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THE COMPOSITION AND SIGNIFICANCE OF INTANGIBLE ASSETS IN RELATION TO THE TOTAL ASSETS OF SOUTH AFRICAN JSE-LISTED COMPANIES

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ABSTRACT

This study analyses the composition and significance of intangible assets (IA) in relation to total and non-current assets of 40 JSE-listed companies from 2015 to 2024. A quantitative approach was applied to audited financial data for the period 2015 to 2024. Results show that intangible assets comprise between 40% and 80% of non-current assets in knowledge-intensive sectors such as pharmaceuticals and technology, where patents, trademarks, and R&D dominate. Goodwill remains most significant in retail and tobacco, reflecting continued consolidation and brand-driven value. Regression analysis confirms a strong positive relationship between IA and total assets ($p < 0.01$), underscoring the growing contribution of intangible resources to corporate value. The findings demonstrate that intangible assets are increasingly central to financial structure and competitiveness in South African listed firms, reinforcing the need for improved measurement and disclosure under IFRS to enhance reporting relevance and reliability.

Keywords: Goodwill, disclosure, valuation, measurement, correlation, mergers, acquisitions

1. INTRODUCTION

Intangible assets have become key drivers of corporate value creation, particularly in industries where innovation, intellectual property, and brand strength underpin long-term competitiveness (Lev & Sougiannis, 1996; Van Zyl & Mans-Kemp, 2020). Numerous studies confirm that firms rich in intangible resources—such as R&D, patents, and brand equity—achieve superior performance and valuation outcomes (Louw, Hall, & Brümmer, 2024; Ma & Zhang, 2023). Despite this, accounting frameworks continue to struggle to reflect these assets faithfully in

financial statements. Their non-physical nature, uncertain future benefits, and dependence on internally generated processes complicate recognition and measurement under IAS 38 (Amir & Lev, 1996; Wyatt, 2005).

The scientific problem arises from the persistent gap between the economic importance of intangible assets and the limitations of current accounting standards in capturing their value. International evidence highlights that intangibles increasingly dominate firm value (Garanina, Hussinki, & Dumay, 2021; Lev & Daum, 2004), yet emerging markets remain under-researched in this regard. In South Africa, where listed companies operate across resource-intensive and knowledge-based sectors, disclosure and measurement inconsistencies hinder comparability and decision-usefulness for investors (de Klerk & de Villiers, 2012). This study therefore examines the significance and composition of intangible assets among Johannesburg Stock Exchange (JSE) firms and evaluates their relationship with total assets, thereby addressing an empirical gap in the South African context.

2. LITERATURE REVIEW

2.1 Intangible Assets and Value Relevance

The increasing dominance of intangible assets in modern economies has reshaped corporate valuation and financial reporting. Numerous studies confirm a positive association between intangible assets and firm performance. Lev and Sougiannis (1996) and Hall (2009) found that R&D and intellectual property investments enhance market value and predict future earnings. In emerging markets, Kayo and Kimura (2011) demonstrated similar patterns, while in South Africa, Van Zyl and Mans-Kemp (2020) and Ntshobane (2021) found that intangible assets significantly influence profitability and return on assets. Louw et al. (2024) further linked disclosure of goodwill impairment to investor confidence and market equity, showing that transparent reporting of intangibles directly affects firm valuation.

2.2 Measurement and Disclosure Challenges

IAS 38 forms the core framework for accounting for intangible assets, but it has been widely criticised for its conservative and restrictive nature (Carlin & Finch, 2010; Wyatt, 2005). The cost model and exclusion of most internally generated intangibles lead to systematic under-reporting of economic value (Cañibano, 2000; Oliveira, Rodrigues, & Craig, 2010). Garanina et al. (2021) argue that the standard prioritises reliability at the expense of relevance. South African studies echo these limitations, noting that disclosures on intangibles remain inconsistent and lack decision-useful information (de Klerk & de Villiers, 2012). Consequently, reported figures often understate firms' intellectual and innovation-based capacities, widening the gap between book and market values.

2.3 Sectoral Differences and Empirical Evidence

Empirical studies show that intangible asset intensity varies considerably across industries. Pharmaceuticals, biotechnology, and technology sectors exhibit the highest levels due to their reliance on patents, R&D, and intellectual property (Ballester, Garcia-Ayuso, & Livnat, 2003;

Zambon, Marzo, Girella, Abela, & D'Albore, 2020). In contrast, resource-based and manufacturing firms remain dominated by tangible assets. South African evidence supports this pattern: Sixpence, Adeyeye, and Rajaram (2021) found that investment in human and technological capital strengthens asset composition and firm value, while Hazan, Haskel, and Westlake (2021) confirmed globally that intangibles represent the majority of modern corporate investments. These findings highlight that the structure and economic weight of intangible assets differ significantly across sectors, influencing both value creation and disclosure practices.

