation (Steiger, 2010).

It should be noted that according to some scholars, some finance professionals opt not to use discounting methods. Barker (1999) found that many financial analysts tend not to use discounting methods primarily due to their reliance on assumptions held by the different methods being seen as unreliable. The reason being is normally based on the assumptions held by the different valuation methods being seen as unrealistic, or the methods' vulnerabilities towards subjectivity. Notwithstanding the aforementioned, discounting methods such as the discounted cash flow method is still regarded as the most used valuation method by many scholars as it is said to form the basis of many other models (Sutjipto *et al.*, 2020).

Other scholars recently found that the DDM can still, to some extent, be a reliable estimation of value (Gacus & Hinlo, 2018). Testing the accuracy of the DDM, Gacus and Hinlo (2018) determined the values produced by the DDM had an error of less than 30 %. It should also be noted that, according to Imam *et al.* (2008), valuation models in general are not the only basis on which a business is valued and that a degree of subjective judgement from the valuator remains prevalent.

1.1.2 Multiplier methods or market multiple methods

Multiplier methods are income-statement based methods that value an entity based on the size of factors such as sales, earning or other figures, essentially relating entity value to a value driver measured with various surpluses (Chullen *et al.*, 2015; Fernández, 2007). These multiples can be utilised to assess the current state of aspects of an entity's well-being (Chen, 2020). Multiplier methods calculate the value of an entity in relation to a specific measure of performance, whereas other valuation methods that use a company's cash flows, discounted to a present value, calculate the intrinsic value of an entity and are thus referred to as intrinsic valuations (Chen, 2020). The most popular multiples used by practitioners include the Price/Earnings (P/E) multiple which depicts the value of a share in relation to the earnings per share attained by the entity over the preceding four quarters, and Firm Value/Earnings before interest, taxes, depreciation and amortisation (EBITDA) (Nenkov, 2023; Vishwanath, 2009).

Multiples are often used as an alternative to more comprehensive methods such as the free cash flow method (Liu *et al.*, 2002; Plenborg & Pimentel, 2016). According to Liu *et al.* (2002), the reason is that multiple methods communicate the essence of the comprehensive methods effectively: the value of a share is positively related to the expected future cash flows and inversely related to the degree of risk. Multiples are an effective way to assess the valuation of an entity against other similar entities or the greater market (Vishwanath, 2009).

The P/E ratio is used to assess the number of years required for a share to cover the cost of purchasing the share (Vishwanath, 2009). P/E multiples can be used when benchmarking the

price of an entity's share against its specific industry and is thus a useful tool in assessing whether a specific share (the value of an entity) is either over- or underpriced. That being said, one must consider the possibility that the benchmark company's or industry's P/E ratio might also be over- or underpriced according to its P/E multiple, which would provide a skewed image of the value of a share (Vishwanath, 2009). The work of Koller *et al.* (2005) also notes that multiples based on industry averages might be inappropriate given that the firm's circumstances, such as its capital structure, expected growth rate, return on invested capital and others, do not resemble that of the industry in which it operates, notwithstanding that the design of an appropriate multiple analysis can still deliver valuable insights in the valuation process.

Some of the advantages of relative valuations (multiple valuation methods) include the minimal amount of time required to perform the valuation and the simplicity or ease of the valuation method (Hermoza & Molina, 2017; Vishwanath, 2009). Liu *et al.* (2002) speculated that the use of multiples is prevalent in practice due to their understandability and being easily communicable. These advantages clarify why the use of multiples, at the very least as supplementary other valuation methods, is commonplace amongst valuation practitioners (Pinto *et al.*, 2019; Vishwanath, 2009).

Notwithstanding the abovementioned advantages of multiples as a valuation method, the method is not without its limitations. The method's accuracy can be skewed due to one-time accounting entries and gains realised within a particular year (Vishwanath, 2009). This would influence the P/E ratio obtained; should the P/E ratio subsequently be used as a determinant of relative business value, it would produce an inaccurate and unsustainable conclusion.

Hermoza and Molina (2017) noted that multiple methods do not consider factors such as time value of money or the possible future performance of an entity. Multiple methods also do not take the cyclical nature of business cycles into account (Vishwanath, 2009). It follows that a share price might unjustifiably be classified as under- or overpriced by the P/E ratio as a result of the entity's position within a current business cycle, rendering an unjustified, erroneous and near-sighted share valuation (Vishwanath, 2009). Furthermore, Vishwanath (2009) noted that the answer derived in calculating the multiple can only truly be considered as meaningful when other factors that provide context are examined. It is also worth noting that the accuracy of the use of multiples as a valuation method is generally seen as a debatable topic as multiples tend to have large dispersions, stressing the varying results amongst different industries, countries and other factors (Fernandez, 2001).

1.1.3 Asset-based methods or balance sheet methods

Asset-based valuations ascribe the market value of the assets and resources an entity controls to the value of an entity (Pinto, 2020). Kirk and Wishing (2018) highlighted that the basis of any asset-based valuation method rests on determining the value of an entity as the value of the company's total assets, including both tangible and intangible assets, minus the total value of an entity's liabilities not excluding contingent liabilities normally merely disclosed. Two common approaches to asset-based valuation methods include the asset accumulation method, being the identification and valuation of each individual class of assets of the entity, and the adjusted net asset value method, considering the aggregated value of the entity's collective total assets (Kirk & Wishing, 2018).

The asset-based approach is particularly useful in circumstances where a controlling share of ownership in the entity is being valued, making the method particularly useful when the sale or purchase of an entire entity is being considered (Kirk & Wishing, 2018). Furthermore, an asset-based valuation method could be particularly appropriate in the following circumstances: (i) the acquisition of an entity that is structured as the purchase of all of the entity's assets rather than the total equity shares purchase; (ii) when considering a possible merger or acquisition; (iii) when evaluating and giving an opinion on the solvency of an entity; and (iv) when evaluating and giving an opinion on the fairness of a purchase or selling price of an entity (Kirk & Wishing, 2018). Many practitioners also utilise asset-based valuation methods such as the adjusted net asset method as a minimum value when deciding to sell the entity (Miciuła *et al.*, 2020). This is due to the adjusted net asset method not including factors such as the knowledge of employees or the value of its contacts, but rather represents the value of separable assets of an entity (Miciuła *et al.*, 2020).

Asset-based valuation methods are less appropriate when valuing a non-controlling share of an entity (Kirk & Wishing, 2018). Furthermore, it should be mentioned that asset-based valuation methods are not used as frequently as other valuation methods such as multiple methods or income methods (present value methods), due to the former normally requiring more time and often being a more expensive method of valuation (Kirk & Wishing, 2018). Other reasons that discourage the use of asset-based valuations in practice include, but are not limited to, a greater dialog required between the valuator and the client; greater amount of data required from the client; and a greater time required to perform the valuation in relation to other valuation methods and a disregard for certain factors such as the knowledge of the employees, possessed brands and trademarks' values (Kirk & Wishing, 2018; Miciuła *et al.*, 2020).

1.2 The choice of valuation method

Having established the different uses of valuation methods in decision-making, regarding mergers and acquisitions, taxation matters and other strategic concerns (Kirk & Wishing, 2018; Miciuła *et al.*, 2020), the deduction can be made that errors concerning the choice and implementation of valuation methods can have a material effect on decisions made by the entity based on the outcome of said valuation. This was made clear by Fernández (2007), showing that different valuation methods yielded materially different values when the different methods where utilised in the valuation of the same entity. Several factors need to be considered when performing a valuation (Miciuła *et al.*, 2020). These include, amongst others, the objective of the valuation; the type of company being valued; the type and number of assets; the economic and industry specific conditions in which the entity operates; and the quality and availability of information related to the company that is obtainable (Miciuła *et al.*, 2020). It is noteworthy that the circumstances surrounding the valuation thus has a significant impact on the applicability and practicality of the different valuation methods at a company's disposal. Choosing the most appropriate valuation method necessitates consideration of the situational circumstances of the entity and the industry in which it operates and is seen as a vital factor of the valuation process (Miciuła *et al.*, 2020).

The literature is somewhat divided and inconsistent as scholars seem to differ regarding the appropriateness of the different methods. The DDM as an example has been discredited by some scholars and found to be accurate by others. Gacus and Hinlo (2018) found that the DDM could accurately estimate the value of a sample of entities (using the common stock price as the base of accuracy) with constantly increasing dividend payments. The method should thus not be discredited in its entirety; rather proper guidance should be given as to when the method should be deemed appropriate.

Similar contradicting viewpoints can be found in relation to asset-based valuation methods, and other discounting methods. However, as with the DDM, given the correct circumstances, these methods have also been shown to accurately estimate entities' values (Fernández, 2007; Keun Yoo, 2006; Nissim, 2013; Schreiner & Spremann, 2007). Given the divided and fragmented state of the literature, a consolidation of the current literature is needed. This is to conclude upon the appropriateness of different business valuation methods in different circumstances and industries in order to provide guidance on their applicability and usability.

Notwithstanding the aforementioned, Kirk and Wishing (2018) emphasised that, given the complexity and the importance of estimating an accurate value of an entity, a single valuation model is seldom seen as sufficient. Various business valuation methods are used in

conjunction to one another and are subsequently either weighed quantitatively or ranked qualitatively to conclude on the value of an entity. The work of Imam *et al.* (2008) also supported the preceding statement, indicating that a single valuation method is rarely used in the valuation of an entity and even when a number of valuation methods are used collectively, a degree of subjective judgement is still taken into consideration. Should either of the aforementioned approaches be conducted, guidance is still needed on the appropriateness of different methods, aiding in the selection and weighing of the methods.

2 PROBLEM STATEMENT

Given the widespread use of valuation methods in the financial world and the variety of different business valuation methods in existence, a critical evaluation of the current literature on the topic of business valuations is needed to provide guidance on the choice of valuation method. The appropriateness of the various business valuation methods in use, depends heavily on the circumstances related to the valuation and the entity being valued. Furthermore, given the many limitations of different business valuation methods, the accuracy of the final estimated value could be brought into question (Miciuła *et al.*, 2020). Given the widespread use of valuation methods to aid in decision-making, inappropriately selected valuation methods could have a substantial negative impact the decisions made and company in general. Notwithstanding the existing literature providing guidance as to the implementation of the different methods, to the best knowledge of the researcher, no consolidation of the literatures' guidance as to the appropriateness of the respective methods in circumstances evident within the literature has been done.

The problem identified above gives rise to the following research question:

According to literature, in which circumstances would the different categories of valuation methods be deemed appropriate?

3 RESEARCH OBJECTIVES

The following objectives have been formulated for this study:

3.1 Primary objective

The study aims to critically analyse the literature to determine the appropriateness of different valuation methods as advocated by scholars in order to provide insight into the current sentiment towards the different valuation methods and comment on their appropriateness in business valuations under certain circumstances evident within the literature.

3.2 Secondary objectives

The primary objective is supported by the following secondary objectives:

i. To determine from the literature available, the uses of valuation methods and their respective limitations and strengths.
ii. To critically evaluate the appropriateness of different valuation methods used in business valuations under different circumstances.
iii. To provide guidance on when the implementation of the respective valuation methods can be deemed appropriate.

4 RESEARCH DESIGN AND METHODOLOGY

Research design describes the framework a researcher adopts to address the topic of the study (Sileyew, 2019). An appreciation for the underlying philosophical component of research is necessary in order to truly understand research (Killam, 2013). The relationship between what is known and the existential conditions under which knowledge is produced is important, as said relationship gives context to the knowledge rendered (Ejnavarzala, 2019).

4.1 Paradigmatic assumptions

Killam (2013) describes the concept of a paradigm as a lens through which we perceive the world. Furthermore, a research paradigm can be seen as the underlying structure that researchers adopt as a basis on which they build their work (Killam, 2013). Understanding a researcher's paradigmatic assumptions, such as their ontological and epistemological viewpoints, assists in understanding the significance of their work (Rehman & Alharthi, 2016). Some of the different relevant philosophical perspectives, and the influence these perspectives have on the methodology, will now be discussed.

4.1.1 Ontology

In 1998, Crotty described ontology as the study of being, referring to the overarching nature of existence and what could possibly be known about reality (cited by Al-Saadi, 2014). Al-Saadi (2014) summarised the concept ontology as humanity's belief as to reality's nature and what exists. Ontology refers to the researcher's view on the composition of reality. Ontological assumptions address the researcher's view of the following question: does a single reality exist irrespective of context and interpretation, or is reality bound by an individual's perspective and context, rendering a multitude of subjective realities (Killam, 2013)?

Neuman outlined in 2003 that ontological perspectives can be viewed from two opposing viewpoints: constructionism, seeing reality as a composite of different social processes, and

objectivism, seeing reality independent from the observer (cited by Antwi & Hamza, 2015). Therefore, the ontological perspective through which a study is conducted is important as, together with the epistemological viewpoint described below, it gives context to the objectivity of a study. Given constructionism as an ontological perspective, a researcher recognises that the insights gained within the research are influenced by the perspective of the researcher, rendering insights that are subject to the viewpoint of the observer. Given objectivism as an ontological perspective, the researcher implies that the insights gathered within the study are independent of the viewpoint of the observer and as such, implies that the insights gathered are objective in relation to the perspective of the researcher and unanimous to all observers.

Within this study, constructionism as an ontological perspective is maintained. Given that humans are social beings interacting constantly, it follows that reality itself is a construct of the social interactions that underpin the concept of being. Given the context of business valuation methods, the valuation, although rendering a quantitative amount, is heavily influenced by qualitative factors perceived by the valuator and the greater market. Consider the following example: Most valuation techniques take into consideration an estimate of risk when valuing a company. These risk estimations influence the discounting rates used and thus have an impact on the quantitative amount generated by the valuation. The level of risk is also dependant on the subjective opinions of the valuators or finance professionals whose opinions have been influenced by the social interactions and context in which they operate.

It is worth noting that the values calculated by the valuation still need to be interpreted and although the values calculated in the valuation can provide guidance to decision makers, the decision will still be influenced by other factors relevant to the decision maker (Pinto *et al.*, 2019). What we ascribe value to and how much value we ascribe to said element also fluctuates. It follows that the process of ascribing value to any element is thus dependant on the aggregate of the opinions and social interactions within a society, advocating a constructionist viewpoint.

4.1.2 Epistemology

Epistemology deals with the nature of knowledge and addresses the relationship between the researcher and knowledge. Killam (2013) describes this as, "*the relationship between the knower and the would-be known"*. Justifications of knowledge, what is seen as knowledge and the relationship between what is said to be known and the values and views of the knower is all dealt with under the umbrella of epistemology (Ejnavarzala, 2019).

Based on the above, it can be deduced that the ontological assumptions held by the researcher give rise to the consideration of epistemology. The deduction is based on the

rational that one must first determine what can be known or observed about the nature of reality (ontological viewpoint) before addressing how it can be known (epistemological stance). Stated differently, researchers' belief about the nature of reality gives rise to their belief on the nature and creation of knowledge. Antwi and Hamza (2015) describe two contrasting viewpoints researchers could adopt in their research, being positivism and interpretivism. The positivist viewpoint holds that reality can be objectively measured using quantifiable metrics and factors that are independent from the researcher, whereas the interpretivist viewpoint holds that reality should be understood from the subjective viewpoints of the individuals experiencing it and focuses on the use of methodologies where a subjective relationship exists between the topic researched and the researcher (Antwi & Hamza, 2015).

Given the presumption of an objective reality that exists independent of the perspective of the researcher, a researcher might be more inclined to advocate a positivist epistemological view, seeing the researcher as an objective observer of knowledge. On the other hand, given the adoption of a subjective reality, influenced by the perspective of the researcher, an interpretivist epistemological view might be adopted, seeing the researcher as an active participant in the researched field.

The Interpretivist stance is adopted for the purposes of this study. This is due to the subjectivity that inevitably underpins the insights drawn by the researcher with regards to the strengths and limitations of valuation methods as well as the identification of areas for further research. Furthermore, in evaluating the literary work on business valuation methods in an effort to determine state of valuation methods as well as attempting to determine when the different valuation methods may be deemed appropriate based on literature, a substantive amount of subjectivity is bound to prevail. This is due to there being no single correct answer as to how a company should be valued as even the theoretically superior valuation methods still require a certain number of assumptions and are subject to a certain amount of uncertainty.

4.1.3 Methodology and methods

The term "methodology" describes how a researcher intends to pursue what knowledge he or she believes can be gained (Antwi & Hamza, 2015). Stated simply, research methodology refers to the systematic manner in which a researcher chooses to gain knowledge (Killam, 2013). Research methodology assists the researcher in answering the question of how the world should be studied by guiding decisions on not only the type of data needed within the study, but also which tools might be used to collect said data (Rehman & Alharthi, 2016). Killam (2013) added that the research methodology adopted within a study is largely motivated by the ontological and epistemological assumptions held by the researcher. Similarly, Al-Saadi (2014) depicted the effect that the choice of epistemological perspective has on the role of the

researcher. Given that knowledge is seen as objective to the observer, scientific methods of testing and measuring objectively is advocated; if given that knowledge is seen as dependant on the perspective of the observer, thus personal and subjective in nature, a greater involvement with the subject matter is advocated, limiting the applicability of natural science methods such as testing and measuring (Al-Saadi, 2014).

As stated earlier, the philosophical viewpoints held by a researcher guides decisions on the gathering of data. Two broad approaches to the methods of data collection can be used, being a qualitative approach or a quantitative approach (Snyman, 2020). Qualitative data is normally collected in the form of formal or informal interviews, observations and/or published documents, whereas quantitative data is normally collected through experiments, standardised tests or relatively closed-ended questionnaires (Rehman & Alharthi, 2016).

