

## MAF002 A refined constructive operating lease capitalisation model considering new proposed lease accounting rules

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### **Abstract**

This study develops a refined model used to capitalise off-balance sheet leases, namely operating leases accounted for using current lease accounting rules. Imminent changes to the accounting rules for leases will require both operating and finance leases to be reflected on an entity's balance sheet. Based predominantly on the constructive operating lease capitalisation method developed by Imhoff, Lipe and Wright, the refined model developed in this paper considers the impact of the new proposed accounting treatment for leases (in terms of ED/2013/6 – the revised lease accounting exposure draft released by the IASB and FASB in May 2013). It also incorporates aspects of current lease accounting rules not previously considered, namely provisions recognised in respect of the straight-lining of operating leases as well as onerous operating lease contracts. The refined model is developed in order to determine the impact that the capitalisation of operating leases will have on an entity's reported financial statement figures and ratios.

**Key words:** operating lease; off-balance sheet; lease capitalisation; straight-lining

### **INTRODUCTION**

Leasing is a major business activity that many entities engage in across the globe supported by the fact that the worldwide leasing industry, represented by the top 50 countries, had an annual volume of \$868 billion during 2012 according to White Clarke Group's Global Leasing Report<sup>1</sup> (White, 2014, p. 5). This represented an increase of 8.95% from 2011. Not only is leasing a major business activity but it is also a growing means of obtaining the use of an asset<sup>2</sup>.

The report indicates that South Africa is the top ranked African country, by volume, with an annual leasing volume of \$5.72 billion in 2012 – representing a 1.02% increase on 2011 and 1.49% of South Africa's gross domestic product (White, 2014, pp. 9,14). Leasing may therefore not only be an important business activity globally but also within the South African economy. This is due to the many benefits that leasing offers as opposed to buying

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<sup>1</sup> Due to the widespread adoption of Hire Purchase (HP) as a source of finance for entities and HP being a major source of revenue for leasing companies, the White Clarke Group's Global Leasing Report includes HP figures in their reported leasing volume figures. In the report the word 'leasing' also refers to both leasing and HP.

<sup>2</sup> A lease is a contract whereby the owner of an asset (the lessor) gives another person (the lessee) the right to use the asset for a specified time in exchange for a specified payment. As such all lease agreements give the lessee the right to use an asset (which the lessor must provide) and create an obligation for the lessee to make future payments. A lease can therefore be likened to borrowing funds and buying an asset. As a result leasing provides entities with an alternative way of obtaining the use of an asset required to do business other than the conventional method of purchasing the asset, which is often performed by way of a loan.

an asset, such as economies of scale or scope, increased flexibility, tax advantages, improved access to capital, reduced costs of upgrading equipment and improved risk sharing (SEC, 2005, p. 60).

However, due to the current accounting approach adopted by accounting standard setters for leasing activities which classifies leases as either finance leases or operating leases, many leases (those classified as operating leases) are not reflected on the statements of financial position (hereon referred to as balance sheet) of entities. This is despite the fact that the required payments under a non-cancellable lease agreement, regardless of its accounting classification, are considered an obligation similar to loan repayments<sup>2</sup>. A 2005 Securities Exchange Commission (SEC) report estimated that there was \$1.25 trillion in non-cancellable future cash obligations (undiscounted) committed under operating leases that were not reflected on the balance sheets of United States (US) issuers but rather disclosed in the notes to the financial statements (SEC, 2005, p. 64). It may therefore be that, despite the many benefits and reasons for leasing; this benefit of obtaining off-balance sheet financing is another reason why entities enter into operating leases. This aspect of leasing has attracted much attention and has been the focus of a significant number of research papers since the 1980s as outlined in the Literature Review<sup>3</sup> section. An important aspect of this research was to focus on the constructive capitalisation of operating (off-balance sheet) leases in order to determine the impact thereof on key financial statement figures and ratios. Despite the extensive prior research referred to, leasing is an under-researched area within the context of South Africa according to the researcher. This research paper therefore focuses on the development of a robust operating lease capitalisation model which forms part of a larger study wherein the model is applied to listed South African companies in order to analyse the impact of operating lease capitalisation and various ancillary pertinent aspects of leasing. This research is timely and particularly relevant in the context of the new proposed changes to lease accounting rules in terms of the International Accounting Standard Board (IASB) and Financial Accounting Standard Board's (FASB) exposure draft on leases (ED/2013/6) which proposes the capitalisation of all non-cancellable lease agreements entered into by lessees with a lease term of more than 12 months.

Therefore, the primary objective of this research paper is to build an appropriate operating lease capitalisation model, using company specific adjustments where possible, that considers the current and proposed accounting treatment of operating leases.

The remainder of this research paper comprises a review of appropriate literature and accounting rules in the next section, followed by a section detailing the model developed. Thereafter the final section concludes and highlights further areas of research.

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<sup>3</sup> Examples of relevant research papers include Imhoff and Thomas (1988), Imhoff, Lipe and Wright (1991 & 1997), Ely (1995), Bennett and Bradbury (2003), Fulbier, Silva and Pferdehirt (2008), Jesswein (2009), Knubley (2010), Rauh and Sufi (2012) and Bratten, Choudhary and Schipper (2013).

## **LITERATURE REVIEW**

Research on leasing has focused on a number of disparate areas; however, the main focus of this paper relates to the constructive capitalisation of operating leases. A review of prior leasing research indicated that capitalising operating leases has been performed for a variety of reasons. Sub-section 2.1 focuses on the operating lease capitalisation models used in prior research studies.

Furthermore, lease accounting has evolved and has been debated extensively over the past few decades. In sub-section 2.2 detail on the accounting rules relating to lease accounting and proposed changes thereto is provided.

### **Lease Capitalisation**

A lease contract, regardless of its accounting classification, requires the lessee to make payment to the lessor in order to obtain the right to use the leased asset. This is in essence the same as the obligation that arises in terms of a loan whereby the funds borrowed need to be repaid in the future in terms of the loan agreement. Brigham and Daves (2010, p. 674), amongst others noted below, clearly support this view by way of the following succinct statement in their book in a section on the financial statement effects of leases: “leases should be regarded as debt”.

Despite finance research papers (mentioned in this sub-section) as well as accounting literature and research (referred to in sub-section 2.2) advocating for many years that operating lease agreements should be capitalised, in order to correctly reflect the obligation and associated asset in respect of the lease, the capitalisation of all lease agreements has also been advocated by many other parties. This includes the authors of recognised finance texts, such as Damodaran (2001, p. 83) and Correia, Flynn, Uliana and Wormald (2011, p. 7.21), who assert that the obligation to make payments in terms of a lease is akin to the repayments, including interest, due on debt.

Furthermore, according to Young (1999, pp. 10,15), adjusting accounting operating profit and invested capital for operating leases is one of the most commonly proposed adjustments in order to determine economic value added (EVA<sup>TM</sup>)<sup>4</sup>. Altman’s original 1968 Z-Score failure prediction model was also revised to incorporate, amongst other reporting adjustments, the capitalisation of all non-cancellable leases that were not reflected as debt on the balance sheet (Altman, 2000, p. 25).

Based on the aforementioned literature and a non-cancellable lease being similar to a loan, capitalising off-balance sheet operating leases is necessary in order to recognise the obligation to make future lease payments. Sub-section 2.1.1 provides details on the lease capitalisation methods used in prior research

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<sup>4</sup> EVA<sup>TM</sup> is a registered trademark of Stern Stewart & Company.

## Lease Capitalisation Methods

The vast majority of research conducted requiring the capitalisation of operating leases has used the constructive capitalisation method developed by Imhoff, Lipe and Wright (1991 & 1997), referred to hereafter as the 'ILW method'. In their 1991 seminal paper Imhoff et al. discounted the future minimum lease payments disclosed in respect of operating leases using an estimate of the entity's incremental pre-tax borrowing rate in order to determine the unrecorded lease liability. An estimate of the remaining and total useful life of the leased asset was also required in order to estimate the accounting value of the unrecorded asset which, based on straight-line amortisation, would be less than the unrecorded liability<sup>5</sup>.