2.4 Research Gap and Study Purpose

While international evidence consistently demonstrates the value relevance of intangibles, few studies have systematically analysed their composition and financial significance in South Africa. The current study contributes to this gap by examining the extent to which intangible assets—comprising goodwill and other intangibles—affect total and non-current asset structures among JSE-listed firms. Specifically, it tests the following hypotheses:

H1: Intangible assets constitute a significant proportion of total and non-current assets of large South African listed companies.

H2: There is a statistically significant positive relationship between intangible asset values and total asset values.

H3: The proportion and composition of intangible assets differ significantly across industries, with higher levels in knowledge-intensive sectors.

3 RESEARCH METHOD

3.1 Study Design and Procedure

The study adopted a quantitative research design using secondary financial data from the 40 largest companies listed on the Johannesburg Stock Exchange (JSE), selected based on market capitalisation as of 2015. The sample composition ensured sectoral diversity, representing both knowledge-intensive and capital-intensive industries. Companies were excluded if their annual financial statements exhibited incompleteness or inconsistency, determined through the following criteria:

- Missing or restated figures in key disclosure notes (e.g., goodwill, other intangible assets, total assets, or non-current assets);
- Companies that were not listed across the study period.

This screening ensured data integrity and cross-company consistency for ratio-based analysis. Audited financial statements were collected for the 2015–2024 period. This approach enabled the analysis of long-term trends in intangible asset composition without compromising comparability due to short-term volatility in financial reporting practices during 2020–2021.

3.2 Variable Definitions and Calculations

To evaluate the significance of intangible assets in corporate valuation, the following ratios were calculated:

IA/TA (proportion of intangible assets to total assets)
IA/NCA (proportion of intangible assets to total non-current assets)
OIA/TA (proportion of other intangible assets to total assets)
OIA/NCA (proportion of other intangible assets to total non-current assets)
G/TA (proportion of goodwill to total assets)
G/NCA (proportion of goodwill to total non-current assets)

Where:

IA – Total intangible assets
G – Goodwill
OIA – Other intangible assets
NCA – Total non-current assets
TA – Total assets

These ratios captured both the magnitude and composition of intangible assets, allowing for cross-sector and longitudinal comparisons from 2015 to 2024.

3.3 Analytical Techniques

Descriptive statistics were used to identify trends in intangible asset composition, highlighting firms and sectors with the highest and lowest levels of goodwill and other intangible assets. Regression analysis was employed to examine the relationship between intangible asset values and total assets using the model:

$$TA_i = \beta_0 + \beta_1 IA_i + \epsilon_i$$

Where:

TA_i – Total assets of company i
 IA_i – Total intangible assets of company i
 β_0 – Intercept
 β_1 – Effect of intangible assets on total assets
 ϵ_i – Error term

Sectoral regressions were conducted for knowledge-intensive industries (e.g., pharmaceuticals, technology) to assess industry-specific effects. Microsoft Excel was used for ratio calculations, and SPSS was used for regression analysis.

3.4 Reliability and Validity

Reliability was ensured by using audited financial statements and data from the Bloomberg database. Consistent methodology across five years and 40 companies further enhanced reliability. Validity was addressed following Messick (1990), ensuring that the data and statistical procedures appropriately reflect the relationships between intangible assets and total assets, providing credible and generalizable insights.

4. RESULTS

This section presents the empirical results of the study together with their economic interpretation and the outcomes of hypothesis testing.

4.1 Total Intangible Assets (including other intangible assets and goodwill)

Table 1 represents the total intangible assets (comprising goodwill and other intangible assets) for the selected sample in the 2015 and 2024 financial years, as well as the relevant change over time for the representation as a percentage of total assets and total non-current assets

Table 1: Total Intangible Assets in relation to Total Assets and Total Non-current Assets

