

# Accounting for Intangibles

## A Quantitative Analysis of UK Financial Reports

May 2024



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# Executive Summary

## UKEB research into the accounting for intangibles

1. This report provides an overview of the nature and extent of current reporting of intangibles by UK listed companies. It analyses the current reporting practices among listed UK companies that are required to use IFRS Accounting Standards, to examine how they account for intangibles (including capitalisation and expensing), together with any associated disclosure. It looks at the relationship between acquisitions and intangible assets recognition, providing evidence on the extent to which intangible assets are recognised, predominantly, as a result of business combinations. It also provides an estimate of intangibles expenditure potentially not recognised as assets by UK listed companies.
2. The findings of the report provide evidence on the current reporting practices, some of their limitations, and the prevalence of intangibles beyond the information found on the face of the financial statements in the UK.

## Background to this report

3. The UK Endorsement Board (UKEB) launched this pro-active research project in accordance with the Board's thought leadership objectives of:
  - a) Leading the UK debate on international accounting standards and reporting.
  - b) Representing UK views in international fora with the aim of influencing debate.
  - c) Engaging with other national standard setters including endorsement and adoption bodies in other jurisdictions, in order to improve influence and understand best practice.
  - d) Proactively participating in the development of new global accounting standards, for example by undertaking research.
4. The UKEB will use the findings of this report, together with its other research work into intangibles accounting and reporting, to stimulate debate and provide an evidence base for the UKEB's engagement with the IASB and others to support the development of high-quality international accounting standards for use in the UK and internationally.
5. In response to feedback received on its Third Agenda Consultation, the International Accounting Standards Board (IASB) has announced that it is commencing a comprehensive review of accounting requirements for intangibles. The project will assess whether the requirements of IAS 38 *Intangible Assets* remain relevant and continue to fairly reflect current business models or whether the IASB should improve the requirements. The project scope and approach to be

taken are subject to consultation with the IASB's stakeholders. The IASB had previously stated that the project will:

“relate to all aspects of IAS 38, including its scope, its recognition and measurement requirements (including the difference in accounting between acquired and internally generated intangible assets), and the adequacy of the information it requires to be disclosed about intangible assets”. (IASB’s Feedback Statement: Third Agenda Consultation, page 27).

## Intangibles in the financial statements of UK companies

6. Section Two of the report looks at reporting practices on intangibles for all UK listed companies that apply IFRS Accounting Standards (“the population”), as determined from information drawn from the face of financial statements, as well as disclosures information for a sample of 80 companies randomly drawn from the population (“the sample”).
7. The population data analysis shows that as of 2021 year-end, the total amount of recognised intangible assets was over £350 billion. Historical data was characterised by an average 8% annual increase in the carrying amount of recognised intangible assets over the 2011-2021 period. In comparison, the average annual growth rate of total assets was 2% over the same period.
8. In relative terms, intangible assets made up, on average over the 2011-2021 period, 2.39% of companies’ total assets, with a modest average annual increase being observed over the period.
9. However, intangible assets are highly concentrated among the 25% of companies with the largest market capitalisation – almost 97% of the carrying amount of intangible assets in the population in 2021 were recognised by these companies. In fact, just ten companies held 64% of recognised intangibles, and one of them held 21% alone. It should be noted that these ten companies account for only 37% of the total assets of all listed companies, which indicates that the size of intangible assets in their balance sheet is not simply a function of their size. The concentration was found to result predominantly from sizeable mergers and acquisitions conducted by these large companies, which gave rise to the recognition of purchased intangible assets on their balance sheets.
10. While large companies hold the most significant proportion of recognised intangible assets by carrying amount, smaller entities tend to have a greater proportion of intangible assets on their balance sheet as a share of total assets. The healthcare, consumer staples and technology industries have the largest proportion of intangible assets to total assets for all entities. This seems to be driven by Mergers and Acquisitions (M&A) activity among large companies, though for large healthcare companies and small technology companies recognised R&D make a significant contribution.
11. The data collected from the sample of 80 UK listed companies’ financial statements and notes shows that there is diversity in how intangible assets are disaggregated and categorised by companies.

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12. Within the sample, almost half the carrying amount of intangible assets was represented by “customer relationship” assets. However, it should be noted that this was primarily the result of larger companies having very significant amounts of this type of intangible, which can only be recognised when acquired. Smaller companies are much more likely to have predominantly internally generated intangibles and also have a wider range of types of intangible assets.
  13. For almost a quarter of the companies in the sample, it was not possible to clearly distinguish acquired from internally generated intangible assets, despite this being an IAS 38 disclosure requirement.
  14. Quantified disclosure of research expenditure, as required by IAS 38, was relatively common in the sample companies, whether or not they had also capitalised development costs on their balance sheets.
  15. The variation in disclosure among companies in the sample serves to illustrate some of the points raised by stakeholders in the UKEB’s Survey Report and Qualitative Report<sup>1</sup> about difficulties with comparability and understandability for information on intangible items in financial statements.

## Intangibles and acquisitions

16. The recognition criteria for intangible assets in IFRS Accounting Standards lead to differential treatments of intangibles depending on whether they are internally generated or acquired in a business combination. This in turn gives rise to comparability issues, as acknowledged by users and other stakeholders. Section Three of this report focuses on acquisitions.
17. Intangible asset recognition appears to be strongly correlated with the value of acquisitions over the 2011-2021 period. While a correlation is hardly surprising, its magnitude - over 70% between the year-on-year change of intangible assets and M&A transaction value, is strong.
18. Estimation results suggest that for an acquirer approximately 35% of the fair value of the consideration paid (purchase price) is allocated to intangible assets (excluding goodwill).
19. For the 20 largest deals in the UK over the 2011-2021 period, one third of the assets recognised as acquired were intangible assets other than goodwill. A further third was recognised as goodwill with the remaining third being tangible and financial assets. Narrative reporting and notes to the financial statements seem to suggest that intangibles were an important driver of these acquisitions.

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<sup>1</sup> [Intangibles Project | UK Endorsement Board \(endorsement-board.uk\)](https://www.endorsement-board.uk)

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20. Auditors highlighted the allocation of purchase price between goodwill, intangible assets and other assets as a key audit matter involving significant management judgement for all of the M&A transactions reviewed.
  21. The different recognition criteria also hamper comparisons between companies based on commonly used performance indicators, such as Return on Assets (ROA) and Return on Equity (ROE), a widely known issue among practitioners.
  22. Evidence from the Qualitative and the Survey reports suggests that users disregard intangible assets when making their assessments, and/or re-calculate intangible assets using their own methodologies, in order to obtain more comparable data for their purposes. This report expands on that evidence by contrasting two companies that differ only in their growth strategies to show that the adjustments commonly made by users tend to deliver very different performance measures, suggesting that they are highly dependent on the assumptions made.

## Unrecognised intangibles

23. IFRS Accounting Standards allow the recognition of intangible assets acquired externally (purchased or in a business combination) but limit or prohibit the recognition of many internally generated ones. From an economic perspective, it can be argued that intangibles that are acquired in a business combination bring (or are expected to bring in the future) economic benefit to the target firms prior to acquisition, even if they were not previously recognised on the target's balance sheet.
24. Section Four of this report provides an estimate of unrecognised intangibles based on the Perpetual Inventory Method (PIM), a technique commonly used in the academic literature.
25. While acknowledging the limitations of methods for estimating unrecognised intangibles and the sensitivity of estimates to the assumptions made in the estimation method, it is reasonable to assume that UK listed companies may have a significant amount of unrecognised intangibles (in the order of hundreds of billions of pounds) and that they have become increasingly significant over the period 2011-2021.

## Looking forward

26. The UKEB will use these findings as an evidence base in its future work on intangibles, as it develops its own views on accounting for intangibles.
27. The UKEB looks forward to contributing to future discussions on the accounting for intangibles.



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# I. Introduction

## The UKEB intangibles research project

- 1.1 In April 2024 the IASB announced that it was commencing its comprehensive review of accounting requirements for intangibles.
- 1.2 The project will assess whether the requirements of IAS 38 *Intangible Assets* remain relevant and continue to fairly reflect current business models or whether the IASB should improve the requirements.
- 1.3 The initial research and planning phase aims to define the scope of issues to be explored in the project and explore the best approach to plan and organise the work.
- 1.4 The IASB had noted that many stakeholders responding to its Third Agenda Consultation highlighted deficiencies in the reporting of intangible assets relating to all aspects of IAS 38, including its scope, its recognition and measurement requirements and the adequacy of disclosures.
- 1.5 It also noted that the project should “aim to address intangibles more broadly”, focusing not just on “assets”, but also including intangible items currently expensed.
- 1.6 In anticipation of the IASB’s review of intangible items, the UKEB decided to initiate a research project focused on understanding UK stakeholders’ views on the accounting for intangibles and gathering evidence about the UK intangibles landscape.
- 1.7 The UKEB wanted to understand whether there are concerns in the UK with the current approach to the accounting for, and reporting on, intangibles, particularly under IAS 38, as well as, possible ways in which any concerns identified could be addressed.
- 1.8 The UKEB’s first report, which discussed UK stakeholders’ views on the accounting for intangibles, was published in March 2023. This is referred to as the ‘Qualitative Report’ hereafter.
- 1.9 This is the second report on intangibles published by UKEB aimed to better understand the current reporting on intangible items in the UK. It analyses the current practices among listed UK companies using IFRS Accounting Standards to examine the accounting for intangibles along with associated disclosures.
- 1.10 The report also looks at the impact of M&A transactions on reported intangibles along with estimating possible unrecognised intangibles. It will be referred to as the ‘Quantitative Report’ hereafter.



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- 1.11 The UKEB's third report outlines the findings of a survey of UK users of financial statements about current and future accounting for intangibles, conducted in autumn 2023, which was published in April 2024. This is referred to as the 'Survey Report' hereafter.

## Terminology and accounting

1.12 In this report:

- a) The term "intangible assets" is used to refer to intangible items specifically qualifying for recognition on the balance sheet (capitalisation), in accordance with current IFRS Accounting Standards.<sup>2</sup>
- b) The terms "intangibles", "intangible item" or "intangible expenditure" are used with a more general meaning, depending on the context, and include items that may or may not be currently recognised as assets under IFRS Accounting Standards, but may qualify as assets in the economic meaning of the term.<sup>3,4</sup>
- c) The terms "internally generated" and "purchased" intangibles are given the same meaning as used in IAS 38 and are defined in the Glossary (Appendix A).

1.13 This report assumes familiarity with the accounting for intangibles under IAS 38. Readers looking for more background on the accounting requirements are directed to the UKEB's Qualitative Report .<sup>5</sup>

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<sup>2</sup> The majority of intangible assets are accounted for in accordance with either IAS 38 *Intangible Assets* or IFRS 3 *Business Combinations*. Some exploration and evaluation assets are also classed as intangible in accordance with IFRS 6 *Exploration for and Evaluation of Mineral Resources*.

<sup>3</sup> In the economics literature assets are typically called "capital", though the term asset, especially with reference to financial assets, is also widespread. See Endres and Harper (2020) for a review of the concept of capital in the history of economic thought. Both the National System of Accounts (NSA), the global standard setter for national accounts (i.e., statistics focusing on the structure and evolution of economies), and the European System of Accounts (ESA), the EU standard setter for EU national accounts, have definitions for "economic assets". See [here](#). With reference to intangibles, in the economic literature the expression "intangible capital" is also common. See qualitative report published in March 2023, paragraph 2.1.

<sup>4</sup> The IASB has also started to use similar terminology (i.e., intangible items) for similar reasons. In the IASB's April 2022 paper suggesting they undertake an intangibles project they acknowledge that "although this paper refers to a project on intangible assets... one key issue to consider in such a project is whether it should be limited to accounting for and disclosing information about financial statement elements—intangible assets and expenses arising from expenditure on intangible items—or whether the project should aim to address intangible items more broadly" (paragraph 36).

<sup>5</sup> [UKEB Intangible Accounting Stakeholder Views \(kc-usercontent.com\)](#), paragraphs 1.10 – 1.25

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## Quantitative analysis conducted

- 1.14 This report includes findings from three sets of quantitative analysis:
- a) Section 2 reports on the examination of the financial statement data on intangible assets reported by all UK listed companies using data from Reuters-Eikon for the period from 2011-2021. This is complemented by a review of the financial statement information on intangibles from a randomly selected sample of 80 companies within that population.
  - b) Section 3 reports an investigation of M&A transactions data from Reuters-Eikon over the same time period (2011-2021), both at a market level (i.e., for the population of listed companies in the UK), and for a selected sample of the 20 largest M&A transactions over this period.
  - c) Section 4 estimates the value of unrecognised intangible assets in UK listed companies, using an established methodology from the academic literature for the period 2011-2021. In addition, the estimated distribution of unrecognised intangibles between industries and companies of different sizes is also analysed.
- 1.15 Taken together, these analyses describe the landscape of intangibles among UK listed companies and how this evolved over the ten years from 2011 to 2021.

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## 2. Intangibles in the Financial Statements of UK Companies

- 2.1 This section provides a comprehensive analysis of the prevalence of intangible assets among listed UK companies which apply IFRS Accounting Standards in their financial statements. It also provides more granular information about the amount and nature of intangible assets recognised on company balance sheets, and of expenses relating to intangible items recognised in companies' statements of profit or loss.
- 2.2 The evidence reported in this section was obtained following a two-tiered research approach. First, the population of UK listed companies as a whole was examined. Second, the financial statements from a sample of 80 companies randomly drawn from the population, was reviewed in more detail.
- 2.3 The population considered for this report was all companies listed on the London Stock Exchange (LSE)<sup>6</sup> using IFRS Accounting Standards for financial reporting between 2011 and 2021, excluding funds and trusts, Real Estate Investment Trusts (REITS) and other listed entities that are investment vehicles.<sup>7</sup> Data was extracted from Reuters-Eikon. The population characteristics were as follows:<sup>8</sup>

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<sup>6</sup> Since it is possible to obtain information for all listed companies from the abovementioned databases, it was possible to perform quantitative analyses on the entire population.

<sup>7</sup> Investment vehicles and real estate firms are excluded due to the nature of their financial statements and of their business model. Using the Industry Classification Benchmark (ICB), these companies would fall into the ICB codes 3000 – 4000.

<sup>8</sup> Summary statistics for the sample of entities, including tests to assess whether randomisation worked correctly, are displayed in Appendix B.

**Table 1 2021 Population characteristics**

Characteristic	Population
Number of companies	1,093
Total assets	£11.5 trillion <sup>9</sup>
Total revenues	£1.8 trillion
Market capitalisation	£2.55 trillion

Source: Reuters-Eikon

- 2.4 This review gathered more detailed and complementary information from a single year of a sample of the companies' financial statements, including qualitative data, which was not otherwise available. The results are considered to be relevant to the population as a whole.
- 2.5 The focus of this report is **identifiable** intangible assets under IAS 38 and, unless specifically mentioned, goodwill has been excluded from the analyses. Goodwill is recognised under IFRS 3 as the difference between the fair value of the consideration paid and the fair value of identified assets in a business combination (acquisition) and is an asset representing future economic benefits from synergy between identifiable assets acquired, or from assets that are non-identifiable as separately recognised intangible assets at date of the business combination.

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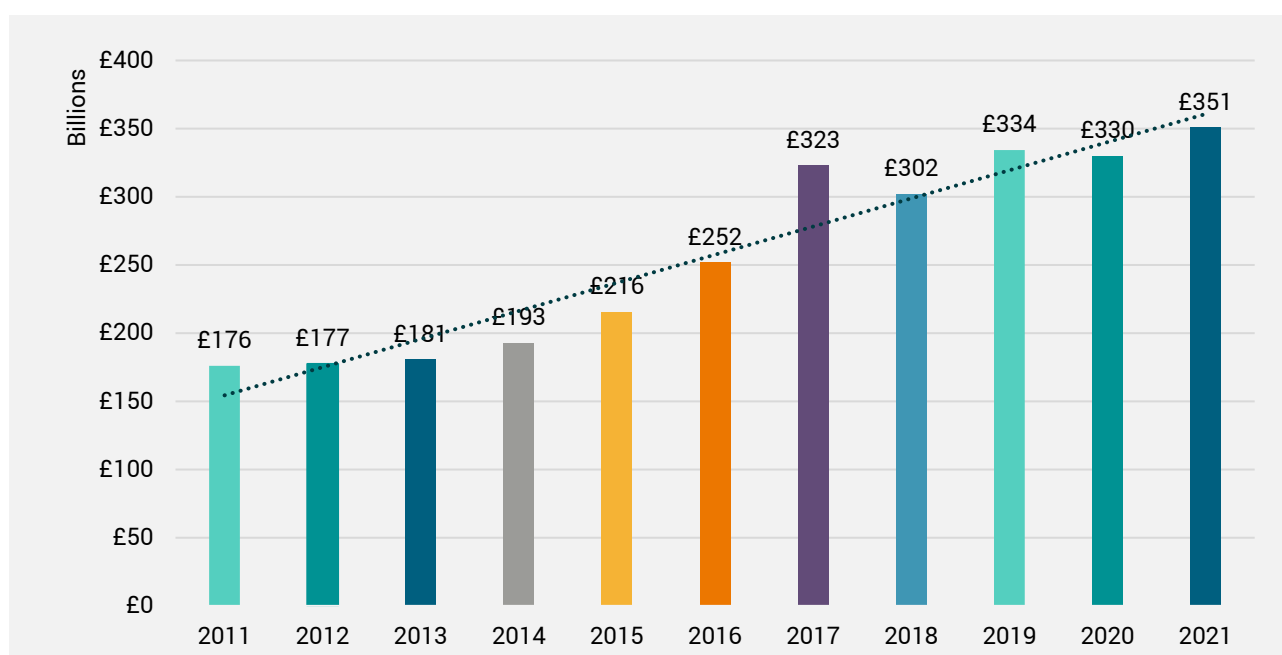
<sup>9</sup> Entities in the financial industry such as banks and insurers (122 companies), hold large amounts of financial assets at fair value on their balance sheets. These entities increase the aggregate assets of listed entities significantly (£6.7 trillion in assets is held by these companies). In addition, the revenues of these entities are often not recognised in accordance with IFRS 15 *Revenue from Contracts with Customers* but are often a form of investment income.