The unrecorded asset ratio (ratio of leased asset to lease liability) can be determined using the following formula presented by Imhoff et al. in Table 3 of their research paper (1991, p. 56):

$$\text{Asset ratio} = (RL \div TL) \times \left\{ \frac{(PVA_{TL,i})}{(PVA_{RL,i})} \right\}$$

*Where, RL = remaining life of lease*

*TL = total life of lease*

*PVA<sub>TL,i</sub> = present value of an annuity for TL at i%*

*PVA<sub>RL,i</sub> = present value of an annuity for RL at i%*

*i% = marginal borrowing rate*

The underlying assumptions of the asset ratio formula are that 1) leased assets are amortised on a straight-line basis, 2) the leased asset and lease liability are equal at the start of each lease, and 3) the leased asset and lease liability are both zero at the end of each lease. The difference between the unrecorded liability and unrecorded asset relating to operating leases results in an adjustment to equity (decrease) and deferred tax for accounting purposes. This arises from the lease expense recognised initially being less than the sum of the interest on the unrecorded lease liability and the amortisation on the unrecorded leased asset. The 1991 paper by Imhoff et al. assumed that the current year impact on profit was not material and therefore zero (1991, p. 59). In addition, five

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<sup>5</sup> It is to be noted that from an economic perspective the leased asset's economic value would generally be greater than the associated liability value during the lease term due to the future economic benefits expected to be generated from the productive use of the leased asset. If this was not the case then an entity would not enter into a lease agreement. An alternative method advocated to determine the amortisation charge is present value amortisation (also known as economic or annuity depreciation) where the annual amortisation effectively increases over the lease term and equals the capital reduction in the lease liability – see study by Jennings and Marques (2013) who compare straight-line amortisation with present value amortisation. However, from an accounting perspective, based on the leased asset value equalling the lease liability at inception and straight-line amortisation, the leased asset's accounting value will always be less than the associated liability. Accounting value is important in the context of this research study, namely the impact of the constructive capitalisation of operating leases on annual financial statements prepared in accordance with GAAP and financial accounting ratios based thereon.

uniform assumptions were also made by Imhoff et al. when capitalising the operating leases for their sample of companies, namely: an interest rate of 10% was appropriate for each company; the average remaining life of operating leases was 15 years; all minimum lease payments were expected to occur at year end; the asset ratio equalled 70% (rule of thumb suggested by Imhoff et al.); and the effective tax rate was 40%. These assumptions were employed in order to isolate the impact of changes in any of the assumed variables and determine the impact of capitalising operating leases solely attributable to differences in the future minimum operating lease payments of the companies (Imhoff, et al., 1991, p. 61).

However, Imhoff et al. (1997) reconsidered some of these assumptions and provided evidence that the impact of capitalising operating leases on standard profitability measures such as operating income margin, return on assets (ROA) and return on equity (ROE) can be substantial as well as unpredictable in direction (1997, p. 31). The profit impact was determined by adding back the operating lease expense and deducting the interest on the unrecognised lease liability as well as the amortisation on the unrecognised leased asset. [As a result of the interest plus amortisation being greater than the operating lease expense in the initial years, profit will be lower when capitalising operating leases, while the opposite will occur in the latter years of the lease. Hence the impact on profit is unpredictable in direction as noted by Imhoff et al. as it can be negative or positive depending on the phase of the lease.] All these adjustments were performed on an after-tax basis. Furthermore, Imhoff et al. indicated that the overall net profit impact can be determined, without calculating the separate income statement adjustments, as the movement in equity (retained earnings) if the balance sheet impact in the current and comparative year has been determined (1997, p. 21). They also reconsidered the assumptions in their 1991 paper relating to the constant interest rate of 10% used and the average remaining life of 15 years assumed for operating leases. Two proxies were suggested as an appropriate entity-specific interest rate (lessee incremental borrowing rate), namely (Imhoff, et al., 1997, p. 17):

- i. The interest rate implicit in the entity's capital (finance) leases – this may be disclosed or can be determined from required finance lease disclosures. Imhoff et al. used this method but noted that with operating leases more ownership risk remains with lessors, therefore a higher interest rate is most likely applicable for operating leases compared to finance leases.
- ii. The interest rate implicit in the entity's recognised debt – this may also be disclosed or can be determined as interest expense divided by the book value of all interest bearing debt. In this instance, Imhoff et al. note that interest expense must not be net of interest income.

Furthermore, Imhoff et al. used a method that was suggested in their 1991 paper to estimate the average remaining lease life for each company analysed in their 1997 paper. This involved dividing the future minimum lease payments due after five years by the minimum lease payments due in the fifth year and rounding the result up (they also suggested adding one or two years if the result was greater than fifteen) due to the fact that

future minimum lease payments generally decline as lease agreements come to an end (Imhoff, et al., 1997, p. 17). This estimate was then used to further estimate the minimum lease payments due annually after five years (equal to the future minimum lease payments due after five years divided by this estimate), the discounted lease liability as well as the asset ratio.

The ILW method was based on the operating lease disclosures required under US GAAP (FAS 13) whereby the future minimum operating lease payments due in each of the next five years must be disclosed together with the aggregate of lease payments due thereafter. However, in terms of International Accounting Standard (IAS) 17 paragraph 35 the total of future minimum lease payments due later than one year and not later than five years after year-end are required to be disclosed as a lump sum (IASB, 2012, p. A646). Fulbier, Silva and Pferdehirt (2008, p. 127) therefore used a geometric degression model to convert the total amount disclosed in terms of IAS 17 for future minimum lease payments due later than one year and not later than five years after reporting date into annual lease payments that decline at a constant rate. The model calculated a constant degression factor ( $dg$ ) which ensured that the minimum lease payment ( $MLP$ ) of the next period equalled the prior period  $MLP$  multiplied by  $dg$ . Furthermore all of the  $MLPs$  calculated using the degression model for the four year period (after one year and not later than five years from reporting date) sum to equal the total amount disclosed for the same period. However, other researchers (e.g. Bennett and Bradbury (2003, p. 106) and Branswijck and Longueville (2011, p. 282)) followed a simplified approach of dividing the lump sum future minimum lease payments by the specified time period to get an equal annual lease payment. The geometric degression model used by Fulbier et al. is considered superior and more accurate as future minimum lease payments generally decline in future years as lease contracts expire. This is supported by de Villiers and Middelberg (2013) who used the ILW method incorporating the degression model used by Fulbier et al. when analysing the impact of constructive capitalisation within South Africa<sup>6</sup>.

Beattie, Edwards and Goodacre (1998), together with Fulbier et al. (2008) and Durocher (2008), made a number of other entity-specific adjustments when capitalising operating leases using the ILW method and restating reported figures for each entity in their sample whenever possible (e.g. average remaining lease life, tax rates, discount rates). This results in the calculation of a far more accurate lease liability and leased asset for each entity in respect of off-balance sheet operating leases. These entity-specific adjustments have not been considered in many other research studies which mainly used the uniform assumptions used by the original ILW method to determine the unrecognised operating lease liability and associated asset. Cornaggia, Franzen and Simin (2013, p. 348) argued that an entity-specific discount rate should not be used as it gives entities with more debt the benefit of higher discount rates (i.e. lower liability values); however, this is not considered appropriate as a higher discount rate correctly incorporates the higher risk

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<sup>6</sup> Listed South African companies also report in terms of International Financial Reporting Standards issued by the IASB, most notably IAS 17 for leases.