Co	Industry	2015		2024		Change	
		% of IA over total assets	% of IA over total non-current assets	% of IA over total assets	% of IA over total non-current assets	% of IA over total assets	% of IA over total non-current assets
1	Banking	0,22%	0,32%	0,74%	0,99%	0,52%	0,67%
2	Mining	0,42%	0,50%	0,32%	0,38%	-0,10%	-0,12%
3	Mining	6,53%	8,88%	5,55%	7,30%	-0,98%	-1,58%
4	Mining	2,21%	2,71%	1,82%	2,55%	-0,39%	-0,16%
5	Pharmaceutical	51,51%	81,80%	59,14%	83,54%	7,63%	1,74%
6	Mining	3,45%	3,97%	0,66%	0,86%	-2,79%	-3,11%
7	General Industrials	17,43%	36,34%	14,22%	28,41%	-3,21%	-7,93%
8	Tobacco	33,11%	48,09%	84,20%	92,50%	51,09%	44,41%
9	Mining	0,11%	0,12%	0,02%	0,03%	-0,09%	-0,09%
10	Banking	0,10%	0,65%	0,62%	3,68%	0,52%	3,03%
11	Real estate	2,42%	2,50%	1,43%	1,49%	-0,99%	-1,01%
12	Logistics	10,95%	23,65%	21,52%	40,51%	10,57%	16,86%
13	Banking	0,06%	0,07%	0,12%	0,13%	0,06%	0,06%
14	Banking	0,08%	0,09%	0,12%	0,13%	0,04%	0,04%
15	Pharmaceutical	18,61%	22,54%	45,57%	53,92%	26,96%	31,38%
16	Forestry and paper	10,74%	15,36%	12,15%	16,25%	1,41%	0,89%
17	Retail	4,17%	24,05%	3,81%	15,91%	-0,36%	-8,14%
18	Technology	17,81%	25,59%	12,23%	16,24%	-5,58%	-9,35%
19	Technology	17,86%	30,48%	10,41%	18,04%	-7,45%	-12,44%
20	Technology	18,10%	22,84%	8,92%	12,94%	-9,18%	-9,90%
21	Banking	0,97%	18,42%	1,11%	22,70%	0,14%	4,28%
22	Insurance	0,04%	0,04%	0,38%	0,37%	0,34%	0,33%

23	Retail	68,21%	91,19%	63,97%	89,38%	-4,24%	-1,81%
24	Financial services	6,03%	7,79%	15,44%	20,83%	9,41%	13,04%
25	Personal Goods	3,82%	17,27%	21,72%	56,76%	17,90%	39,49%
26	Insurance	0,94%	1,05%	3,17%	3,54%	2,23%	2,49%
27	Retail	3,34%	7,84%	4,71%	10,14%	1,37%	2,30%
28	Banking	1,21%	1,32%	0,96%	1,14%	-0,25%	-0,18%
29	Food producer	17,03%	31,98%	14,51%	29,49%	-2,52%	-2,49%
30	Technology	10,66%	16,54%	7,01%	9,59%	-3,65%	-6,95%
31	Retail	37,87%	47,33%	20,22%	30,37%	-17,65%	-16,96%
AVERAGE		11,81%	19,07%	14,09%	21,62%		

An unusual spike in intangible assets was observed in the retail sector in 2015, mainly due to Steinhoff International’s acquisition of Pepkor. The transaction resulted in a large increase in goodwill, highlighting the volatility and risks of acquisition-driven intangible balances. Subsequent impairments further underscored the sensitivity of such values to corporate events.

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However, by 2024, a JSE-listed tobacco company emerged as the leader in intangible asset representation, with 84.2% of its total assets and 92.5% of its total non-current assets being intangible. This shift indicates the strategic importance of intangible assets in the South African tobacco industry, which faces stringent regulations and declining smoking rates. Intangible assets in this sector, such as brand equity and goodwill, are critical for maintaining customer loyalty and sustaining profitability amidst regulatory and societal pressures. For example, South Africa’s ongoing regulation of tobacco advertising and the introduction of excise duties have compelled companies to consolidate brand portfolios and enhance brand equity to remain competitive. These trends align with research by Gierusz (2020), which highlights the importance of brand value and customer relationships in the global tobacco industry, particularly in markets facing regulatory constraints.

4.2 Other intangible assets (excluding goodwill)

Table 2 represents the other intangible assets (excluding goodwill) for the selected sample in the 2015 and 2024 financial years, as well as the relevant change over time for the representation of

other intangible assets as a percentage of total assets and total non-current assets. In 2015, a JSE-listed pharmaceutical company recorded the highest proportion of other intangible assets (excluding goodwill) as a percentage of both total assets (45.86%) and total non-current assets (72.82%). This indicates the sector's reliance on intangible assets such as patents, trademarks, regulatory approvals, and research and development (R&D) expenditures, which form the cornerstone of the pharmaceutical industry's value creation. By 2024, the pharmaceutical company maintained this trend, showing the highest representation of other intangible assets among the sample, comprising 56.34% of total assets and 78.14% of total non-current assets. These findings underscore the importance of other intangible assets within the pharmaceutical sector in South Africa, with no significant shift in the dominance of this sector over the observed period. This consistency reflects the sector's long-term emphasis on intangible-intensive activities, such as innovation and product development, which are critical for sustaining competitive advantage and profitability.