## Population data analysis

### Prevalence of intangible assets among UK listed companies

2.6 At the end of 2021, the total carrying amount of intangible assets excluding goodwill for all companies listed on the LSE amounted to £351 billion. Recognised intangible assets have shown a consistent upward trend between 2011 and 2021, with growth at an average rate of nearly 8% per year.<sup>10</sup> These results are presented in Chart 1. Total assets were found to have grown at an average rate of 2% per year over the same period.

**Chart 1: Carrying amount of intangible assets, all UK listed companies (2011 – 2021)**



Source: Reuters-Eikon

2.7 Significant increases in intangible assets in particular years, such as in 2017 and 2021, were often primarily attributable to individually large acquisitions. For example, British American Tobacco's acquisition of Reynolds in 2017 recognised an additional £75.5 billion of intangible assets; the London Stock Exchange acquisition of Refinitiv in 2021 recognised an additional £12.5 billion of intangible assets; and AstraZeneca's acquisition of Alexion Pharmaceuticals Inc. also in 2021, which resulted in the recognition of an additional \$27 billion of intangible assets.<sup>11</sup> Section 3 provides more detail on the relationship between M&A

<sup>10</sup> References to "carrying amount of intangible assets" exclude goodwill and may include exploration and evaluation where applicable.

<sup>11</sup> The significant decreases, when observed, are attributable to de-listings and impairments of assets, as confirmed by further analyses.

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transactions and implications for the financial reporting of intangible assets under existing IFRS Accounting Standards.

- 2.8 Most listed entities have some intangible assets recorded in their financial statements. In 2021, about 860 companies (79% of companies in the population) had at least one recognised intangible asset. This number was relatively stable over the 2011-2021 period.
- 2.9 By quartile of market capitalisation, intangible assets are present on the balance sheets of:
- a) 94% of Quartile 4 (Q4) companies (the largest 25%);<sup>12</sup>
  - b) 83% of Quartile 3 (Q3) companies;
  - c) 82% of Quartile 2 (Q2) companies;
  - d) 61% of Quartile 1 (Q1) companies (the smallest 25%).
- 2.10 The relative share of intangible assets as a percentage of total assets increased from 1.67% in 2011 to 3.03% in 2021. In relative terms, intangible assets made up, on average over the 2011-2021 period, 2.39% of companies' total assets. Chart 2 provides more detail.<sup>13,14</sup>

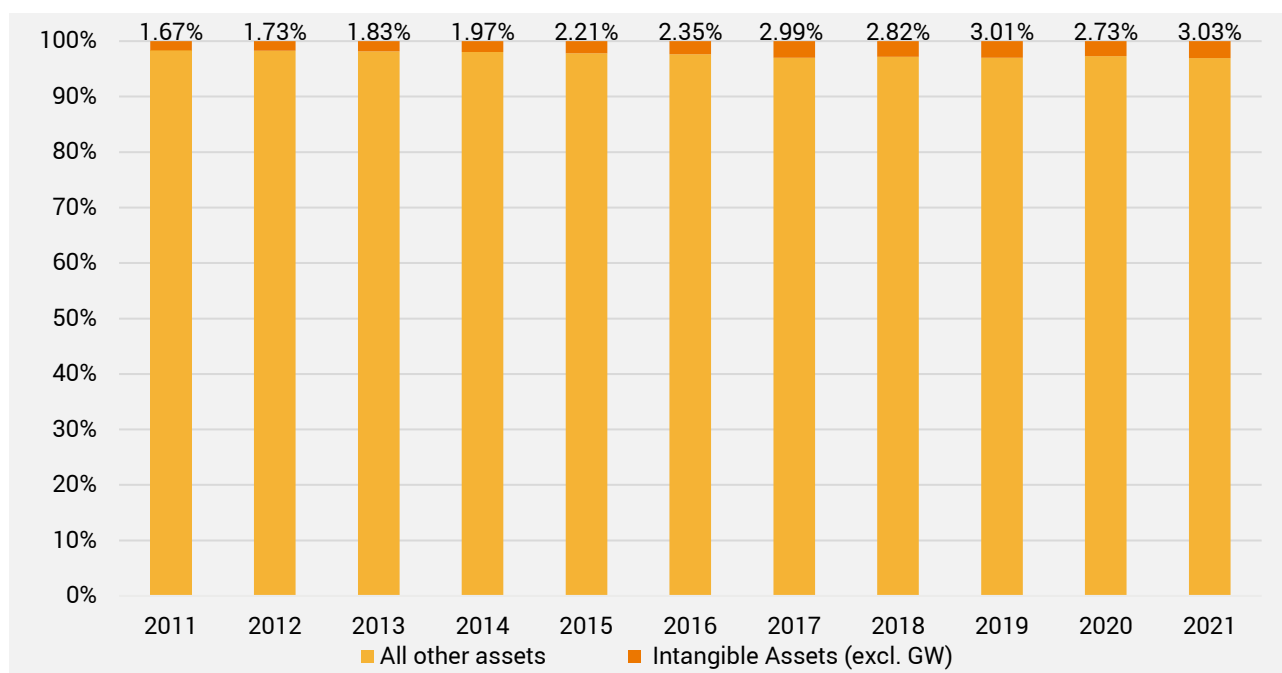
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<sup>12</sup> The thresholds of each quartile in 2012, measured using market capitalisation, were Q1: £ 40 million, Q2: £209 million and Q3: £ 965 million.

<sup>13</sup> This report includes companies in the financial sector in the analyses as they hold sizable amounts of intangible assets, both in absolute and relative terms (i.e., as a share a total assets). However, because banks and insurance companies are characterised by sizeable balance sheets, their inclusion can skew relative-share calculations, making the relative importance of intangibles among non-financial companies less apparent. Excluding companies in the financial sector (e.g., banks, insurance providers and investment brokers), in 2021 the ratio of intangible assets was 7.87% of total assets.

<sup>14</sup> This report excludes goodwill from the main analyses, unless otherwise stated. However goodwill is an intangible asset subject to judgement that may contain otherwise unrecognised identifiable intangible assets. In 2021, goodwill of £396 billion was recognised by UK listed companies. Goodwill accounted for 3.17% of total assets on average over the 2011 – 2021 period. Together goodwill and intangible assets made up an average of 5.56% of the carrying amount of companies' total assets over the 2011-2021 period.

**Chart 2: Carrying amount of intangible assets as a percentage of total assets for all UK listed entities (2011 - 2021)**



Source: Reuters-Eikon

2.11 A further examination of the distribution of intangible assets within the population of listed companies was conducted, segmented by size and industry.

## Distribution of intangible assets

2.12 The carrying amount of intangible assets is not distributed evenly across companies. While most companies have intangible assets recorded in their financial statements, larger companies – as measured by market capitalisation – account for the majority of the carrying amount of reported intangible assets across the population. This is illustrated in Chart 3.

2.13 As of 2021, the largest 25% of companies in the population by market capitalisation (Q4), accounted for £338 billion of the total intangible assets reported. In comparison, for the same year end, the smallest 75% of companies by market capitalisation (Q1-Q3) reported a combined carrying amount of intangible assets of £12 billion.

2.14 As a percentage, intangible assets held by the largest companies by market capitalisation (Q4) represented 96.64% of the total intangible assets reported for all companies. Companies in the next 25% of market capitalisation (Q3) held just 2.28% of intangible assets, followed by companies in the next 25% of market capitalisation (Q2) 0.75% and the smallest 25% of companies by market capitalisation (Q1) 0.34%.

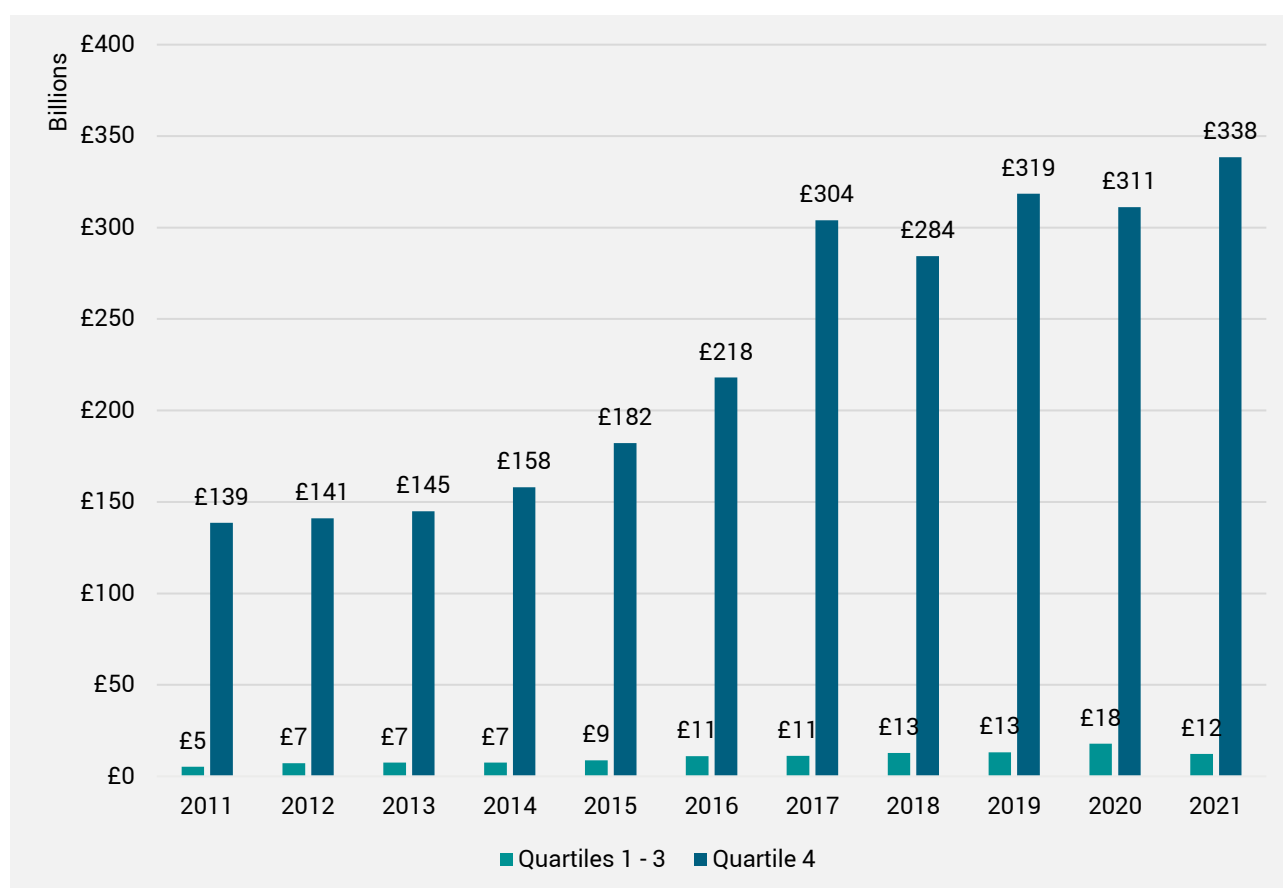
2.15 It should be noted that this distribution of intangible assets is largely consistent with the distribution of total assets by quartile. As at the end of 2021, companies in the largest 25% by market capitalisation (Q4) held 97% of total assets, followed



by companies in the next 25% (Q3) 1.15%, the next 25% (Q2) 0.32% and the smallest 25% (Q1) 0.08%.

2.16 Therefore, both assets and intangible assets are highly concentrated with a relatively small number of large companies holding the vast majority of recognised assets on their balance sheets.

**Chart 3: Carrying amount of intangible assets, per quartile of market capitalisation, absolute values (2011 – 2021)**



Source: Reuters-Eikon

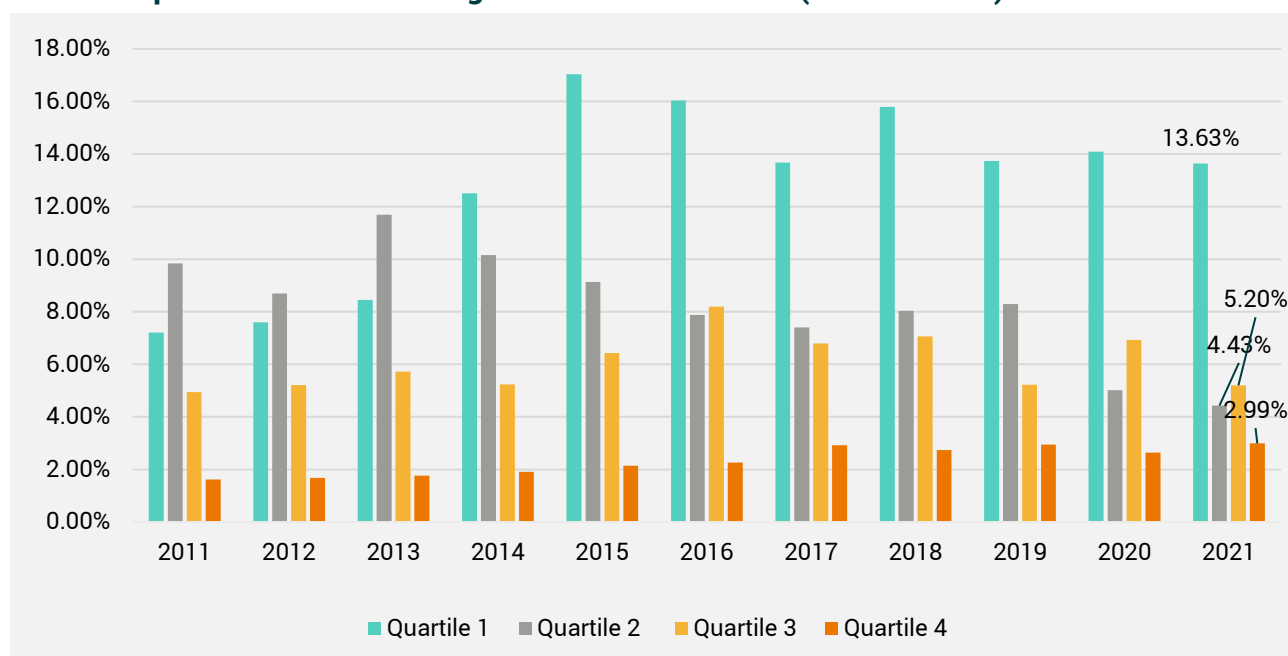
2.17 However, when considering the relative proportion of intangible assets to total assets for listed companies of different sizes, intangible assets generally made up a larger proportion of the balance sheets of smaller listed companies.

2.18 Between 2011 and 2021, the share of intangible assets to total assets for companies in the smallest 50% by market capitalisation (Q1 and Q2) was often larger when compared with the larger companies (Q3 and Q4). For example, in 2021, intangible assets made up about 15% of total assets for companies in the smallest 25% by market capitalisation (Q1), but in comparison this was only 3% for

companies in the largest 25% (Q4) (11% excluding financial services).<sup>15</sup> These findings are presented in Charts 4 and 5.

2.19 As noted above (see para 2.10), financial services firms are characterised by sizeable balance sheets that skew relative-share calculations, making the prevalence of intangible assets among non-financial services firms less apparent. In addition, financial services companies tend to be large, thus affecting Q4 calculations the most (though all quartiles are affected, as apparent from the comparison between Charts 4 and 5). As a robustness check, Chart 5 shows that despite the exclusion of financial services companies (retail and investment banks, insurance companies and broker-dealers), the relative share of intangible assets among Q1 companies is consistently lower than among Q4 companies. In addition, the difference between quartiles is not as large as when financial services firms are included.