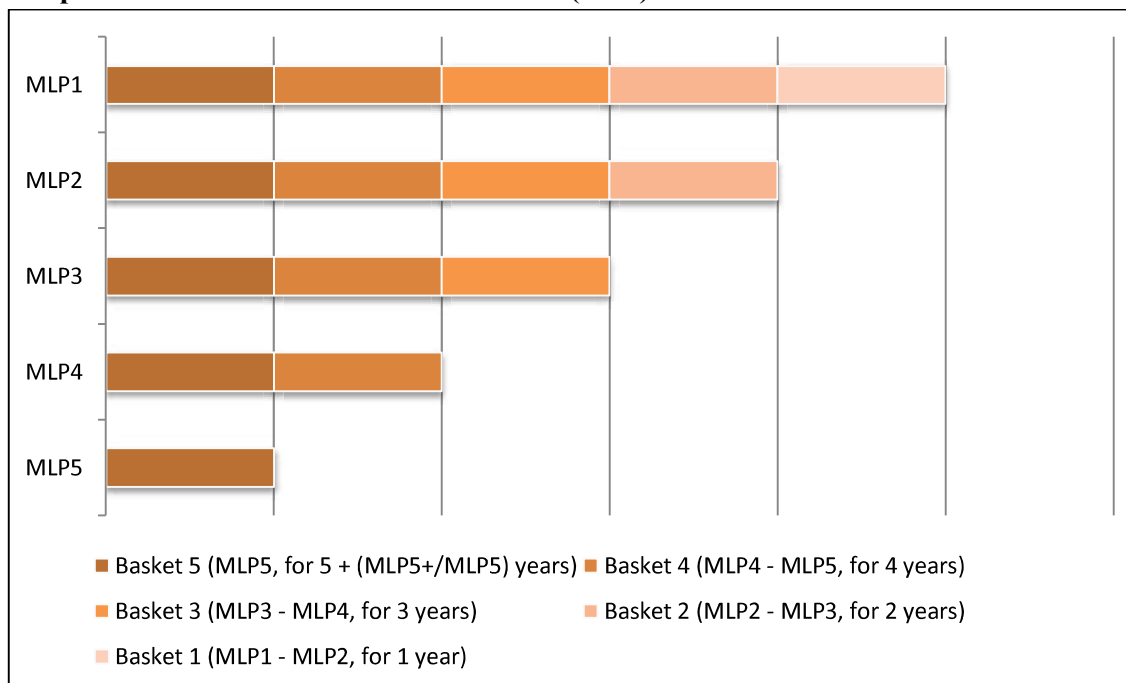
associated with more debt (financial risk). Essentially the lease payments would correctly include a greater interest component due the higher risk a lessor is exposed to when compared to leasing to another entity with lower levels of debt. It is however acknowledged that the lessor holds a put option (i.e. the right to sell the leased asset if the lessee does not pay the required lease rental) which also has a bearing on the level of risk borne by the lessor and is based on the type of asset leased. The extent of this risk is largely dependent on the specialised nature of the leased asset and will also be factored into the interest rate charged by the lessor; however, this cannot be determined based on financial statement disclosures.

Furthermore, Fulbier et al. (2008) did not determine the leased asset from the aggregate of the discounted future lease payments (total lease liability) as per the ILW method but rather from the present value of the future minimum lease payments split into five contract baskets, each with a different remaining life from one year up to five or more years. Fulbier et al. (2008, p. 130) identified each basket “by using  $MLP_t - MLP_{t+1}$  but assume(d) that the fifth basket ha(d) equal annual payments to  $MLP_5$  with a remaining lifetime of  $5 + (MLP_{5+}/MLP_5)$ ”. The difference between the  $MLPs$  (i.e.  $MLP_t - MLP_{t+1}$ ) in two consecutive years was assumed to be the  $MLP$  of lease contracts coming to an end at  $t$  (i.e. the first of the two consecutive years). The ILW method’s asset ratio is subsequently applied separately to each basket before aggregating the results to determine the value of the leased asset. Fulbier et al. (2008, p. 130) note the following in support of this adapted method:

- Consistency with the general assumption of constant lease payments when applying the ILW constructive capitalisation method;
- Information in the annual financial statements is used more effectively through capturing the full range of remaining lives of the underlying lease contracts; and
- Shorter lease lives are incorporated leading to a more conservative approach (i.e. higher leased asset values due to the shorter lease lives) and this consequently avoids an overstated impact on equity which increases with increasing remaining lease lives.

Graph 2A illustrates how the abovementioned lease contract baskets were determined by Fulbier et al. Although this adapted method has not been extensively used in subsequent research it is nonetheless considered a merited improvement to the ILW method due to it conceptually improving the accuracy with which the leased asset value is determined.

**Graph 2A: Illustration of Fulbier et al.'s (2008) lease contract baskets**



A second ad hoc constructive capitalisation method used by bond-rating agencies is noted by Imhoff et al. (1993, p. 341) and Dhaliwal, Lee and Neamtiu (2011, pp. 179-180) – this method recognises a lease liability and asset equal to the current period operating lease expense multiplied by eight. Further, although no impact on net income is assumed, interest expense on the lease liability is estimated to equal one-third of the operating lease expense while the remaining two-thirds are reclassified as depreciation (amortisation) expense relating to the leased assets. There is no theory or empirical evidence to support this method and research results by Imhoff et al. (1993, pp. 346-347) indicate that it overestimates the operating lease liability in comparison to the ILW method. Ely (1995, pp. 402-403) used a similar method whereby the lease liability was estimated to equal the future minimum lease payment disclosed in respect of the first year multiplied by a constant of six – this constant is derived using present-value formulas assuming a lease term of 25 years and an interest rate of 10%. Subsequent research has found that both of these rule of thumb heuristic methods (multiplying by a constant of eight or six) overstate the lease liability in comparison to the ILW method (e.g. Beattie, Goodacre and Thomson (2000, p. 1203), Bennett and Bradbury (2003, p. 108) and Jesswein (2009, p. 87)). Another heuristic approach was evaluated by Jesswein (2009, p. 86) which multiplied “all current and future lease obligations by two-thirds, with one-third of each year’s payment representing the financing cost of leases for that year”. Although this method understated the lease liability relative to the more sophisticated ILW method, it was found to have a higher correlation with the ILW method results and also give a more accurate approximation of the lease liability when compared to the other two rule of thumb heuristic methods (Jesswein, 2009, p. 87).



A further simplistic method was used by Grossman and Grossman (2010) whereby information pertaining to finance leases was utilised. They used a median ratio of the selected companies, obtained by dividing the present value of finance leases by the undiscounted amount disclosed in respect of those leases, equal to 67%. This constant median ratio was then applied to the undiscounted future minimum operating lease payments disclosed for all companies in the sample in order to determine the unrecognised operating lease liabilities. Grossman and Grossman noted that this method was a limitation of their study. (Grossman & Grossman, 2010, pp. 9,11)

Recent research performed by Bratten, Choudhary and Schipper (2013, p. 1194) confirmed the reliability of the ILW method by applying the method to disclosed finance lease payments for 565 entity-years. Bratten et al. discounted the finance lease payments at an implied interest rate and compared the result to the recognised finance lease obligations which proved the accuracy and reliability of the ILW method. Furthermore, the ILW method has been used extensively without any major adaptations (e.g. Bennett and Bradbury (2003), Duke and Hsieh (2006), Jesswein (2009), Bryan et al. (2010) and Branswijk and Longueville (2011)), confirming support of the underlying principles and assumptions as well as the accuracy of this method of constructively capitalising operating leases. The constructive capitalisation model developed in the next section is therefore based on the ILW method.

### **Lease Accounting**

The current accounting treatment for leases, based on a risk and reward model classifying lease agreements as either finance leases or operating leases, was introduced by the FASB in 1976 as US GAAP (FAS 13: Accounting for Leases) and by the IASC (International Accounting Standards Committee, the predecessor body of the IASB) in 1982 (IAS 17: Accounting for Leases). This accounting treatment requires the capitalisation of all finance leases while information relating to operating leases is merely disclosed in the notes to the financial statements. (Joint International Working Group on Leasing, 2007)

The lease capitalisation debate for accounting purposes and the classification of lease agreements into finance leases and operating leases has been the focus of a vast amount of research over a number of decades<sup>7</sup>. Furthermore, the fact that operating leases are used extensively and substantially more than finance leases was confirmed by a 2005 SEC report (SEC, 2005, p. 64) that estimated, based on empirical research and an estimated population of 10,100 US issuers, the undiscounted cash flows committed under operating leases to be almost 28 times more (\$1.25 trillion) than the estimated undiscounted cash flows committed under capital (finance) leases (\$45.1 billion). Based on these findings, the SEC recommended that the FASB, together with the IASB, re-examine lease accounting.

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<sup>7</sup> Examples of relevant research papers include Imhoff and Thomas (1988), El-Gazzar and Jaggi (1997), Durocher (2008), Imhoff, Lipe and Wright (1993), Ely (1995), Beattie, Gooadacre and Thomson (2000), Bratten, Choudhary and Schipper (2013), Cornaggia, Franzen and Simin (2013), Knubley (2010) and Schipper (2007).

Prior to the 2005 SEC report, two special reports were released by the G4+1 group in 1996 and 1999 (a group that consisted of representatives from Australia, Canada, New Zealand, the United Kingdom, the United States, and the IASC). Essentially the two G4+1 special reports proposed that all leases be capitalised, as operating leases also give rise to assets and liabilities, and that the associated liabilities and assets should generally be recorded at the present value of the minimum payments required in terms of the lease. (Joint International Working Group on Leasing, 2007)

Sub-section 2.2.1 provides greater detail on the current accounting treatment for leases while section 2.2.2 examines the proposed new changes to lease accounting.