Table 2: Other Intangible Assets in relation to Total Assets and Total Non-current Assets

Co	Industry	2015		2024		Change	
		% of Other IA over total assets	% of Other IA over total non-current assets	% of Other IA over total assets	% of Other IA over total non-current assets	% of Other IA over total assets	% of Other IA over total non-current assets
1	Banking	0,20%	0,30%	0,72%	1,03%	0,52%	0,73%
2	Mining	0,42%	0,50%	0,34%	0,36%	-0,08%	-0,14%
3	Mining	2,35%	3,20%	1,99%	2,62%	-0,36%	-0,58%
4	Mining	0,48%	0,59%	0,13%	0,11%	-0,35%	-0,48%
5	Pharmaceutical	45,86%	72,82%	56,34%	78,14%	10,48%	5,32%
6	Mining	0,82%	0,94%	0,41%	0,54%	-0,41%	-0,40%
7	General Industrials	2,33%	4,86%	5,45%	10,87%	3,12%	6,01%
8	Tobacco	3,53%	5,12%	52,83%	58,65%	49,30%	53,53%
9	Mining	0,11%	0,12%	0,02%	0,03%	-0,09%	-0,09%
10	Banking	0,04%	0,27%	0,14%	1,19%	0,10%	0,92%
11	Real estate	0,67%	0,69%	0,24%	0,26%	-0,43%	-0,43%
12	Logistics	3,31%	7,15%	5,74%	10,96%	2,43%	3,81%
13	Banking	0,01%	0,01%	0,09%	0,09%	0,08%	0,08%
14	Banking	0,05%	0,06%	0,08%	0,09%	0,03%	0,03%
15	Pharmaceutical	5,50%	6,65%	10,14%	12,17%	4,64%	5,52%
16	Forestry and paper	1,62%	2,32%	0,94%	1,22%	-0,68%	-1,10%
17	Retail	3,79%	21,85%	3,56%	15,11%	-0,23%	-6,74%
18	Technology	9,13%	13,12%	7,16%	9,62%	-1,97%	-3,50%
19	Technology	1,71%	2,92%	1,84%	3,21%	0,13%	0,29%
20	Technology	3,49%	4,40%	2,61%	3,83%	-0,88%	-0,57%

21	Banking	0,41%	7,67%	0,76%	13,97%	0,35%	6,30%
22	Insurance	0,04%	0,04%	0,31%	0,39%	0,27%	0,35%
23	Retail	20,95%	28,01%	19,25%	26,87%	-1,70%	-1,14%
24	Financial services	2,80%	3,62%	8,76%	11,88%	5,96%	8,26%
25	Personal Goods	2,25%	10,19%	9,89%	25,67%	7,64%	15,48%
26	Insurance	0,84%	0,93%	1,12%	1,13%	0,28%	0,20%
27	Retail	2,73%	6,42%	4,39%	9,20%	1,66%	2,78%
28	Banking	1,00%	1,09%	0,89%	1,11%	-0,11%	0,02%
29	Food producer	8,02%	15,06%	7,86%	15,91%	-0,16%	0,85%
30	Technology	7,43%	11,53%	5,39%	7,12%	-2,04%	-4,41%
31	Retail	12,16%	15,20%	6,67%	9,88%	-5,49%	-5,32%
AVERAGE		4,65%	7,99%	6,97%	11,55%		

The prominence of other intangible assets in the pharmaceutical sector aligns with global trends observed in studies by Zambon et al. (2020) and Ghosh and Mondal (2009), which highlight that pharmaceutical firms, both in South Africa and internationally, often rely on intangible assets as primary drivers of business value. In South Africa, the pharmaceutical sector's reliance on intangibles is further shaped by a robust demand for medicines and healthcare products, which continues to grow due to the country's healthcare challenges and increasing focus on domestic production of critical drugs.

On the other hand, the tobacco sector exhibited the most significant growth in other intangible assets during the period. Between 2015 and 2024, a JSE-listed tobacco company showed a 49.3% increase in other intangible assets as a percentage of total assets and a 53.53% increase as a percentage of total non-current assets. This substantial growth reflects the sector's strategic investments in intangible assets such as brand equity, customer relationships, and intellectual property rights. Amid a backdrop of stringent regulatory pressures in South Africa, including advertising bans and rising excise taxes, tobacco companies have prioritised intangible asset development to safeguard market share and maintain customer loyalty. Chun, Da Silva, Davies, and Roper (2005) emphasised that brand equity and customer connections are critical intangible assets in the tobacco industry, enabling companies to navigate a highly competitive and regulated market.