Generally, qualitative methods have preference amongst researchers who adopt an interpretivist approach, whereas quantitative methods have preference amongst researchers who adopt a positivist approach (Bahari, 2010; Rehman & Alharthi, 2016).

In considering the relationship between the theory and research, two main orientations exist. The first being an inductive approach linked to the invention of a theory, the second being a deductive approach, linked to the testing of an existing theory (Bahari, 2010). A deductive approach is normally seen in quantitative research, whereas an inductive approach is common in qualitative research (Bahari, 2010). It follows that interpretivists normally utilise an inductive approach to research and positivists generally accept a deductive approach to research (Rehman & Alharthi, 2016).

In conclusion, this study adopts constructivism as an ontological perspective, interpretivism as an epistemological orientation and sees research as an inductive process. The study is a qualitative study and qualitative methods of data and information gathering will be used.

4.2 Literature study

Jesson *et al.* (2011) describes a literature review as "*a written appraisal of what is already known*". A literature review can classify as a stand-alone objective of a study, a review of some of the existing knowledge on a topic used as a basis from which the rest of the study is concluded, or a part of a broader concluded research report (Knopf, 2006). Literature reviews can be useful for a number of reasons, including the identification of other research to be done, fallacies and problems in the research, or simply providing an overview of the background information for a specific research topic (Knopf, 2006).

The aim of this study is to critically analyse and evaluate recent literature published on business valuation methods to determine when the different valuation methods should be deemed appropriate and address the research question. The secondary objective of the study is to determine, from the literature available, the uses of valuation methods and their respective limitations and strengths. In pursuance of this objective a wide range of literature on valuation methods will be consulted. Sources used within the literature review include peer-reviewed journal articles, dissertations, theses and reports amongst other sources. A systematic review of the literature published will then be utilised to achieve the main objective and other secondary objectives of this study. The rationale for the performance of a systematic literature review will now be discussed.

4.3 Systematic literature review

In traditional literature reviews, researchers consolidate the insights gathered by authors of their personal choice, which holds the risk of producing a biased review (Jesson *et al.*, 2011). The use of systematic literature reviews can aid in the identification of areas in the research field that still need to be explored as well as areas where, at the present time, no further research is required (Jesson *et al.*, 2011). The appeal of a systematic approach to a literature review lies in its less biased, standardised and transparent nature, rendering more objective conclusions than traditional literature reviews (Jesson *et al.*, 2011). Systematic reviews are particularly useful in assessing the current state of the art of a research topic or field (Higgins *et al.*, 2019; Xiao & Watson, 2019). Higgins *et al.* (2019) also advocated the performing of a systematic literature review prior to the pursuance of new primary research and emphasized that such a review could reveal the limitations of previous work and identify gaps that necessitate further research as a guide.

The use of a systematic literature review as methodology is also advocated when considering similar studies. Pelz (2019) utilised a systematic literature review to evaluate whether management accounting practises can have potential benefits in small companies. Yang and Xia (2021) utilised a systematic literature review as methodology to determine the state of the art of pricing strategies and provide commentary and recommendations of analytical models that could be used to address gaps within the literature. Thuy Thanh and Christian (2020) utilised a systematic literature review to provide a better understanding of the application of material flow cost accounting in developing countries. Finally, Montani *et al.* (2020) utilised a systematic literature review as methodology in a similar study also within the valuations' field, analysing the state of the art of start-up company valuation methods.

Seeing as the purpose of this study is to identify, according to literature, when the different valuation methods may be deemed appropriate, a systematic literature review can be seen as an adequate method for this identification. The systematic literature review as a method will help determine the literatures' viewpoint on the current state of the art of business valuation methods and when they may be deemed appropriate.

4.3.1 Process

The process of conducting a systematic literature review can be described in eight steps. Note that the steps can be categorised into three separate sections (Xiao & Watson, 2019). Step one and two form part of the planning phase of the literature review described throughout section two to section four-point-one; steps three to seven describe the conducting of the review described under section four-point-three-point-one (Population and sampling); and lastly step eight pertains to the reporting of the findings of the review described in section four-point-three-point-two (Data collection and analysis). A brief discussion on the implementation of these eight steps will now be discussed, followed by a more in-depth description of the population and sampling as well as the data collection and analysis.

Step 1. Formulating the research problem

Xiao and Watson (2019) noted that literature reviews are "research inquiries" and further advocated that these inquiries ought to be guided by research questions. The research question constructed in this study is as follows:

According to literature, in which circumstances would the different categories of valuation methods be deemed appropriate?

Step 2. Construction and validation of the review protocol

Within the social sciences field, a review protocol is synonymous with the research design and addresses how the research will be conducted or what methods will be utilised to conduct the review (Xiao & Watson, 2019). Xiao and Watson (2019) further noted that the research protocol (design) is a key element in assuring the reliability of the review, as it enables others to verify the findings by enabling them to replicate the study. The research design is described under section 4.1.3 (Methodology and methods), and throughout chapter one in general.

Step 3. Literature search

Within this study, the literature gathered and analysed consists mainly of articles published in prominent peer-reviewed academic journals. The use of prominent peer-reviewed academic journals is done to ensure the credibility of the work published. These literary works can be

found in electronic databases such as EBSCOhost, Web of Science, Scopus, ProQuest, IEEE Xplore and others (Xiao & Watson, 2019).

The keywords used to search for literature in this study should be those that deal with business valuation techniques. The terms *valuation method(s)/model(s); present value; asset-based; valuation multiples;* and *discounting method* will be used in this study. Boolean operators such as “AND” and “OR” will be used to ensure the literature presented in the search pertains to the study at hand.

Step 4. Screening the literature for inclusion

The primary source of literature will be that which has been published in peer-reviewed journal articles. Grey literature, which includes theses, reports, and other writings such as conference proceedings (Xiao & Watson, 2019), will only be considered when conducting backwards searches or as an addition to the peer-reviewed articles.

In selecting literature for inclusion, the following procedure will be conducted after conducting the aforementioned search for literature:

i. The titles of the studies will be evaluated for relevance to the study at hand. Only literature published in English in the preceding decade, of which the full text is available, will be brought into consideration.
ii. The abstracts of the literature will subsequently be examined to ensure the literature is relevant to the study at hand. Should the abstract provide insufficient guidance in this regard, the conclusion will also be considered.

A sample of the literary works adhering to the aforementioned screening requirements will be considered as the primary literature source. Grey literature identified in backwards searches will also be utilised to a lesser extent if necessary and are seen as supplemental to the primary literature source, this being the literary works published in peer-reviewed journals. Thus, the sample size will be limited to the number of articles published on business valuation methods in peer-reviewed journals adhering to the screening requirements specified, which is yet to be determined.

Step 5. Determining the quality of the literature

The importance of a quality assessment of the articles selected for inclusion in any literature review depends largely on the type of literature review performed (Xiao & Watson, 2019). When conducting descriptive reviews, such as a scoping review or a critical review, a quality assessment of the selected articles is less important than in testing reviews, as the aforementioned concerns the breadth of studies and aims to generate inclusive views of the

literature (Xiao & Watson, 2019). Notwithstanding scholars' acknowledgement that a consensus regarding how a reviewer should approach quality assessment has not been met, it is advocated that reviewers remain mindful of differences in the quality of studies.

Regarding the study at hand, the descriptive nature of the review undertaken partially alleviates the necessity for rigorous quality assessment required for a quantitative study. Furthermore, the residual risk of including literature of a sub-standard quality has largely been mitigated by the screening criteria described in step four. This includes the use of peer-reviewed journal articles and preference as a primary source of literature. Justification of the aforementioned lies in the preference given to peer-reviewed articles as a superior source of literature in terms of quality and credibility in comparison to grey literature (Xiao & Watson, 2019). The justification of this point is further supported by similar systematic literature reviews in the accountancy field using academic articles almost exclusively as their literary sources (Marlowe & Clarke, 2022; Mofokeng, 2018; Wolf *et al.*, 2020).

Step 6. Data extraction

The identified literary works will be analysed. The key findings of the literature pieces will be distilled and summarised per study. ATLAS.ti™, a computer application useful in the analysis of qualitative data from a collection of literary works, will be utilised to further support the extraction of data from the included literature.

Step 7. Analysing and synthesising of the data

The extracted findings of the literary works will be evaluated and categorised according to the following headings, corresponding to the different categories of business valuation methods for convenience and understandability: (i) Asset-based valuation methods; (ii) Discounting methods; and (iii) Multiples methods.

Step 8. Concluding and reporting on the findings

The findings from the literature analysed and categorised will then be summarised and holistic conclusions, evident from the analyses, can then be made. These insights gained and conclusions drawn will be described in depth in the research article.

The structure of the preceding eight steps is based on the work of Xiao and Watson (2019).

4.3.2 Population and sampling

Kothari (2004) describes the term, 'population' as "*the total of items about which information is desired*". The adage of "garbage in, garbage out" applies when considering the quality of a literature review. Within this study, the literature gathered and analysed consists mainly of

articles published in prominent peer-reviewed academic journals. The use of prominent peer-reviewed academic journals is done to ensure the credibility of the work published (Xiao & Watson, 2019). These literary works can be found in electronic databases, such as Web of Science, Scopus, EBSCO, ProQuest, IEEE Xplore, Google Scholar and others (Xiao & Watson, 2019).

The keywords used when identifying and searching for the literature should be based on the research question (Xiao & Watson, 2019). The keywords used for the purposes of this study should thus relate to the topic of business valuation methods. The keywords identified for use in this study include *valuation method(s)/model(s)*; *present value; asset-based; valuation multiples;* and *discounting method*.

In the search for literature containing the above keywords and a relevance to the study, Boolean operators such as “AND” and “OR” will be used. These Boolean operators serve two purposes. Firstly, to ensure that no literary works are excluded due to the use of synonymous terms as alternatives to the selected keywords. This will be done by means of the “OR” Boolean operator. Secondly, to ensure that the literature presented by the search engine utilised is relevant to business valuations specifically and thus relevant to this study. The Boolean operator “AND” will be used to achieve this.

Regarding the initial screening of literature for inclusion, the following practical factors are considered and implemented:

Only literature in peer-reviewed literary works are taken into consideration as the primary source of literature. Grey literature (theses, reports, and other works such as conference proceedings) will only be brought into consideration when performing backwards searches or as supplementary to the peer-reviewed articles if necessary. The rationale of the aforementioned lies in the preference given to peer-reviewed articles above grey literature on the basis of quality (Xiao & Watson, 2019). As described above, this is considered appropriate as, given the status and credibility of peer-reviewed journals, this ensures that the literature considered are of an appropriate quality and credible. As stated earlier, the use of journal articles as primary source is further justified and supported by similar systematic literature in the accountancy field using academic articles almost exclusively as their primary source of literature (Marlowe & Clarke, 2022; Mofokeng, 2018; Wolf *et al.*, 2020).

In selecting literature for inclusion, the following procedure will be conducted after conducting the aforementioned search for literature as advised by Xiao and Watson (2019): Firstly, the titles of the literature will be evaluated to determine the relevance to the research topic, and

those relevant to the study will be identified. For the purposes of this study, only literature applicable to business valuation methods will be considered. Of these works, only those published within the preceding ten years and written in English will be considered. In doing so, the study aims to ensure the literature evaluated is of current importance and currently relevant to the specific field of study.

Secondly, the abstract of the identified literature will be examined to further assess its usability and relevance to the research topic. In instances where the abstract of the article does not provide enough guidance as to the relevance to and usability of the study, the conclusion will also be brought into consideration. This further refines the sample of literature to ensure the literature selected pertains to the study at hand.

In this study, the literary works published in peer-reviewed journals adhering to the aforementioned screening requirements will be considered as the primary literature source. Grey literature identified in backwards searches will also be utilised if necessary, and are seen as supplemental to the primary literature source being the literary works published in peer-reviewed journals. Thus, the sample size will be limited to the number of articles published on business valuation methods in peer-reviewed journals adhering to the screening requirements specified, which is yet to be determined.

4.3.3 Data collection and analysis

Data used in research can be grouped into two categories: primary and secondary data. Primary data refers to data that was personally collected by the researcher for the purposes of the current research, whilst secondary data refers to data used by the researcher that was originally collected for a different reason than the current research (Vartanian, 2010).

Within this study, no primary data is collected, rather the analysis of secondary data is utilised to address the research question. Secondary data utilised take the form of peer-reviewed academic articles published in peer-reviewed accountancy journals over the preceding ten years on the topic of business valuation methods adhering to the screening requirements specified. Grey literature identified through backwards searching will also be brought into consideration, supplementing the articles evaluated.

This study aims to structure and summarise the insights gathered by the journal articles included in the sample to determine when the different valuation methods may be deemed appropriate and address the research question. The findings are categorised according to the following headings corresponding to the different categories of business valuation methods for convenience and understandability: (i) Asset-based valuation methods; (ii) Present value

methods; and (iii) Multiplier methods. To accomplish the aforementioned aim, the full text of the articles identified in the screening phase will be analysed. Backward searching of relevant articles is utilised in addition to the analysis of the identified articles to further substantiate the findings presented and ensure a complete and coherent argument and conclusion. Furthermore, the computer application ATLAS.ti™ will be utilised to further extract and analyse the literature and data pools.

5 ETHICAL CONSIDERATIONS

Ethics in research, defined by the University of the Western Cape (2023), "*involves the application of fundamental ethical principles to research activities which include the design and implementation of research, respect towards society and others, the use of resources and research outputs, scientific misconduct and the regulation of research*". Throughout this study, ethical considerations will be kept in mind. There will be no human participants within this study, nor will there be a need for human interaction for the purposes of this study. The aforementioned two factors limit or minimise the amount of ethical risk involved in performing this study.

6 CHAPTER OVERVIEW

6.1 Chapter one: Introduction

Within this chapter, a background on the idea of valuation methods is given. The uses of valuation methods are explored and the origin of some of the popular methods are described. Chapter one concludes by introducing and addressing the research problem as a motivation for this study as well as describing the methodology accepted for the purposes of this study.

6.2 Chapter two: Research article

This chapter begins with an evaluation into valuation methods including present value (discounting) methods, multiples methods, and asset-based valuation methods and describes their respective strengths and limitations. Within this chapter, the appropriateness of the different valuation methods within different circumstances, as evident from the literature, will be evaluated. This includes a critical analysis of the preceding ten years' literature published on business valuation methods.

6.3 Chapter three: Conclusions and recommendations for further research

Within chapter three, a summary of the findings derived in the research article (chapter two) is given. This includes a discussion on the practical implications for practitioners.

Subsequently, opportunities for further research evident from the findings in chapter two is identified. Furthermore, this chapter will describe to what extent the research objectives were attained.

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CHAPTER 2: RESEARCH ARTICLE

The role and appropriateness of different valuation methods: A systematic literature review

DANEEL BARNEY CILLIERS[a*] DANIE SCHUTTE[b] and SURIKA VAN ROOYEN[c]

[a]School of Accounting Sciences, North-West University, Potchefstroom, South Africa; [b]School of Accounting Sciences, North-West University, Potchefstroom, South Africa; [c]School of Accounting Sciences, North-West University, Potchefstroom, South Africa

[*] Corresponding author email: d.cilliers.dc@gmail.com

orcid.org/0000-0002-8032-7737

The role and appropriateness of different valuation methods: A systematic literature review

The appropriateness a valuation method chosen depends on the circumstances surrounding the valuation. This article addresses literature's viewpoint on when the different valuation methods should be deemed appropriate. Journal articles on the topic of valuation methods from 2019 to 2023 were studied and a systematic literature review was conducted. 36 papers in total were analysed. Asset-based valuation methods are appropriate when companies are in economic distress; in establishing a minimum or liquidation value; and in industries having a greater share of fixed assets. Differing opinions towards Asset-based methods' appropriateness in the valuation of start-up entities are found. Discounting methods find difficulty in valuing start-ups; more so in the e-commerce industry; or companies in distress. The Discounted Dividend method is less appropriate in multi-segmented firms whilst the Economic Value Added method could be ideal in multi-segmented firms. The Residual Income Valuation method is ideal when companies have high levels of intangible assets. Valuation multiples are ideal for valuing larger, profitable firms; minority shareholding; firms with multiple business units and, if the correct multiples are chosen, start-ups in the e-commerce industry. Furthermore, EBITDA and Price/Earnings multiples are favoured in emerging markets; EBITDA multiples found favour in valuing individual business units and Price/Book multiples generate less biased estimations than that of Sales multiples. We concluded that further research is needed to conclusively determine when the various methods should be deemed appropriate.

Keywords: asset-based methods; appropriateness; discounting methods; multiples method; systematic literature review; valuation methods.

JEL Classification: G11, G12, G32, G34, M41

1 INTRODUCTION

Business valuations can be described as the estimation of the price or value of an entity's assets and benefits obtained by the entity due to their effective management (Miciuła et al., 2020). It is a combination of procedures and assessments undertaken to estimate the monetary value of an entity at a specific point of time (Miciuła et al., 2020). The concept of valuations is centred

around reducing the amount of subjectivity involved in a practice that is inherently subjective (Carvalho et al., 2023; Erkilet et al., 2022; Nenkov & Hristozov, 2022). Some valuation methods have even been described as the backbone of the financial system as it is known today (Agarwal & Dave, 2022).