### **Current Lease Accounting Rules**

South African companies are required to report results in terms of the International Financial Reporting Standards (IFRS) issued by the IASB. Under the existing IFRS for leases, IAS 17, leases are classified as either finance or operating leases; whereby a lease is classified as a finance lease if it “transfers substantially all the risks and rewards incidental to ownership of an asset”, and an operating lease is any “lease other than a finance lease” (IASB, 2012, p. A638). Essentially the focus of IAS 17 is on identifying if a lease is economically similar to a purchase transaction, in which case it is accounted for as a finance lease.

Finance leases are capitalised with a leased asset and lease liability reflected on the balance sheet of the lessee. In contrast operating leases are not capitalised with the periodic lease payment expensed by lessees (generally on a straight-line basis).

This current accounting treatment for finance and operating leases has attracted criticism due to the fact that it does not entirely meet the needs of users of financial statements (IASB, 2013, p. 8). Accordingly, subsequent to the proposals by the two G4+1 special reports to capitalise all leases, the IASB and the FASB initiated a joint project in 2006 to develop a new accounting approach for leasing activities that would address the issues raised above.

### **Accounting Provisions Previously Ignored**

The literature reviewed in sub-section 2.1 relating to operating lease capitalisation revealed that two accounting provisions have previously been ignored when constructively capitalising operating leases. Depending on the terms of the operating lease agreement and circumstances, these provisions could potentially result in liabilities that are already recognised for operating leases under the current accounting rules as follows:

- **Operating lease straight-lining provisions:** Paragraph 33 of IAS 17 requires lease payments under an operating lease to be recognised as an expense on a straight-line basis (IASB, 2012, p. A646). As a result thereof straight-lining provisions are generally created when lease payments escalate annually in terms of the operating lease agreement.

- **Onerous operating lease contract provisions:** If an operating lease agreement is classified as an onerous contract in terms of IAS 37 then a provision (liability) must be recognised for the present obligation under the contract as required by paragraph 66 (IASB, 2012, p. A969). An onerous contract is defined in paragraph 10 of IAS 37 as “a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it” (IASB, 2012, p. A961).

Both of the abovementioned provisions are effectively a liability that is recognised in respect of future minimum operating lease payments disclosed in the notes. Therefore, if these provisions are ignored when constructively capitalising operating leases, as has been the case with prior research, a portion of the liability in respect of these future lease payments will be double counted and distort results. These provisions may not be material or materially distort analyses; however, this has not previously been considered and as such cannot be assumed to be immaterial. It is also suggested that the straight-lining provision may potentially be material especially in the case of retailers who enter into substantial long-term lease agreements for prime retail space which may include relatively high fixed escalation clauses in excess of inflation. Both of these provisions have been incorporated into the revised operating lease capitalisation model developed in the next section.

### **Proposed Lease Accounting Changes**

Subsequent to the joint project initiated by the IASB and the FASB in 2006, the organisations released an exposure draft (ED/2010/9) during 2010 proposing a new accounting approach for lessees based on a right-of-use model. This proposed the capitalisation of all operating leases for lessees. Knubley (2010) and de Villiers and Middelberg (2013), amongst others, present an overview of this exposure draft; however, no further details thereof are noted in this paper as it was subsequently withdrawn after feedback thereon was obtained. Although the feedback indicated general support for the proposed recognition of a lease liability and leased asset for all leases, contrary views on certain issues prompted the withdrawal of ED/2010/9 (IASB, 2013, pp. 9-10).

However, a revised exposure draft (ED/2013/6) was released in May 2013 by the IASB and the FASB. The core principle of this exposure draft (new proposed standard) is “that an entity shall recognise assets and liabilities arising from a lease” (IASB, 2013, p. 13). The exposure draft classifies leases as either Type A or Type B leases based on the consumption principle (by the nature of the asset) and not as finance or operating leases (by the nature of the contract). However, based on feedback received and further deliberations, in August 2014 the IASB tentatively decided to follow a single lessee model

essentially accounting for all leases as a Type A lease<sup>8</sup> (IASB, 2014, p. 10). Pertinent aspects of this new exposure draft, relating to Type A leases<sup>9</sup>, are highlighted below:

- Lessees will be required to recognise a right-of-use asset and a lease liability for all leases with a non-cancellable lease term of more than 12 months. This asset and liability will generally be recognised at a value equal to the present value of the lease payments discounted at the rate the lessor charges the lessee or the lessee's incremental borrowing rate.
- The right-of-use asset will be amortised over the lease term (generally on a straight-line basis) and interest recognised on the lease liability which reduces when lease payments are made.
- The amortisation and interest charges are to be recognised separately in the income statement.

Essentially there is no major difference between the current accounting treatment for finance leases in terms of IAS 17 and the new proposed lease accounting treatment for Type A leases which both require a lease liability and leased asset to be recognised as well as the subsequent recognition of interest and depreciation (amortisation) charges. The new accounting treatment proposed by the IASB therefore follows the ILW method.

### **Summary**

This literature review section focused on literature relating to the capitalisation as well as the accounting treatment of leases. In terms of the current accounting treatment, operating leases are not recognised on the face of the balance sheet but rather disclosed in the notes. The ILW lease capitalisation method developed by Imhoff et al. (1991 & 1997) was therefore developed to constructively capitalise the disclosed future minimum lease payments relating to operating leases. This method has proven to be accurate, although a subtle adjustment using a geometric degression model by Fulbier et al. (2008) was required in respect of certain aggregated minimum lease payments disclosed in terms of IAS 17. Incorporating company-specific adjustments also improved the accuracy of the ILW model. This adapted ILW method will be used as a starting point when developing a refined capitalisation model in the next section. The current accounting provisions recognised for operating leases in respect of onerous contracts and straight-lining of lease payments, not previously considered, will now also be considered when refining the ILW method.

### **MODEL DEVELOPMENT**

The model used in this study was developed in Microsoft Excel and tested following these six steps:

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<sup>8</sup> In contrast the FASB tentatively decided to follow a dual approach which retains the current lease accounting classification of finance leases and operating leases but accounts for them in line with the accounting treatment for Type A and Type B leases proposed in the revised exposure draft. (IASB, 2014)

<sup>9</sup> As South African companies report results in terms of International Financial Reporting Standards (IFRS) issued by the IASB the remainder of the research report ignores Type B leases.

### **Step 1: Identifying required financial information**

The first step in developing the model was identifying the financial information that needed to be captured for each company in order to calculate the unrecorded operating lease liability and associated asset. Furthermore all the financial information relating to figures and ratios that would be impacted by operating lease capitalisation were identified and incorporated into the model.

### **Step 2: Determining the unrecorded lease liability**

In accordance with the ILW method, the operating lease liability was determined as the present value of the MLPs (minimum lease payments) discounted at the company's incremental pre-tax borrowing rate. Furthermore, in line with Imhoff et al. (1997) the applicable incremental borrowing rate for each company was determined based on the following two proxies:

- i. The interest rate implicit in the company's finance leases which may be disclosed or determined from required finance lease disclosures.
- ii. The interest rate implicit in the company's recognised debt which may be disclosed or determined as gross interest expense divided by the book value of all interest bearing debt.

As noted by Imhoff et al. (1997), a greater degree of ownership risk remains with lessors in respect of operating leases, therefore a slightly higher interest rate is likely more applicable for operating leases compared to finance leases and other recognised debt (although this may be mitigated by the nature of the assets and the benefits of retaining security over the assets that lessors possess in terms of such lease contracts). Nonetheless, when they provide reasonable results, these are considered the best proxies for an appropriate discount rate in light of the fact that the weighted average interest rate implicit in a company's portfolio of operating leases (as charged by the lessor) is not disclosed. However, this is considered in the model as the higher of the above two interest rate proxies will be used.

If an interest rate cannot be determined (i.e. if a company does not have any finance leases or recognised debt) or the results are unreasonably high or low<sup>10</sup> then the current South African prime lending rate will be used in line with de Villiers and Middelberg (2013, p. 661). The prime lending rate is used as it is the "benchmark rate at which private banks lend out to the public" (South African Reserve Bank, 2013). Although the discount rate is noted as a limitation due to the difficulty in establishing an appropriate company-specific rate, using a company-specific discount rate where possible is considered superior to using a blanket rate, such as the prime lending rate, for all companies as it differentiates between the varying risk profiles of the companies selected. Furthermore, the interest rate charged by lenders of other recognised forms of debt would be based on the overall risk of the

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<sup>10</sup> An unreasonably high interest rate (e.g. 25%) or low interest rate (e.g. 3%) can result when using the two proxies suggested by Imhoff et al. (1997) due to the year end balances for finance lease liabilities and recognised debt being used in the proxy calculations as well as the aggregated and summarised nature of financial statement disclosures.

company, including consideration of off-balance sheet operating leases (Lightner, et al., 2013, p. 19).