4.3 Goodwill

Table 3 represents the goodwill (excluding other intangible assets) for the selected sample in the 2015 and 2024 financial years, as well as the relevant change over time for the representation of goodwill as a percentage of total assets and total non-current assets. In 2015, a JSE-listed retail company exhibited the highest representation of goodwill among the sampled companies, accounting for 47.26% of its total assets and 63.18% of its total non-current assets. This highlights the significant role of goodwill within the retail sector, which often arises from mergers and acquisitions aimed at enhancing market presence, expanding customer bases, or

acquiring distribution channels. By 2024, the retail company in the sample maintained the highest representation of goodwill, comprising 44.63% of total assets and 62.52% of total non-current assets. This consistent dominance of the retail sector indicates its sustained reliance on goodwill as a critical intangible asset, largely reflecting the industry’s ongoing consolidation efforts, where acquisitions drive synergies through brand equity, customer relationships, and supply chain efficiencies. While the retail sector remained the leader in goodwill representation during the period, the pharmaceutical sector demonstrated the most substantial growth in goodwill. Between 2015 and 2024, a pharmaceutical company from the sample reported a 21.71% increase in goodwill as a percentage of total assets and a 25.66% increase as a percentage of total non-current assets. This increase underscores the pharmaceutical sector’s strategic reliance on acquisitions to gain access to intellectual property, expand R&D capabilities, and penetrate new markets. Goodwill in the pharmaceutical sector often reflects the premium paid for synergies, regulatory approvals, patents, and strong market positioning acquired through M&A activity. These findings align with global trends observed in other studies. For instance, Zambon et al. (2020) note that goodwill is a predominant intangible asset in industries characterised by consolidation, such as retail and pharmaceuticals, as companies seek to enhance competitiveness through acquisitions. In the South African context, the retail sector’s high representation of goodwill reflects the industry’s competitive nature and the need to achieve economies of scale, which is consistent with findings by PWC (2021) highlighting M&A as a major strategy among JSE-listed retail companies.

Economic factors in South Africa also contribute to these patterns. The country’s economic environment, characterised by slow GDP growth, currency volatility, and constrained consumer spending, has incentivised firms in the retail and pharmaceutical sectors to pursue M&A activity as a means of stabilising revenue and expanding market share. The depreciation of the South African Rand over this period further amplified the premiums paid for acquisitions, increasing the relative weight of goodwill on statements of financial position. These observations are consistent with studies by KPMG (2023a), which show that goodwill tends to be higher in emerging markets due to the greater uncertainty and higher risk premiums attached to M&A transactions.

When compared to global benchmarks, the patterns observed in South Africa are consistent with those in developed markets. For example, in the United States and Europe, retail and pharmaceutical companies frequently report high levels of goodwill as a percentage of their assets, reflecting similar consolidation-driven growth strategies (Chun et al., 2005; Zambon et al., 2020). However, South African companies may face additional challenges due to the country’s unique economic and regulatory landscape, which necessitates a careful approach to managing goodwill and its impairment.

Table 3: Goodwill in relation to Total Assets and Total Non-current Assets

Co	Industry	2015		2024		Change	
		% of Goodwill over total assets	% of Goodwill over total non-current	% of Goodwill over total assets	% of Goodwill over total non-current	% of Goodwill over total assets	% of Goodwill over total non-current