Valuation methods are used for a plethora of different reasons, including, but not limited to, aiding in the allocation of scarce resources of an entity (Agarwal & Dave, 2022); estimating the fair value of an entity important to investors (Agarwal & Dave, 2022; Miciuła et al., 2020); determining the fair value of an entity as requested by legal courts (Allee et al., 2020; Suler et al., 2021); for taxation purposes (Allee et al., 2020); in decisions regarding mergers and acquisitions (Allee et al., 2020; Liapis et al., 2023; Miciuła et al., 2020; Suler et al., 2021; Vayas-Ortega et al., 2020); in financing decisions and bond offerings (Vayas-Ortega et al., 2020); in setting initial public offering (IPO) prices (Liapis et al., 2023; Vayas-Ortega et al., 2020); in the assessment of credit applications by banks (Vayas-Ortega et al., 2020); in capital budgeting and investment decisions (Gnap & Pitera, 2023); in guiding strategic decision-making of an entity (Liapis et al., 2023; Miciuła et al., 2020; Silva Jacques et al., 2021); and in the assessment of risk, senior management performance and portfolio management (Behera, 2020; Vayas-Ortega et al., 2020).

Within developing countries, accurate valuations are essential to attracting external investors and as such the development of the market in general (Behera, 2020). Investment decisions based on these valuations have a direct impact on the value of an entity (Gnap & Pitera, 2023).

Having established the usefulness of valuation methods, it should be noted that the process of accurately valuing an entity is no easy task. There are several different valuation methods that can be used to value an entity, all of which have their strengths and limitations affecting the accuracy of and confidence in the value estimation provided (Anadol et al., 2014; Nenkov &

Hristozov, 2022). Furthermore, different valuation methods perform and behave differently according to the context in which they are applied (Harasheh et al., 2020). There is a significant association between the selection of the valuation method or valuation approach and the accuracy of the value estimation, and subsequently the usefulness of the valuation outcome (Erkilet et al., 2022). Notwithstanding the limitations associated with the different methods, valuation methods remain an essential element in the financial world for both practitioners and strategic management of entities alike, if an appropriate valuation method is selected.

The remainder of this article is structured as follows: The second section, *Background*, provides an overview of different valuation methods and introduces the rationale and goal of this article. The third section, *Methodology*, is dedicated to explaining the research process followed, including, but not limited to: the conducting of the systematic literature review; the screening procedures followed and the literature selected for inclusion; the use of ATLAS.ti™ as qualitative analysis software; and the analysis and synthesising of the available data and results. The fourth section, *Results*, describes the findings of the systematic literature review conducted and separates results into, firstly, valuation methods in general, and then evident findings on specific valuation methods. The fifth section, *Conclusion*, summarises and concludes upon the research conducted and the relevance thereof for the research field and practitioners, describes any limitations to the study, and identifies areas for further research.

2 BACKGROUND

As stated earlier, many different valuation methods exist. Although having been grouped differently by different scholars (Allee et al., 2020), the various methods are categorised into three main groups for the purposes of this study: (i) Balance Sheet methods (Asset-based methods); (ii) Discounted Cash Flow methods (Discounting methods); and (iii) Earnings Multiples method (Multiples method) (Agarwal & Dave, 2022; Vayas-Ortega et al., 2020). A

brief description of the methods follows.

2.1 Asset-based methods

Asset-based valuations, being an absolute valuation model, estimate the value of an entity by approximating the value of the assets held by the entity on either liquidation, book, or market value, depending on the circumstances associated with the valuation (Shin et al., 2023). Asset-based valuation methods rely on pre-existing accounting information held within the financial statements and other records of an entity (Vayas-Ortega et al., 2020). The values determined from the records of the entity are subsequently adjusted to the contextual factors specific to the individual assets held to ascribe a value to said assets (Vayas-Ortega et al., 2020). These adjustments compensate for elements, including, but not limited to, unrealised capital gains, expected future taxes associated with assets, the intrinsic value of the entity or goodwill, and various project-specific financing variables (Vayas-Ortega et al., 2020).

2.2 Discounting methods

Discounting methods ascribe a value to an entity by calculating the present value of the future cash flows expected by the entity at a rate that incorporates the risks associated with the entity (Carvalho et al., 2023). The popularity of discounting methods has been established by numerous scholars, finding discounting methods to be the most widely and often used valuation methods (Gnap & Pitera, 2023; Nenkov & Hristozov, 2022; Shin et al., 2023; Vayas-Ortega et al., 2020). Included under the umbrella of discounting methods lies common models such as the Discounted Cash Flow method (DCF), including both the Free Cash Flow to Firm method (FCFF) and the Free Cash Flow to Equity method (FCFE), Residual Income Valuation method (RIVM) and, for the purposes of this study, the Economic Value Added method (EVA), Abnormal Earnings Growth method (AEG), and Discounted Dividend method (DDM) amongst others (Nenkov & Hristozov, 2022; Vayas-Ortega et al., 2020). A brief description of the methods follows below.

The AEG method considers the relationship between the price, the future earnings expected and the growth in abnormal earnings (Ausloos, 2020). The AEG method derives valuation estimates by determining the expected company earnings in the first period, capitalising said expected earnings at a rate equivalent to the cost of equity capital and adding the present value of the expected future abnormal earnings growth (Anesten et al., 2020).

The DCF method, being a popular valuation method based on the income-approach, estimates the value of an entity as the sum of the cash flows discounted to a present value at an appropriate rate (Drissi, 2023; Miciuła et al., 2020; Shin et al., 2023). The method assumes that the value of an entity is a function of the entity's cash generating ability (Drissi, 2023). The DCF method operates under the assumption that the entity will continue to operate in the foreseeable future, ideally 'until infinity' (Nenkov & Hristozov, 2022).

The DDM method, or Gordon's growth method, is a widely known method useful as an analysis tool in elementary financial applications, including both the valuation of entities and cost of capital calculations (Kudar & Sayılgan, 2021). The method determines the intrinsic value of a stock as the present value of the future dividends, grown at a constant rate (Kudar & Sayılgan, 2021).

The EVA valuation method considers returns generated by the entity in excess of the normal required earnings, in an attempt to evaluate the company's performance in comparison with the normal market return being the book value of invested capital multiplied with a return expected in the market (Behera, 2020).

The RIVM method values an entity by considering the net income of the entity less the opportunity cost of generating the income (Harasheh et al., 2020). The advantage of this method lies in its consideration of the information content incorporated by the difference between earnings and the investment cost incurred to generate the earnings (Harasheh et al.,

2020; Mousa et al., 2021). Ohlson's 1995 model, one of the most used and cited models, logically considers the link between the market value of residual earnings on the one hand and other valued resources in the other (Mousa et al., 2021).

2.3 Multiples method

The term 'valuation multiple' describes a ratio, normally consisting of the current market value of an entity's assets as the numerator, and a magnitude of economic value or performance as the denominator within the ratio (Martín, 2019). Using a multiples-based valuation method, the value of an entity is determined by assessing a performance measure of the valued company relative to another entity, usually within the same industry and of a similar nature (Ausloos, 2020; Shin et al., 2023). The analysis of the multiple in comparison with an appropriately selected entity or peer group of entities leads to the multiplying of a determined ratio with a value driver selected for the valuation method, and the entity's value is acquired (Martín, 2019).

Many benchmarks used could be selected to aid in determining corporate value estimations in this regard, some of which include stock price, comparable company performance, elements within the statement of financial position, and valuation reports amongst others (Vayas-Ortega et al., 2020). For the purposes of this study, a holistic approach is taken, and multiple methods (also referred to as the '*Market-based valuation approach'* (Saastamoinen & Savolainen, 2019)) as a whole is evaluated rather than examining individual multiples, where relevant findings related to individual multiples are included on a supplementary basis.

Having broadly introduced some of the various valuation methods above, the problem of selecting an appropriate valuation method remains.

2.4 Selecting a valuation method

Various valuation methods have been shown to accurately estimate the value of an entity. The key in selecting an appropriate method lies in the consideration of the contextual factors related

to the valuation (Martín, 2019; Miciuła et al., 2020; Silva Jacques et al., 2021).

Agarwal and Dave (2022) found a highly positive correlation between the value of FCFE, dividend payout ratio and debt equity ratio with the market price per share of companies in the pharmaceutical, oil and natural gas, and information technology sector. However, Agarwal and Dave (2022) also found a relatively lesser positive correlation of the aforementioned in the fast-moving consumer goods (FMCG) and automobile sector, the lowest correlation being in the FMCG sector. Ausloos (2020) found the free cash flow valuation method to be a reliable method for UK companies, whilst Shin et al. (2023) concluded that discounting methods, including the free cash flow method, are not suitable and yield inaccurate results in the e-commerce industry.

In a similar manner some articles site the dividend discount method and abnormal earnings method to be superior to the free cash flow approach (Hukelmann et al., 2012, as cited in Kudar & Sayılgan, 2021). Some scholars, such as Ausloos (2020), found that the RIVM method outperformed both the DDM and free cash flow method, whilst other scholars validate the use of DCF methods in valuing companies with stability, most accurately so in the utilities sector (Vayas-Ortega et al., 2020).

All of the aforementioned substantiate the argument that the appropriateness of the valuation method selected, and accordingly the accuracy of the valuation, depends on the circumstances of the valuation and the applicability and accuracy of the various methods within the various contexts.

Having established the importance of valuation methods and that an appropriately selected and applied valuation method can still provide an accurate estimation of company value, the question of when the different methods should be deemed appropriate lingers. This article holds the opinion that instead of disregarding the validity of particular methods in their entirety,

proper guidance needs to be given as to when the various methods should be deemed appropriate. Therefore, after having established a brief introduction to the different valuation methods above, the purpose of this study is to evaluate, from the available literature, when the different valuation methods should be deemed appropriate. This study aims to consolidate the findings of the literature to determine when the various methods produced accurate results and the context in which the results were obtained. This is done to guide practitioners in the effective selection of methods to use in their valuations.

This article relates to the existing body of research regarding business valuations across various industries and within different contexts. Firstly, this article provides a brief description of some of the attributes of the various valuation methods. Secondly, the article explores and analyses the findings of current literature to determine when the various methods have been found to be appropriate. Additionally, article contributes to the research field by summarizing the various ways in which scholars have improved the accuracy of the various valuation methods, and the factors and inputs used within them.

The advantage of this article lies in its usability as guidance to valuation practitioners, providing a holistic viewpoint of the limitations and strengths of various valuation methods, when they have been found to be appropriate, and suggesting various ways in which the accuracy of the valuation methods could be improved.

3 METHODOLOGY

This qualitative article adopts an inductive research paradigm. It analyses previous literature on valuation methods, in order to evaluate the appropriateness of the various valuation methods, aiding practitioners in the selection of appropriate valuation methods. A systematic literature review is utilised in pursuit of the aforementioned.

The relevance of conducting a systematic literature review lies in the less biased opinions generated by the review, due to its standardised and transparent nature, aiding in the identification of areas that still require research or need no further exploration, and scholars' advocation of a systematic review prior to conducting further primary research within a field (Higgins et al., 2019; Jesson et al., 2011; Xiao & Watson, 2019). Further justification for conducting a systematic literature review stems from its recent use in the accountancy field in a similar manner (Montani et al., 2020; Pelz, 2019; Thuy Thanh & Christian, 2020; Yang & Xia, 2021). This review is conducted in accordance with the works of Xiao and Watson (2019), advocating three different sections to the review: planning the review, conducting the review, and reporting the findings.

3.1 Planning the review

The research question has been defined as follows: According to literature, in which circumstances would the different categories of valuation methods be deemed appropriate? Accordingly, the primary research objective was deduced as follows: to critically analyse the literature to determine the appropriateness of different valuation methods, as advocated by scholars, to provide insight into their appropriateness in business valuations under certain circumstances.

The following supporting secondary objectives emerged: (i) to determine, from the literature available, the uses of valuation methods and their respective limitations and strengths; (ii) to critically evaluate the appropriateness of different valuation models used in business valuations under different circumstances evident within the literature; and (iii) to provide guidance on when the implementation of the respective valuation methods can be deemed appropriate. Being mindful of the well-known "garbage in, garbage out" idiom, academic articles were used as the primary source of literature to ensure the quality of the literature included and analysed within this review.

3.2 Conducting the review

This section describes the following steps taken: the search for relevant literature; the screening of literature for inclusion; determining the quality of the literature; and the extraction analysis and synthesis of the data.

3.2.1 Searching for literature

The literature used for the purposes of this article consists of academic articles published in peer-reviewed academic journals on the topic of valuation methods, within the preceding ten years, being between 2019 and 2023. The author found that the initial keywords considered, including *Valuation method(s)/model(s); Present value; Asset-based; Valuation multiples;* and *Discounting method,* unintentionally scoped out other relevant studies on the topic of valuation methods. These included articles about valuations either not pertaining to the aforementioned methods, focussing on an individual model within these categories, or pertaining to a new or other valuation method. The choice was subsequently made to broaden the scope of the literature search to the following keywords: *Valuation method; Valuation model; Business; Company;* and *Entity.* Boolean operators and wildcard characters where utilised to include all relevant literature. The resulting search string is as follows:

("Valuation method" OR "Valuation model*") AND (Business* OR Compan* OR Entit*) NOT ("Property valuation*" OR "Real estate")*

The databases utilised include: EBSCOhost (specifically *Business Source Complete; E-Journals; EconLit with Full Text; Academic Search Complete; SocINDEX with Full Text; MasterFILE Premier*); *Scopus* and *Web of Science*.

The search results were as follows: *Scopus* n=776 articles; *Web of Science* n= 278 articles; *EBSCOhost* n=369 articles (*Business Source Complete* n=305*; E-Journals* n=202*; EconLit with Full Text* n=128*; Academic Search Complete* n=93*; SocINDEX with Full Text* n=10*;*

MasterFILE Premier n=9). The total population size prior to removing duplicates included 1080 articles. The available fields were exported into EndNote. EndNote's *Remove Duplicates* function was utilized, and 431 duplicates were removed. Subsequently, the author examined the remaining articles and identified and removed an additional 22 duplicates. As such the population of literature before screening for inclusion included 627 articles.

3.2.2 Screening of literature for inclusion

The titles and abstracts of the population of literature were analysed to determine relevance to the article at hand. Should the title and abstract not have given enough indication of relevance, the articles were marked for consideration of conclusion to provide further guidance. In performing the aforementioned, the author reduced the scope of the article to include only articles published in the preceding five years (adjusted total population size before screening for inclusion=284 articles).

The initial screening resulted in 56 articles being selected for inclusion, 194 articles being excluded as they were not relevant to the study at hand, and 34 articles selected for consideration of conclusions. The *Find Full Text* function of Endnote was used to gather the articles. Of the articles selected for inclusion, the full text of 34 articles could be found.

Of the articles selected for consideration of conclusion, the full text of 18 articles could be found. The articles selected for consideration of their conclusion's conclusions were analysed and of the 18 articles eleven articles were included and seven articles were excluded. A further nine articles were excluded due to having a different focus than valuation methods. The total number of articles adhering to the screening requirements equates to 36. The abovementioned is illustrated for convenience in *Figure 1* on the following page.

3.2.3 Determining the quality of the literature

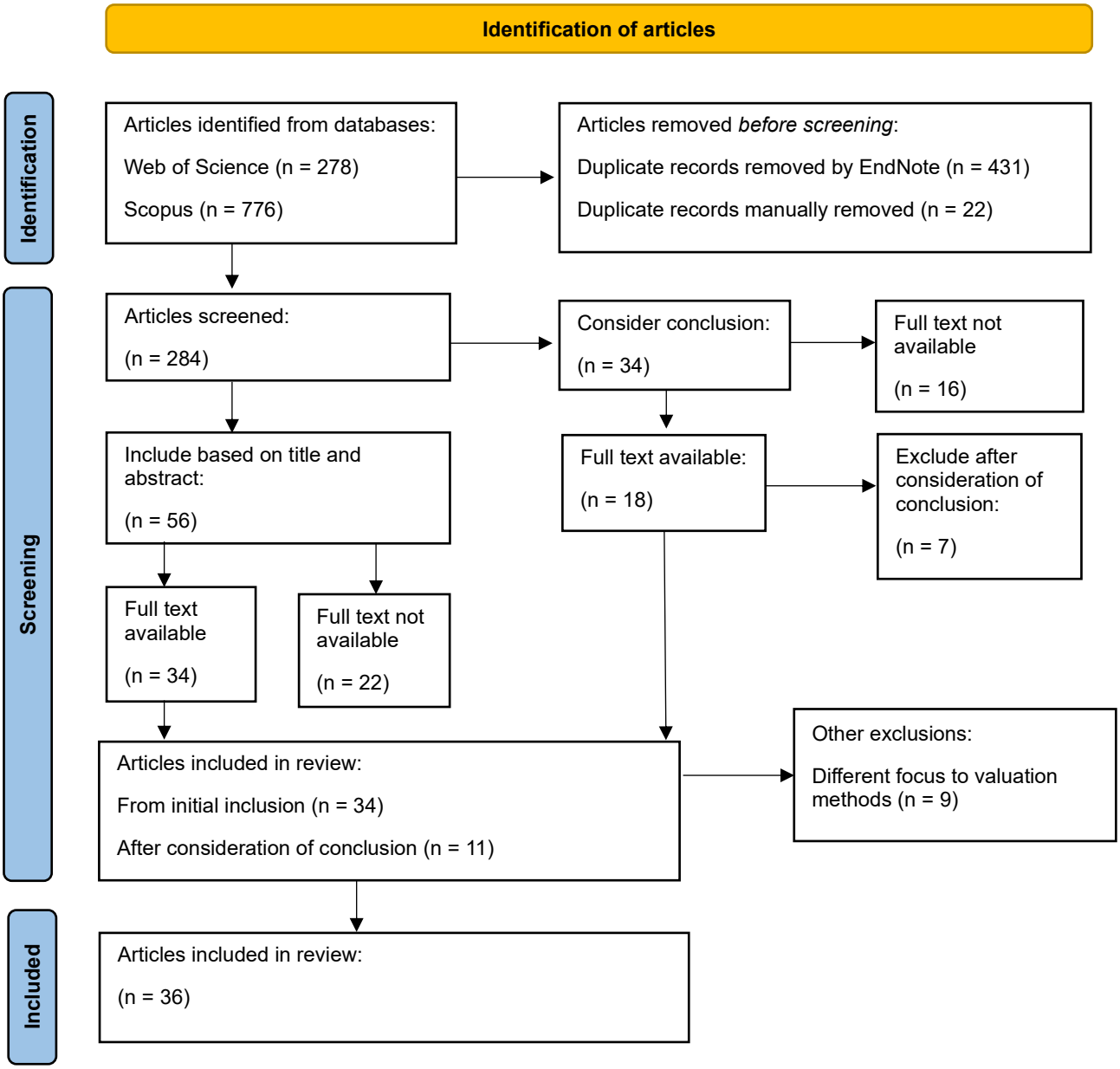
Xiao and Watson (2019) advocated the superiority of peer-reviewed articles above grey

literature, such as theses, reports, and other works such as conference proceedings in terms of quality. Therefore, the use of peer-reviewed journal articles as primary literary source was used to ensure the quality of the included literature.