A unique aspect of the model developed is the fact that a separate operating lease liability and associated asset was determined for property and non-property leases based on the MLPs in respect of each of these lease types. This was done to improve the accuracy of the operating lease capitalisation model as property leases generally have a longer lease term than non-property leases and the length of the lease term impacts on the determination of the unrecorded liability, leased asset and consequential adjustments.

Although IAS 17 currently does not require the split of MLPs between property and non-property, many companies disclose this split voluntarily as it provides users with useful information. If this information was not disclosed a further voluntary, yet common, disclosure was used to estimate the split of the aggregated MLPs between property and non-property. The disclosure used as proxy in this regard is the operating lease rental expense relating to property and non-property<sup>11</sup>. The aggregate MLPs disclosed (Total MLP) in respect of each period is then split between property and non-property as follows:

$$MLPs (property) = Total MLP \times \left( \frac{Operating\ lease\ expense\ (property)}{Total\ operating\ lease\ expense} \right)$$

$$MLPs (non-property) = Total MLP \times \left( \frac{Operating\ lease\ expense\ (non-property)}{Total\ operating\ lease\ expense} \right)$$

$$Where, \quad Total\ operating\ lease\ expense = Operating\ lease\ expense\ (property) + Operating\ lease\ expense\ (non-property)$$

Thereafter, based on the required disclosures of IAS 17, the geometric degression model used by Fulbier et al. (2008) was incorporated into the model to convert the total amount disclosed in terms of IAS 17, for MLPs due later than one year and not later than five years after reporting date, into annual lease payments that decline at a constant rate over the four year period. Therefore, using Microsoft Excel's Goal Seek function, the model calculates a constant degression factor (*dg*) which ensures that the MLP of the next period equals the prior period MLP multiplied by *dg*. Furthermore a check ensures that the sum of all of the MLPs calculated using this degression model for the four year period equals the total amount disclosed for the same period.

<sup>11</sup> Although many entities provide voluntary information regarding the operating lease rental expense split between property and non-property for the benefit of the users of their financial statements, often this information is provided in order to comply with IAS 1 paragraph 97 which requires separate disclosure of the nature and amount of material income and expense items such as leasing charges (IASB, 2012, p. A481).



The average remaining lease life after five years from reporting date is estimated by the model as the aggregated MLPs due after five years divided by the MLP disclosed in respect of the fifth year with the result rounded up and another year added. This is in accordance with the ILW method and due to the fact that MLPs generally decline as lease agreements come to an end – this assumption is logical and sensitivity results by Imhoff et al. (1997, p. 17) demonstrated that changes in this assumption did not materially affect the estimation of the unrecorded liability. Based thereon, the MLP due in respect of each year after five years from reporting date (noted hereon after as  $MLP_{5+ILW}$ ) equals the aggregated MLPs due after five years divided by the estimated average remaining lease life. Furthermore, it follows that the total average remaining lease life is five years plus the average remaining life after five years calculated in terms of this paragraph.

Based on the above inputs, namely the discount rate and the scheduled annual MLPs, the operating lease liability is calculated. However, a further unique aspect incorporated into this model is the deduction from the calculated operating lease liability of any straight-lining and onerous contract provisions that have already been recognised in respect of operating leases (refer sub-section 2.2.1.1) in order to determine the unrecorded portion thereof. If these provisions are not adjusted then the operating lease liability will be overstated as a portion thereof will be double counted.

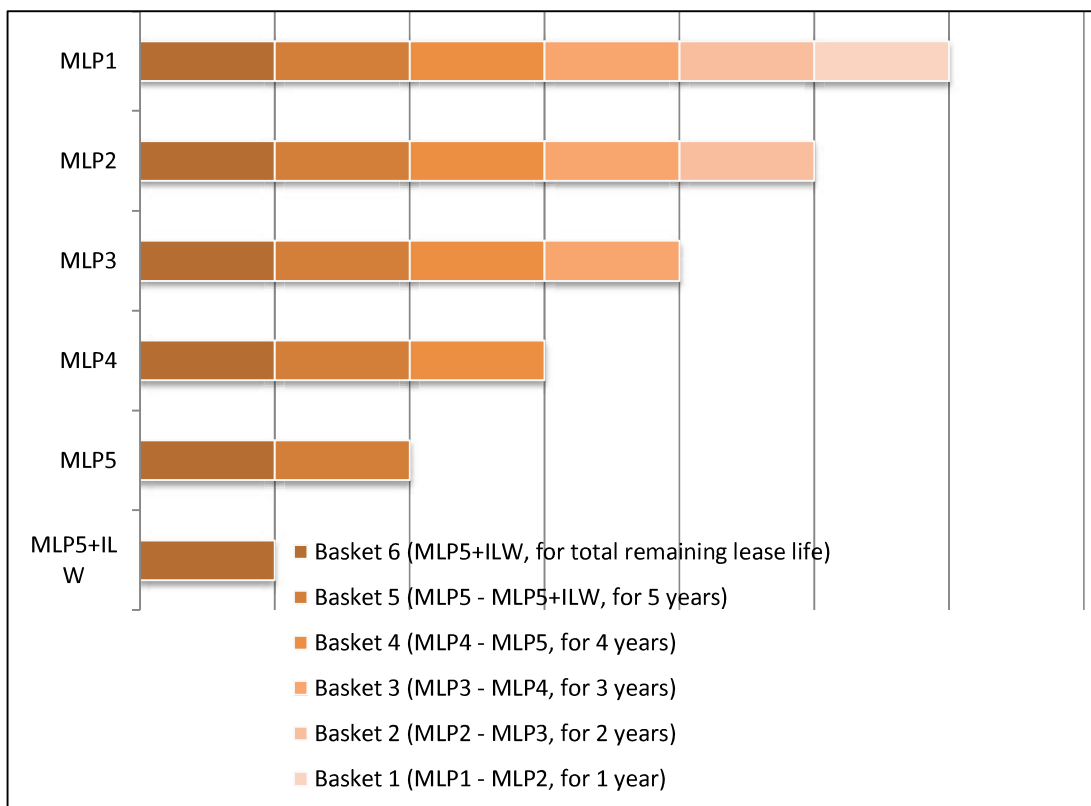
Furthermore, the current and non-current portions of the unrecorded operating lease liability are determined for more accurate analyses of the impact of constructive operating lease capitalisation. The current portion is calculated as the present value of the MLP due within one year after the reporting date adjusted by any current portion of the straight-lining and onerous contract provisions, if applicable. The non-current portion is the difference between the unrecorded operating lease liability and the calculated current portion.

### **Step 3: Determining the unrecorded leased asset**

The unrecorded leased asset was also determined in accordance with the ILW method using the asset ratio noted in sub-section 2.1.1. However, the ILW method is adapted to incorporate Fulbier et al.'s (2008) contract basket approach outlined in section 2.1.1. This approach determines baskets of MLPs with a basket being the difference between the MLPs in respect of two consecutive years which is assumed to be the lease contracts ending in the first of those two consecutive years. Fulbier et al.'s model comprised five baskets; however, this model will incorporate the addition of a sixth basket in order to conceptually improve the accuracy of the leased asset value and the incorporation of this basket approach into the ILW method. The fifth basket of Fulbier et al. comprised  $MLP_5$  and was assumed to have a remaining life of five plus ( $MLP_{5+}/MLP_5$ ) years; however, in this study the fifth basket will comprise  $MLP_5$  minus  $MLP_{5+ILW}$  which has a remaining life of five years while the additional sixth basket will comprise  $MLP_{5+ILW}$  with a remaining life equal to the total average remaining lease life calculated in terms of Step 2 when determining the lease liability. Graph 3A illustrates this adapted approach to determining the six lease contract baskets.



**Graph 3A: Illustration of adapted lease contract baskets**



The ILW method is subsequently applied to each contract basket in order to determine the lease liability applicable to that basket. The asset ratio formula is then applied to the unrecorded liability calculated for each of the six contract baskets in order to determine each basket's leased asset. In calculating the asset ratio, 50% of the leased assets useful life (lease term) is assumed to have expired on average – a reasonable assumption based on the fact that entering into lease agreements will be a normal part of most business entities operations and occur on an annual basis. This percentage was suggested by Imhoff et al. (1991) and has been used in many subsequent research studies when constructively capitalising operating leases (e.g. Bennett and Bradbury (2003), Duke and Hsieh (2006), Fulbier et al. (2008), Branswijck and Longueville (2011) and Tai (2013)). Furthermore, the leased assets in respect of the six contract baskets are summed in order to determine the aggregate leased asset in respect of operating leases.