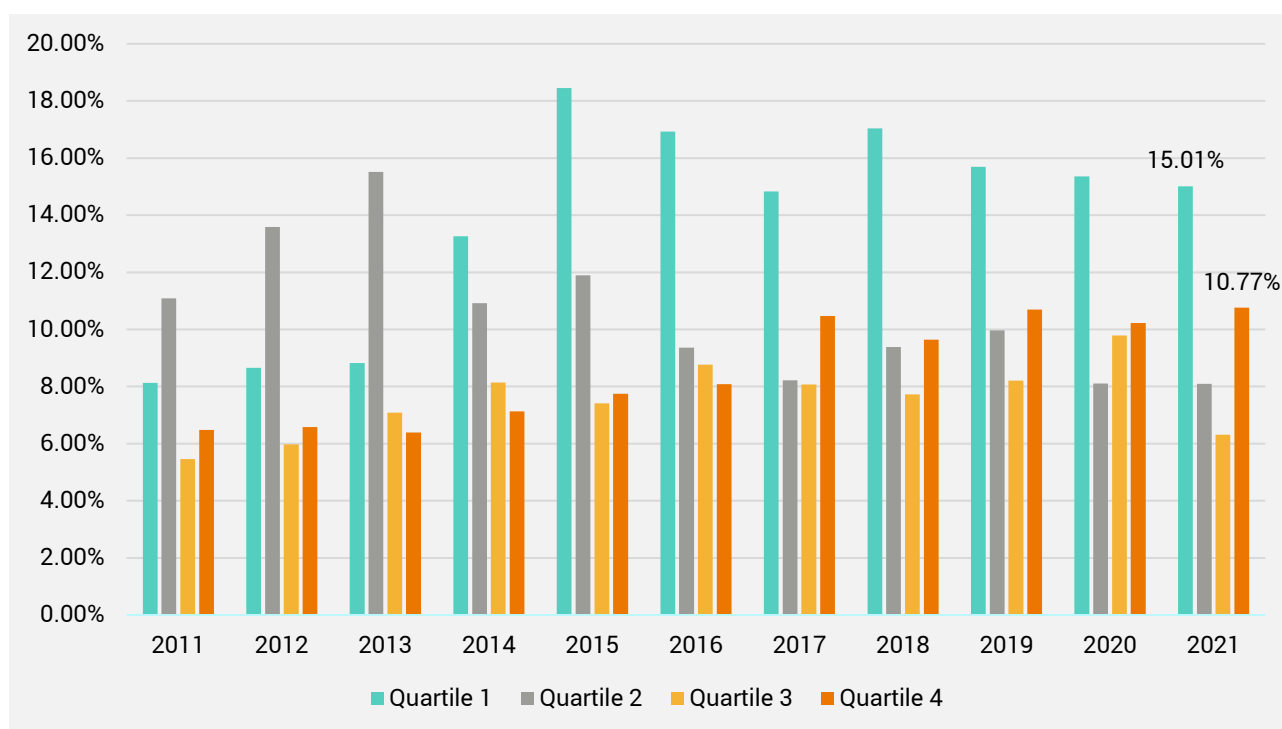
**Chart 4: Carrying amount of intangible assets as share of total assets, per quartile of market capitalisation – including banks and insurance (2011 – 2021)**



Source: Reuters-Eikon

<sup>15</sup> After excluding goodwill from total assets as well, the ratio of intangible assets to total assets for the 2021FY was 15.11% for Quartile 1, 4.72% for Quartile 2, 5.98% for Quartile 3 and 3.10% for Quartile 4.

**Chart 5: Carrying amount of intangible assets as share of total assets, per quartile of market capitalisation – excluding banks and insurance (2011 – 2021)**



Source: Reuters-Eikon

2.20 The UK results reported in Charts 4 and 5 are in line with those reported by Tsalavoutous, André and Dionysiou (2014) for the UK and broadly comparable with the ones reported by the Australian Accounting Standards Board (AASB) (2023), which show that, for non-financial industry companies listed on the Australian Stock Exchange, the average share of intangible assets over total assets is 9% for larger companies and 17% for smaller companies.<sup>16</sup>

2.21 Taken together, these findings suggest that, although larger companies hold a higher absolute carrying amount of intangible assets, intangible assets are relatively more prevalent among smaller companies.

## Concentration of intangible assets

2.22 Building on the findings of intangible asset concentration the distribution of intangible assets is in fact more skewed than the distribution of total assets. In 2021, just ten companies held almost two thirds of the total intangible assets balance. These findings are presented in Chart 6.

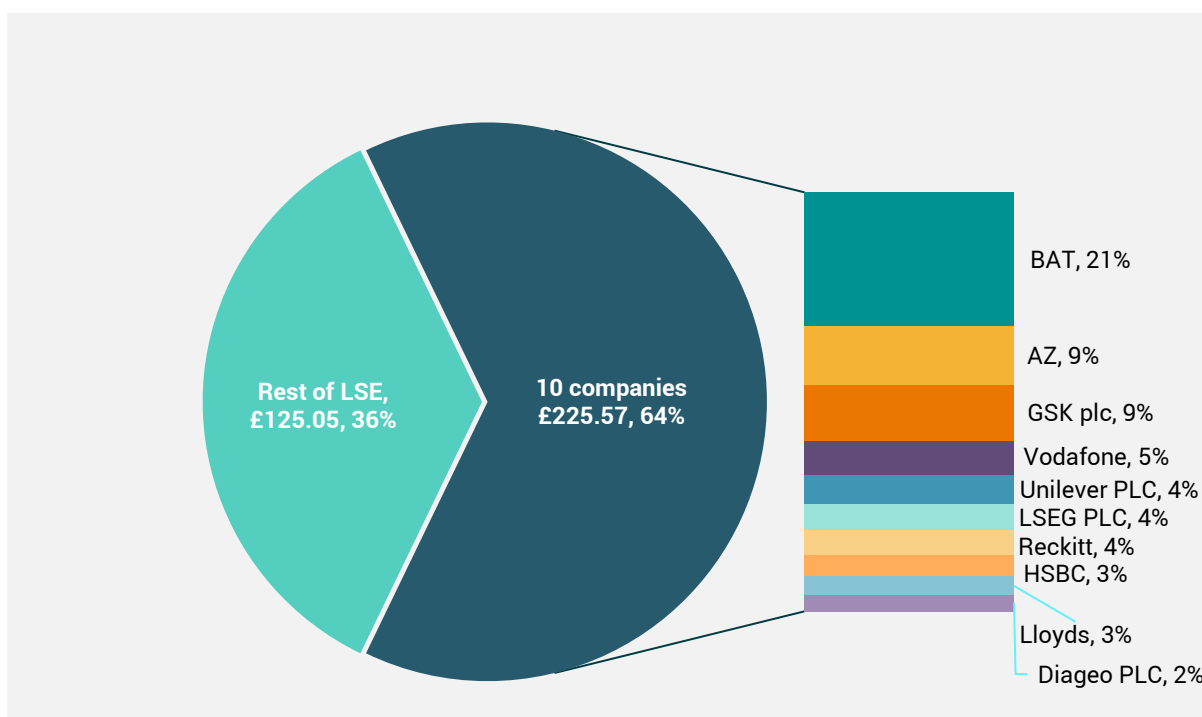
2.23 The ten companies identified in Chart 6 account for only 37% of the total assets of all listed companies, which indicates that the size of intangible assets in their

<sup>16</sup> Pinnuck, Wallis, Li, Lee, Waters, and Mattocks (2023). The authors also exclude financial entities from their calculation.

balance sheet is not simply due to them holding a disproportionately large amount of total assets.

- 2.24 The concentration of intangible assets among a few, large companies was found to be largely the result of sizeable mergers and acquisitions, which resulted in the recognition of purchased intangible assets on the acquirers' balance sheets, as discussed further in Section 3.

**Chart 6: Concentration of intangible assets across the LSE (total carrying amount of intangible assets on balance sheets £'bn 2021)**



Source: Reuters-Eikon

- 2.25 This high concentration of reported intangible assets among the largest companies is not unique to the UK. UKEB calculations based on data reported by the AASB (2023) and Reuters-Eikon identify that a similar concentration of intangible assets can be found among companies listed on the Australian Stock Exchange (ASX). In Australia, the 20 largest companies held 64% of intangible assets recognised in that market.

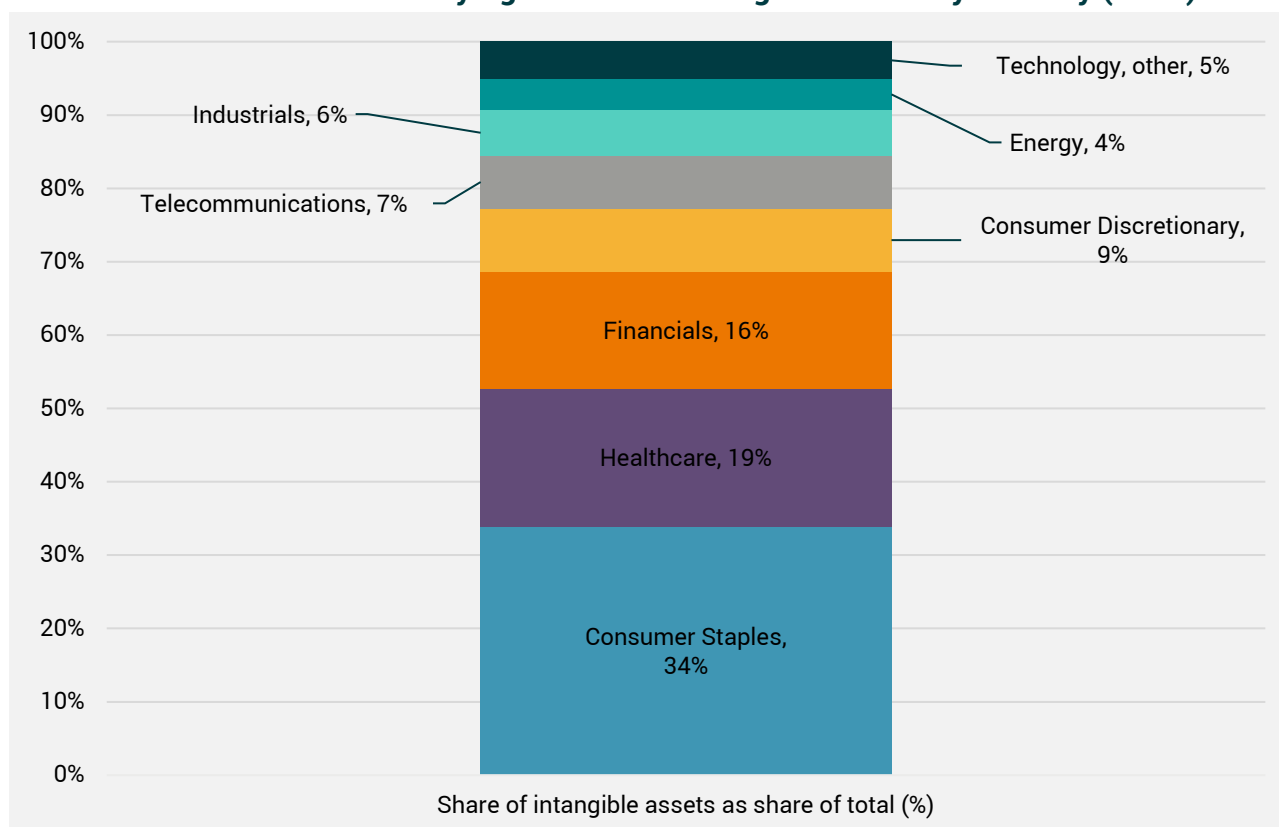
## Intangible assets by industry

- 2.26 Industry-specific differences in the prevalence of intangible assets were also identified.<sup>17</sup>

<sup>17</sup> This report uses the ICB industry classification.

2.27 The relative share of intangible assets of total recognised intangible assets was calculated for each year of the 2011-2021 period to estimate the contribution of each industry to intangible assets recognised by UK listed companies. Chart 7 reports 2021 carrying amounts only, as the findings were largely consistent over the whole period.

**Chart 7: Distribution of the carrying amount of intangible assets by industry (2021)**



Source: Reuters-Eikon

2.28 As at the end of 2021, the consumer staples and healthcare held the highest carrying amount of intangible assets. The consumer staples industry held intangible assets totalling 34% of the population's total with a book value of £118 billion. The healthcare industry held intangible assets totalling 19% of the population's total, with a carrying amount of £66 billion.

2.29 In contrast, the technology, basic materials, and utility industries were among the industries with the lowest absolute carrying amount of intangible assets in 2021. These three industries accounted for £8 billion, £6 billion, and £4 billion of the carrying amount of intangible assets respectively. Collectively, these industries held 5% of the total carrying amount of intangible assets.

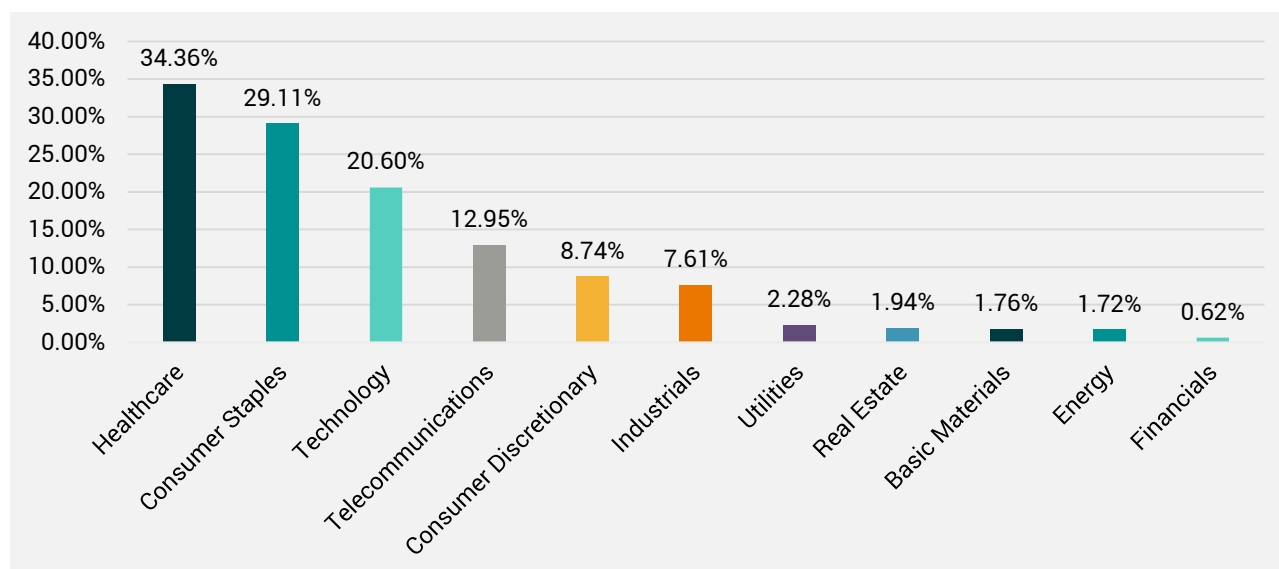
2.30 The high carrying amount of intangible assets in the consumer staples, consumer discretionary and healthcare industries is partly attributable to the scale of these industries generally and also several acquisitions that saw large amounts of intangible assets being recognised, such as:

- a) British American Tobacco's (BAT) acquisition of Reynolds American Inc., in 2017 which resulted in the recognition of brands valued at £75 billion.<sup>18</sup>
- b) AstraZeneca's acquisition of Alexion Pharmaceuticals Inc., in 2021, which resulted in the recognition of intangible assets valued at \$27 billion.<sup>19</sup>

2.31 These findings have prompted a further and more systematic consideration of the impact of acquisitions on intangible assets, which is discussed in Section 3.

2.32 The findings are largely consistent, though with some differences, when the relative share is calculated as a proportion of total assets in each industry, accounting for the relative size of each industry. See Charts 8, 9, and 10, in which the relative share of intangible assets over total assets by industry is calculated for all companies, for the largest 25% of companies (Q4) and for the smallest 50% of companies (Q1 and Q2) respectively.

**Chart 8: Intangible assets as a share of total assets per industry for the population of companies (2021)**



Source: Reuters-Eikon

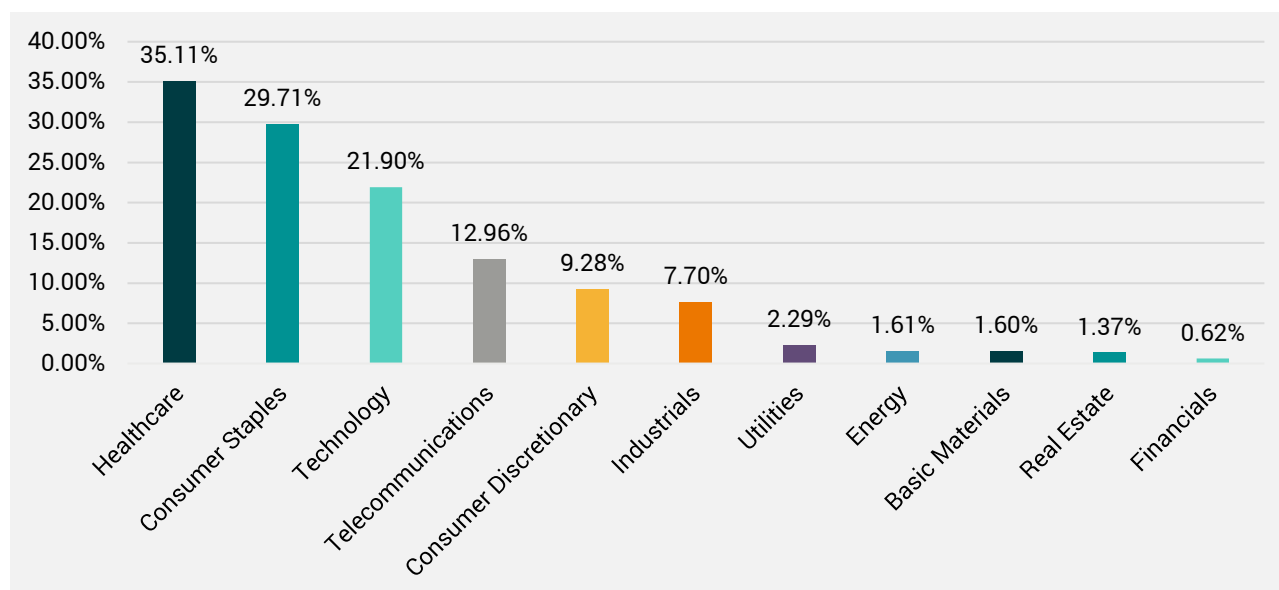
<sup>18</sup> For further details, see [deal announcement](#) and [announcement following completion](#).