Scopus and Web of Science as databases are seen as adequate sources of literature, as both of these databases have been called ‘world-leading’ citation databases and are increasingly used by scholars as sources of literature for academic research (Zhu & Liu, 2020). Their widespread use in studies conducting meta-analyses also advocate their use for this systematic literature review (Zhu & Liu, 2020).

3.2.4 Data extraction, analysis and synthesis

In the extraction of data from the literary works, ATLAS.ti™, a qualitative data analysis software, was utilised. Utilising ATLAS.ti™, the journals articles included for the purposes of this study were codified and personal notes were inserted where necessary. The coding process included the establishment of key themes and concepts evident from the coded literature. In conducting the data extraction with the use of ATLAS.ti™, an inductive coding approach was utilised. In coding the data and identifying of key themes and concepts, codes were grouped into different categories to form a basic framework used for the structuring of the findings and discussion of key points evident from the literature.



(Source: Researcher's own compilations)

Figure 1: Identification of articles

The process of examining the literature, codifying the articles selected for inclusion, identifying key themes and concepts, and the grouping of codes into themes enabled the author to extract rich information from the literature, identify similar findings across different articles and ultimately aided in determining the role and appropriateness of different valuation methods. A brief overview of the coding framework follows. Note that the grounded figures of the folders have been added. This represents the total number of times an individual code has been applied,

or withing folders or code groups, the aggregate of the total number of times the individual codes within the folder or code group have been applied.

Three main folders, being *Contextual and universal* (Grounded: 688); *Methodology* (Grounded: 129); and *Valuation methods* (Grounded: 714), were created. Subfolders within the *Valuation methods* folder including *Asset-based methods* (Grounded: 55); *Discounting methods* (Grounded: 584); and *Multiples methods* (Grounded: 177) amongst others were used to categorize the findings. Within these subfolders, code groups were utilised to group the individual codes. Codes used within each code group include *Accuracy; Advantages; Limitations; Improving accuracy; Uses;* and others as the needs for them arose out of the literature studied. Other code groups focussing on data not referring to a particular valuation method but rather valuation methods in general, a group of valuation methods, or the concept of valuations were also utilised. The context and circumstances in which the findings were derived were also codified and grouped. This included the creation of codes describing the market environment of the entity, its current financial state, the size of the entity, the nature of its operations, and the country and industry in which it operates, amongst others.

3.3 Reporting the findings

After having codified, grouped, and extracted the data from the literature into reports, the findings were grouped, analysed and synthesised within the different categories identified, the result of which follows below.

3.4 Ethical considerations

This article has no material ethical risk as no human participants were involved in conducting the research.

4 RESULTS

The articles included in this review had different formats in their evaluation of valuation

methods. Some compared the various methods with one-another (Allee et al., 2020; Anesten et al., 2020; Ausloos, 2020; Behera, 2021; Harasheh et al., 2020), others studied individual valuation methods (Behera, 2020; Nenkov & Hristozov, 2022), proposed new valuation models (Dierkes & Schäfer, 2021; Miciuła et al., 2020; Schneider & Junichi, 2020), or merely examined the application of the various methods within different contexts (Conradie & Lamprecht, 2021; Harasheh et al., 2020; Tsanacas, 2022) to name a few. In analysing the works included within the various articles, relevant findings have been grouped into categories for the sake of convenience. These include (1) *Valuation methods in general;* (2) *The choice of valuation method;* (3) *Other considerations;* (4) *Asset-based methods;* (5) *Discounting methods;* and (6) *Multiples methods.* The findings will now be explored accordingly.

4.1 Valuation methods in general

The literature studied provided some insight into the drawbacks and limitations of traditional valuation methods. When an entity is under business rescue with the purpose of continuing to exist, practitioners deem traditional valuation approaches irrelevant (Conradie & Lamprecht, 2021). For instance, in situations of business rescue, Conradie and Lamprecht (2021) found that the majority of business rescue practitioners calculate the expected free cash flow for the following three years excluding a terminal value and do not discount these values. The applied steps do not really classify as a valuation method but is rather just an undiscounted cash flow forecast.

In the context of high-tech platform-based companies, traditional valuation methods have been found to be inadequate because of the radical changes in both organisational and operational structure commonplace in high-tech firms (Tsanacas, 2022). Tsanacas (2022) further highlighted that many platform-based high-tech companies have different and ‘unorthodox’ financing and corporate structures, initial negative cash flows, and unclear profitability estimates, leading to difficulties in the calculation of their weighted average cost of capital

(WACC) and subsequently, these companies are frequently overvalued. Furthermore, these methods also fail to adequately value digital subscription-based business models as they fail to incorporate the high market capitalisation of digital enterprises who have found success in the market (Schneider & Junichi, 2020).

The use of traditional valuation methods in the valuation of start-up entities are also not without their fallacies. Start-up entities have difficulty producing a profit within the short term and lack the necessary financial data enabling the proper use of traditional valuation methods (Huang et al., 2020). Huang et al. (2020) further noted that traditional valuation methods fail to incorporate qualitative factors in their value assessment, often being an important aspect within the context of start-up entities.

4.2 The choice of valuation method

The choice of valuation method is largely influenced by the objective of the valuation and the selection of an appropriate valuation method is not as simple as it might seem (Gnap & Pitera, 2023; Suler et al., 2021).

In general, practitioners may choose a specific valuation method based on the availability of information begotten to them and the preference they hold (Harasheh et al., 2020). Allee et al. (2020) found that professional judgement is one of the main factors influencing practitioners' choice of valuation method, followed by perceived differences in the accuracy of the methods, existing legal precedent and case laws. In further follow-up interviews with practitioners, they found that the sophistication of the client, or valued entity, also plays a role in the selection of a valuation method, acknowledging that smaller entities, as an example, may be difficult recipients of a DCF or other income-based methods as relevant data and projections might not be available.

Many scholars have noted that practitioners utilising valuation methods tend to use more than

one valuation method in valuing an entity as a whole or an individual business segment (Chlomou & Demirakos, 2020). They also found that when analysts utilise more than one valuation method in their estimation, of which the sum of parts valuation method (SOPV) is one, they tend to base their final price estimation on the SOPV method and deem it the preferred method (69.81% of cases studied). The use of the SOPV method is considered appropriate in multi-segment firms as different divisions have different growth profiles (Chlomou & Demirakos, 2020). Interestingly enough, despite the rationale of the SOPV method's application to multi-segmented firms, holistic approaches provided a more accurate estimation of company value (Chlomou & Demirakos, 2020).

Saastamoinen and Savolainen (2019) found that in the judicial appraisal of private firms, the preference in chosen valuation methods of the plaintiff, defendant and judge favour the market-based approach, followed by the asset-based approach and lastly the income-based approach. They also noted that the judge's verdict on the value of the shares is influenced slightly more by the estimation of the majority shareholder's (buyer's) estimation in a squeeze-out. If the valuation method selected by the judge corresponds to the valuation method suggested by the litigant, the outcome of the appraisal tends to favour the litigant having the corresponding valuation method to the judge's selection (Saastamoinen & Savolainen, 2019). In Saastamoinen and Savolainen's (2019) context, they concluded that market-based approaches could potentially lead to lower valuation outcomes. Notwithstanding their tendency to produce lower estimations, Harasheh et al. (2020) found the market method to be most appropriate in estimating single share risk valuations and volatility modelling when compared to other accounting-based models.

Erkilet et al. (2022) noted that practitioners rely on both private and public information sources when considering possible valuation methods and approaches to be implemented. They also

noted that in sell-side valuations, analysts prefer to utilise market-based approaches (39%), followed by income and hybrid approaches (33% and 28% respectively). Analysts have also been found to prefer a holistic valuation approach as opposed to a SOPV approach (70% vs 30%) (Erkilet et al., 2022). In evaluating which factors affect the choice of valuation methods, they found that analysts typically prefer market-based valuation approaches for larger, profitable firms with multiple operating segments; the income approach for smaller, less risky and somewhat less profitable entities with fewer reporting segments; and a hybrid approach for smaller, less risky entities who are less profitable.

Analysts' target price errors do not differ significantly when comparing the income to the market approach of valuation methods (Erkilet et al., 2022). The SOPV method sees preference in larger, more risky entities with multiple segments. The SOPV has also been found to regularly overvalue entities, possibly due to the profit shifting of conglomerate companies (Erkilet et al., 2022). Erkilet et al. (2022) stated that hybrid approaches, weighing the different methods' contribution to the final estimate subjectively, tends to generate, whether consciously or unconsciously, manipulated values.

They further noted that the use of more than one valuation method (specifically the DCF as primary and multiples method as justification) can be seen as an attempt to justify the inherently subjective results obtained in income approach valuations to market expectations. The SOPV method's accuracy increases significantly when hybrid models are used within the approach but even the adjusted SOPV and hybrid methods still underperform in comparison to holistic market and income approaches (Erkilet et al., 2022).

4.3 Other considerations and adjustments

Adjustments to the information and forecasts available are still commonplace when valuing an entity. Allee et al. (2020) found that the most frequent adjustments made account for the

removal of personal expenditure relating to the owners of the entity, followed by adjustments for deferred tax and other non-cash expenses, adjustments made to reflect the fair market value of compensation, and others. Considering unaudited financial statements, the most frequent adjustments included an adjustment of the cost of capital used in the valuation and, secondly, adjustments to the forecasted flows (Allee et al., 2020). It should be noted that adjustments made due to the statements being unaudited is not commonplace amongst practitioners.

Dierkes and Schäfer (2021) found that existing valuation methods, specifically those based on the Gordon and Shapiro model, fail to reflect the value of businesses with multiple business units. This is due to the accounting measures within these entities shifting profits between units and basing strategic decisions on the development of the entity as a whole, and not the individual business unit, specifically regarding cross-unit investments.

Having discussed valuation methods and the choice of valuation method in general and holistically above, findings regarding the different categories of valuation methods will now be discussed.

4.4 Asset-based methods

Within the literature studied, 15 articles included a discussion on asset-based valuation methods (Grounded = 55). The relevant aspects of the literature on asset-based valuation methods follows.

There are advantages to using asset-based valuation methods. Having less estimations and assumptions necessary, asset-based valuation methods provide a more objective estimation compared to their discount and multiples-based counterparts (Shin et al., 2023). Miciuła et al. (2020) highlights the advantages of using the adjusted net asset valuation method and concludes upon the following, amongst others: only requiring access to basic data; the relative objectivity and ease with which the method is exercisable; being a good indication of the lower

rage of values when negotiating; and considering the current condition of the assets. They stated that notwithstanding the increase in the popularity of income-based methods, asset-based valuation methods still serve as the basis estimation of the value of an entity. Harasheh et al. (2020) notes that, within the Palestinian stock exchange, book values form the base level of firm valuations and is subsequently integrated with earning or return generating ability.

Asset-based valuation methods also have some limitations and disadvantages. Asset-based valuation methods fail to reflect the future value of a firm and as such are seldom used in decisions regarding mergers and acquisitions (Shin et al., 2023). Even though asset-based valuation methods are known to be less subjective than their discounting counterparts, these methods are still victim to reasonable amounts of subjectivity as the choice of which assets to adjust differs and depends largely on the practitioner's judgement (Miciuła et al., 2020).

Furthermore, different adjustments to the balance sheet items are made depending on the reason for the valuation (Miciuła et al., 2020). When using the adjusted net asset valuation method, common practice dictates that only the most important assets items on the balance sheet are adjusted due to practicality (Miciuła et al., 2020). Miciuła et al. (2020) highlighted that large discrepancies within this method are normally due to the usage of historical cost measurement base in the balance sheet as well as the difficulty in classification of some items as either foreign capital or equity. The difficulty associated with the valuation of specific intangible and legal assets also complicates this method (Miciuła et al., 2020). These items that cannot be sold are valued at zero in the statements of an entity (with certain exceptions including non-transferable software licenses amongst others). However, should the company be sold as a going concern, these items could represent a measurable value and cause difficulties in the valuation process (Miciuła et al., 2020).

Miciuła et al. (2020) highlighted that, only remeasuring categories or items deemed of material

substance, asset-based methods tend to undervalue an entity. Furthermore, it is noteworthy that the market value of an entity is seldom only a reflection of the assets presented in the statement of financial position of an entity and that external economic factors also have a role in the value of an entity (Miciuła et al., 2020). Belesis et al. (2020) found that investors put more trust in financial market information as opposed to accounting information, concluding that other valuation methods utilising the Capital Asset Pricing Model (CAPM) outperforms asset-based methods based on accounting information. Belesis et al. (2020) highlighted that the sentiment favouring CAPM methods further improve after times of financial crisis. This deduction leads us to conclude that although valuation methods based on accounting information may pose less subjective estimations, they do not accurately reflect the sentiment of investors in the market and as such, provide less accurate value estimations.

Asset-based valuations are ideal in times when doubt is cast on the going concern principle of an entity, as these methods do not rely on future earnings figures to estimate the value of an entity (Suler et al., 2021). These methods are often apt for the estimation of the liquidation value of an entity, or the minimum value required by the seller of an entity (Miciuła et al., 2020; Suler et al., 2021). Conradie and Lamprecht (2021) concluded that when offers are made to companies in business rescue, earnings potential is usually not considered and a focus is placed on an asset-based valuation approach, whilst the value of intangible assets is not separately valued.

When the process of business rescue is afoot, the valuation method used depends on the goal of the business rescue practitioner (Conradie & Lamprecht, 2021). Conradie and Lamprecht (2021) highlighted that when entities are in business rescue with the goal of returning to solvency, business rescue practitioners noted that buyers tend to focus on the tangible assets of an entity as the basis for their valuation. They further stated that in economies like South Africa,

where companies in business rescue are at severe levels of financial distress, buyers tend to focus on the value-in-use of the assets rather than the liquidation value and still reduce the offer price to lower levels. Notwithstanding buyers' normal use of value-in-use above liquidation value, business rescue practitioners still advise and use the liquidation value as the minimum price for offers when the goal is to return the sold unit or business to operation (Conradie & Lamprecht, 2021).

When the goal of the business rescue practitioner is to wind down the business over a period, the market related prices for the assets are obtained instead of the immediate liquidation prices. Still, the focus is placed on asset-based methods as opposed to earnings methods. Finally, the literature also noted some scholars advocating the use of asset-based valuations in a mixed valuation method, consisting of the weighted average value of both income and asset-based approach (Shin et al., 2023).

Some scholars hold that asset-based valuations could be used in start-up company valuations as the implementation of discounting methods require forecasted flows, which are difficult to determine, as historical figures on which to base the estimations are seldom sufficient (Sari et al., 2022). The composition of the enterprise could also advocate the use of asset-based valuation methods. Miciuła et al. (2020) argued that the adjusted net asset valuation method offers its greatest useability to companies in the traditional production industry, being companies with a greater share of fixed assets compared to the whole company.

Scholars have made an effort to improve the accuracy of balance sheet methods. When the merger of two entities is considered, Miciuła et al. (2020) suggests first aligning ("harmonizing") the accounting policies of the two entities to provide a more accurate value estimation. Concerning business rescue from the perspective of the bidder, in the case of a sale of the entity or liquidation of the entity, Conradie and Lamprecht (2021) advises that the

business rescue value or liquidation value determined still be discounted to account for the time value of money, as the process could take several years to conclude. The latter should result in a more accurate value estimation as it simplifies the decision between either liquidating an entity or entering business rescue by comparing the present value of both options (Conradie & Lamprecht, 2021).

Other improvements to asset-based methods were also found in the literature studied. Huang et al. (2020) improved the accuracy of the Price/Book valuation method by introducing a special factor within the valuation that considers qualitative text-information contained in their public transfer documents. This substantially increased the accuracy of the valuation model in the assessment of start-up companies' value.

4.5 Discounting methods

Within the literature studied, 34 articles included a discussion on discounting methods (Grounded = 584). The relevant aspects of the literature on discounting valuation methods follows.