Despite using the ILW method asset ratio formula in the model, the result of the asset ratio formula was subsequently adjusted, where necessary, in order to take cognisance of any straight-lining and onerous contract provisions that may already be recognised in respect of operating leases. These provisions were dealt with as follows:

**Straight-lining provisions:**

As indicated in Step 2, straight-lining provisions impact on the determination of the unrecorded liability; however, they also impact the calculation of the unrecorded asset as indicated in Example 3.1.

Due to the recognition of a straight-lining lease provision, Table 3.1(b) indicates that the ILW method formula used to determine the unrecorded leased is no longer accurate as the percentages calculated in columns four and five are not equal. This difference is due to the lease liability decreasing at a slower rate when lease payments escalate (with more of the capital portion repaid at a later date) as opposed to a lease liability that is repaid in equal payments (a constant annuity and one of the assumptions built into the asset ratio formula of Imhoff et al. (1991)). If the lease payments did not increase and were constant, the percentages in columns four and five of Table 3.1(b) would be equal. However, with increasing lease payments, the actual asset value is now less than the asset value calculated using the asset ratio formula of the ILW method.

### EXAMPLE 3.1: Analysis of Straight-lining Lease Provisions and the Leased Asset

The use of an asset is obtained for 5 years in terms of a non-cancellable operating lease agreement that requires an initial annual lease payment of R100 000, in arrears, which increases by 10% in subsequent years. Assuming the appropriate before tax discount rate is 12%, the present value of the lease payments equals R430 766.87 at inception of the lease [the amortisation table is presented in Table 3.1(a)]. If no other costs are incurred in connection with the lease then the leased asset also equals R430 766.87 at inception resulting in an annual straight-line amortisation charge of R86 153.37 ( $430\,766.87 \div 5$ ). Based thereon the lease liability and asset balances will be as presented in Table 3.1(b) at each year end.

Based on the total of the escalating lease payments due over the lease term of R610 510.00, the annual straight-lined operating lease expense to be recognised under the current accounting treatment in IAS 17 equals R122 102.00 ( $610\,510.00 \div 5$ ). Table 3.1(c) presents the straight-lining lease provision that will result as a consequence of recognising the straight-lined lease expense, while the remaining tables and graph in the example are presented in support of the model developed to incorporate straight-lining provisions.

**Table 3.1(a): Lease liability amortisation table**

	Payment (R)	Interest (R)	Capital (R)	Balance (R)
Inception				430 766.87
Year 1	100 000.00	51 692.02	48 307.98	382 458.90
Year 2	110 000.00	45 895.07	64 104.93	318 353.97
Year 3	121 000.00	38 202.48	82 797.52	235 556.44
Year 4	133 100.00	28 266.77	104 833.23	130 723.21
Year 5	146 410.00	15 686.79	130 723.21	-
Total	610 510.00	179 743.13	430 766.87	

**Table 3.1(b): Liability and asset balances under the lease**

	Lease liability balance (R)	Leased asset balance (R)	Ratio of leased asset to lease liability	ILW method asset ratio formula result*
Inception	430 766.87	430 766.87	100.0%	100.0%
Year 1	382 458.90	344 613.50	90.1%	94.9%
Year 2	318 353.97	258 460.12	81.2%	90.1%
Year 3	235 556.44	172 306.75	73.1%	85.3%
Year 4	130 723.21	86 153.37	65.9%	80.7%
Year 5	-	-	-	-

\* The ILW method asset ratio is calculated using the following formula developed by Imhoff et al. (1991) and discussed in sub-section 2.1.1:

$$Asset\ ratio = (RL \div TL) \times \{(PVA_{TL,i}) \div (PVA_{RL,i})\}$$

**Table 3.1(c): Lease payment, straight-lined lease expense and resulting straight-lining provision**

	Lease payment (R)	Lease expense (straight-lined) (R)	Straight-lining provision balance (R)
Year 1	100 000.00	122 102.00	22 102.00
Year 2	110 000.00	122 102.00	34 204.00
Year 3	121 000.00	122 102.00	35 306.00
Year 4	133 100.00	122 102.00	24 308.00
Year 5	146 410.00	122 102.00	-
Total	610 510.00	610 510.00	

**Table 3.1(d): Differences between asset values considering the asset ratio formula**

	Actual leased asset balance (R)	Leased asset balance using asset ratio formula* (R)	Difference between actual and formula asset balances (R)	Straight-lining provision balance recognised (R)
Inception	430 766.87	430 766.87	-	-
Year 1	344 613.50	363 126.81	18 513.31	22 102.00
Year 2	258 460.12	286 679.95	28 219.83	34 204.00
Year 3	172 306.75	200 971.03	28 664.28	35 306.00
Year 4	86 153.37	105 555.06	19 401.69	24 308.00
Year 5	-	-	-	-

\* This balance is obtained by multiplying the lease liability balance (column two in Table 3.1(b)) by the asset ratio calculated in the final column of Table 3.1(b). Differences noted are due to rounding.

**Graph 3.1(a): Leased asset balance comparisons**

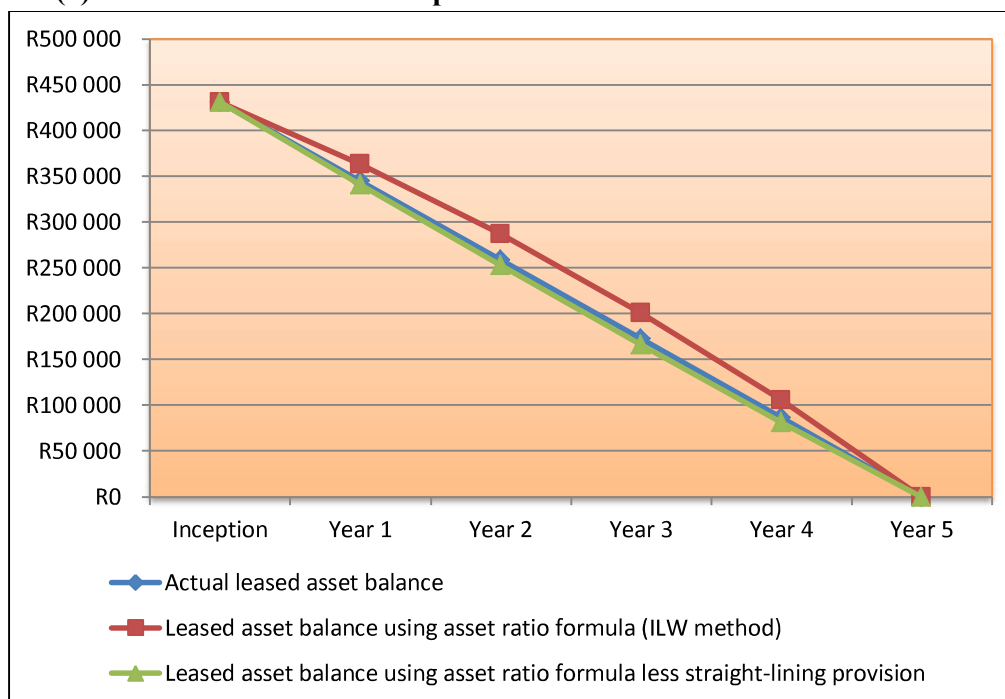


Table 3.1(d) calculates the value of the difference between these two asset values in the fourth column and, as can be seen, this difference is close, although not equal, to the recognised straight-lining provision. Therefore, although the ILW method's asset ratio does not correctly calculate the leased asset value in this context, the straight-lining provision can be subtracted from the result of the asset ratio formula in order to more accurately calculate and not overstate the leased asset balance. This is indicated in Graph 3.1(a) – the unadjusted leased asset value calculated using the asset ratio formula clearly overstates the asset value but when the straight-lining provision is deducted it is more in line with the actual asset value. This adapted approach, of deducting the straight-lining provision from the leased asset value calculated using the asset ratio, was incorporated into the model and will result in the best estimate of the leased asset in light of the fact that an improved formula cannot be developed (as specific information relating to individual lease agreements and further details of the straight-lining provision are not disclosed).