<sup>19</sup> For further details, see [press release](#).

- 
- 2.33 While the absolute carrying amount of intangible assets was highest for the consumer staples, consumer discretionary and healthcare industries, an analysis of the relative share of intangible assets within different industries yielded a slightly different set of results.
- 2.34 Across the whole population of listed entities, the proportion of intangible assets to total assets, was highest in the healthcare (34%), consumer staples (29%) and technology (20%) industries. See Chart 8.
- 2.35 This may suggest, in spite of the lower absolute carrying amount of intangible assets in the technology industry, these assets are relatively more important to the business models of technology companies.
- 2.36 Differences in the relative share of intangible assets were also observed within a given industry for companies of different sizes, suggesting size-related effects exist in addition to differences across sectors.
- 2.37 Within certain industries, intangible assets made up a greater proportion of the balance sheets of the smaller entities compared with larger companies in the same sector. Examples of such industries include the energy, real estate, and basic materials industries.
- 2.38 Taking company size into account:
- a) Among the largest companies as measured by market capitalisation, the relative share of intangible assets was highest for the healthcare (35%), consumer staples (29%) and technology (21%) industries. See Chart 9.
  - b) Among the smallest companies, the relative share of intangible assets to total assets was highest in the healthcare (19%), technology (16%) and energy (16%) industries. See Chart 10.

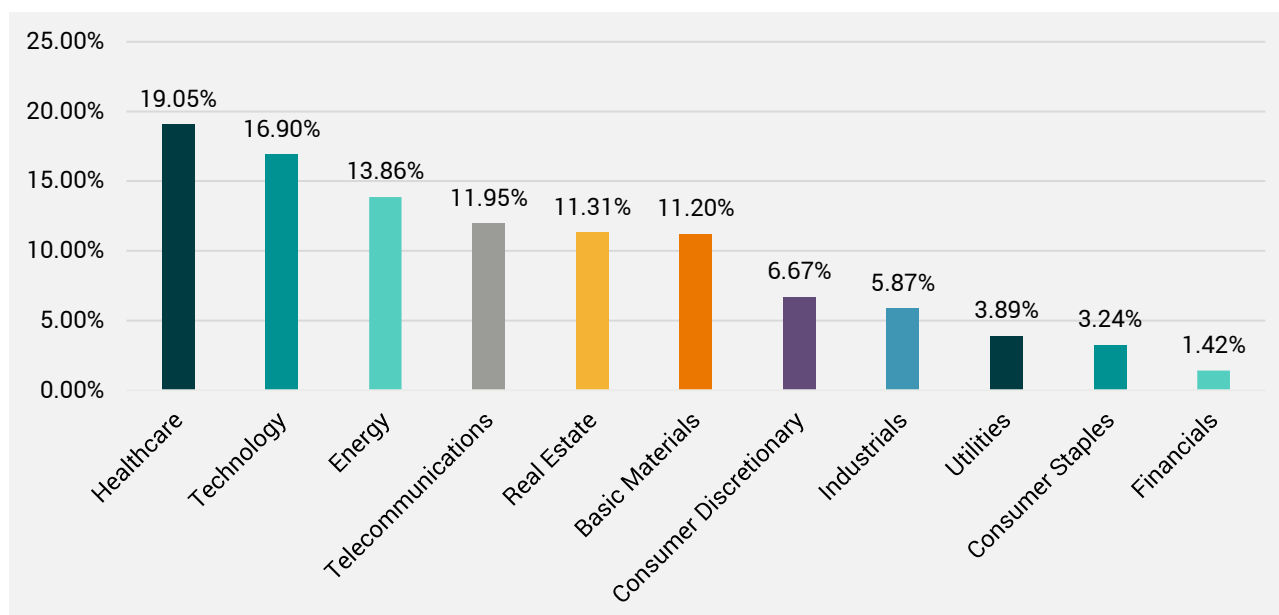


**Chart 9: Intangible assets as a share of total assets per industry for the largest 25% of companies by market capitalisation (2021)**



Source: Reuters-Eikon

**Chart 10: Intangible assets as a share of total assets by industry for the smallest 50% of companies by market capitalisation (2021)**



Source: Reuters-Eikon

2.39 These findings show that both industry and size-related effects impact the relative share of intangible assets. For a further break down of the types of intangibles recognised by industry, see paragraphs 2.54-2.61.

2.40 With respect to the basic materials industry, the finding that the relative share of intangible assets is comparatively lower with other industries corresponds with the business model of these companies not being heavily reliant on intangibles.

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Considering all listed basic materials companies, intangible assets made up less than 2% of total assets. However significant size-related effects exist within the sector. When comparing companies of different sizes, the relative share of intangible assets was much higher for smaller companies (11%) than for larger companies (1.6%). This appears to be the result of proportionally higher amounts of exploration and evaluation intangibles being recognised by smaller entities.

- 2.41 The population data analysis provides a ‘broad brush’ landscape of intangible assets recognised by UK listed companies. In order to understand more about the types of intangible assets recognised on balance sheets, more granular evidence was sought from the financial statements of a sample of UK listed companies. The following section reports this review.

## **Sample financial statements review: a further breakdown of intangibles**

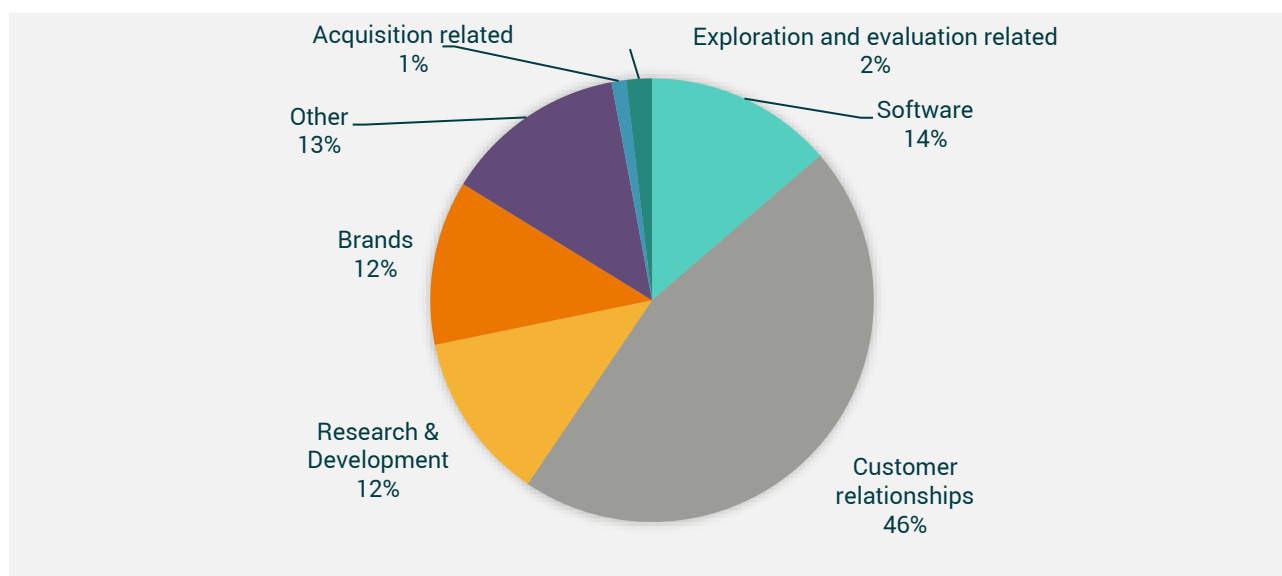
- 2.42 A review of the financial statements of a sample of 80 companies listed on both the main London market and AIM was conducted to better understand the type and nature of intangible assets. Details of the sample and its selection are in Appendix B.
- 2.43 Consistent with what was reported from the population data, 87.5% of the sample companies had recognised intangible assets in their financial statements (either goodwill and/or other intangible assets). Only one company in the sample reported goodwill and no other intangible assets.
- 2.44 On the face of the balance sheet, 54% of companies with intangible assets reported a combined “total intangibles” figure while the remaining 46% split out “goodwill” and “other intangibles”. There was no discernible pattern as to which companies chose to combine goodwill and other intangible assets and which did not – the decision to disaggregate did not appear to be based on materiality of goodwill or other intangible assets.<sup>20</sup>

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<sup>20</sup> IFRS 18 Presentation and Disclosure in Financial Statements (paragraph 103) will require entities to report goodwill separately from other intangible assets on the face of the balance sheet, which would be expected to foster greater consistency in reporting of goodwill and other intangible assets.

## Recognised intangible assets

Chart 11: Breakdown of carrying amount of non-goodwill intangible assets in the sample of companies, 2021



- 2.45 Chart 11 shows the breakdown of identifiable intangible assets reported across all industries in the notes to financial statements.
- 2.46 Nearly half of all identifiable intangible assets recognised by the sample companies, relate to **customer relationships** (46%). This category included items such as “customer contracts” and “customer lists”. These items can only be recognised when acquired, generally as part of a business combination under IFRS 3, as IAS 38 prohibits capitalisation of these if they are internally generated.
- 2.47 The importance of **customer relationship** assets appears to be in line with “knowledge economy” trends, in which access to customers and their data is an important element of many companies’ business models, products and services. 30 companies in the sample (37.5%) had assets of this type. Of these assets, 97% by carrying amount were shown as a separate category of intangible asset in the notes to the financial statements. The remaining 3% by carrying amount were combined with other types of intangible assets in the notes.
- 2.48 The **software** assets were held by 39 companies in the sample. It was difficult to determine whether software was purchased or internally generated as it was only clearly labelled for 5% by carrying amount of these assets. For 82% by carrying amount, software was presented as a separate category of intangible assets in the notes, and for the other 18% by carrying amount, it was combined with other types of intangible assets.
- 2.49 The **research and development (R&D)** asset category appeared to contain a diverse range of assets. 34 companies had assets of this type. 28% by carrying amount were described as “development costs”, presumably by reference to the capitalisation criteria in IAS 38. However, 51% of these assets by carrying amount

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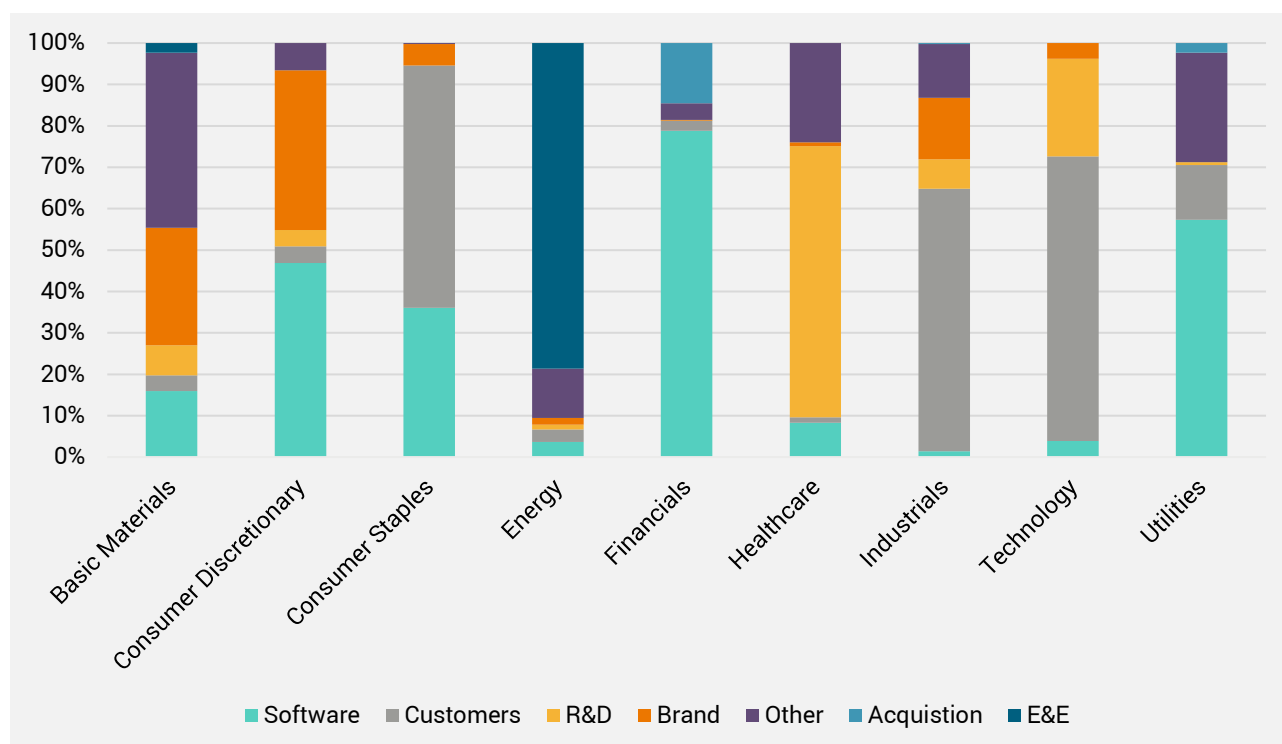
had a label which combined them with other types of intangible assets, such as technology or intellectual property. It was not possible to discern, from the disclosure notes or category labels, the extent to which these assets had been purchased or internally generated.

- 2.50 Intangible assets categorised as **brand** in Chart 11 formed the same proportion of the total carrying amount as **R&D** assets. Similar to the “customer relationships” assets, these assets must relate to purchased brands as IAS 38 prohibits capitalisation of internally generated brands, advertising and marketing expenses. 28 companies had assets of this type. 69% by carrying amount were described as purchased. 53% by carrying amount were presented as a separate category of intangible assets in the notes, whereas the other 47% combined brands with other types of intangible assets, both intellectual property items and others such as franchise agreements.
- 2.51 Intangible assets categorised as **other** in the notes to the accounts were also investigated further for the sample companies, using the additional information in the financial statements. There was no discernible pattern in the types of items included as **other** by the 13 companies that used this category– they ranged from energy certificates to brands and technologies acquired. This finding is again interesting because IFRS 18 will require entities to only use the label “other” for a line item if they are unable to find a more informative label.<sup>21</sup>
- 2.52 Companies have, on average, two or three distinct types of identifiable intangible assets categorised in their financial statements. The categorisation of different types of intangible assets, either reported separately or combined with other types of intangible assets, as well as the use of the “other” category, varied greatly between companies. While some industry-specific judgements and the application of materiality would be expected to result in a degree of variation, the extent of variation in the use of combined and other categories, coupled with limited explanations of why that categorisation had been chosen, was notable.
- 2.53 It is also worth noting that the term **intellectual property** was used to describe intangible assets in the notes to the financial statements to cover items more closely related to R&D (such as patents) as well as items more closely related to brands (such as trademarks and copyrights). Therefore, to the extent possible, intellectual property was allocated to the most appropriate category based on the information provided in the notes to the financial statements. Appendix C to this report lists the various terms that were used to describe categories of intangible assets in the notes to the financial statements.

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<sup>21</sup> IFRS 18 Presentation and Disclosure in Financial Statements Application Guidance paragraph B25

**Chart 12: Breakdown of types of intangible asset by industry within the sample of companies**

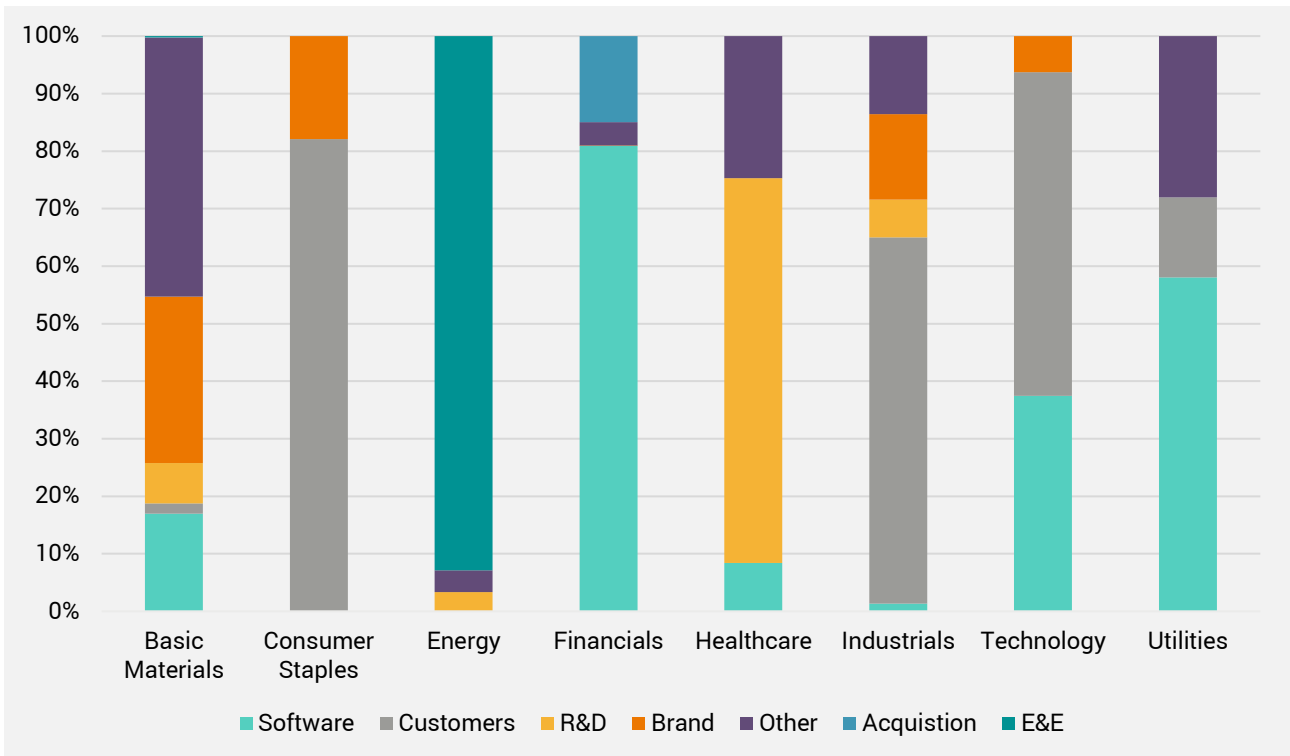


2.54 Unsurprisingly, the distribution of types of intangible assets within industries is quite diverse, as shown in Chart 12. Though half of the carrying amount in intangible assets is related to **customer relationships** in the overall sample, the breakdown by sector reveals that these types of intangible assets are concentrated in the consumer staples, industrials and technology industries.