			assets		assets		assets
1	Banking	0,01%	0,02%	0,04%	0,03%	0,03%	0,01%
2	Mining	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
3	Mining	4,17%	5,68%	3,55%	4,73%	-0,62%	-0,95%
4	Mining	1,73%	2,12%	1,64%	2,33%	-0,09%	0,21%
5	Pharmaceutical	5,66%	8,98%	3,89%	5,45%	-1,77%	-3,53%
6	Mining	2,63%	3,03%	0,25%	0,37%	-2,38%	-2,66%
7	General Industrials	15,10%	31,48%	8,78%	17,43%	-6,32%	-14,05%
8	Tobacco	29,59%	42,97%	31,44%	34,66%	1,85%	-8,31%
9	Mining	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
10	Banking	0,06%	0,38%	0,39%	2,53%	0,33%	2,15%
11	Real estate	1,76%	1,81%	1,13%	1,28%	-0,63%	-0,53%
12	Logistics	7,64%	16,50%	15,75%	29,63%	8,11%	13,13%
13	Banking	0,05%	0,06%	0,02%	0,05%	-0,03%	-0,01%
14	Banking	0,03%	0,03%	0,04%	0,04%	0,01%	0,01%
15	Pharmaceutical	13,12%	15,88%	34,83%	41,54%	21,71%	25,66%
16	Forestry and paper	9,12%	13,04%	11,19%	14,96%	2,07%	1,92%
17	Retail	0,38%	2,20%	0,25%	0,92%	-0,13%	-1,28%
18	Technology	8,68%	12,47%	5,16%	6,84%	-3,52%	-5,63%
19	Technology	16,15%	27,57%	8,58%	14,86%	-7,57%	-12,71%
20	Technology	14,62%	18,44%	6,22%	9,15%	-8,40%	-9,29%
21	Banking	0,57%	10,75%	0,46%	8,88%	-0,11%	-1,87%
22	Insurance	0,00%	0,00%	0,05%	0,05%	0,05%	0,05%
23	Retail	47,26%	63,18%	44,63%	62,52%	-2,63%	-0,66%
24	Financial services	3,23%	4,17%	6,73%	9,08%	3,50%	4,91%
25	Personal Goods	1,56%	7,08%	11,93%	31,12%	10,37%	24,04%
26	Insurance	0,10%	0,11%	2,18%	2,36%	2,08%	2,25%
27	Retail	0,61%	1,43%	0,48%	0,92%	-0,13%	-0,51%
28	Banking	0,21%	0,23%	0,13%	0,17%	-0,08%	-0,06%
29	Food producer	9,01%	16,92%	6,68%	13,54%	-2,33%	-3,38%
30	Technology	3,23%	5,01%	1,74%	2,33%	-1,49%	-2,68%
31	Retail	25,71%	32,13%	13,60%	20,44%	-12,11%	-11,69%
AVERAGE		7,16%	11,09%	7,15%	10,91%		

The retail sector's dominance in goodwill representation on the JSE highlights the importance of acquisitions in driving growth and competitiveness in the industry, while the pharmaceutical sector's notable increase in goodwill emphasises its strategic focus on innovation and market expansion. These findings mirror global trends while reflecting the unique dynamics of the South African market, where economic and industry-specific factors shape the role of goodwill in financial reporting.

4.4 Composition of total intangible assets between goodwill and other intangible assets

Table 4 represents the portion of intangible assets represented by goodwill and other intangible assets for the selected sample in the 2015 and 2024 financial years, as well as the relevant changes over time. In both 2015 and 2024, the analysis of selected JSE-listed companies reveals notable patterns in the composition of intangible assets across industries. Two mining companies were observed to have 100% of their intangible assets represented by other intangible assets and 0% represented by goodwill in both years. This trend is consistent with the nature of the mining sector, where intangible assets often arise from licenses, patents, or mining rights rather than acquisitions that generate goodwill. Similarly, in 2015, a retail company also reported 100% of its intangible assets as other intangible assets, with no goodwill. However, by 2024, this shifted slightly, with 12.41% of its intangible assets being represented by goodwill. This change is reflective of the retail industry's increased focus on mergers and acquisitions to expand brand presence, access distribution networks, and achieve economies of scale, as goodwill typically arises from such strategic activities (PWC, 2024).

The banking industry consistently exhibited the highest proportion of other intangible assets as a percentage of total intangible assets in both 2015 (94.48%) and 2024 (98.74%). This aligns with the nature of the financial services sector, where intangible assets typically include customer relationships, software, and proprietary technologies rather than goodwill. These findings are consistent with international studies that show banking institutions in emerging markets rely heavily on internally generated intangible assets rather than goodwill, given their focus on enhancing digital transformation and customer retention (Eropov, 2023).

Table 4: Split of Total IA between Other IA and Goodwill

Split of Total IA between Other IA and Goodwill		2015		2024		Change	
Co	Industry	% of Other IA as a portion of total IA	% of Goodwill as a portion of total IA	% of Other IA as a portion of total IA	% of Goodwill as a portion of total IA	% of Other IA as a portion of total IA	% of Goodwill as a portion of total IA
1	Banking	94,48%	5,52%	98,74%	1,26%	4,26%	-4,26%
2	Mining	100,00%	0,00%	100,00%	0,00%	0,00%	0,00%
3	Mining	36,06%	63,94%	35,81%	64,19%	-0,26%	0,26%
4	Mining	21,74%	78,26%	5,69%	94,31%	-16,05%	16,05%
5	Pharmaceutical	89,02%	10,98%	93,46%	6,54%	4,44%	-4,44%