#### **Onerous contract provisions:**

As indicated in Step 2 onerous contract provisions in respect of operating leases impact on the determination of the unrecorded liability. However, although an onerous contract provision is a likely indication that the leased asset is impaired if the future economic benefits expected to flow to the entity from the lease are less than the calculated asset value, such an impairment cannot be determined with any certainty as information in this regard is not required to be disclosed for onerous contracts. Therefore an adjustment is merely made to the lease liability in respect of onerous contract provisions, as noted in Step 2, and the impact thereof on leased assets is ignored and assumed to be immaterial.

#### **Step 4: Determining the impact on equity, deferred tax and current year profit**

The difference between the unrecorded lease liability and leased asset arising from capitalising MLPs results in an adjustment (debit) to equity (retained earnings) and deferred tax. This is due to the historic differences between the operating lease expense recognised and the charges (interest and amortisation) that would have been recorded if the operating lease had been capitalised and the lease liability exceeding the leased asset. The resulting debit to deferred tax is proportionately allocated between the recognised deferred tax asset and liability balances of each company.

The current South African corporate tax rate levied by the South African Revenue Services is utilised for the adjustment to deferred tax and all other tax adjustments in the model. The effective tax rate of each company is not utilised due to the distortion of items such as non-deductible expenditure or non-taxable income (permanent differences between accounting profit and taxable income) and unrecognised assessed tax losses.

In order to determine the income statement impact of capitalising operating leases on the most recently ended financial year, a series of balance sheet adjustments are utilised as outlined by Imhoff et al. (1997, p. 21). This is done in order to improve the accuracy of the relevant profit adjustments calculated, especially the amortisation amount relating to the unrecorded operating lease asset which is challenging to determine without detailed information relating to the leases. Therefore the same process as outlined in Step 2 and Step 3 is also followed for the prior year (using comparative figures in the financial statements reviewed) and the resulting equity

adjustment calculated. The difference between the equity adjustment for the most recently ended financial year (REFY) and that of the prior year (PY) is then the aggregate after-tax impact on profit resulting from capitalising off-balance sheet operating leases in the REFY. This value is then grossed up to before tax and the amortisation charge relating to the operating leased asset capitalised is calculated as follows:

<i>Impact on profit (before tax) for REFY (note i)</i>	<i>xxx</i>
<i>Less: Operating lease expense recognised in REFY reversed (note ii)</i>	<i>(xxx)</i>
<i>Plus: Interest expense on operating lease liability for REFY recognised (note iii)</i>	<u><i>xxx</i></u>
<i>Amortisation on leased asset in REFY recognised (balancing figure)</i>	<u><i>(xxx)</i></u>

Notes:

- i. *Impact on profit for any given year could be positive or negative depending on the phase of the lease and in this instance is defined as the equity adjustment for the REFY less the equity adjustment for the PY – an after-tax number which is then grossed up to before tax.*
- ii. *The actual operating lease expense recognised for the REFY is not reversed as it could include contingent and cancellable operating lease payments made that were not disclosed as MLPs according to IAS 17 paragraph 35 (IASB, 2012, p. A646). The operating lease expense relating to non-cancellable MLPs discounted and included in the operating lease liability is therefore determined as the MLPs disclosed in the PY that are due in respect of the first year after reporting date which is adjusted by a leasing expense increase factor to take into account any new leases entered into during the REFY (note: if this calculated figure is greater than the actual operating lease expense recognised for the REFY, then the latter is reversed and the calculated figure ignored as the reversal in any given year cannot be greater than the actual operating lease expense recognised in that year). This leasing expense increase factor is only applied if it is greater than 1 and is calculated as follows:*

$$\text{Leasing expense increase factor} = \frac{\text{REFY actual operating lease expense}}{\text{PY actual operating lease expense}}$$

- iii. *Interest expense is calculated as the PY operating lease liability (prior to adjusting for any recognised provisions) multiplied by the interest rate used to discount the MLPs.*

Furthermore, no other adjustments are made with respect to straight-lining and onerous contract provisions when determining the profit impact resulting from operating lease capitalisation. Essentially by calculating the profit impact as the movement between the equity adjustments in respect of the REFY and the PY, and then reversing the operating lease expense and recognising interest and amortisation charges, all other aspects impacting profit are accounted for, including profit differences resulting from straight-lining and onerous contract provisions, as best possible based on the limited information available thereon.



### **Step 5: Adjusting the relevant financial statement figures**

Once the balance sheet and income statement adjustments have been determined in accordance with Steps 2 to 4 then the relevant REFY and PY financial statement figures identified in Step 1 are adjusted in the model.

### **Step 6: Testing the model**

In the last step the model was tested and refined by means of a pilot sample of South African listed companies. The pilot sample comprised five randomly selected companies (as noted in Table 3A), being one listed company selected from the following sectors of the Main Board of the JSE: General Industrials; Industrial Transportation; Food & Drug Retailers; General Retailers and Travel & Leisure. These five specific sectors were selected based on prior research (e.g. Imhoff et al. (1991), Beattie et al. (1998), Grossman and Grossman (2010) and Jennings and Marques (2013)) which indicated that companies in these five sectors are likely to make the most extensive use of operating leases.

As reflected in Table 3A, when constructively capitalising the future minimum operating lease payments for the pilot sample, the average increase in a company's total debt balance due to the unrecognised operating lease liabilities (after taking into account recognised straight-lining and onerous contract provisions relating to operating leases already recognised) was 45.6% with a standard deviation of 58.3%. Furthermore, the average increase in total assets due to the associated unrecognised leased assets was 15.1%<sup>12</sup> (standard deviation of 15.0%) while there was an average increase in net profit after tax of 3.3% (standard deviation of 8.1%). Despite the fact that the percentage changes relating to the Mr Price Group Limited are substantial and skew the calculated statistics, the balance sheet impact is nonetheless substantial with four of the five companies experiencing an increase in debt and asset balances in excess of 18% and 6% respectively in relation to reported balances. Overall, except for Grindrod Limited, the income statement is less affected than the balance sheet for the pilot sample of companies and as such balance sheet related financial statement ratios will be more affected than profitability ratios when constructively capitalising operating leases.

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<sup>12</sup> The large difference noted between the increase in debt (average of 45.6%) and increase in assets (average of 15.1%) arising from operating lease capitalisation is due to the following two reasons:

- 1) The leased asset value is calculated using the asset ratio discussed in sub-section 2.1.1 and is therefore reflected at an amount which is less than the associated lease liability; and
- 2) The asset base of an entity is the sum of the entity's equity and debt, hence the average increase in assets is calculated using a higher denominator which results in a smaller percentage change when compared to the increase in debt calculation.

**Table 3A: Impact of constructive capitalisation of operating leases on total debt, total assets and net profit – pilot sample**

Company (Sector)	Unrecognised Lease Liability <i>percentage</i> of Total Recognised Debt	Unrecognised Leased Asset (amortised) <i>percentage of</i> Total Recognised Assets	Profit Adjustment (after tax) <i>percentage of</i> Reported Net Profit After Tax
Barloworld Limited (General Industrials)	5.6%	2.8%	1.7%
Famous Brands Limited (Travel & Leisure)	23.5%	6.7%	0.2%
Grindrod Limited (Industrial Transportation)	18.3%	8.5%	17.2%
Mr Price Group Limited (General Retailers)	148.5%	40.1%	1.0%
The Spar Group Limited (Food & Drug Retailers)	31.9%	17.4%	-3.7%

When considering the five sectors analysed in the pilot sample, the two retailers (Mr Price Group Limited and The Spar Group Limited) were the most impacted with respect to changes in debt and assets arising from operating lease capitalisation. This is most likely due to substantial property rental agreements entered into by retailers for their retail space which is the most material asset retailers require for their business operations.

## CONCLUSION

### Overview

This research paper developed a refined constructive lease capitalisation model based predominantly on the ILW method of constructively capitalising operating leases developed by Imhoff et al. (1991 & 1997). The revised model incorporates a number of unique aspects, most notably adjustments in respect of provisions recognised for the straight-lining of operating leases as well as onerous operating lease contracts in terms of current lease accounting rules that were not previously considered.

### Limitations

The interest rate used to discount future minimum operating lease payments is noted as a limitation due to the difficulty in establishing an appropriate company-specific rate based on figures and related information disclosed within annual financial statements.

Immaterial straight-lining and onerous lease contract provisions are not disclosed by companies and these provisions may also be aggregated when disclosed, hence any such straight-lining or

onerous contract provisions would not be identified and analysed when using the refined operating lease capitalisation model.