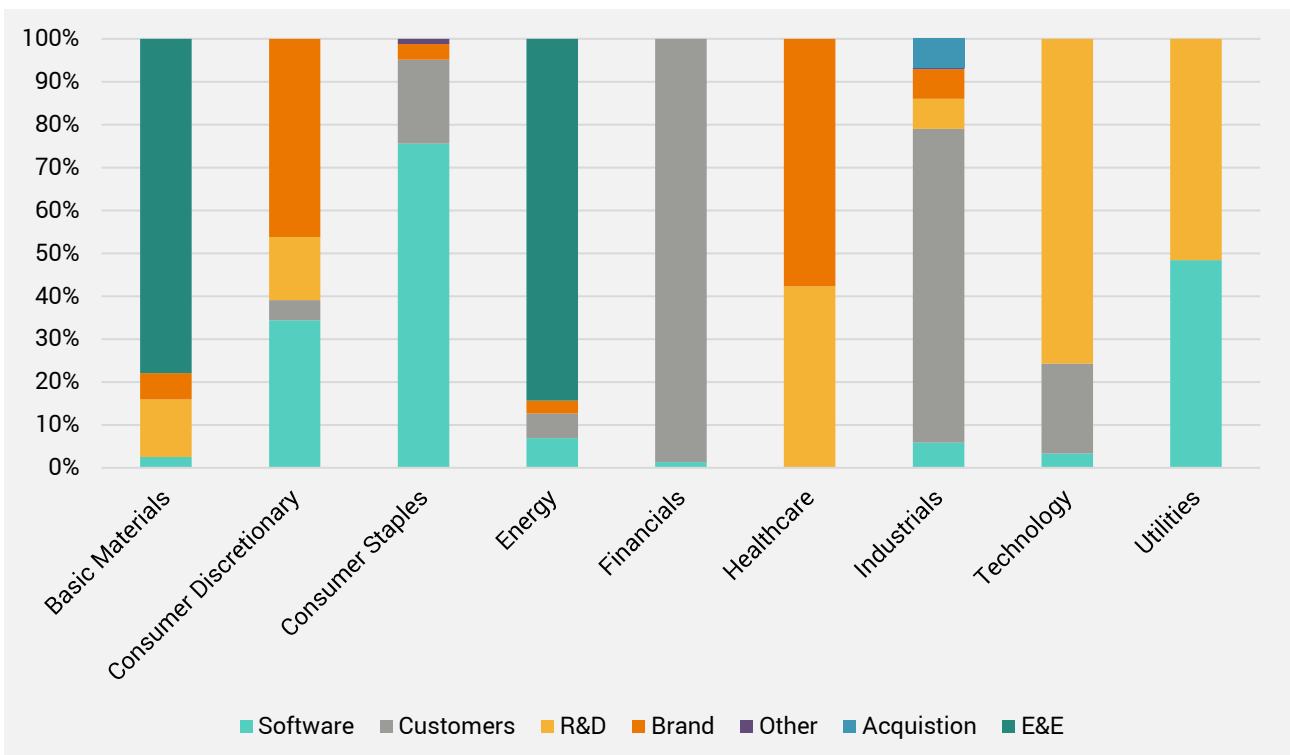
2.55 **R&D** is most prevalent in the healthcare industry, which is expected given the relative size of pharmaceutical companies listed on the London Stock Exchange and the IAS 38 requirements which allow capitalisation of development costs. The criteria in IAS 38 for capitalisation of development costs are geared towards the type of R&D undertaken by these companies. Software-related intangible assets dominate in the financial services industry. According to the narrative sections of the company annual reports, financial services companies are investing in new and upgraded online platforms for customer and management use, data centres and data analytics. These costs are specifically identified as being capitalised as assets under IAS 38.

2.56 To further understand the distribution of intangibles across industries, the sample was split into the largest 25% and the smallest 50% by market capitalisation. Because the largest companies hold so much of the recorded intangibles the distribution for the top 25% is virtually identical to the sample as a whole. See Chart 13. The breakdown for the smallest 50% is markedly different. See Chart 14.

**Chart 13: Breakdown of types of intangible asset by industry – largest 25%**



**Chart 14: Breakdown of types of intangible asset by industry – smallest 50%**



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- 2.57 R&D appears more prevalent in smaller companies, particularly in the technology and utilities industries. However, for technology industries this represents four AIM listed companies with a total of £6 million in development costs. For utilities it is just a single company with about £1 million. By contrast large healthcare companies recognise a large amount of R&D.
- 2.58 Other than in the financial sector, customer relations are a much more significant part of the intangibles of larger companies. Given these intangibles are acquired (predominantly in business combinations) it is unsurprising they are more relevant in the larger companies that are more likely to undertake acquisitions. This issue is examined further in Section 3 of this report.
- 2.59 Smaller companies recognise more types of intangibles than larger companies (which tend to make more use of the “other” category in their intangible assets note disclosures).
- 2.60 Given the limited sample (80 companies), it is difficult to draw detailed conclusions on industry differences by size. Each industry contains only a small number of examples so differences may be impacted by a few companies.
- 2.61 That being said, smaller companies appear more likely to have internally generated intangibles and have a wider range of recognised intangibles.

## Intangible asset additions

- 2.62 The intangible assets notes in the financial statements of the sample companies were analysed to identify what proportion of additions in the 2021 financial year were attributable to purchased intangible assets (whether acquired in a business combination or separately acquired assets), and what proportion to internally generated intangible assets.
- 2.63 For 17 companies (24%), it was not possible from the notes to clearly distinguish between acquired and internally generated intangible asset additions. This was unexpected, given that IAS 38 specifies that additions from internal development, assets acquired separately and those acquired through business combinations should be indicated separately.<sup>22</sup>
- 2.64 For the rest of the sample companies, the average proportion of additions represented by purchased intangible asset additions was 38%, but this was skewed by mining and oil and gas companies with exploration and evaluation (E&E) assets which were internally generated. When these companies are excluded from the sample, the average proportion of additions represented by purchased intangible asset additions in the remaining 25 companies in the sample was 65%, indicating a two thirds/one third split between purchased intangible asset additions and internally generated asset additions. However, the range was

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<sup>22</sup> IAS 38, paragraph 118 e (i).



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from 1% to 100% of additions being purchased intangible assets. There were five companies for which all of the additions were purchased – these companies were in five different industries and the purchased assets were varied in nature, both separately acquired and purchased in business combinations.

- 2.65 Impairment charges within the intangible asset notes were also reviewed for the sample companies. 16 companies (22%) recognised no impairments in the 2021 financial year, but there were often significant impairments in 2020, which would be expected, given the economic circumstances surrounding the covid-19 pandemic. 2021 impairments (recognised by 21 companies, 29% of the sample) were mostly attributable to software assets.

## Expensed intangible items

- 2.66 34 companies (43%) in the sample recognised R&D as an intangible asset, this expenditure having met the IAS 38 capitalisation criteria.
- 2.67 IAS 38 requires material R&D expenditures which do not meet the capitalisation criteria to be disclosed in the notes to the financial statements.<sup>23</sup> In addition, the standard encourages entities to disclose material intangibles expenses other than R&D.<sup>24</sup> On this basis, it is expected that at least some entities would disclose disaggregated expenses information.
- 2.68 Keyword searches were conducted on the financial statements for the companies in the sample, to identify instances where there was a quantified disclosure in the notes to the financial statements of “research”, “research and development” or “R&D” expenses. 31 companies had such disclosures, of which 29 quantified the amount expensed in the period, and 2 disclosed a nil expense.
- 2.69 Of the companies with a disclosure, 24 (77%) also had an accounting policy for R&D. In all cases, the policy contained ‘boilerplate’ wording aligned with IAS 38 requirements.
- 2.70 The companies that disclosed research expense in their financial statements were concentrated in industries where a relatively high research expenditure might be expected due to the business model being driven by product development: industrials, healthcare, materials, technology, and consumer staples. The companies with a disclosure ranged from technology start-ups listed on AIM to global multinationals.

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<sup>23</sup> IAS 38, paragraph 126: “An entity shall disclose the aggregate amount of research and development expenditure recognised as an expense during the period”.

<sup>24</sup> IAS 38, paragraph 128: “an entity is encouraged, but not required, to disclose... a brief description of significant intangible assets controlled by the entity but not recognised as assets because they did not meet the recognition criteria in this Standard”.

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- 2.71 17 of these 31 companies (55%) also had a development costs intangible asset on their balance sheets.
- 2.72 The magnitude of research expense as a proportion of revenue, operating profit and the carrying amount of the development costs asset varied significantly from company to company. For example, research expense varied from 0.8% to 267% of the 2021 operating profit figure.
- 2.73 Further keyword searches were conducted, to identify instances where there was a quantified disaggregated disclosure in the notes of “training”, “learning and development” or “L&D” expenses. No companies in the sample had such a disclosure, although five companies disclosed training expense in the front half of the annual report.
- 2.74 The final keyword search conducted was to identify instances where there was a quantified disaggregated disclosure in the notes of “advertising”, “promotion” or “marketing” expenses. 21 companies in the sample had such a disclosure. The majority disaggregated the expense from other expenses included in administrative expenses or operating costs, but a few of them aggregated advertising expense with other costs such as travel and sales team expenses.
- 2.75 These results complement the findings from both the qualitative and survey research conducted by the UKEB according to which users demand more disaggregated information on significant expenditures on intangibles that are not recognised in the balance sheet. The evidence from the sample is that a proportion of companies who engage in R&D report their expenses, following the IAS 38 requirement. However, for other expenses, which are only encouraged to be disclosed if material, some diversity in practice is found, with advertising and marketing related expenses reported by a significant number of entities but other intangible expenses not reported consistently.<sup>25</sup>

## **Intangibles in the financial statements of UK companies: summary**

- 2.76 The review of population data of UK listed companies shows a consistent upward trend in the carrying amount of recognised intangible assets over the 2011-2021 period. Over that period, it grew at approximately 8% per annum.
- 2.77 At the same time, the proportion of the carrying amount of total assets represented by intangible assets in the population nearly doubled from 1.6%-3%.
- 2.78 However, intangible assets are highly concentrated among the 25% of companies with the largest market capitalisation – almost 97% of the carrying amount of

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<sup>25</sup> This may be a result of such expenses not meeting the materiality threshold.

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intangible assets in the population in 2021 were recognised by the largest 25% of listed companies. In fact, just ten companies held 64% of recognised intangibles, and one of them (British American Tobacco) held 21% alone.

- 2.79 There is significant variation in how great a proportion of assets is represented by intangible assets. Both industry and size (market capitalisation) of the company affect this proportion.
- 2.80 While large companies hold the most recognised intangible assets, smaller entities tend to have a greater proportion of intangible assets on their balance sheet. Healthcare, consumer staples and technology have the largest proportion of intangibles for all entities, with minor differences in the industry distribution for smaller entities. This distribution is consistent with what would be expected given the current accounting standards.
- 2.81 Taken together, the findings from the population data analysis suggest that in some industries large, listed and acquisitive companies have recognised significant purchased intangible assets on their balance sheets. However, smaller entities tend to recognise more intangibles, proportionally.
- 2.82 The data collected from the sample of 80 UK listed companies' financial statements and notes from 2021 show that there is diversity in how companies disaggregate and categorise intangible assets. Some of the diversity observed appears to be industry sector specific. However, other aspects, such as whether goodwill is reported separately from other intangible assets on the face of the balance sheet, or the use of the "other" category, exhibit variation that is not industry specific.
- 2.83 Within the sample, almost half the carrying amount of intangible assets was represented by customer relationship assets.
- 2.84 For smaller listed companies in industries where intangible items may be key to the business model but where they are created through organic growth, the primary intangible assets recognised are intellectual property (e.g., patents and licences), software, exploration and evaluation, and development costs.
- 2.85 There was also significant variation in the presentation of intangible assets notes among the sample companies. For almost one quarter of the companies in the sample, it was not possible to clearly distinguish acquired from internally generated intangible assets, despite this being an IAS 38 disclosure requirement.
- 2.86 Quantified disclosure of research expenditure as required by IAS 38 was relatively common in the sample companies, whether or not they had also capitalised development costs on their balance sheets.
- 2.87 Advertising expenses were disclosed by about one fifth of the sample companies. The expense for training was not disclosed in the notes to the financial statements, though five companies choose to include this information in the front half of the annual report.

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2.88 The variation in disclosure among companies in the sample serves to illustrate some of the points raised by stakeholders in the Survey Report and Qualitative Report about difficulties with comparability and understandability for information on intangible items in financial statements.

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## 3. Intangible assets and acquisitions

### Introduction

- 3.1 As noted in Section 2 of this report, the requirements of existing IFRS Accounting Standards mean that companies growing via acquisition drive the overall prevalence and distribution of intangible assets reported for UK listed entities.
- 3.2 This section expands on these results, by examining the extent to which M&A activity correlates with recognised intangible assets, as well as implications for comparability between companies which arise from the different recognition criteria for acquired and internally generated intangible assets. Further information about M&A activity in the UK is reported in Appendix D.
- 3.3 Data was collected from the Reuters-Eikon and Datastream databases for all corporate transactions involving UK listed companies between 2011 and 2021.<sup>26</sup>

### Background

- 3.4 As noted in Section 2 significant increases in intangible assets in particular years, such as in 2017 and 2021, were often primarily attributable to individually large acquisitions. The different accounting treatment for acquired and internally generated intangibles has been observed in both the UKEB's and others' research<sup>27</sup>
- 3.5 The economics literature suggests that intangible assets may have become one of the main drivers of M&A activity. Traditionally, deals were viewed as a means to reallocate capital from firms with low productivity to those with high productivity.<sup>28</sup> However, the prevailing view on acquirer motives for M&A is changing, considering that intangible assets represent an increasingly important share of the fair value of the consideration paid in M&A transactions. The economics literature suggests that as intangible assets are difficult to acquire as stand-alone items on the market, and obtaining information about them is costly, M&A transactions are often the most efficient way to acquire intangible assets.
- 3.6 In many industries intangible assets have become a key driver for M&A activity. There is evidence that companies that have exhausted their internal growth

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<sup>26</sup> The data obtained from Reuters-Eikon was cross-validated using ONS data on M&A activity in the UK. The cross-validation exercises confirmed the accuracy of the data obtained from Reuters-Eikon. Appendix D contains further detail.

<sup>27</sup> For recent contributions, see Ewens, Peters and Wang (2019) and Ma and Zhang (2023). For a comprehensive overview of the issue see Tsavoulatas, André and Dionysiou (2014). For a discussion on the recognition of brands specifically, see Sinclair and Keller (2014, 2016).

<sup>28</sup> See Jovanovic and Rousseau, 2002.

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opportunities acquire intangible assets and technology to expand their business. Several recent studies find that intangible assets acquired in a deal have a positive correlation or effect on the acquirer's economic performance and key performance indicators. For example, recent research found that acquirers whose deals are characterised by a greater proportion of intangible assets (excluding goodwill) have higher stock market returns in the three years following the deal, suggesting that shareholders of such companies are better off.<sup>29</sup>

## Correlation between intangible asset recognition and acquisitions

- 3.7 This section analyses the extent to which intangible asset recognition is correlated with M&A activity. The analysis makes use of Reuters-Eikon data for the period 2011-2021. Information was extracted on all completed deals (date, value, deal type) where the acquirer was in the population of UK listed companies as identified in Section 2 and the target was any company (i.e., either listed or privately held; UK or foreign). The deals data was then analysed in conjunction with the population data analysed in Section 2 (see paragraph 2.3 and Table 1).<sup>30</sup>
- 3.8 The analysis reported below is a simple correlation between value of acquisitions and the year-on-year change in both gross intangible assets, and their carrying amount.<sup>31 32</sup>
- 3.9 A simple plot of the year-on-year change of gross (at cost) and net (carrying amount) intangible assets against the value of acquisitions suggests that these two time-series are correlated. See Chart 15.