Discounting methods, such as the DCF method, are commonly seen as superior to multiple-based valuation methods due to their coherence with the capital market theory (Erkilet et al., 2022). Discounting methods provide valuators and stakeholders the advantage of considering the time value of money associated with future flows expected by the entity; a consideration neglected by both its Multiples and Asset-based methods counterparts (Carvalho et al., 2023).

The use of discounting methods is not always ideal, and sometimes, not even an option. By considering the time value of money associated with the discounted flows, the method is dependent on a large amount of information needed to perform the valuation (Carvalho et al., 2023). This substantiates that the dependency on large amounts of information

needed could sometimes undermine the usability and appropriateness of discounting methods. For example, Sari et al. (2022) found that it is difficult for start-ups companies to implement a discounting-method based valuation approach due to lack of historical and accounting information. As with Asset-based methods, other scholars note that conventional valuation methods, including discounting methods, are difficult, if not impossible, to implement in times of business rescue (Conradie & Lamprecht, 2021).

Considering times of distress and uncertainty regarding the going concern principle underpinning discounting methods, Conradie and Lamprecht (2021) concluded that future earnings potential of businesses undergoing business rescue procedures are normally not considered. Rather a focus is placed on asset-based valuation methods, determining the value of the assets of the entity, irrespective of the potential earnings capacity associated with them (Conradie & Lamprecht, 2021). This indicates that discounting methods are not commonly seen as appropriate for businesses under severe distress or in business rescue, even when the goal of the business rescue process is to return the company to solvency or sell it as a functioning unit.

Furthermore, the assumptions held by many of the models with the umbrella of discounting methods do not necessarily hold true in practise. Taking the Internal Rate of Return (IRR) as an example, in calculating the return expected by a project, the model assumes the cash flows originating from the project are reinvested at the same discount rate used to value the investment and not one representative of the current market conditions (Gnap & Pitera, 2023). This results in an unrealistic and inaccurate estimation of return and project value (Gnap & Pitera, 2023).

Consideration should also be given to the two most difficult aspects embedded in the utilisation of discounting methods of business valuation: forecasting future flows and determining an

appropriate discounting rate (Nenkov & Hristozov, 2022). Allee et al. (2020) found that the most important factor influencing the forecast of flows (cash or income) is the historical performance of the firm (56% of participants in the study placed a high value on historical performance), but added that many other factors, like firm size and performance of firms in a similar industry, are also incorporated. Interestingly enough, the level of importance placed on the historical performance of the firm and the performance of firms within a similar industry's decreased in relation to the experience of the valuator (Allee et al., 2020). Further evaluating which information practitioners deem useful, Allee et al. (2020) found that liaising with management was the most useful factor in forecasting future flows, followed by the historical cash flows of an entity.

Notwithstanding the theoretical superiority of discounting methods due to their coherence with the capital market theory as alluded to above, they are not without their faults. Erkilet et al. (2022) notes that even complex multi-period cash flow valuation methods lend themselves to errors and biases based on the subjective viewpoint of the valuators on the current market view and cannot render unbiased valuations. Additionally, discounting methods do not incorporate the possibility of early termination of a project, and as such, a halt in operations renders the valuation inadequate (Tsanacas, 2022).

4.5.1 Abnormal Earnings Growth

Within the literature studied, three articles included a discussion on the AEG method (Grounded = 39). The relevant aspects of the literature on the AEG method follows.

The use of the AEG method has some advantages. The AEG method is more forgiving towards errors in accounting information year-on-year, than some of its balance-sheet-based counterparts. When an error in the financial statements of an entity has been identified, and the error identically spans over multiple years, the AEG method should produce an estimation with

less errors than other methods, including the RIVM method, as valuations based on the income statement should still be reliable (Ausloos, 2020). Furthermore, the AEG method holds its applicability to individual share valuations, whereas the RIVM method cannot be performed on a per share basis.

There are also some limitations and difficulties linked with the AEG method evident in the literature studied. The AEG method is relatively complicated to calculate compared to the RIVM and Free cash flow valuation methods (Ausloos, 2020). Furthermore, the AEG method holds no relation to the balance sheet of an entity, often being referred to as an important driver for growth in an entity (Ausloos, 2020).

Anesten et al. (2020) concluded that the AEG methods are at their best when applied in '*projected history* information settings', and further highlighted that the accuracy of AEG methods should improve in circumstances of constant and 'well-behaved' growth in abnormal earnings. However, the low accuracy of the method's results arguably indicated that this is not the case in Scandinavian countries (having smaller, less efficient stock markets and relatively smaller entities than that of its United States counterparts) (Anesten et al., 2020). Ausloos (2020) noted that the AEG method could also be used when a company does not pay dividends but still needs to be valued.

In evaluating the AEG method, scholars have found some success in increasing the accuracy of the method. Anesten et al. (2020) found that increasing the number of years forecasted from two to five increased the accuracy of the AEG method, indicating that longer forecasts could improve the accuracy of the AEG method. It is noteworthy to mention that contrary to the RIVM method and DDM method, they also found that incorporating a bankruptcy risk factor in the cost of equity in Scandinavian companies does not improve AEG method's accuracy.

4.5.2 Discounted Cash Flow (FCFF & FCFE):

Within the literature studied, 25 articles included a discussion on DCF methods (Grounded = 163). The relevant aspects of the literature on DCF methods follows.

There are many advantages to the use of a DCF valuation approach. The DCF method has been cited by many scholars as the most frequently used valuation method (Agarwal & Dave, 2022; Drissi, 2023; Miciuła et al., 2020; Silva Jacques et al., 2021). Tsanacas (2022) notes the generating of future income flows, the possible utilisation of previous data sources on the current project, and the consideration of risks associated with the company or project, as advantages of the DCF approach. Drissi (2023) also advocates the incorporation of factors representing, not only the shareholders' value generating capacity, but also the expected future cash flows, as advantages of the DCF method of valuing an entity. In doing the latter, the DCF method eliminates the bias associated with accounting figures, which other methods like the EVA method neglect (Drissi, 2023). Other scholars, such as Silva Jacques et al. (2021), regard the DCF method as one of the most appropriate methods for economic value estimations of an entity, as it takes into consideration not only the assets but also the debt of the company.

As with all other valuation methods, the DCF method is not without its disadvantages and limitations. The DCF methods lends itself to high degrees of sensitivity to the discounting rate selected (normally WACC) and accuracy of the forecasted free cash flows (Drissi, 2023; Erkilet et al., 2022; Nenkov & Hristozov, 2022; Tsanacas, 2022; Vayas-Ortega et al., 2020). The choice of an appropriate discount rate and years of forecast included, lends this method to high degrees of uncertainty and subjectivity, affecting the reliability of the value estimation (Drissi, 2023; Miciuła et al., 2020). Adding to the latter statement, Erkilet et al. (2022) found that practitioners might utilise different input-data whilst utilising the same valuation approach, affecting the target price estimation accuracy. Furthermore, the accuracy of the target prices

estimated is highly dependent on the forecasting ability of the valuator or entity (Erkilet et al., 2022; Shin et al., 2023). Should the forecasts of the valuator be inaccurate, the reliability of the estimation is in jeopardy.

Other limitations also exist. Tsanacas (2022) notes the inability to consider the possibility of early divestment in a project or company and the dependence on similar experience on projects to evaluate the option amongst others as other potential disadvantages of the DCF and net present value approaches. Drissi (2023) highlighted that although taking quantitative factors into consideration, the DCF valuation approach neglects taking into consideration the effect of qualitative factors, including, but not limited, to the quality of the management structure of the entity and their strategic effectiveness.

Notwithstanding the subjectivity and dependence on valuators' assumptions and decisions, it should also be noted that forecasted cash flows, independent of the method of forecasting and its theoretical accuracy, remain forecasts and as such no 100% accurate forecast should be expected, regardless of the method of forecasting employed (Liapis et al., 2023). The latter is further substantiated by Nenkov and Hristozov (2022), noting that the main cause of dispersion between the actual value of the entity and the forecasts and the estimates derived lies within the forecasting of free cash flows and the inputs regarding said forecasts.

Liapis et al. (2023) noted that in forecasting future flows using ratios, different variables have different characteristics and as such, the appropriateness of the use of the variable might be applicable to one set of circumstances but not another. The appropriateness of forecasting method selected is also subject to the life cycle of the entity. As an example, Liapis et al. (2023) noted scholars' consensus on linear time series regression models being favoured in companies still in the early stages of their life cycle, whereas more established entities can turn to other methods (logarithmic trendlines; simple exponential smoothing; Holt's exponential smoothing

and so on) in forecasting future flows.

Despite its limitations, the DCF approach has been deemed appropriate and advantageous within various contexts. Drissi (2023) highlights that the DCF method is especially suitable for companies with both a stable growth rate and predictable cash flows. Notwithstanding financial analysts' preference for the SOPV method in valuing multi-divisional entities, Chlomou and Demirakos (2020) did not find significant empirical evidence suggesting that the SOPV outperforms the entity DCF method when valuing multi-divisional firms. When a SOPV framework is used, Chlomou and Demirakos (2020) discovered that the utilities (54.17%), healthcare (65%), oil and natural gas (64.29%), and basic resources (100%) sectors are more likely to apply the DCF method within the framework.

There are, however, also circumstances where the DCF method does not normally deliver a reliable value estimation or isn't commonly used. As stated above, the use of DCF methods remains difficult in the valuation of start-up companies, as start-ups tend not to have accurate forecasts of cash or income streams and the prevalence of large capital expenditure within them (Sari et al., 2022).

This is especially applicable within the e-commerce industry, specifically start-ups in e-commerce industry (Shin et al., 2023). As noted earlier, traditional valuation techniques, including the DCF method, are inadequate within the e-commerce industry as they do not consider growth potential of entities within this market. It is not uncommon for e-commerce companies to initially operate under a loss whilst establishing a market footprint. A DCF valuation would not fairly value companies operating in this industry, as their focus tends to lie on market dominance and growth potential rather than positive cash inflows (Shin et al., 2023). In interviewing venture capital companies, Rady et al. (2019) found that they tend to refrain from using the DCF approach in the evaluation of start-up entities as the

method is ‘too erroneous to use for start-ups because of the high uncertainty so early in the life of any company’.

Tsanacas (2022) highlighted the unrealistic expectation of a stable/constant capital structure assumption when discounting at WACC in high-tech service delivery platforms, and as such, further elaborated on the inadequacy of traditional valuation methods in the valuation of high-tech service delivery platforms (Netflix etc.). Furthermore, as negative cash flows are commonplace in even the most profitable service delivery platforms, considering Netflix as an example, Tsanacas (2022) highlights the difficulties and inadequacies associated with valuing high-tech start-up service delivery platforms with traditional valuation methods. The use of the DCF method in the evaluation of firms with multiple business units and cross-unit investments has also been found to be problematic due to the assumption of a constant and normal growth rate not ringing true (Dierkes & Schäfer, 2021). This is due to additional tax shields that could manifest due to the increasing debt levels and could subsequently change the company’s cost of capital (Dierkes & Schäfer, 2021).

In exploring the DCF method, some scholars have found ways to improve the accuracy of the method. Vayas-Ortega et al. (2020) found that adjusting the method by making use of second- and third-degree polynomials in forecasts, improved the accuracy of the forecasts and subsequently should increase the accuracy of the value estimation.

Other analytical models have also been explored to improve the accuracy of DCF valuations. Drissi (2023) and Liapis et al. (2023) evaluated multiple cash flow scenarios, utilising a Monte Carlo analysis to compensate for the variability of forecasted cash flows, theoretically facilitating decision-making with less risk than using a single forecast. Erkilet et al. (2022) found that using analysts’ forecasts delivered more value and produced more accurate results than the “naïve” extrapolation of previous flows (returns) in the estimation of target prices. In

forecasting cash flows over the medium and long term, Nenkov and Hristozov (2022) found that operating expenses follow the trend of changes in operating revenues. This substantiates the 'tying' of operating expenditure (less depreciation and amortisation) to operating revenue as a basis in the forecasting of cash flows for DCF valuation methods in various industries.

4.5.3 Discounted Dividend Model:

Within the literature studied, seven articles included a discussion on the DDM method (Grounded = 62). The relevant aspects of the literature on the DDM method follows.

The literature studied revealed some advantages related to the implementation of the DDM method. Besides being well-known, the DDM method was found to perform better in modelling returns than other methods such as the RIVM method (Harasheh et al., 2020). The DDM method has also been found to provide a less biased and more accurate valuation estimate compared to the AEG and RIVM methods in a study by Anesten et al. (2020). Another advantage of this method lies in its consideration of value from an investors point of view, taking into account the dividends paid to investors (it should be noted that other factors such as earnings, cash flow and risk were also cited to be important to investors) (Mousa et al., 2021).

The DDM method of business valuations has certain limitations. The method assumes a constant growth rate in dividends that does not reflect realistic market performance or conditions (Kudar & Sayılgan, 2021). The effect of business cycles influences even companies with the most stable dividend policies to fluctuate and drop dividend payment, undermining the reliability of the value estimations derived with the DDM insisting a constant growth rate in dividends (Kudar & Sayılgan, 2021). Kudar and Sayılgan (2021) elaborated on the aforementioned and confirmed that managers are in accord with scholars, stating that dividend payments fluctuate with the life cycle of businesses. The relationship between firm size and

growth rate establishes this argument. Growth is higher in small companies compared to large companies (Kudar & Sayılgan, 2021). Kudar and Sayılgan (2021) hold that an inverse relationship exists between firm size and growth rate. Thus, as firm size increases, dividends increase, but growth rate in dividends decreases.

Other scholars placed doubt on the notion that the value of a firm can be solely attributed to the value of future dividends to be paid by the firm. Harasheh et al. (2020) noted that many scholars have shown that fluctuations in stock price vary too largely to be solely attributable to the change in the expected future dividends discounted to a present value.

As with the DCF method, Dierkes and Schäfer (2021) noted that the assumption of a constant growth rate is inadequate in the real world, specifically in the valuation of entities with multiple business units having different strategies concerning their product-market mix and development. The assumptions of a constant growth rate and a constant payout ratio, being the underlying prerequisites of the DDM method, can only occur if the different business units within an entity exhibit an identical Return on invested capital (ROIC) (Dierkes & Schäfer, 2021). This finding limits the applicability of the DDM method in individual business units to entities in which the individual business units are homogenous (Dierkes & Schäfer, 2021).

The literature also provided some criticism to the use of the DDM method within certain contexts, referring to the e-commerce industry, and more specifically start-ups in the e-commerce industry (Shin et al., 2023). As discussed earlier, traditional valuation techniques are not ideal for the e-commerce industry as they do not consider growth potential within the industry adequately. E-commerce normally and initially operates under a loss, and growth potential and market dominance are more important in e-commerce businesses (Shin et al., 2023).

Scholars made some progress in improving the accuracy of the DDM method, evident from the

literature studied. Regarding the timeframe of the dividend forecasts, increasing the forecasted years to more than three years does not further improve accuracy of the method (Anesten et al., 2020). The method also found benefit in the addition of qualitative and risk related factors. Adding a bankruptcy risk factor to the discounting rate used, being the cost of equity, improved the accuracy of the value estimations within Scandinavian countries significantly (Anesten et al., 2020). This leads to the deduction that incorporating a bankruptcy risk factor in smaller entities operating in less efficient markets improves the accuracy of the DDM method.

4.5.4 Economic Value Added:

Within the literature studied, seven articles included a discussion on the EVA method (Grounded = 134). The relevant aspects of the literature on the EVA method follows.

The EVA method holds some key advantages in the valuation of entities. Behera (2020) notes that the upward and downward variations in stock prices are strongly related to the economic value added of the entity. Large companies, including Coca-Cola and Chrysler amongst others, stating that EVA has a stronger association with share return is one of the reasons for the increase in the popularity of the method (Behera, 2021). According to Gnap and Pitera (2023) another benefit associated with the EVA method stems from its usefulness in understanding the root causes of value within each individual year of the investment, a benefit which its cash flow counterparts do not have.

Behera (2021) praises the EVA method for measing the performance of an entity in relation to its cost of capital. Furthermore, Ausloos (2020) cites Young and O'Byrne (2000) stating that the EVA method is ideal for the valuation of a company due to four factors: (i) its presenting of the difference between the return generated on capital and the associated cost of capital; (ii) the ability to customise the EVA method to the circumstances of the entity at hand; (iii) the EVA method's ability to overcome drawbacks associated with other methods, including the

manipulation of earnings per share and the net income of the entity, amongst others; and finally, (iv) the usability of the EVA method for private entities or divisions within an entity.

As with any of the other methods, the EVA method also has its constraints and limitations. The EVA valuation method normally assumes that the return of the market remains constant, an assumption which does not always hold true in the real world. This is due to, among other reasons, the heavily competitive actions between market rivals, increasing the volatility of the returns generated within the market (Behera, 2020). Furthermore, notwithstanding literature's widespread consensus on the association between share price and EVA, Behera (2020) notes that there is very little research on the EVA-based valuation method.

The EVA's openness to adjustments, being cited as a benefit of the method, also results in difficulties with the implementation thereof. Ausloos (2020) found that including too few adjustments oversimplifies the method, whilst including too many adjustments overcomplicates it, making the proposal of universal rules for its implementation difficult. Lastly, Drissi (2023) mentioned that other valuation methods such as the DCF approach correct for bias commonly present in accounting data, which the EVA method does not.

Within the literature studied, the following factors, relating to the appropriateness of the EVA method, have been found. The explanatory ability and appropriateness of the EVA method is dependent on the level of influence of the future growth value of an entity on the value of equity (Behera, 2021). Behera (2021) noted that if the future growth value, this being *'the present value of the perpetual value of EVAs generated by future invested capital',* of an entity is positive, the EVA method outperforms the earnings-based valuation method; if the future growth value is negative, the earnings method outperforms the EVA method.