None of the aforementioned limitations adversely impact the research study to such an extent that the findings and conclusions drawn cannot be relied upon.

### **Further Research**

The refined constructive lease capitalisation model developed and the preliminary analysis performed in this research can be applied to all JSE-listed companies in order to determine the impact of operating lease capitalisation on various sectors as well as the aggregate of all South African listed companies. The extent and various other aspects of leasing within South Africa can also be further analysed.

Research can be conducted to determine the extent to which liabilities are already recognised for future minimum operating lease payments through recognised provisions for the straight-lining of operating leases or onerous operating lease contracts.

Although the capitalisation of all non-cancellable leases is advocated based on the terms of such lease agreements and the associated increase in financial risk, it is questioned whether leases will continue to be used as extensively as they currently are due to the loss of the off-balance sheet status of operating leases based on the new proposed lease accounting rules. However, the other benefits of leasing an asset, as opposed to buying an asset, may nonetheless result in companies leasing to the same extent. This latter point is considered unlikely and it is rather suggested that the global leasing industry is likely to experience a substantial decrease in business activity due to the proposed change in lease accounting rules which is a further area of potential research.

### **LIST OF REFERENCES**

- Altman, E. I., 2000. Predicting financial distress of companies: Revisiting the Z-Score and ZETA(R) models. s.l.:s.n.
- Beattie, V., Edwards, K. & Goodacre, A., 1998. The impact of constructive operating lease capitalisation on key accounting ratios. *Accounting and Business Research*, 28(4), pp. 233-254.
- Beattie, V., Goodacre, A. & Thomson, S., 2000. Recognition versus disclosure: An investigation of the impact on equity risk using UK operating lease disclosures. *Journal of Business Finance and Accounting*, 27(9&10), pp. 1185-1224.
- Bennett, B. K. & Bradbury, M. E., 2003. Capitalising non-cancelable operating leases. *Journal of International Financial Management and Accounting*, 14(2), pp. 101-114.
- Branswijk, D. & Longueville, S., 2011. The financial impact of the proposed amendments to IAS 17: Evidence from Belgium and the Netherlands. *Accounting and Management Information Systems*, 10(2), pp. 275-294.
- Bratton, B., Choudhary, P. & Schipper, K., 2013. Evidence that market participants assess recognized and disclosed items similarly when reliability is not an issue. *Accounting Review*, 88(4), pp. 1179-1210.
- Brigham, E. F. & Daves, P. R., 2010. Financial Statement Effects. In: A. von Rosenberg, ed. *Intermediate Financial Management*. Ohio: South-Western Cengage Learning, pp. 672-674.

- Bryan, S. H., Lilien, S. & Martin, D. R., 2010. The financial statement effects of capitalizing operating leases: Assessing the impact of the right-of-use model. *CPA Journal*, Issue August, pp. 36-41.
- Cornaggia, K. J., Franzen, L. A. & Simin, T. T., 2013. Bringing leased assets onto the balance sheet. *Journal of Corporate Finance*, Volume 22, pp. 345-360.
- Correia, C., Flynn, D., Uliana, E. & Wormald, M., 2011. *Financial Management*. 7th ed. Cape Town: Juta & Company Ltd.
- Damodaran, A., 2001. Measuring Financing Mix. In: P. McFadden, ed. *Corporate Finance: Theory and Practice*. New York: John Wiley & Sons, pp. 81-88.
- de Villiers, R. R. & Middelberg, S. L., 2013. Determining the impact of capitalising long-term operating leases on the financial ratios of the Top 40 JSE-listed companies. *International Business and Economics Research Journal*, 12(6), pp. 655-669.
- Dhaliwal, D., Lee, H. S. & Neamtiu, M., 2011. The impact of operating leases on firm financial and operating risk. *Journal of Accounting, Auditing and Finance*, 26(2), pp. 151-197.
- Duke, J. C. & Hsieh, S.-J., 2006. Capturing the benefits of operating and synthetic leases. *Journal of Corporate Accounting & Finance*, 18(1), pp. 45-52.
- Durocher, S., 2008. Canadian evidence on the constructive capitalization of operating leases. *Accounting Perspectives*, 7(3), pp. 227-256.
- El-Gazzar, S. M. & Jaggi, B. L., 1997. Transition period of mandated accounting changes - Timing of adoption and economic consequences: The case of SFAS No. 13. *Journal of Business Finance and Accounting*, 24(2), pp. 293-307.
- Ely, K. M., 1995. Operating lease accounting and the market's assessment of equity risk. *Journal of Accounting Research*, 33(2), pp. 397-415.
- Fulbier, R. U., Silva, J. L. & Pferdehirt, M. H., 2008. Impact of lease capitalization on financial ratios of listed German companies. *Schmalenbach Business Review*, Volume 60, pp. 122-144.
- Grossman, A. M. & Grossman, S. D., 2010. Capitalizing lease payments: Potential effects of the FASB/IASB plan. *CPA Journal*, Issue May, pp. 6-11.
- IASB, 2012. *International Accounting Standard 1: Presentation of Financial Statements*. In: *International Financial Reporting Standards (Blue Book)*. London: IFRS Foundation, pp. A453-A492.
- IASB, 2012. *International Accounting Standard 17: Leases*. In: *International Financial Reporting Standards (Blue Book)*. London: IFRS Foundation, pp. A633-A652.
- IASB, 2012. *International Accounting Standard 37: Provisions, Contingent Liabilities and Contingent Assets*. In: *International Financial Reporting Standards (Blue Book)*. London: IFRS Foundation, pp. A951-A974.
- IASB, 2013. *Basis for Conclusions Exposure Draft ED/2013/6 Leases*. London: IFRS Foundation.
- IASB, 2013. *Exposure Draft ED/2013/6 Leases*. London: IFRS Foundation.
- IASB, 2014. *Leases (Project Update)*. London: IFRS Foundation.
- Imhoff, E. A., Lipe, R. C. & Wright, D. W., 1991. Operating leases: Impact of constructive capitalisation. *Accounting Horizons*, 5(1), pp. 51-63.
- Imhoff, E. A., Lipe, R. C. & Wright, D. W., 1997. Operating leases: Income effects of constructive capitalisation. *Accounting Horizons*, 11(2), pp. 12-32.

- Imhoff, E. A., Lipe, R. & Wright, D. W., 1993. The effects of recognition versus disclosure on shareholder risk and executive compensation. *Journal of Accounting, Auditing and Finance*, 8(4), pp. 335-368.
- Imhoff, E. A. & Thomas, J. K., 1988. Economic consequences of accounting standards: The lease disclosure rule change. *Journal of Accounting and Economics*, Volume 10, pp. 277-310.
- Jennings, R. & Marques, A., 2013. Amortized cost for operating lease assets. *Accounting Horizons*, 27(1), pp. 51-74.
- Jesswein, K. R., 2009. Analyzing creditworthiness from financial statements in the presence of operating leases. *Academy of Accounting and Financial Studies Journal*, 13(1), pp. 75-90.
- Joint International Working Group on Leasing, 2007. *History of Lease Accounting (Agenda Paper 2)*. London: IASB and FASB.
- Knubley, R., 2010. Proposed changes to lease accounting. *Journal of Property Investment & Finance*, 28(5), pp. 322-327.
- Lightner, K. M., Bosco, B., DeBoskey, D. G. & Lightner, S. M., 2013. A better approach to lease accounting: Fixing the shortcomings of the proposed rules. *CPA Journal*, Issue September, pp. 14-25.
- Rauh, J. D. & Sufi, A., 2012. Explaining corporate capital structure: Product markets, leases and asset similarity. *Review of Finance*, Volume 16, pp. 115-155.
- Schipper, K., 2007. Required disclosures in financial reports. *Accounting Review*, 82(2), pp. 301-326.
- SEC, 2005. *Report and Recommendations Pursuant to Section 401(c) of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers*, s.l.: United States Securities and Exchange Commission.
- South African Reserve Bank, 2013. *Welcome to the South African Reserve Bank*. [Online] Available at: <http://www.resbank.co.za/pages/default.aspx> [Accessed 18 November 2013].
- Tai, B. Y., 2013. Constructive capitalization of operating leases in the Hong Kong fast-food industry. *International Journal of Accounting and Financial Reporting*, 3(1), pp. 128-142.
- White, E., 2014. *Global Leasing Report 2014*, s.l.: White Clarke Group.
- Young, D., 1999. Some reflections on accounting adjustments and economic value added. *Journal of Financial Statement Analysis*, 4(2), pp. 7-19.