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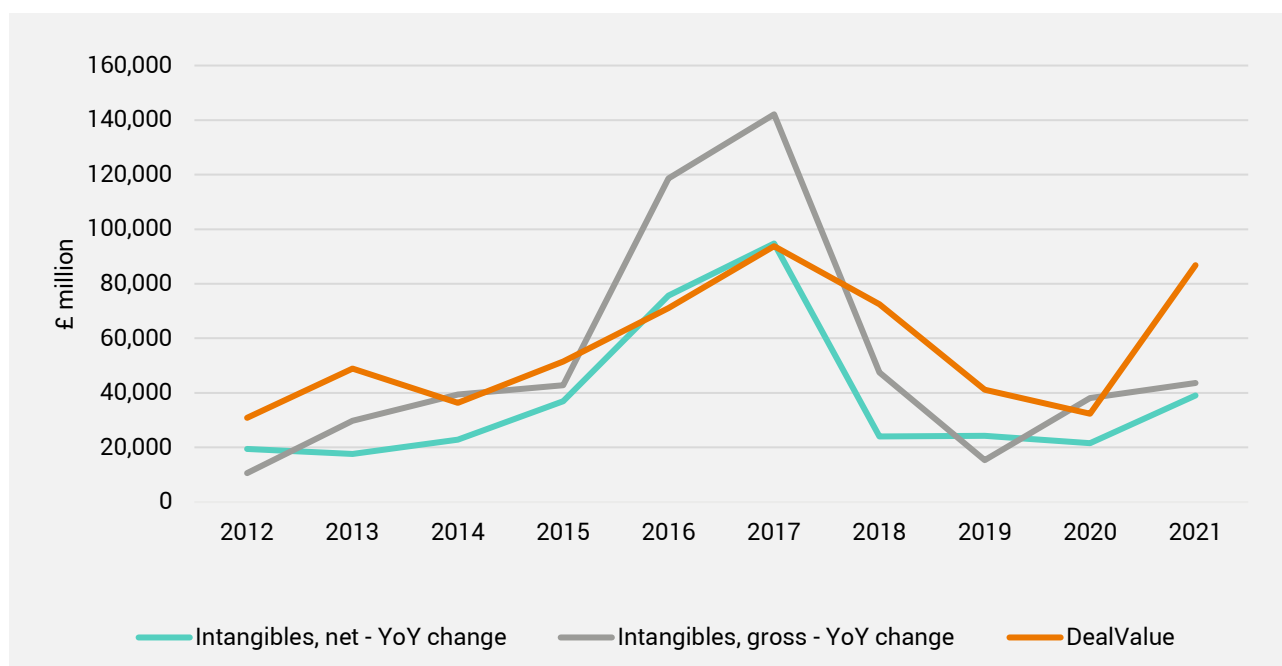
<sup>29</sup> See also Levine, 2017; Bhattacharya and Li, 2020; Masulis, Resa and Guo, 2023.

<sup>30</sup> Reuters-Eikon data identifies a transaction as either a "merger" (which includes acquisitions where the buyer acquires 100% of the target company) or "acquisition" (where the buyer acquires less than 100% of the target company). In IFRS 3 a business combination is defined as an acquisition when control passes to an acquirer. As the data does not allow clear identification of when a buyer gains control in the absence of a majority stake, mergers and acquisitions as classified by Reuters-Eikon were combined.

<sup>31</sup> Conceptually, the most appropriate measure to capture intangible assets recognition would be the year-on-year increase in the gross carrying amount of intangible assets. However, Reuters-Eikon data is characterised by many missing values for gross carrying amount of intangible assets because companies often do not report the breakdown between the gross carrying amount of intangible assets, accumulated amortisation, and impairment, and the carrying amount of intangible assets (i.e., the gross carrying amount net of accumulated amortisation and impairments). Therefore, analyses are conducted using both the gross carrying amount and the carrying amount of intangible assets, and results are compared for robustness.

<sup>32</sup> On Reuters-Eikon, the year-on-year change in intangible assets is characterised by confounding factors, namely: the year-on-year change of both gross and net intangibles would be affected by disposals, assets held for sale accounted separately as per IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* and foreign exchange movements. In addition, the year-on-year change of net intangibles only would also be affected by amortisations and impairments. Therefore, to obtain a cleaner estimate of asset additions through business combinations or internally generated activities, correlations are calculated between M&A transaction values, and positive year on year changes in both gross and net intangibles, under the assumption that positive changes would be and large capture recognition of intangible assets during the year.

**Chart 15: Correlation between positive yoy changes in intangible assets and M&A activity**



Source: Reuters-Eikon. Acquisitions: where the acquirer has obtained a majority stake.

3.10 Correlation coefficients were calculated for year-on-year change of both net and gross intangible assets, and acquisition value in the year. The key findings from this analysis are:

- a) The change in gross and net intangible assets capture nearly the same information, as evidenced by the almost perfect correlation between the two (96.18%). This suggests that missing values are likely to be randomly distributed across companies. Therefore, the two indicators can be used interchangeably.
- b) The incremental recognition of intangible assets, as measured by the year-on-year positive change in net or gross intangible assets, is positively correlated with acquisitions. The correlation is around 73% with net intangible assets and 74% with gross intangible assets, the sign of an existing relationship between the two indicators.
- c) This suggests a correlation between the annual increase in intangible assets and the value of M&A transactions in that year.

3.11 A correlation does not allow conclusions to be drawn on causality. It is true that asset recognition is a consequence of acquisitions, but, as noted above, companies may embark on a merger because they are motivated to obtain the intangibles held by the target company. Consequently, it is possible that either increased M&A activity leads to recognition of more intangibles, or the existence of more intangibles leads to greater M&A activity.

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3.12 Further analysis of the 20 largest deals in the 2011-2021 period has been conducted to provide additional evidence on this (see below).

## Regression analysis

3.13 The correlation analysis conducted above, while helpful to identify a relationship between the value of deals and the recognition of intangible assets, is not informative about the magnitude of the relationship itself (i.e., the absolute or percentage increase in intangible assets associated with a deal of a given size). A regression analysis was conducted to obtain further insight into associated magnitudes using Reuters-Eikon data about the population of listed companies and associated acquisitions for the 2011-2021 period.

3.14 The following regression models were run:

$$(1) E[\text{Change in intangible assets}_{it}|X] = \beta_0 + \beta_1 \text{Fair value consideration of the deal}_{it} + \text{control variables}$$

Where the change in intangible assets is the percentage change in either gross intangible assets or their carrying amount, net of amortisation and impairments (net intangible assets), the fair value of the consideration paid is greater than zero in years when a company engages in a deal and equal to zero otherwise. Control variables are a set of indicators introduced in the model to rule out that the correlation may be driven by missing variables<sup>33</sup>,  $i$  indicates the acquiring company, and  $t$  indicates the year.

3.17 The estimations led to the following results:

- a) A positive and statistically significant correlation (at the 10% level) can be found between the value of deals and the yearly percentage change in both gross and net intangible assets. Unsurprisingly, the correlation is statistically stronger between the value of deals and the change in gross intangible assets (p-value: 5.6%) than with the change in net intangibles (p-value: 8.6%) as net intangible assets are confounded by amortisations and impairments.
- b) For an acquirer, engaging in a £1 billion deal is associated with an increase in net intangible assets of 32%.
- c) Considering a company with the average size of the carrying amount of intangible assets (£1,060 million) that engages in an average-sized deal (£916 million), further analysis of the estimates reported in 3.17 a) suggest that approximately 35% of the fair value of the consideration paid is

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<sup>33</sup> These are: total assets and total liabilities in the previous year, market capitalisation, net income after tax, the quartile of market capitalisation the company belongs to, and any individual characteristics that do not vary over time (such as industry or the year of their IPO. These are called “fixed effects” or individual heterogeneity).



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allocated to intangible assets. This in line with estimates reported below for the 20 largest deals.

- 3.18 In line with paragraph 3.11, it must be noted that the above regression estimates cannot be interpreted as causal relationships. The estimates above should be interpreted as correlations.

## Review of the largest 20 acquisitions over the 2011-2021 period

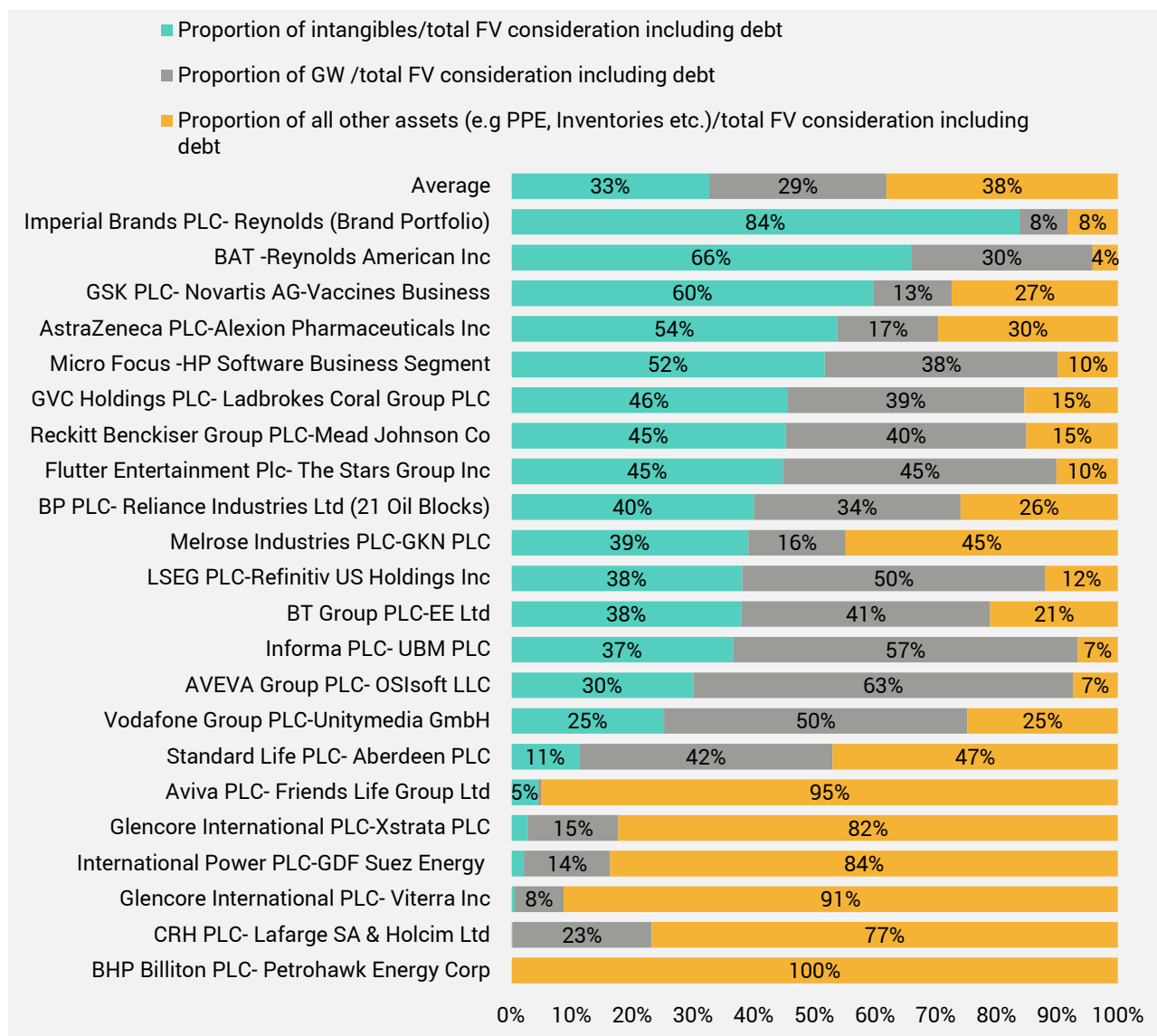
- 3.19 To investigate whether intangible assets could represent an important driver for engaging in M&A activity, a review of the largest 20 deals (based on the value of the consideration paid) by UK listed acquirers, between 2011 – 2021, was conducted.
- 3.20 The following values were collected for each transaction:
- a) the fair value of acquired intangible assets;
  - b) the total fair value of acquired assets and liabilities;
  - c) goodwill; and,
  - d) the total fair value of the consideration paid.<sup>34</sup>
- 3.21 As noted, as a general rule this report excludes goodwill from the analysis. However, in this particular analysis, goodwill is considered because:
- a) The identification of intangible assets in a business combination is a matter of judgement. Goodwill recognised in a given business combination may include intangible assets that a different management may have identified separately.
  - b) The sum of intangible assets and goodwill recognised in a business combination provides an indication of the “intangibility” of the deal, in other words, what assets do acquirers want from the deal? A highly performing portfolio of financial instruments, a production plant or brands, customer relationship data or synergies?
- 3.22 On average, intangible assets (other than goodwill) comprised 33% of the assets acquired for these deals. Goodwill accounted for 29% of the assets acquired, and all other assets made up the remaining 38%.
- 3.23 Therefore, on average, total intangible assets (both identifiable intangible assets and goodwill) represented nearly two thirds of the assets acquired in these deals.

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<sup>34</sup> The cumulative value of these deals was over £250 billion. A full list of the transactions analysed can be found in Appendix D.

3.24 However, the actual asset allocation can be quite different for each M&A transaction. These findings are presented in Chart 16.

**Chart 16: Purchase price allocation: 20 largest acquisitions by UK listed entities (2011 – 2021)**



Source: Reuters-Eikon

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3.25 These findings are consistent with the existing literature, for example:

- a) Masulis et al (2023) analysed 5,420 U.S. Mergers and acquisitions between 2002–2021 and found that the share of intangible assets over total assets “is on average 27.4%... [And this figure] has grown substantially over the sample period: averaging 20.5% before 2010 and rising to 31.4% by 2021”. The authors also report that goodwill over total assets was 25%, on average.
- b) EY India (2022) has also reported comparable results, finding that about a third of the enterprise value in a business combination can be allocated to each of intangible assets, goodwill, and all other assets, respectively.<sup>35</sup>

3.26 The top 3 deals in terms of recognised intangible assets other than goodwill, as shown in Chart 16, were further investigated to understand whether common themes could be found regarding how the deal was reported in the acquirer’s annual report (both in the narrative and in the notes to the financial statements) for the year of acquisition.

- a) For the 2015 acquisition of Reynolds by Imperial Brands plc, intangible assets other than goodwill represented 84% of the consideration paid. In Imperial Brands plc’s 2015 annual report, the narrative for the acquisition focused on the brands and non-cigarette products which were acquired. The note to the financial statements disaggregating the fair value of assets acquired, clearly showed intangible assets being the largest item acquired.
- b) The 2017 acquisition of Reynolds American by BAT plc included intangible assets other than goodwill representing 66% of the consideration paid. In the BAT 2017 annual report, the narrative for the acquisition again focused on the brands and next generation (i.e. vaping and other non-cigarette) products which were acquired. The note to the financial statements clearly showed intangible assets being the largest item acquired.
- c) The 2015 acquisition of Novartis’ Consumer Healthcare and Vaccines businesses by GSK plc included intangible assets other than goodwill representing 60% of the consideration paid. In GSK’s 2015 annual report, the narrative for the acquisition focused on the brands, vaccine technology being acquired, and the potential cost savings in the combined businesses. The note to the financial statements clearly showed intangible assets being the largest item acquired.

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<sup>35</sup> See [EY Purchase Price Allocation Study](#) and also [KPMG Netherlands Study](#)

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- 3.27 In each of these three deals, all with a relatively high proportion of the consideration paid being allocated to intangible assets other than goodwill, the acquirer's narrative in the annual report suggests the acquisition of intangible assets, and specifically brands, was a key driver of the deal.
- 3.28 Given the judgemental nature of the identification and fair valuation of identifiable intangible assets acquired in a business combination, it is hardly surprising that this was highlighted as a key audit matter in these entities' auditor's reports. In each case, the auditor highlighted management judgements and assumptions underlying the forecast cash flows, growth rates, useful lives and discount rates used to value the intangible assets acquired.
- 3.29 More research was conducted on further deals in the top 20, to see how intangibles were reported in the acquirer's financial statements and how the narrative for the deal was described in the front half of the acquirer's annual report:
- a) In the 2021 annual report of AstraZeneca, the year it acquired Alexion Pharmaceuticals, the narrative suggested the pipeline of rare medicines was the key deal driver. This is reflected in the notes to the financial statements which show that intangible assets were the largest individual item acquired. Again, purchase price allocation was a key audit matter in the auditor's report.
  - b) A deal within the top 20, for which goodwill and intangible assets represented a similar proportion of purchase price allocation (50% and 38% respectively), was the 2021 acquisition of Refinitiv by the London Stock Exchange Group (LSEG). In LSEG's 2021 annual report, the narrative for the deal highlighted revenue synergies, specifically the increased access to customers and markets offered by the acquisition, and the expectation that the combined group would develop new data analytics products and services to offer to these customers. Again, purchase price allocation was a key audit matter in the auditor's report, and in the notes to the financial statements intangible assets, specifically those relating to customer contracts and relationships, are clearly shown as the largest individual items acquired.
- 3.30 Three deals, in which the proportion of acquired intangible assets other than goodwill was much lower, were also investigated to understand whether there were common themes in how the deal was reported in the acquirer's annual report in the year of acquisition, and whether these themes differed from those emerging from the top three deals described above. These three deals were chosen for further investigation because two were in the same industry (financial services) and the third was in an industry where tangible assets are more likely to drive deals than intangible assets (mining).
- a) The acquisition of Aberdeen by Standard Life, took place in 2017 and intangible assets other than goodwill represented 11% of the consideration paid. The narrative focuses on acquisition of customers and synergies between the combined businesses. The allocation of purchase cost was

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identified as a key audit matter, and the note to the financial statements shows equity securities and interests in pooled investment vehicles (i.e., financial assets) being the largest item acquired.