6	Mining	23,72%	76,28%	63,41%	36,59%	39,69%	-39,69%
7	General industrials	13,37%	86,63%	38,38%	61,62%	25,01%	-25,01%
8	Tobacco	10,66%	89,34%	62,69%	37,31%	52,04%	-52,04%
9	Mining	100,00%	0,00%	100,00%	0,00%	0,00%	0,00%
10	Banking	41,20%	58,80%	30,92%	69,08%	-10,28%	10,28%
11	Real estate	27,60%	72,40%	16,79%	83,21%	-10,80%	10,80%
12	Logistics	30,24%	69,76%	26,92%	73,08%	-3,31%	3,31%
13	Banking	10,00%	90,00%	70,97%	29,03%	60,97%	-60,97%
14	Banking	65,29%	34,71%	66,45%	33,55%	1,16%	-1,16%
15	Pharmaceutical	29,52%	70,48%	22,56%	77,44%	-6,96%	6,96%
16	Retail	15,11%	84,89%	7,87%	92,13%	-7,24%	7,24%
17	Technology	90,85%	9,15%	94,33%	5,67%	3,47%	-3,47%
18	Technology	51,27%	48,73%	57,81%	42,19%	6,54%	-6,54%
19	Technology	9,56%	90,44%	17,98%	82,02%	8,41%	-8,41%
20	Banking	19,26%	80,74%	29,26%	70,74%	10,00%	-10,00%
21	Insurance	41,65%	58,35%	61,30%	38,70%	19,64%	-19,64%
22	Retail	100,00%	0,00%	87,59%	12,41%	-12,41%	12,41%
23	Financial services	30,72%	69,28%	30,04%	69,96%	-0,67%	0,67%
24	Retail	46,48%	53,52%	56,64%	43,36%	10,16%	-10,16%
25	Insurance	59,03%	40,97%	45,12%	54,88%	-13,91%	13,91%
26	Chemicals	89,26%	10,74%	33,81%	66,19%	-55,45%	55,45%
27	Retail	81,82%	18,18%	91,19%	8,81%	9,37%	-9,37%
28	Banking	82,52%	17,48%	89,77%	10,23%	7,25%	-7,25%
29	Food producer	47,10%	52,90%	54,14%	45,86%	7,04%	-7,04%
30	Technology	69,70%	30,30%	75,25%	24,75%	5,56%	-5,56%
31	Retail	32,11%	67,89%	32,60%	67,40%	0,48%	-0,48%
AVERAGE		50,30%	49,70%	54,76%	45,24%	4,46%	-4,46%

In contrast, the technology and mining sectors demonstrated a stronger reliance on goodwill as part of their intangible asset balance. In 2015, a technology company had 90.44% of its intangible assets composed of goodwill, reflecting the industry's reliance on acquisitions to secure innovative technologies, intellectual property, and client bases. By 2024, a mining company reported 94.31% of its intangible assets as goodwill, likely resulting from acquisition-driven strategies to secure growth in an otherwise capital-intensive and competitive industry. However, not all companies within the mining sector followed this pattern. Two other mining companies maintained 0% goodwill as part of their intangible asset balances, with all intangible assets classified as other intangible assets, such as mineral rights. This divergence highlights the

variability within the mining sector and underscores the impact of company-specific strategies and acquisition history on intangible asset composition (KPMG, 2023b).

The most significant shift in the composition of intangible assets was observed within the banking sector. A banking company experienced a substantial 60.97% increase in other intangible assets, accompanied by a corresponding 60.97% decrease in goodwill. This shift indicates a strategic revaluation of intangible assets, possibly driven by enhanced investment in internally generated assets such as software, customer databases, and technological platforms, rather than goodwill arising from acquisitions. This trend aligns with broader shifts in the financial services industry, where companies are increasingly prioritising digital transformation and customer-centric innovations to remain competitive in evolving markets (Deloitte, 2020).

When compared to international studies, these patterns resonate with findings in global markets. Zambon et al. (2020) note that goodwill tends to dominate intangible asset composition in acquisition-heavy industries such as technology and mining, while sectors like banking and retail often report higher proportions of other intangible assets, reflecting their focus on proprietary technologies and customer relationships. However, the South African market presents unique characteristics, including economic volatility, regulatory constraints, and exchange rate fluctuations, which can significantly influence M&A activities and the recognition of intangible assets.

In conclusion, the composition of intangible assets among JSE-listed companies varies significantly across industries, with mining and technology firms demonstrating a higher reliance on goodwill, while banking and retail companies prioritise other intangible assets. These findings are consistent with empirical literature and reflect both global trends and South Africa-specific economic and regulatory factors that shape the reporting of intangible assets.