Further comparing the EVA method with the earnings method in India (developing countries), Behera (2021) also noted that within mid-cap companies, the EVA method outperforms the

earnings valuation method. Notably however, Behera (2021) also found that the earnings valuation method outperforms the EVA for small- and large-cap companies.

Scholars found that the accuracy of the EVA valuation method could be improved in various ways. Behera (2020) and Behera (2021) cite a study by Steward (1991) indicating that the addition of the book value of equity to the present value of the economic value added derived in the valuation increased the accuracy of the method. As discussed earlier, incremental information content analysis, conducted over the years, report that the association of the future growth value with the market value of equity strongly influences the superiority/inferiority of the explanatory ability of EVA-based valuation method, compared to the earnings valuation method. Therefore, being cognisant of the future growth prospects of the entity being valued could aid in determining the appropriateness of the selection of the EVA method.

Scholars found that in large-cap companies the EVA method, adapted to include the assumption of a changing rate of return, performed 11.2% better that the EVA method under the assumption of a constant rate of return; 18.4% better for mid-cap companies and 6.2% better for small-cap companies (Behera, 2020). This indicates that the EVA method can be improved by the inclusion of a changing required return, as opposed to the assumption of a constant required return.

4.5.5 Residual Income:

Within the literature studied, twelve articles included a discussion on the RIVM method (Grounded = 72). The relevant aspects of the literature on the RIVM method follows.

The use of the RIVM has certain advantages. Within traditional accounting, the onus of determining whether the return generated by an investment or entity is sufficient lied on the owners of the entity, whereas the RIVM method incorporates the cost of equity capital in the consideration of the value of an entity (Dierkes & Schäfer, 2021; Harasheh et al., 2020).

Consideration must be given to the metrics used in valuation methods and the measure of which they represent the requirements of investors. Harasheh et al. (2020) found that investors value growth in share value more than the receiving of discretionary dividend payments, indicating that the RIVM method provided more relevant estimations than that of the DDM method. Another advantage of the RIVM method lies in its ties to the relevance placed on accounting information by investors (Harasheh et al., 2020). Furthermore, the RIVM method lends itself to adaptations in order to include other factors, such as marketing assets, bridging the gap between intangible asset valuation and the effect thereof on investors (Mousa et al., 2021).

The RIVM is also subject to some limitations. Firstly, given the detailed information required, including forecasts, forward statements and other information commonly only found in large firms and publicly traded entities, the application of the method is often difficult for private entities as the information required isn't available (Vayas-Ortega et al., 2020). Furthermore, contrary to other methods, including the AEG method, the RIVM method cannot be applied to an individual share (Ausloos, 2020).

The literature noted a few factors regarding the applicability of the method. Mousa et al. (2021) found that the RIVM method is ideal for taking intangible factors such as goodwill into account. Considering the context of the Palestinian stock exchange, Harasheh et al. (2020) found that the RIVM method outperforms the DDM method in price modelling and added that investors commonly use the RIVM for price valuations. They further conclude that accounting-based methods such as the RIVM method and the DDM method performed better that the market model with regards to return estimations (Harasheh et al., 2020).

Anesten et al. (2020) concluded that should analyst forecasts be unavailable, and the value drivers used in the valuation have been estimated according to the historical performance of the entity, given that a bankruptcy risk factor is included in the cost of capital and a truncation

date of three years has been set, the RIVM performed better than both the DDM and AEG method in the estimation of company value. Other scholars such as Ausloos (2020) found that the RIVM method could also be used for leveraged companies paying a stable dividend. However, as discussed earlier, the application of the RIVM method could be difficult within private or small entities (Vayas-Ortega et al., 2020).

The literature studied also provided some insights as to improving the accuracy of the RIVM method. Mousa et al. (2021) adapted the Ohlson model to include the difference in oil prices as a proxy factor to indicate the economic situation of Middle Eastern oil-dominant economies, being economies in the Middle East and North Africa (MENA). The inclusion of this risk-proxy factor improved the accuracy of the method. Anesten et al. (2020) concluded from literature studied that increasing the forecasted period improved the accuracy of both the RIVM and the DDM. Notably, in conducting the study, they further added that increasing the forecast period past three years does not further improve the accuracy of the RIVM method. Furthermore, adding a bankruptcy risk factor to the discounting rate used also improved the accuracy of the method within Scandinavian countries (Anesten et al., 2020). Lastly, Tsukahara et al. (2022) utilised machine learning models to adapt the Ohlson model, which significantly increased the accuracy of their model.

4.5.6 Statistical and machine learning methods and new methods

Although not the main purpose of the study, in studying the included literature on valuation methods recently published, some interesting adaptations and new methods were noticed. Within this subsection, some of the notable points not already mentioned above will briefly be explored.

Vayas-Ortega et al. (2020) utilised statistical learning methods, including linear regression, to incorporate four exogenous factors (factors within the wider business and market environment)

into valuation methods, significantly increasing the accuracy of the methods studied. Regarding the valuation of high growth technology companies, there is an increasing popularity of relatively new models, like the Schwartz and Moon model, specifically used in the valuation of internet companies that have not settled within a market (Huang et al., 2020; Tsanacas, 2022). Tsanacas (2022) advocates that these new stochastic and probability models might be better apt to the valuation of high-tech service delivery providers like WeCo and Uber. Lastly, Schneider and Junichi (2020) developed a stochastic logistic valuation method, able to integrate customer-based company valuation with uncertainty and other core elements within finance to better value digital subscription-based companies.

Pazos (2019) proposed a new valuation model to value equity-based security token offerings for startups, incorporating a default risk premium to account for the extra risk associated with the high startup company failure rate. Dierkes and Schäfer (2021) formulated a valuation method, adapted from the RIVM and DCF method, extending on the works of Goedhart et al. (2015) and Meitner (2013). It is suitable for the valuation of firms with multiple business units, and specifically applicable if multiple cross-unit investments are commonplace within the entity. Their model performed specifically well in instances where the valued firm has a low cost of capital, and the business units have a high return rate. Schneider and Junichi (2020) developed a user-based valuation method suited for the valuation of digital subscription business models. Miciuła et al. (2020) explored a hybrid valuation method based on the MDI-R concept, taking both tangible and intangible assets, as well as earnings capacity and the current economic conditions into account.

4.5.7 Regarding the discounting rate used (WACC/CAPM/Ke):

The selection of an appropriate discount rate is paramount to delivering an appropriate value estimation with regards to the discounting methods as a valuation approach. This is due to the heavy weight factors, such as the selected discounting rate and the terminal value, have on the

valuation outcomes (Dierkes & Schäfer, 2021).

The base FCFF uses the WACC as a discounting rate (Silva Jacques et al., 2021). In estimating a cost of capital, Allee et al. (2020) noted that practitioners' most popular methods to determine the cost of capital are the build-up method, followed by an industry or entity level estimation based on third-party companies and the CAPM *beta* method or a factor method.

Within the CAPM model, all the risks associated with the market is assumed to be captured in the *beta* factor, estimating the risks associated with the assets of a company in relation the risks of a standard portfolio (Harasheh et al., 2020; Silva Jacques et al., 2021; Toll & Kintzel, 2019). However, the risk structure of different business units also needs to be considered. Dierkes and Schäfer (2021) note that entities distinguish between different business units according to the differing economic conditions surrounding the business units. As such, the assumption that the use of a single risk factor representative of all market risks faced by the entity in its entirety, in the case of the CAPM method's *beta* as an example, would most likely be inadequate in the valuation of individual business units. Furthermore, the calculation of *beta* for companies within an emerging market is prone to difficulty and subject to instability and high degrees of uncertainty (Rady et al., 2019). This could be due to the lack of available data needed to calculate *beta* within emerging markets (citing MENA countries), encouraging the use of alternative data sources by practitioners (Rady et al., 2019).

The market premium also suffers from inconsistencies in its calculation, with some referring to the historical performance of the stock market, some incorporating Damodaran's country risk, some basing their estimations on personal experience, and others obtaining analysts' reports, rendering the resulting discounting rate calculated susceptible to error and inconsistencies (Rady et al., 2019). This is noteworthy as Rady et al. (2019) found that the traditional approaches of determining the risk-premium explored in current literature is

inadequate within the context of emerging markets.

Other adjustments related to the cost of equity have also been found relating to investment banks operating in emerging markets. Rady et al. (2019) noted that two out of the three investment banks add a premium to the cost of equity to compensate for the greater risk associated with MENA (emerging market) countries, whilst the remaining bank adjusted the cost of equity downward, holding the opinion that the risk in emerging markets is often overstated.

The DCF method operated under the condition that the growth rate used in the calculation of the terminal value must be equal to or less than the growth rate expected within the entity (Silva Jacques et al., 2021). Silva Jacques et al. (2021) added that the assumptions held with regards to the growth period should be in accord with the operations and the characteristics of the entity being valued. The longstanding assumption of a constant growth rate is prevalent within the business valuation field, an assumption already noted as unrealistic within businesses with multiple business units (Dierkes & Schäfer, 2021).

Some scholars find that valuation specialists tend to use an economy-wide growth rate when valuing an entity (Allee et al., 2020). Allee et al. (2020) noted that more experienced valuators tend to use an economy-wide growth less. Notably, even with economy-wide growth being seen as the most popular growth estimator, they still found little consensus on the rate used to forecasting future flows (returns or earnings) as the economy-wide growth rate approach was only agreed to by 27% of the respondents. Many valuation practitioners utilise a risk-free rate and subsequently adjust in relation to the entity-specific risk circumstances, industry, and size to estimate an appropriate discounting rate (Allee et al., 2020).

Inconsistencies within the selection of a risk-free rate also pose a problem. In fact, in considering the factors affecting the cost of equity, the risk-free rate was found to be the

greatest influencer, followed by the risk premium and the *beta* (Rady et al., 2019). Interviewing investment banks, Rady et al. (2019) found that two of the institutions utilised unadjusted short-term treasury instruments, two others utilised long-term treasury instruments, whilst one other relied on the housing market to determine an appropriate risk-free rate.

Given that the risk-free rate is paramount in market-orientated valuation approaches and can be described as the future expectation held by all participants within the market, the risk-free rate should be homogeneous within a market (Toll & Kintzel, 2019). Okere's (2007, as cited in Rady et al., 2019) work noted a further problem related to the selection of a risk-free rate in developing countries. He finds that the commonly selected long-term government bonds do not sufficiently incorporate the greater degree of default risk associated with emerging markets and adds that these bonds are often unquoted.

The literature highlighted other difficulties associated with determining an appropriate discount rate for a valuation. Firstly, Vayas-Ortega et al. (2020) found that it is difficult to set an effective discount rate that accurately fits companies irrespective of their sector or region. In fact, they conclude in stating that even in utilising the most popular discounting method within literature, referring to WACC, accurate valuation estimates could not be produced. Furthermore, the assumptions held by the CAPM model do not ring true in the real world, leading to erroneous judgements regarding the expected return (Belesis et al., 2020; Rady et al., 2019; Silva Jacques et al., 2021; Vayas-Ortega et al., 2020). Silva Jacques et al. (2021) note that in a developing economy (Brazil) with relatively small markets, the market is not efficient, property is condensed, and information asymmetry is evident, rendering the assumptions of the CAPM method unrealistic.

Regarding private entities, Tsanacas (2022) notes that WACC cannot, with reasonable assurance, be accurately calculated for unlisted companies having no publicly issued shares,

due to the unavailability of a *beta* factor for the entities. Regarding high-tech companies, Tsanacas (2022) also highlighted other issues including the assumption held by the WACC method that the capital structure of an entity will remain constant, which is highly unlikely in the context of high-tech service delivery platforms and the negative cash flows commonplace within digital service delivery platforms, citing Netflix as an example.

Some work has been done to overcome the challenges associated with the setting of an appropriate discount rate. Taking the inverse approach to calculating a company's WACC could provide a better alternative in the estimations of an appropriate discounting rate. These statistical methods, including the use of second- and third-degree polynomials in the calculation of WACC, provided much better results within the free cash flow valuation approach (Vayas-Ortega et al., 2020).

Vayas-Ortega et al. (2020) also noted that it is possible to obtain a discounting rate suited towards individual entities that could eventually provide consistent results over multiple periods. Gnap and Pitera (2023) add that the cost of capital should be calculated using multiple methods to aid in the assessment of the validity of the resulting rate. Others suggest the incorporation of additional premiums relating to the higher bankruptcy risk associated with smaller, less efficient markets (Anesten et al., 2020).

Other scholars studied the works of Fama and French (1992, as cited in Belesis et al.,2020) adjusting the CAPM formula to incorporate the size risk relating to the market capitalisation of an entity, and value risk relating to the comparison of book values with the market value, which led to an improvement in performance from 70% to 90% in the model's explanatory ability of returns. This is consistent with the findings of Vayas-Ortega et al. (2020), stating that both endogenous business and exogeneous market factors need to be considered in the setting of an appropriate discounting rate.

Additionally, Fama and French (2015, as cited in Belesis et al., 2020) later proposed a further incorporation of accounting information of an entity, specifically the profitability and investment levels which further increased the accuracy of the model. Pazos (2019) adjusted the CAPM formula to incorporate the high default risk associated with start-up entities, the adjusted discounting rate being described as "a good fit" after the consideration of start-up failure rate and mature firm expected returns being considerably lower. Lastly, Rady et al. (2019) noted that institutions prefer methods apt to incorporate the factors of the local market rather than that of global markets, referring to a preference to the L-CAPM method in relation to the I-CAPM method.

Two other noteworthy aspects were found in the literature examined. Firstly, other premiums, besides those mentioned above, dependant on the investor were also found to be added. Rady et al. (2019) notes that venture capital firms often have a lower success rate in their investments than private equity firms, leading to a demand of a greater return required by venture capital companies to compensate for the losses undergone in the failed entities. Lastly, Mousa et al. (2021) noted that brand value plays an important role in the adding of value to an entity, particularly in emerging markets, and as such, establishing a reputable brand reduces the risks associated with the entity. Understanding this could influence the market premium decided upon when determining the cost of equity of a company within emerging markets.

4.6 Multiples methods

Within the literature studied, 23 articles included a discussion on Multiples methods (Grounded = 177). The relevant aspects of the literature on multiples valuation methods follows.

There are advantages linked to the use of valuation multiples. Unlike their discounting method counterparts, one of the advantages of the multiples valuation approach lies in its simplicity

(Ausloos, 2020; Martín, 2019; Rodríguez López & Rubio Martín, 2019; Shin et al., 2023). Multiples valuation methods are often used as substitutes for valuation methods utilising a present value approach. Martín (2019) advocates that this is due to their similar relationship with factors that affect the value of an entity, be it a positive relationship to the flows, cash or earnings, and a negative relationship with risk. Other scholars note their role within other valuation methods. For example, Ausloos (2020) notes that the P/E multiple is used with the AEG method and future earnings to evaluate entities' earnings per share (EPS) and growth in EPS. The use of multiples have also found favour in valuing private entities. Rodríguez López and Rubio Martín (2019) notes that multiples are used to value an entity as if it were listed and, subsequently, a marketability discount is applied as described above. Notably, the marketability discount is strongly reduced as the size of the private firm increases (Rodríguez López & Rubio Martín, 2019).

The literature also revealed some drawbacks and limitations associated with the use of valuation multiples. The discretion evident in the choice of multiples used to value an entity lends this model to substantial levels of subjectivity (Miciuła et al., 2020). Noting the unique nature of digital service delivery platforms, such as Netflix and WeCo, who normally operate under negative earnings, Tsanacas (2022) also highlights the difficulty in selecting an appropriate multiple.

Relative valuation methods (multiples) do not reflect the growth potential linked with young entities with relatively low levels of income in the early stages of the business cycle (Shin et al., 2023). Furthermore, volatility in single period earnings or other figures used within the multiples method causes large deviances in values from one year to the next (Silva Jacques et al., 2021). Other scholars such as Gnap and Pitera (2023) note that the use of multiples fail to incorporate two core elements relating to the value of an entity, being the risk

associated with the entity and the time value of money related to the inflows expected by the entity.

Other factors, including the choice of accounting policy, financial risks, and the difficult choice of a comparable entity, also lend the method to limitations and errors (Ausloos, 2020). Seeing as the multiples of the comparable firms may be substantially affected by the aforementioned factors, the multiples method may prove somewhat confusing upon the specific calculation time and inappropriate benchmarks may be chosen, skewing the accuracy of the valuation (Ausloos, 2020).

In studying high-tech service delivery platforms, Tsanacas (2022) found that even if the appropriate multiples could be identified, the selection of an appropriate comparable entity within the same industry is nearly impossible due to the unique characteristics of service delivery platforms disrupting the industry. Lastly, the assumption of a linear relationship between the value driver or multiple selected, and the inherent value of an entity should also be considered questionable and as such, infringe on the validity of the valuation obtained (Ausloos, 2020).

The use of valuation multiples are not untouched by qualitative factors, also affecting other valuation methods. For example, Rodríguez López and Rubio Martín (2019) noted that the investors pay different amounts for un-listed entities due to difference is size, risk, and profitability, leading to the creation of a ‘marketability discount’ as alluded to above. They further elaborated that profitability in public firms demands a greater price than profitability in private firms, noting that a change in public firms’ profitability influences the economic value (EV)/Sales multiple more than the same change in a private firm. Similar findings regarding risk factors were also found. This findings of Rodríguez López and Rubio Martín (2019) provided evidence and a possible reason for the marketability discount and should be

considered when using multiples in the valuation of private entities.