- b) The acquisition of Friends Life by Aviva plc took place in 2015 and intangible assets other than goodwill represented 5% of the consideration paid. It is notable also that there was negligible goodwill on this transaction. The narrative about the deal in the Aviva 2015 annual report focuses on synergies, specifically cost savings in the combined businesses, and acquisition of investment funds. This is consistent with the note to the financial statements, which shows investment funds as the largest item acquired. Again, purchase cost allocation was identified as a key audit matter.
- c) Finally, for the acquisition of Xstrata by Glencore plc in 2013, intangible assets other than goodwill represented less than 5% of the consideration paid. The narrative about the deal in the Glencore 2013 annual report discusses a shift in the business model to a more capital light business, economies of scale provided by the combination, and reach in emerging markets. The purchase cost allocation is again highlighted as a key audit matter, and the note to the financial statements shows property, plant and equipment (tangible non-monetary assets) as the largest item acquired at \$41bn, compared with goodwill of \$12bn.

3.31 Acquirers' narrative themes about the deals with a high proportion of intangible assets acquired are very different from those about the outlier deals with a low proportion of intangible assets acquired. However, there is commonality within industries in terms of the asset profiles acquired – consumer and healthcare acquiring brands and technology; financial services acquiring financial assets; miners acquiring physical assets.

3.32 The extent of disclosure about the acquirer's approach to valuing intangible assets in the notes to the financial statements varied greatly among the deals investigated, ranging from: no disclosure; brief disclosure of the overall methodology and key assumptions; up to a detailed step-by-step explanation of the approach followed with key assumptions. The disclosure was limited where intangible assets were not significant.

## Impact of recognition criteria on return on assets

3.33 Feedback from stakeholders, in the interviews and survey conducted as part of the UKEB's intangibles research project, suggests that analysts following a portfolio of companies and/or an industry make adjustments to the reported figures relating to intangibles. This helps them compare the financial statements of companies in the same industry that have grown by acquisition with those that have grown organically. The most common adjustments users make are to disregard intangible assets entirely (including goodwill) and to apply techniques to capitalise a proportion of expenses as intangible assets (see Survey Report).

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- 3.34 Users of financial statements during interviews given for the Qualitative Report (see Qualitative Report) and in their responses to the UKEB’s intangibles survey (see Survey Report) suggest that the different accounting treatments for intangibles under IFRS 3 and IAS 38 impact the comparability of financial statements of otherwise similar companies.
- 3.35 This section looks at the effect of making adjustments on a key performance indicator, return on assets (ROA), for a pair of companies that are operationally similar and in the same industry. The analysis shows that, depending on the assumptions made, the performance of the two companies varies greatly, suggesting that comparisons are subject to a degree of judgement even when adjustments are made.

### Return on assets: background

- 3.36 One specific consequence of the different accounting treatments for acquired and internally generated intangibles is that book rates of return, such as return on equity (ROE) or return on assets (ROA) may not be comparable between companies that grow organically and companies that grow by acquisition.<sup>36</sup>
- 3.37 To illustrate how the performance metrics may be affected by existing IFRS Accounting Standards, consider the following ROA calculation:

$$\text{Return on Assets (ROA)} = \frac{\text{Net profit}}{\text{Total Assets}}$$

- 3.38 For an entity which has grown organically, expenditure on intangible items is predominantly expensed through the statement of profit or loss, as opposed to capitalised as an intangible asset on the balance sheet when acquired. These different treatments would have the following impacts:
- a) A differential impact on profit, since (typically) intangible-related expenses would be higher compared with the situation where an asset is recognised on the balance sheet and annual amortisation costs and impairment losses are charged to the P&L (assuming increasing expenditure on intangibles).

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<sup>36</sup> This is noted by Penman (2023) with reference to internally generated intangible assets: “A ‘real’ economic return on investment compares the income from investment (in the numerator) with the investment made to generate the income (in the denominator). That yields an appropriate measure of profitability, return on investment, that can be compared with a hurdle rate, the cost of capital, to assess over- or underperformance. However, [because of recognition criteria] accountants charge some investment against the numerator, reducing earnings from investment, and leave investment out of the denominator. They are mixing stocks and flows, a primitive mistake in any stocks-and-flows system. And, in so doing, they are omitting information about assets from the balance sheet that can project future cash flows. Good heavens, a perversion!”. The cited paper does not endorse blanket recognition for intangible assets, as one may incorrectly infer from this out-of-context excerpt, but proposes the concept of “conditional recognition”, i.e., recognition of intangible assets for which a reliable useful life and amortisation schedule can be identified.

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- b) A lower carrying amount of total assets, since intangible assets are not recognised on the balance sheet.

3.39 Generally, the net effect of expensing intangibles rather than recognising them is a higher ROA.<sup>37</sup> However, it must be noted that the net effect cannot be inferred in all circumstances.

3.40 Appendix D, from paragraph D13, contains a simple illustrative example, developed using artificial data, to explain further the respective impact of capitalising and expensing intangibles.

### Real-life example

3.41 To evaluate how expensing as opposed to capitalising intangible expenditures may affect ROA, calculations using financial statement information were conducted for two companies that share a range of characteristics but where one has grown via acquisition (as inferred by the intangible assets recognised on the balance sheet), while the other has grown organically (as inferred by the lack of intangible assets recognised on the balance sheet).<sup>38 39</sup>

3.42 The comparison considers two companies in the technology sector and calculates the average ROA for each company over the period from 2017 to 2021.

3.43 The presence of intangible assets on the balance sheet, was used as a proxy to categorise one company as a 'capitaliser' (since they are likely, but not exclusively, to be a result of acquisitions) while the absence of intangible assets on the balance sheet was used as a proxy to categorise the other company as an 'expenser'.

3.44 The companies share a range of similar characteristics, therefore a performance metric such as the ROA should also be similar for both the 'capitaliser' and the 'expenser', all other factors being equal.

### A pair of technology companies

3.45 Company 1 and Company 2 are two UK listed entities in the technology industry.

3.46 Companies in the technology industry were intentionally selected since it is reasonable to assume that there will be some portion of investment in intangible

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<sup>37</sup> See also [an article on the topic](#) from the Footnotes Analyst

<sup>38</sup> The pairs of companies were selected assessing similarity along the following range of characteristics:

- a) Industry;
- b) Revenues, operating costs, and profits;
- c) Total assets excluding intangible assets;
- d) Market capitalisation.

<sup>39</sup> In the examples, the names of the companies as well as precise financial and market information have been concealed because of commercial sensitivities.

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items expensed through profit or loss, given the requirements of IAS 38 and the nature of the business.

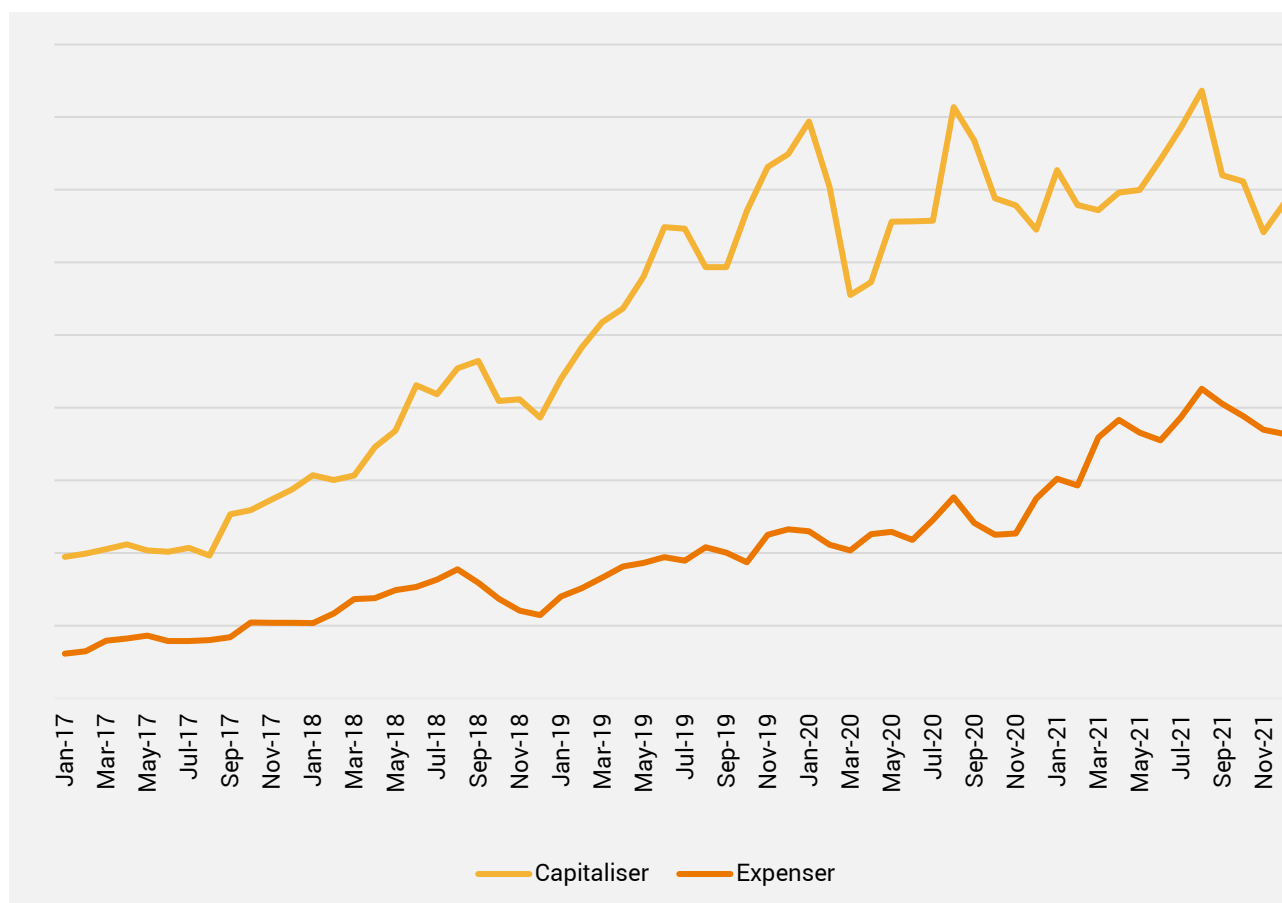
3.47 As at the end of 2021 the two companies:

- a) Had comparable revenues and operating costs in the range of hundreds of millions (£). Their operating profits were also of a similar magnitude.
- b) Reported very different carrying amounts of intangible assets and goodwill. This is largely because Company 1 focused on a “growth by acquisition” strategy that has increased its asset base over recent years.
- c) Reported different though comparable carrying amounts of assets excluding intangible assets and goodwill, with Company 1 reporting roughly double the amount of total assets (including intangible assets and goodwill) of Company 2. Given the industry, the financial assets and PPE recognised on the balance sheet are relatively small as a proportion of total assets for both companies.

3.48 The two companies appeared to have very different, albeit correlated, stock prices and market capitalisation figures, with Company 1 (the acquisitive one) characterised by a higher price and market capitalisation. The two companies had comparable levels of market capitalisation, though they started diverging following the completion of M&A transactions by Company 1 that were well-received by the market. See Chart 17.



**Chart 17: Market capitalisation of pair of companies**



Source: Reuters-Eikon

## ROA Comparison

3.49 The comparison of the ROA for these companies was conducted under three different scenarios, to see how the accounting for intangibles influences book rates of return. This approach is consistent with how some users suggest they approach their analysis (see the Survey Report, paragraphs 2.69-2.74). The three scenarios (which were used in sequential order) are as follows:

- using financial figures as reported in IFRS financial statements;
- excluding all recognised intangible assets, effectively treating all intangibles as unrecognised; and,
- capitalising 20% of operating expenses as an intangible asset.

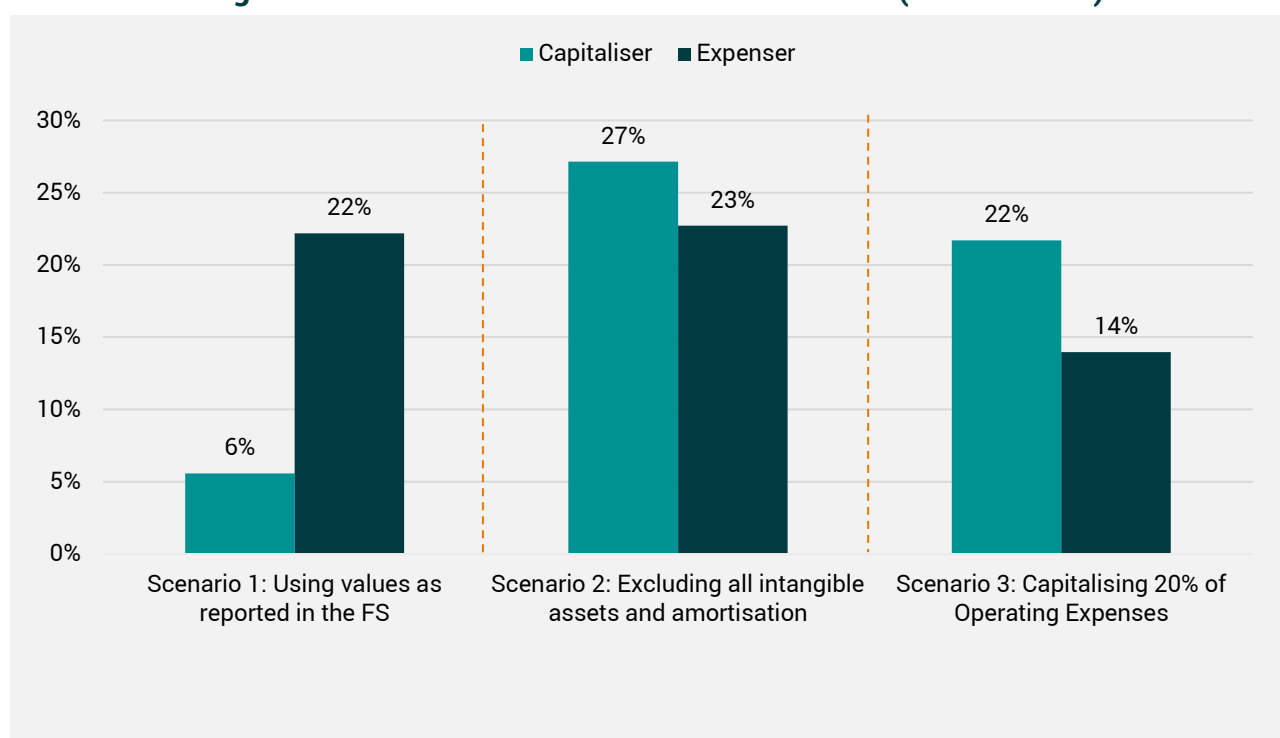
Under scenarios b) and c) appropriate adjustments were made to the Profit and Loss figures.

3.50 The results of the first stage of this comparison, which used figures as they were reported in the financial statements, indicate that the average ROA calculated over the period 2017 - 2021 for the company which does not recognise intangible

assets was much higher (22%) than compared with the company which capitalises intangible assets (6%), consistent with expectations.

- 3.51 However, in the next scenario, where intangible assets and goodwill and related accumulated amortisation and impairments were removed entirely from the financial statements of both companies, the average ROA of both appeared to be more similar, with the performance of the acquirer receiving a boost. The average ROA for the 'capitaliser' increased to 27%, while the ROA for the 'expenser' remained similar, at 23%.
- 3.52 The third scenario set the intangible asset base of both companies to zero, and then capitalised 20% of each company's operating expenses as intangible assets in order to recalculate the ROA. Bringing both companies to a similar baseline without any intangible assets, and then capitalising a portion of their expenditure provides an estimate for unrecognised internally generated intangibles.
- 3.53 Under this scenario, the ROA between the two told a different story. The capitaliser had an ROA of 22%, while the ROA of the 'expenser' fell to 14%, suggesting that if internally generated intangibles were to be recognised, the performance of the 'expenser' would look worse. Chart 18 shows these comparisons.

**Chart 18: Average return on assets under different scenarios. (2017 – 2021)**



Source: UKEB calculations using Reuters-Eikon data and financial statements information.

- 3.54 These findings show that the adjustments commonly made by users can deliver very different performance measures, and that the performance measure results are highly dependent on the assumptions made. An indication of which adjustment delivers the most accurate results is beyond the scope of this report. However, these results, read in conjunction with users' call for additional and more

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consistent information about intangibles (made in the other elements of the UKEB's intangibles research project) suggest that accounting that gives a more complete depiction of the underlying economics of intangibles may require users to make fewer adjustments than they currently do –leading to enhanced comparability and more transparent information within the financial statements.

## Intangibles and acquisitions: summary

- 3.55 The recognition criteria for intangible assets in IFRS Accounting Standards lead to differential treatments of intangibles depending on whether they are internally generated or acquired in a business combination. This leads to comparability issues as acknowledged by stakeholders and users in particular.
- 3.56 The economics literature suggests that companies that have saturated internal growth often undertake acquisitions to acquire other entities' internally generated intangibles. This indicates an important link between acquisitions and intangibles.
- 3.57 Intangible asset recognition appears to be strongly correlated with the value of acquisitions over the 2011-2021 period. While a correlation is hardly surprising, the magnitude of the correlation is suggestive of the scale of the phenomenon.
- 3.58 For the 20 largest deals in the UK over the 2011-2021 period which were analysed, one third of their value, on average, was attributable to intangibles other than goodwill. If goodwill is included the value is nearly two-thirds. This is consistent research in other jurisdictions.
- 3.59 Narrative reporting and notes to the financial statements suggest that intangibles were an important driver of these acquisitions. However, there is significant variation in the proportion of the fair value of the consideration paid represented by goodwill, identifiable intangible assets and other assets, depending on the industry and business models of the acquirer and target company. In every case examined, the key audit matters in the acquirers' annual reports in the year of acquisition highlighted the allocation of purchase price between different asset types as a significant management judgement.
- 3.60 The differential accounting treatments hamper comparisons of companies based on commonly used performance indicators, such as ROA and ROE, a widely known issue among practitioners. This typically leads users to discard intangible assets from their assessments, and/or to re-calculate intangible assets using their own methodologies, in order to obtain more comparable data for their purposes.
- 3.61 The analysis showed higher ROA for the company that had grown organically, compared with the one that had grown by acquisition. Removing intangible assets altogether and capitalising a portion of operating costs to estimate unrecognised intangibles however, reverses the ROA results.