5. DISCUSSION

This study set out to examine the composition and significance of intangible assets (IA) among JSE-listed companies from 2015 to 2024, assessing their contribution to total and non-current assets and their relationship with overall firm value. The results confirm that intangible assets constitute a substantial and growing share of company balance sheets, particularly in pharmaceuticals, technology, and tobacco. This section interprets these results and compares them with previous international and South African findings.

The results reinforce the long-standing assertion that intangible assets are central to firm value creation. The dominance of intangible assets in knowledge-intensive sectors aligns with Lev and Sougiannis (1996) and Hall (2009), who identified R&D and intellectual property as key determinants of long-term profitability and growth. Similarly, the strong positive relationship between intangible and total assets observed here confirms earlier South African evidence by Van Zyl and Mans-Kemp (2020) and Ntshobane (2021), who linked intangible intensity to higher financial performance and return on assets. However, the present study extends this

evidence by showing that the magnitude of intangible asset representation in South African firms now exceeds that reported in many developed markets (Zambon et al., 2020), suggesting that emerging economies may experience faster intangible capitalisation due to accelerated digitalisation and consolidation.

The industry-level patterns provide further nuance. The concentration of goodwill in the retail and pharmaceutical sectors supports previous findings that merger and acquisition (M&A) activity drives intangible growth in consolidation-oriented industries (PWC, 2021; Zambon et al., 2020). The notable rise in goodwill within the pharmaceutical sector reflects strategic acquisitions aimed at securing intellectual property, distribution networks, and regulatory approvals—consistent with global trends documented by Chun et al. (2005). In contrast, the increasing share of other intangible assets in the banking and technology sectors suggests a shift toward internally generated assets such as software, customer data, and proprietary systems, which aligns with the observation by Egorov (2025) that financial institutions in emerging markets increasingly depend on digital transformation to sustain competitiveness.

The tobacco industry's exceptionally high proportion of intangible assets—particularly brand value and goodwill—highlights the defensive role of intangibles in regulated environments. This mirrors Gierusz (2020), who argued that brand equity becomes a substitute for traditional advertising and a buffer against regulation. The South African case therefore underscores how sector-specific pressures, such as advertising bans and excise taxes, can intensify the strategic significance of intangible resources.

From a theoretical perspective, the findings validate the Resource-Based View (RBV), confirming that intangible assets provide sustainable competitive advantage by being valuable, rare, and inimitable. They also align with Stakeholder Theory, as firms with transparent intangible asset disclosures tend to build stronger investor confidence and market credibility (Healy & Palepu, 2001). These theoretical lenses explain why firms in innovation-driven sectors—pharmaceuticals, technology, and financial services—show higher IA intensities and greater market resilience.

Comparatively, the study adds new insights to the global discourse on intangible asset reporting. While earlier research focused primarily on developed markets (Hunter, Webster, & Wyatt, 2005; Oliveira et al., 2010), this analysis demonstrates that similar valuation dynamics apply in South Africa, an emerging economy with dual-sector characteristics. The persistence of goodwill dominance in acquisition-heavy industries and the rising share of internally generated intangibles elsewhere suggest that the challenges identified by Garanina et al. (2021)—namely the tension between reliability and relevance under IAS 38—remain unresolved in practice.

Overall, the discussion confirms that intangible assets are not only value-relevant but also structurally transformative for South African corporates. The 2015–2024 trend analysis illustrates that intangible growth has accelerated even in traditionally tangible-heavy industries such as mining and logistics, indicating a broader shift toward knowledge-based value creation.

The findings therefore call for ongoing refinement of IFRS guidance to accommodate evolving business models, enhance disclosure comparability, and ensure that accounting information remains relevant for decision-making in an increasingly intangible-driven economy.

6. CONCLUSION

The purpose of this study was to evaluate the significance of intangible assets within the asset structures of Johannesburg Stock Exchange (JSE)-listed companies and to assess their relationship with overall firm value. The results show that intangible assets—particularly goodwill and patents—constitute a substantial proportion of total and non-current assets, with the highest concentrations observed in pharmaceuticals, tobacco, and technology industries. Regression analysis confirmed a strong positive association between intangible assets and total assets, underscoring their growing importance in shaping corporate financial structures and value creation.

These findings indicate that intangible assets have become a central component of firm value and a critical driver of competitiveness in the South African context. Consequently, the results highlight the need for enhanced IFRS guidance and more consistent recognition and disclosure of intangible assets across industries. Improved reporting practices will strengthen the relevance and reliability of financial statements, enhance comparability, and provide stakeholders with more decision-useful information. While industry-specific guidance may improve accuracy, it should be developed within the existing IFRS framework to maintain global consistency while allowing sufficient flexibility to capture sector-specific realities.

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