It is clear that the accuracy of a valuation utilising the multiples approach is dependent on the economic factors surrounding the selection of the comparable entities (Rodríguez López & Rubio Martín, 2019). The benchmark used could be one specific entity or a group of entities (Ausloos, 2020). The choice of comparable company is one of the most difficult decisions to be made when utilising relative valuation methods (multiples methods) (Ausloos, 2020; Huang et al., 2020; Shin et al., 2023). Most of the historical literature explored and established that entities operating in the same industry should have similar risks and potential growth rates (Martín, 2019). Martín (2019) highlighted that the industry selection is a material criterion in the selection of comparable companies.

Notwithstanding the aforementioned, Martín (2019) and Rodríguez López and Rubio Martín (2019) also concluded that by only considering the industry in the selection of comparable companies, many other factors are not taken into account. Rodríguez López and Rubio Martín (2019) added to the list of factors that should be considered in the selection of comparable entities by concluding that profitability variables and risk variables both influence the valuation ratios.

Many factors could play a role in the selection of an appropriate comparable entity. In deciding between companies deemed comparable to the valued firm, both within the same industry and having similar characteristics, Shin et al. (2023) substantiated the choice of one above the other by comparing the revenue and operating models of the firms, eventually choosing the firm with a similar operating and revenue model. Other scholars such as Allee et al. (2020) found that practitioners perceive entity size and the historical profitability of the firm as more important than the industry, prior years' growth, expected future growth, or estimated profitability in the selection of comparable entities.

Martín (2019) studied European valuation multiples and conducted a thorough literature review. The following was noted in the literature review that is of relevance to this study: Firstly, the Price/Book multiple generates less biased and more precise estimations than the Price/Sales multiple and earnings multiples do; company value estimation is not significantly improved by considering different levels of cash in entities; the accuracy and bias of multiples differs greatly depending on the size, profitability and intangible value of the entity; and practitioners tend to select comparable entities with "high" valuations, leading to an optimistic bias in valuations or stock recommendations.

Furthermore, in evaluating the effect that size and other variables have on the value of multiples, Martín (2019) found and concluded upon the following: Market/EBITDA and Market/Sales ratios have less value in the manufacturing, constructions, wholesale and retail trade or repair of vehicles industries, and ascribes this to the nature of the traditional activities in the industries that have limited capacity to account for future growth rate. Furthermore, the Market/Book multiple generally has a lower value in peripheral countries (developing countries) compared to central countries (developed countries).

However, in adding variables for profitability and risk, the significance of country as a determinant of multiple value reduced to an insignificant level. With regards to Market/EBITDA and Market/Sales ratios, industry was found to be a significant factor, whilst country was found to be insignificant with regards to the use of multiples. Size was found to be an important factor in all three of the aforementioned multiples methods, more so for the Market/Sales and Market/Book than for Market/EBITDA.

The economic cycle within the market also had a material impact on the value of the multiples, advocating its consideration in the use of multiples. Similar conclusions were drawn with regards to the level of working capital (negative relation to ratios), profitability (positive

relation to ratios) and risk's impact (negative relation to ratios) on the multiple values. Martín (2019) notably found that the impact of the size variable's influence on the value of the multiple decreases as other variables, such as profitability, risk and growth rate, were introduced. This led to the conclusion that the size variable incorporates at least some of the effects of the other variables and as such, the size of the firm incorporates many of characteristics of an entity. The above led to the conclusion that incorporating a *size* factor in the selection of group/pool of comparable companies is an important factor affecting the appropriateness of the companies selected.

The use of the multiples valuation method definitely has its place in the market. Regarding the use of multiples, Allee et al. (2020) found that practitioners prefer the use of Price/EBITDA and Price/Sales multiples when valuing an entity. Considering the size of the shareholding being valued, Saastamoinen and Savolainen (2019) found that multiples methods are more commonly used in valuing minority shareholding when compared to asset-based and income-based methods. Sales multiples could be applicable for start-ups in the e-commerce industry, specifically multiples such as Price/Gross merchandise value (GMV) or EV/GMV (Shin et al., 2023). Shin et al. (2023) notes that this is due to GMV's reflection of growth potential within e-commerce entities.

Chlomou and Demirakos (2020) found that analysts valuing individual business divisions of a multi-divisional business tend to utilise EBITDA multiples. They added that EBITDA multiples are common in the following industries: media (88.24%), industrial goods and services (86.11%), telecommunications (85.71%), automobiles and automobile parts (100%), and construction and material (93.33%). Chemicals (60%), construction and materials (46.67%), and industrial goods and services (40.28%) are the industries which are most likely to use P/E multiples. The use of valuation multiples have also found favour in the valuation of

private transactions (unlisted entities) given that a marketability discount is applied as alluded to above.

There are instances where the use valuation multiples could be problematic. Rady et al. (2019) note that within the emerging market of MENA countries, the use of valuation methods based on multiples as a primary method is uncommon due to the lack of available data specifically relating to unlisted entities. Notwithstanding the literature studied by Rady et al. (2019), in examining the practices of private equity firms, they still note that multiples methods based on EBITDA and P/E have taken the place of more comprehensive methods, including the DCF method. They conclude that the DCF method is more often used as a justification of the value obtained by the multiples method than being implemented as a primary method.

Regarding start-up entities, the multiples method was found to be inefficient as comparative company selection is problematic for young and new firms (Shin et al., 2023). Furthermore, some multiples are particularly unapplicable to start-ups within the e-commerce industry, specifically P/E and EV/EBITDA, as they do not reflect the characteristics of e-commerce companies (Shin et al., 2023). Huang et al. (2020) found that relative valuation methods (multiples) yield negative financial indicators when considering companies listed on the National Equities Exchange and Quotations (NEEQ), being predominantly start-up type companies. This is due to these companies only having been in operation for a short while, thus having no stable income and low profitability. They elaborate that a single 'family' of multiples generate positive values when considering these companies, being Price/Book multiples.

In valuing high-tech service delivery platforms, like WeCO and Netflix, Tsanacas (2022) found that the selection of '*correct multiples'*, including P/E of EV/EBITDA, are inadequate when these companies are still private, relatively new and expanding, have changing finance structures or negative flows (earnings).

Lastly, consideration must be given to downturns within business cycles. Conradie and Lamprecht (2021) noted that many companies in distress have negative cash flows or earnings and as such, the multiples approach to business valuation will yield negative values. Thus, multiples might not be the best option in times of distress or business rescue.

Work has been done to improve the accuracy of the multiples valuation method. Some scholars found that using the harmonic averages of the industry multiples significantly reduces the variance in estimations and as such, improved the predictive capacity of the method (Silva Jacques et al., 2021; Tsanacas, 2022). In Martín's (2019) literature review, it was found that utilising 'warranted multiples', the voluntary adaptation of International Financial Reporting Standards (IFRS), and the selection of a peer-group of entities, as opposed to a single entity as a benchmark or 'comparable entity' specifically in emerging markets, all improve the accuracy of the multiples method.

Other scholars such as Huang et al. (2020) adjusted the Price/Book multiple valuation method to include non-financial text information in the valuation model, considering relevant information in their public transfer reports representing the whole value chain, increasing the accuracy of the Price/Book valuation method. Adding to the discussion on factors affecting comparable entity selection, Rodríguez López and Rubio Martín (2019) found that not only should the industry be seen as a control factor, but also the year's data used.

Their findings showed the trend in multiples valuation estimates, the decrease and increase in value over the years, fell and recovered in line with the Spanish financial crisis. This substantiates that not only industry, but also year should be controlled in the comparison of a company to a benchmark entity (Rodríguez López & Rubio Martín, 2019). Lastly, noting the possibility of the mean value of multiples being distorted by outliers, Tsanacas (2022) suggest using the harmonic mean or median of a multiple to mitigate the risk of extreme values

influencing the accuracy of the valuation.

5 CONCLUSION

Within this section the main findings of the article are summarised. The problem of selecting an appropriate valuation method is addressed and guidance is provided concerning literatures' viewpoint on when Asset-based, Discounting, and Multiples methods should be deemed appropriate or considered. Lastly, opportunities for further research are presented.

All valuation methods have their strengths and weaknesses, and as such the individual circumstances of the valuation needs be considered in selecting an appropriate method. From studying the literature included in the scope, it is evident that the question of conclusively determining all the circumstances in which a particular method would be the most appropriate, if plausible, still necessitates further research. However, the literature did provide some guidance that should be kept in mind, aiding in determining when a method could be appropriate.

5.1 Valuation methods in general

Firstly, traditional valuation methods fail to accurately reflect the circumstances of high-tech environments and work still needs to be done to address this issue. Many practitioners examining a company under business rescue deviate from the use of traditional valuation methods and focus on the undiscounted cashflows. Others found that traditional valuation methods fail to incorporate the relevant qualitative factors important in start-up entities or their difficulty in producing a profit in short term and lack of comprehensive available historical and current financial data.

5.2 Asset-based methods

Asset-based valuation methods are still commonly used to determine the minimum value or liquidation value of an entity. The method is ideal when the going concern principle of a firm

is in question. Some scholars found that the method could be useful in the valuation of start-up entities, as the data needed to produce the accurate forecasts needed for discounting methods isn't available. However, it should be noted that Asset-based methods do not consider the future growth of an entity and might be less appropriate in high growth industries, such as the high-tech service delivery platform industry, or when deciding upon mergers and acquisitions. Besides from Asset-based valuation methods' use within hybrid valuation models, the method might also be more appropriate in companies with a greater share of fixed assets, commonly those operating in the traditional production and manufacturing sectors. It should be kept in mind that Asset-based valuations tend to undervalue an entity.

There has been some progress made in improving the accuracy of Asset-based valuation methods evident from the literature examined. Firstly, aligning the accounting policies of two entities provide more accurate value estimations when the merger of two entities is being considered. Furthermore, in cases of liquidation, the value estimated should be discounted to a present value when the consideration is not expected to be received for a considerable amount of time.

5.3 Discounting methods

Arguably the most popular category of valuations, Discounting methods are ideal under circumstances of stable growth and predictable flows. The AEG method could be useful when there is suspicion of an error within the financial statements over multiple years. Furthermore, under 'well-behaved' growth, or when a company needs to be valued but does not pay dividends, the AEG method could be suited for the valuation. The DDM method should only be used in entities with multiple business units if the ROIC within the different business units are identical and the business units are homogeneous. The EVA method could be ideal for valuating private entities or divisions within an entity, if the required return of the market remains constant. When growth prospects of the entity are positive, the EVA method was found

to outperform other methods like the income method. The RIVM could be ideal when companies have large amounts of intangible assets, or in leveraged companies with stable dividends.

The use of discounting methods should be considered with caution when evaluating start-ups. Start-up entities lack the necessary stable historical performance and data to produce accurate forecasts, and high levels of initial capital investment cause difficulty in computing a reasonable appropriate value estimation with the use of discounting methods. Even when initial capital investments aren't as substantial, the characteristics of start-up entities, specifically in the e-commerce industry, being potentially high growth rates and a focus on market share rather than profits, undermines the appropriateness of the use of discounting methods within the industry.

Other scenarios also undermine the appropriateness of discounting methods. In times of economic distress, or when companies enter business rescue, discounting methods' going concern assumption is in jeopardy and as such, Discounting methods lose their relevance. Discounting methods also fail to incorporate the option of early divestment (real options), and as such, when early divestment is an option, these methods do not incorporate that possibility and might be inappropriate. The DDM method might be inappropriate for multi-segmented firms with regular cross-unit investments and lastly, due to a lack of information available, the RIVM might be inappropriate in estimating the value of private entities within emerging or smaller, less efficient markets.

There has been some progress made in improving the accuracy of discounting methods evident from the literature examined. Firstly, the EVA method performed better when adapted to include a variable rate of return as opposed to a constant rate of return. Furthermore, the accuracy of the DDM and RIVM improved significantly when the forecasting period was

extended, however any extension past three years didn't yield any additional benefit. Considering the discounting rate used, incorporating other contextual factors in the discount rate, such as the size of the entity, bankruptcy risk, profitability, and level of investment, improves the accuracy of the estimates produced in start-ups within emerging markets.

5.4 Multiples methods

According to literature, valuation multiples are often utilised by venture capital and private equity firms, and are often used in the valuation of larger, profitable firms with multiple business segments, as well as in valuing minority shareholding. Despite the lack of data available, their use is also common in the valuation of private firms within emerging markets with an additional marketability discount being applied to the estimation. Within emerging markets, EBITDA and P/E multiples have specifically found favour amongst practitioners. When high reliance is placed on the valuation, the use of Price/Book multiples might be appropriate as these multiples were found to produce less biased value estimations in comparison to sales multiples.

The multiples valuation method could prove particularly useful to start-up entities, given that the correct multiples are utilised. The literature found that Price/GMV and EV/GMV better reflect the growth potential associated with start-ups within the e-commerce industry than that of P/E or EV/EBITDA multiples. The latter does however have a place, as EBITDA multiples were found to be of use in valuing individual business units within an organisation.

The literature also presented some elements to be weary of, that could limit the appropriateness of valuation multiples. Practitioners need to be cognisant of the different accounting policies of entities. When companies have different accounting policies, the comparability of the multiples could be compromised. The effects of outliers and business/economic cycles should also be considered. Outliers in the performance of the entity could substantially skew the

valuation. Therefore, in times of economic downturns or great variance in performance, valuation multiples could be inappropriate if adjustments to the input data aren't made.

It is also important to remember that multiples neglect to consider the time value of money, and as such, if the entity is being sold or is tied up in litigation and the consideration isn't expected for some time, the value should be discounted to present value to better represent actual value obtained for the entity. Literature also found that, besides the GMV related multiples above, valuation multiples fail to reflect the high growth potential associated with entities in the early stage of the business life cycle.

Within traditional operations, such as the manufacturing and wholesale industries, Market/EBITDA ratios aren't the best option, due to the limited future growth possible within established entities in these industries. Interestingly enough, these industries are ideal recipients of asset-based valuation methods, as described above. It is therefore likely that Price/Book of other Book value multiples might be more appropriate within these industries. Practitioners should keep in mind that the literature also indicated that Market/Book multiples tend to deliver lower values in developing countries compared to developed countries.

There has been some progress made in improving the accuracy of valuation multiples evident from the literature examined. Firstly, in selecting a benchmark or comparable entity, practitioners need to consider more factors than just the industry. The literature provided substantial evidence that firm size and historical performance should also be considered. Size was found to be a significant factor influencing the Market/Sales, Market/Book and Market/EBITDA multiples of entities. The literature also provided some evidence that profitability, growth prospects and risk need also be considered in selecting a comparable entity.

In rectifying the problem associated with economic or business cycles and outliers within the

data, the literature suggests that the use of harmonic averages and warranted multiples be used. The voluntary adaptation of IFRS was also found to increase the reliability of valuation multiples. Scholars also advise that the selection of a comparable entity should not be limited to only one entity as the selection of a group of comparable entities was found to be more appropriate in emerging markets. Lastly, by introducing a special factor representative of other qualitative elements surrounding the entity, the accuracy of estimations obtained in Price/Book multiples, in the valuation of start-up entities, substantially increased.

5.5 Limitations of the study

The study is susceptible to some limitations. Firstly, the accuracy of the results generated and conclusions drawn in this article is limited to the content of the literature selected for inclusion, adhering to the screening requirements. Some additional findings might have been excluded due to the articles not adhering to the screening requirements. Secondly, a skewed quantity of literature favouring Discounting methods whilst substantially fewer literature articles discussing both Asset-based and Multiples methods persisted. As such, it is difficult to determine to what extent the literature discussed all the relevant factors within the various methods equally.

5.6 Recommendations for further research

There is still ample work to be done to further improve valuation methods and understand their applicability and appropriateness. Given the findings of study, scholars are encouraged to further investigate the following: Firstly, although some work has been done on the problem of valuating start-up entities or high-tech digital subscription-based entities, there is still no consensus as to the most appropriate valuation approach in these industries or firms.

Secondly, the valuation process, regardless of the method chosen, still has subjective factors and is susceptible to bias. Work should be done to examine the impact of practitioner-bias on the use of valuation methods. Understanding the role of real options in valuations and a

quantification of the value linked with real options could also aid valuation practitioners. Lastly, though this study discussed the findings related to the different categories of valuation methods holistically, a more in-depth study on individual valuation methods could also prove useful.

6 DISCLOSURE STATEMENT

No potential conflicts of interest have been reported by the author(s).

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CHAPTER 3: CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

The purpose of this chapter is to provide a brief overview of the chapters in this mini-dissertation; consolidate the findings of the research; discuss any limitations to the findings and execution of the research; provide guidance as to the applicability of the findings; and lastly, to provide recommendations for further research.

1 An overview of the chapters

1.1 Chapter one: Introduction

Chapter one provided a background to the topic of business valuation methods and a brief exploration of their uses. Within this chapter, the motivation for conducting this qualitative study on valuation methods was presented. The chapter continues by introducing the research problem, both primary and secondary objectives, and the research design and methodology.

After discussing the ontological and epistemological viewpoints held within this study, this chapter provides a justification for the selection of a systematic literature review as method of research and continues to describe the process to be followed in the systematic literature review. Lastly, the chapter addresses any ethical considerations to be kept in mind and the structure of the mini-dissertation in its entirety.

1.2 Chapter two: Research article

Chapter two of the study comprises of a research article titled *"The role and appropriateness of different valuation methods: A systematic literature review".* Within this research article, an evaluation of the literature pertaining to valuation methods is done. The article discusses valuation methods according to three categories: present value (discounting) methods, multiples methods, and asset-based valuations methods. The article contains the following content: Firstly, the abstract and keywords of the article were identified. Subsequently, an introduction into the topic of valuation methods and the aim of the research was identified.

This is followed by a discussion on the methodology used in pursuance of the research objectives. Chapter two, section three*, Methodology,* describes the process followed in conducting the systematic literature review, including: the search for literature; the screening of literature for inclusion; determining the quality of literature; and the data extraction, analysis and synthesis process. The latter also included a discussion on the use of ATLAS.ti™ in pursuance of the research objectives.

The article continues by discussing the results of the systematic literature review process and concludes on the appropriateness of different valuation methods. Lastly, the article concludes on the findings of the review process and explores any limitations to the study and areas deemed fit for further research.

1.3 Chapter three: Conclusions and recommendations for further research

This chapter concludes on the work done in the study, including a discussion on the content of the chapters within the study; to what extent the research objectives were achieved; a consolidation of the findings within the study; a discussion on any limitations to the findings or the research process; guidance as to the applicability of the findings; and lastly, recommendations for further research.

2 Conclusion

2.1 Reflecting on the objectives of the study

The primary objective of this study was to critically analyse the literature to determine the appropriateness of different valuation methods, as advocated by scholars, in order to provide insight into the current sentiment towards the different valuation methods and comment on their appropriateness in business valuations.

In pursuance of the primary objective, a systematic literature review of the literature published on valuation methods between 2019 and 2023 was done. A total of 36 articles adhered to the inclusion criteria and were evaluated. Evaluation of the included journal articles was done with the help of ATLAS.ti™, a qualitative data analysis software, the results of which is presented under chapter two, sections five and six. The primary objective was broken down into three secondary objectives. The secondary objectives and the extent to which they were achieved follows.

The first secondary objective of the study was to determine from the literature available the uses of the respective valuation methods, their strengths and limitation. The uses, strengths and limitations of valuation methods are adequately described in both chapter one, section one-point-one and chapter two, section four. Thus, the first secondary objective was achieved.

The second secondary objective was to critically evaluate the appropriateness of different valuation methods used in business valuations under different circumstances. An evaluation of the appropriateness of the different valuation methods was presented in chapter two,

section four, and concluded upon in chapter two, section five. Thus, the second secondary objective was achieved.

The final secondary objective of the study was to provide guidance on when the respective valuation methods can be deemed appropriate. In concluding upon the results presented, compiled within chapter two, section four, the final secondary objective was achieved in chapter two, section five.

2.2 Reflecting on the conclusions drawn

After conducting this systematic literature review, it is clear that not only the endogenous factors of the company, but also the exogenous factors of the greater market need to be considered in the selection of an appropriate valuation method. All valuation methods have their respective strengths and limitations and as such, in line with the currently available literature, it is important that the individual contexts of the entities being valued are considered in the selection of an appropriate valuation method.

Although the literature did not provide enough information to conclusively determine all the circumstances that would deem the individual valuation methods appropriate, the literature did provide some guidance on when the various methods could be appropriate and factors that could aid in determining an appropriate method.

Asset-based valuation methods are useful in determining the minimum value of an entity and are commonly used in determining the liquidation value of an entity. These methods could also be ideal when companies are in times of distress, where the going concern principle of entities are undermined. Despite their disregard of the earnings and growth potential being particularly high in start-up entities, some scholars advocate their use in the valuation of start-up entities as the data needed to produce accurate forecasts needed in other valuation methods, including discounting methods, is normally unavailable.

However, in neglecting to incorporate the potential future growth of entities, the literature indicates that these methods might be less appropriate in industries, such as the high-tech platform-based service delivery industry, or when deciding upon mergers and acquisitions. Finally, aside from their use in conjunction with other valuation methods or in hybrid valuation methods, asset-based methods are ideal when companies have a greater share of fixed assets, commonly being entities operating in traditional production and manufacturing environments.

The results of the systematic literature revealed some progress made by scholars to improve the accuracy of asset-based valuation methods. Scholars found that by aligning the accounting policies implemented by the relevant entities in a merger, more accurate value estimations were derived. Furthermore, as briefly described above, when entities are being liquidated or are tied up in litigation proceedings, the value estimate obtained should be discounted to a present value to compensate for the delay in compensation transferred.

Discounting methods, arguably being the most commonly used valuation methods, are most appropriate when the entity being valued experiences stable, predicable growth and income or cash flows. The literature also provided insights to when individual methods under the umbrella of discounting methods could be deemed appropriate. The AEG method is ideal when suspicion of an error within the financial statements of an entity exists, and that error is suspected to persist over various periods. This method operated ideally and could be deemed appropriate when 'well-behaved' growth persists or when the entity meets the principle of a going concern but does not pay dividends.

The DDM method could be difficult to apply to businesses with multiple business units. The literature holds that the DDM method should only be considered appropriate in the valuation of entities with multiple business units, if the ROIC within the various business units is identical and the business units are homogeneous in nature. The EVA method is most appropriate for the valuation of private entities. Scholars also advocate its use in the valuation of individual divisions within an entity, if given that the market's required return remain constant.

The appropriateness of the EVA method was also found to be dependent on the expected growth prospects within an entity. It was found that if the growth prospects of the entity are positive, the EVA method performed better than the income method. Finally, the RIVM was found to be appropriate in entities having a larger amount of intangible assets, as well as in leveraged entities upholding a stable dividend.

This study also concluded upon literature's view on when discounting methods should not be deemed appropriate or at the very least, their use should be considered with caution. Due to the lack of accurate historical data available for the generating of reliable forecasts and commonplace large amounts of capital investments initially required within start-up entities, discounting methods could find difficulty in providing a reliable company value estimation. As such, their use in start-up entities may not be appropriate. Within some industries, even when start-ups do not require substantial capital investments such as the e-commerce industry, discounting methods may be inappropriate due to the specific characteristics of the industry.

Start-ups in the e-commerce industry prioritise market dominance and market share above high profits and commonly have a high growth rate. These factors are not appropriately incorporated in the value assessment of an entity with the use of discounting methods. Consideration should also be given to the assumption of the going concern principle. Discounting methods are inappropriate when companies are experiencing times of economic distress or are in business rescue. Furthermore, discounting methods neglect to consider the option of early divestment and other real options. Accordingly, when the possibility of early divestment is evident, it should be kept in mind that the estimation provided by discounting methods do not incorporate this option and might be inappropriate. It was also noted that the DDM method loses its applicability and could be inappropriate in entities with multiple business units, commonly making cross-unit investments as the growth expected within these business units, and the RIVM, could be inappropriate for the valuation of private entities within developing countries having emerging markets.

The systematic review also illuminated some progress made with regards to improving the accuracy of discounting methods. The accuracy of the EVA method improved substantially when adapted to incorporate a varying rate of return compared to a constant rate of return. Extending the forecasting period within the DDM and RIVM to no more than three years also improved their accuracy. The literature also provided ample evidence for the adjustment of the discounting rate used to incorporate contextual factors related to the specific entity being valued and the market environment in which the entity operates. This included adjustments to incorporate the size of the entity, default or bankruptcy risk, profitability of the entity, and general level of investments of the entity within start-ups in emerging markets. All of the aforementioned improved the accuracy of the discounting methods utilised.

Commonly used by venture capital and private equity firms, valuation multiples could be more appropriate in the valuation of larger, profitable firms. This also includes firms with multiple business units. The literature also notes their use and appropriateness in the valuation of minority shareholding. Notwithstanding the lack of available data, valuation multiples are commonly used for the valuation of private firms within emerging markets. It should be noted that subsequent to the value estimation of the private entity with the use of valuation multiples, a marketability discount is commonly applied to the final value estimation. The literature noted that Price/Earnings and EBITDA multiples are preferred by practitioners within emerging markets.

The level of reliance placed on the valuation estimate also needs to be considered. Price/Book multiples were found to produce less biased estimations in comparison to Sales multiples. Some multiples were found to be particularly useful and appropriate in the valuation of start-

up entities. Multiples related to the GMV of start-up entities, specifically operating in the e-commerce industry such as Price/GMV and EV/GMV, were deemed more appropriate than both Price/Earnings and EV/EBITDA multiples based on their better reflection of the growth potential commonplace within this industry. Notwithstanding the aforementioned, the use of EBITDA multiples should not be disregarded as they are of value in estimating the value of individual business units within an entity.

There are however some elements practitioners should be cognisant, if not weary, of when utilising valuation multiples affecting their appropriateness. Firstly, differing accounting policies applied by the entities limit the appropriateness of valuation multiples. Furthermore, given that the multiples used only consider a single period's data, outliers and the effect of business cycles might limit the reliability of the value estimation derived from the use of valuation multiples. These variations in performance in times of economic downturns or swings could render the use of valuation multiples inappropriate if the input data isn't adjusted to rectify these swings to normal conditions.

Consideration should also be given to the time element related to the outcome of the valuation. When entities are tied up in litigation or the sale of the entity will take a substantial amount of time, the estimation derived with the use of valuation multiples will not consider the time value of money lost in the delay between the value estimation and transfer of resources. As such, the value estimated with by the valuation multiple will need to be discounted to a present value in order to appropriately represent the value of the entity.

Besides the GMV-related multiples alluded to above, the literature holds the opinion that in general valuation multiples fail to reflect the growth potential associated with entities still within the early stages of development or the business life cycle. Market/EBITDA ratios were found to be inadequate for entities operating within the traditional manufacturing and wholesale industries due to the limited growth potential associated with established entities in these industries.

It is noteworthy that asset-based valuation methods were found to be appropriate and ideal within the aforementioned industries. The deduction can be made that other multiples, such as Price/Book or other Book-related multiples, could possibly be more appropriate within these industries. However, practitioners need to remain cognisant of the fact that the literature also indicated that Market/Book multiples have a tendency of delivering lower value estimations in developing countries versus developed countries.

The literature included in this systematic literature review included some practical adjustments that were found to improve the accuracy of valuation multiples. Regarding the selection of a benchmark entity, scholars note that by only considering the industry of the comparable entity, many factors are not taken into account. Ample evidence for the consideration of firm size and the historical performance of the entity availed. The size of the firm was found to significantly influence a variety of multiples, including the Market/EBITDA, Market/Sales and Marker/Book ratios.

Furthermore, the results of this study found that the profitability, risk, and growth prospects should also be considered in determining an appropriate comparable entity. The use of harmonic averages and warranted multiples also improved the accuracy of the multiples valuation method. Scholars also found that by introducing an additional factor incorporating the contextual and qualitative information surrounding an entity, the accuracy of Price/Book valuation multiples were improved. Finally, the literature notes that the selection of a benchmark should not be limited to a single entity, but rather a group of comparable entities improved the accuracy of valuation multiples in emerging markets, improving the appropriateness of the multiples valuation approach.

3 Limitations of the study

The systematic literature review process is susceptible to limitation regarding firstly, the screening of articles for inclusion; secondly, the quality of the literature included; and lastly, the data extraction, analysis and synthesis.

Cognisant of the possibility of the limitations infringing on the quality of the research, the researcher made every effort to prevent this by including the review process followed as transparently and compressively as possible. Regarding the screening of articles for inclusion, the researcher found it valuable to use various databases for the initial literature search, including EBSCOhost (specifically *Business Source Complete; E-Journals; EconLit with Full Text; Academic Search Complete; SocINDEX with Full Text; MasterFILE Premier*); *Scopus* and *Web of Science*, to ensure that the literature gathered present a comprehensive population of the available work on valuation methods.

Although the screening and selection for inclusion process was comprehensively documented, the residual risk of excluding some of the literature published in other databases persists. To ensure that the literature included in the systematic literature review was of adequate quality, only published journal articles were used as a source of literature. This is substantiated by the preference in quality commonly attributable to published journal articles as opposed to grey

literature (Xiao & Watson, 2019). To reduce the limitations associated with the extraction, analysis and synthesis of data, the qualitative data analysis software ATLAS.ti™ was utilised. This aided the researcher in ensuring that all relevant findings, of the literature meeting the selection and screening criteria, were evaluated.

Regardless of the efforts of the researcher to reduce the possibility of limitations in this study, some factors still pose a risk and should be considered. Firstly, a skewed quantity of literature in favour of discounting methods with substantially fewer articles discussing asset-based and multiples valuation methods persists. Accordingly, it is difficult to ascertain to what extent the literature examined, discussed all the relevant factors within the various valuation methods. Furthermore, the conclusions drawn from the results obtained could possibly have been influenced by factors such as the academic prowess and the background and beliefs held by the researcher.

4 The applicability of the findings

The practicality and applicability of the findings of the study will now be discussed. Firstly, I will discuss the contribution made to the research field and academic environment, and secondly, I will discuss the applicability of the findings to valuation practitioners and decisionmakers alike.

This study contributes to the existing body of literature of valuation methods and their application. By conducting a systematic review of the literature available, the study adds to the research field by, firstly, consolidating the work that has already been done within the valuations field, and secondly, in line with the works of Xiao and Watson (2019), the conducting of a systematic review provides guidance to the pursuit of further primary research.

The study contributes to the process of business valuation and practitioners' use of valuation methods by providing useful guidance as to when the different methods should be deemed appropriate. Furthermore, the study could aid practitioners in valuing businesses, highlighting pertinent issues to be kept in mind when planning to valuate an entity, such as the business environment's effect on the choice of valuation method, as well as by discussing ways to improve the accuracy of the valuation methods applied.

5 Recommendations for further research

Based on the literature studied and the findings of this study, I recommend the following topics to be considered for further research:

Firstly, both start-up entities and high-tech digital subscription-based entities have unique characteristics and as discussed earlier, traditional valuation methods fail to incorporate these factors. Although some work has been done to improve the methods used to value these entities, no consensus has been reached as to an appropriately suited valuation method.

Secondly, subjectivity and biases continue to play a role in undermining the reliability of valuation estimates. Work should be done to evaluate to what extent the perspectives and biases of practitioners influence valuation outcomes. Alternatively, work should be done to examine the role of real options and the possibility of their quantification and inclusion within valuation methods.

Finally, this study holistically examined the findings related to the categories of valuation methods. Scholars could consider undertaking an in-depth approach to evaluating the appropriateness of individual valuation multiples.

APPENDIX 1: ETHICAL CLEARANCE CERTIFICATE

Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: http://www.nwu.ac.za

Senate Committee for Research Ethics
Tel: 018 299-484
Fezlwe.Mselenl@nwu.ac.za

28 August 2023

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the **Economic and Management Sciences Research Ethics Committee (EMS-REC)** on, 25/08/2023 the Economic and Management Sciences Research Ethics Committee hereby **approves** your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-REC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: The role and appropriateness of different valuation methods – A systematic literature review

Study Leader/Supervisor (Principal Investigator)/Researcher: Prof D Schutte

Student: D Cilliers (31684602)

N	W	U	-	0	1	8	4	7	-	2	3	-	A	4
Institution				Study Number						Year			Status	

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type:
Commencement date: 28/08/2023 **Risk:** Minimal
Expiry date: 28/08/2024
Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.

Special in process conditions of the research for approval (if applicable):

•

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor (principle investigator)/researcher must report in the prescribed format to the EMS-REC:*
  - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
  - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the EMS-REC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
- *The date of approval indicates the first date that the study may be started.*

n the interest of ethical responsibility, the NWU-SCRE and EMS-REC reserves the right to:

- *request access to any information or data at any time during the course or after completion of the study;*
- *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
- *withdraw or postpone approval if:*
  - *any unethical principles or practices of the study are revealed or suspected;*
  - *it becomes apparent that any relevant information was withheld from the EMS-REC or that information has been false or misrepresented;*
  - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
  - *new institutional rules, national legislation or international conventions deem it necessary.*

The EMS-REC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the EMS-REC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely,

Mark Rathbone

Digitally signed by Mark Rathbone
DN: cn=Mark Rathbone, o=North-West University, ou=Business management, email=mark.rathbone@nwu.ac.za, c=ZA
Date: 2023.08.30 09:21:13 +02'00'

Prof Mark Rathbone
Chairperson: NWU Economic and Management Sciences Research Ethics Committee

APPENDIX 2: LANGUAGE CERTIFICATE

DECLARATION

Editing

Ms E Jansen van Vuuren

BA Hons. Linguistic Studies: North-West University

Copy-editing: University of Cape Town

WRITER, TRANSLATOR, PROOFREADER, LANGUAGE AND ACADEMIC EDITOR

48 Paul Street
POTCHEFSTROOM
2531

+27 78 198 2667
elsjejvv@gmail.com

Date: 23 November 2023

Editing of Dissertation for DB Cilliers

I confirm that I have edited the following document submitted by DB Cilliers in fulfilment of the requirements for the degree of *Magister Commercii* in Management Accountancy in the Faculty of Economic and Management Sciences at the North-West University, South Africa.

Research title	*THE ROLE AND APPROPRIATENESS OF DIFFERENT VALUATION METHODS: A SYSTEMATIC LITERATURE REVIEW*
Document type	MS Word Document
Editing services	Editing of chapters 1,2 & 3: correcting spelling and grammar mistakes; editing for consistency, style and flow; inclusion and accuracy of references, cross-referencing and citations.

The edited document was emailed to DB Cilliers on 23 November 2023 with all the changes marked up using MSWord's Review (Track Changes) and Comments. DB Cilliers is responsible for accepting the editor's changes and finalising the document. He is also responsible for the quality and accuracy of the final submission.

Yours faithfully

Elsje Jansen van Vuuren

E Jansen van Vuuren