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3.62 These findings show that the adjustments commonly made by users tend to deliver very different performance measures, suggesting that they are highly dependent on the assumptions made.

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## 4. Unrecognised Intangibles

### Estimating unrecognised intangibles

- 4.1 As noted earlier in this report, IFRS Accounting Standards allow the recognition of intangible assets acquired externally (purchased or in a business combination) but limit or prohibit the recognition of many internally generated ones. From an economic perspective, it can be argued that intangibles that are acquired in a business combination bring (or are expected to bring in the future) economic benefit to the target firms prior to acquisition, even if they were not previously recognised on the target's balance sheet. In addition, they may be one of the main deal drivers from an acquirer's perspective.
- 4.2 However, when analysing market-level data, the different recognition criteria for acquired and internally generated intangibles result in a lack of comparability between companies growing by acquisition and those growing organically. This raises a question: Is it possible to estimate internally generated intangibles that are of economic relevance but are not recognised because of current accounting requirements?
- 4.3 This section provides an estimate of unrecognised intangibles based on the Perpetual Inventory Method (PIM)<sup>40</sup>, a technique commonly used in the academic literature. This section does not aim to suggest that broader recognition is desirable and does not intend to draw conclusions on changes to the current accounting for intangible assets. Its purpose is instead to provide an estimate of the size of unrecognised intangibles to add to the existing evidence base on the topic.
- 4.4 The PIM is a simplified quantitative method for capitalising expenses. The estimated intangibles are not assessed against the current recognition criteria in IFRS Accounting Standards and may not qualify as assets as defined in the Conceptual Framework.

### The perpetual inventory method

- 4.5 Given that internally generated intangibles are largely expensed under the IAS 38 recognition criteria, it is reasonable to assume that a portion of a company's costs would include expenditure related to intangible items which could provide future economic benefits. For example, a company's costs may include advertising expenses contributing to a company's brand or training expenses contributing to a company's human capital.

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<sup>40</sup> An application of the PIM was presented in the Qualitative Report (paragraphs 2.64 – 2.65), to provide estimates of unrecognised intangible assets (such as brands and human capital) for individual UK listed companies.

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- 4.6 An approach taken by the academic literature to estimate unrecognised intangibles is to capitalise a predetermined share of a company's general costs. The share of costs capitalised varies between studies, for example Peters and Taylor (2017) (a widely cited paper in this area) recast 30% of Selling, General & Administrative (SG&A) expenditure as investment in intangibles. The same study uses five years as an amortisation period, though again periods vary between studies.
- 4.7 It is acknowledged that this method is based on several assumptions and can only lead to an approximation of unrecognised intangibles. However, its widespread use in the academic literature suggests that it can provide a useful estimate of the order of magnitude for unrecognised intangibles. Using this approach allows an estimate to be made of unrecognised intangibles at a market level, together with more granular estimates broken down by industry, company size and index constituency.

## Application

- 4.8 SG&A data from the statements of profit or loss of all UK listed companies between 2011 and 2021 was collected from Reuters-Eikon.<sup>41</sup>
- 4.9 The PIM was then applied to this time series of expenditures, thereby capitalising expenses by adding new investment to a stock of capital that is in turn amortised every period. Different techniques allow the calculation of initial values and amortisation rates found in the literature, depending on the intangible item considered.<sup>42</sup>
- 4.10 For the purpose of this exercise, two sets of alternative assumptions were used. For the first approach, 20% of SG&A is capitalised and an amortisation rate of 15% is used. The second approach follows Ewens, Peters and Wang, (2019) and capitalises 30% of SG&A with an amortisation rate of 20%.<sup>43</sup>

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<sup>41</sup> Only companies for which at least 7 years of data were observed were retained.

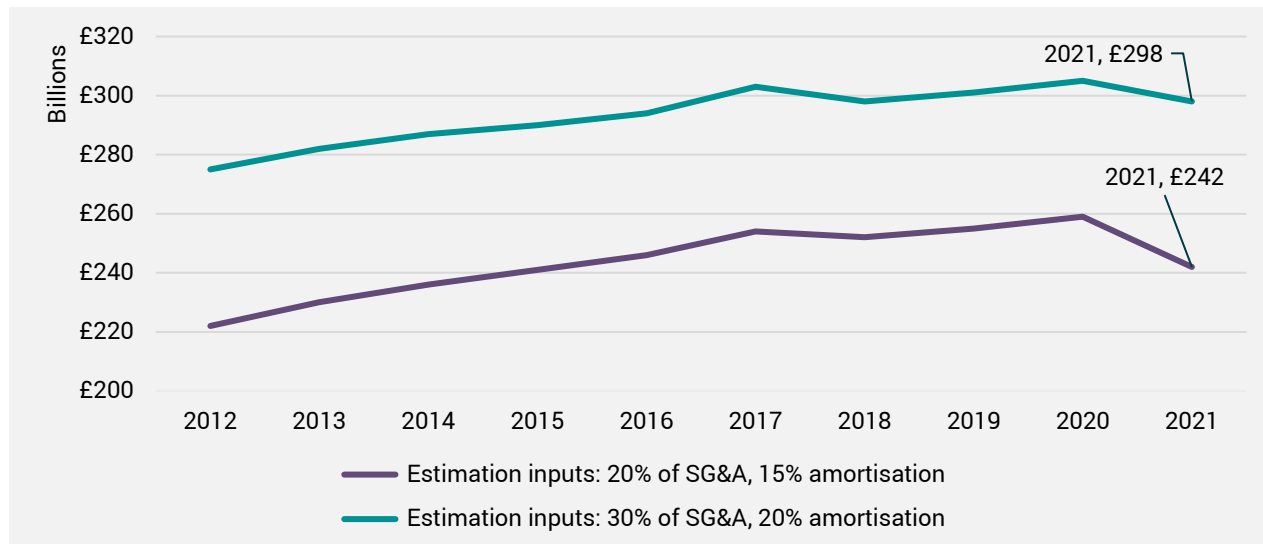
<sup>42</sup> For branding, amortisation rates are typically assumed to be 45%-50% depending on the contribution. For R&D they are generally assumed to be 15%. For a generic intangible asset, they are assumed to be 20%-30% depending on the contribution. See Villalonga (2004), for example, where R&D is amortised at a 15% annual rate, and advertising at 45%; Bontempi and Mairesse (2014), where the total stock of intangible capital is amortised at a 30% rate; Peters and Taylor (2017), who capitalise 30% of SG&A and attribute this to intangible assets; Mairesse and Mulkey (2007), who apply a 15% rate to R&D; Bongaerts, Kang and Van Dijk (2022) who capitalise 20% of SG&A and attribute this to intangible assets. For some intangible asset types, amortisation rates are not separated from success rates, because of the difficulty in identifying a success outcome (how to unequivocally measure whether, say, a marketing campaign or a training programme, was successful?). Because of its nature, the success of R&D can be more easily calculated as successful R&D programmes give rise to enforceable rights such as patents and licences.

<sup>43</sup> As a robustness check, a third approach was adopted, which capitalises 10% of SG&A and applies a 20% amortisation rate. The third approach is not typically found in the literature. However, it is introduced by way of comparison to show that the size of unrecognised intangible assets would still be significant if more conservative assumptions were made (lower share of SG&A capitalised with a relatively fast amortisation).

## Market-wide estimates

- 4.11 Using the first set of assumptions, it is estimated that at the end of 2021 the value of unrecognised intangibles for the population of listed entities was approximately £242 billion. Using the second set of assumptions, the value of unrecognised intangibles for the same period is estimated to be £298 billion.<sup>44</sup> This can be contrasted with the intangible assets actually recognised in companies' balance sheets in 2021 – valued at £351 billion (see Section 2 of this report).
- 4.12 This proportion is consistent with published economic estimates of unrecognised intangibles included in the UKEB's Qualitative report (paragraph 2.53).<sup>45</sup> In the qualitative report, intangible investment as reported by the Office of National Statistics (ONS) was capitalised using the PIM, leading to an estimated recognition gap in the range of £300-£400 billion (see paras 2.69 – 2.71 Qualitative Report).
- 4.13 Over the period considered, the estimates of unrecognised intangibles were found to have an upward trend, using both main sets of assumptions. This is consistent with the growing importance of intangible capital (largely unrecognised) as a driver of the knowledge economy and the upward trend observed in recognised intangible assets from the population data (see Section 2).
- 4.14 These findings are presented in Chart 19.

**Chart 19: Estimated value of unrecognised intangible assets for UK listed entities**



Source: UKEB calculations using Reuters-Eikon data.

<sup>44</sup> Using the third set of assumptions, the value of unrecognised intangibles for the same period is still estimated to be £100 billion.

<sup>45</sup> Martin, J. (2019). Measuring the Other Half: New Measures of Intangible Investment from the ONS. National Institute Economic Review, 249(1), R17–R29. <https://doi.org/10.1177/002795011924900111>

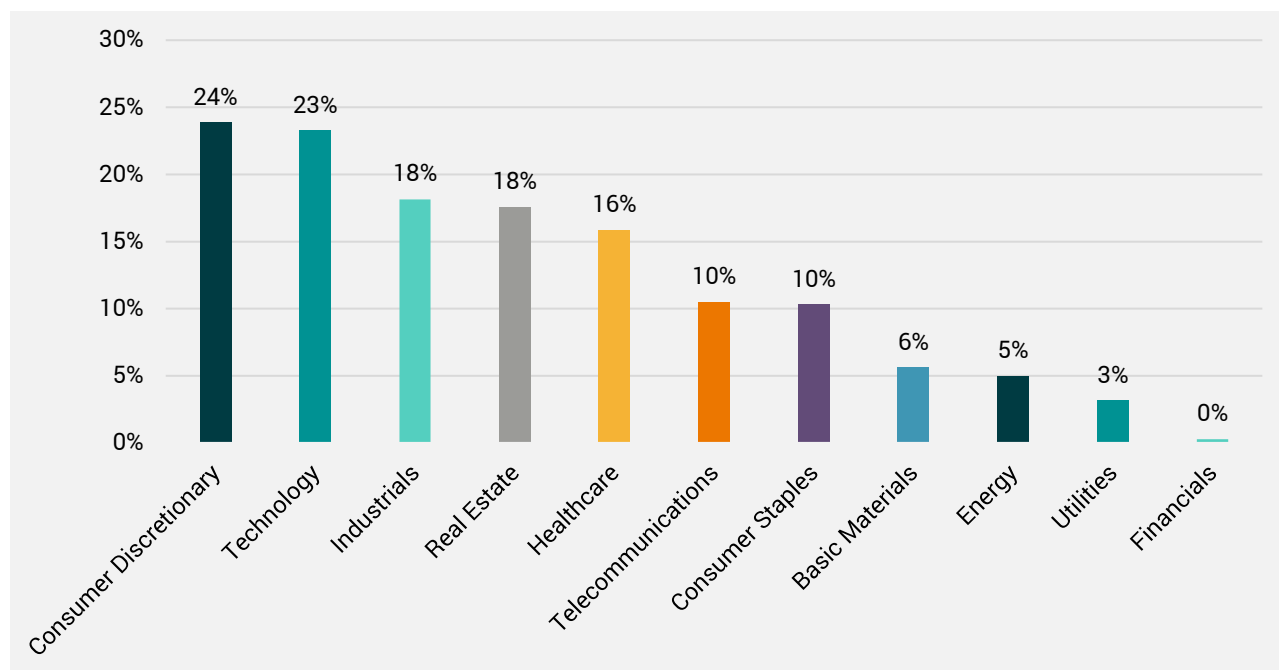
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## Company-level estimates

- 4.15 The market-wide estimates are further analysed to provide additional evidence, using estimates calculated with the second approach (capitalisation of 30% of SG&A and an amortisation rate of 20%).
- 4.16 The average value of unrecognised intangibles for each listed entity in the population (see paragraphs 2.3-2.5) was estimated to be around £486 million in 2021. This marginally exceeds the average value of recognised intangible assets across the listed company population analysed in Section 2, which was approximately £400 million in 2021.
- 4.17 A significant degree of skewness in the distribution of unrecognised intangibles was also found, which aligns with the results reported in Section 2 about the concentration of recognised intangible assets from the population analysis. While the average value of unrecognised intangibles was around £400 million per entity in 2021, the median value was approximately £23 million. Perhaps unsurprisingly a few large companies hold the majority of unrecognised intangibles, which is expected given that estimated intangibles are proportional to the size of operating costs.
- 4.18 As further evidence of this, the threshold of the third quartile (i.e., the value after which the largest 25% of observations are found) was calculated to be approximately £165 billion.
- 4.19 The distribution of unrecognised intangibles per quartile of market capitalisation also shows a strong degree of concentration among the largest 25% of entities. The estimations indicated that listed entities in the fourth quartile would account for 92% of unrecognised intangibles. Similarly, breaking down the estimates by index constituency, the FTSE 100 is estimated to hold the largest proportion of unrecognised intangibles (between 77% and 89% of the total depending on the assumptions used). Entities which are constituents of the All-Share Index (excluding FTSE 100) accounted for between 10% and 20% of the total, while AIM companies accounted for <3%.
- 4.20 The breakdown of the estimates across industries indicates that the consumer staples, consumer discretionary, industrials and healthcare industries hold the largest proportions of unrecognised intangibles of the total estimated intangibles. At the end of 2021, these industries are estimated to hold a combined total 66% of unrecognised intangibles. Entities in the technology industry were found to be among those with the lowest amount of unrecognised intangibles in absolute terms, perhaps because of the smaller size of these companies.
- 4.21 However, when calculating unrecognised intangibles over total assets, the picture changes. For technology companies, unrecognised intangibles represent 23% of total assets, second only to consumer discretionary (24%). Industrials, real estate and healthcare follow, with unrecognised intangibles representing 18%, 18% and 16% of total assets respectively. See Chart 20.



**Chart 20: Estimated unrecognised intangibles as a share of total assets by industry**



Source: UKEB calculation based on Reuters-Eikon data.

## Unrecognised intangibles: summary

- 4.22 Acknowledging the limitations of methods for estimating unrecognised intangibles and the sensitivity of estimates to the assumptions made in the estimation method, it is reasonable to assume that UK listed companies may have a significant amount of unrecognised intangibles and that they have become increasingly significant over the period 2011-2021.
- 4.23 Company-level estimates of unrecognised intangibles are also significant, and concentration patterns mirror those noted within the analysis of recognised intangible assets conducted in Section 2 of this report.

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## 5. Next Steps

- 5.1 The findings from this report will be considered in conjunction with those in the UKEB's 2023 Qualitative Report and the 2024 Survey Report examining users' views on the reporting of intangibles by UK listed companies.
- 5.2 The evidence gathered in this, and other, research reports are designed to stimulate debate and provide an evidence base for the UKEB's engagement with the IASB and other national standard-setters, regional organisations, and other stakeholder groups, in order to support the development of high-quality international accounting standards for use in the UK and internationally in this important area.

# Appendix A: Glossary

Term	Description
Amortisation	The systematic allocation of the depreciable amount of an intangible asset over its useful life
AIM	Alternative Investment Market. A sub-market of the London Stock Exchange that is not a 'regulated market'
Annual report	Annual report and accounts
Asset	A present economic resource controlled by the entity as a result of past events ( <i>Conceptual Framework</i> definition)
Business combination	A transaction or other event in which an acquirer obtains control of one or more businesses. Transactions sometimes referred to as 'true mergers' or 'mergers of equals' are also business combinations (IFRS 3 definition)
Carrying amount of intangible assets	The amount at which an asset is shown in the financial statements, cost (or revalued amount) less amortisation and impairment.
Capitalised	Recognised as an asset on the balance sheet
Conceptual Framework	The IASB <i>Conceptual Framework for Financial Reporting</i> (2018)
Consideration paid	Payment made by the acquirer in a business combination; may be cash or non-cash
E&E	Exploration and Evaluation
Expensed	Recognised as an expense through the statement of profit or loss

Term	Description
Fair value	The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (IFRS 13 definition)
Financial statements	Published annual financial statements including notes to the accounts
FRC	Financial Reporting Council
Goodwill	An asset representing the future economic benefits arising from other assets acquired in a <b>business combination</b> that are not individually identified and separately recognised. The future economic benefits may result from synergy between the identifiable assets acquired or from assets that, individually, do not qualify for recognition in the financial statements (IFRS 3 definition)
IAS 38	IAS 38 <i>Intangible Assets</i>
IASB	International Accounting Standards Board
IFRS Accounting Standards	Accounting standards developed by the IASB
IFRS 3	IFRS 3 <i>Business Combinations</i>
IFRS 6	IFRS 6 <i>Exploration for and Evaluation of Mineral Resources</i>
IFRS 13	IFRS 13 <i>Fair Value Measurement</i>
IFRS 18	IFRS 18 <i>Presentation and Disclosure in Financial Statements</i>
Impairment	A situation in which the carrying amount of an asset on the balance sheet exceeds its recoverable amount, resulting in an impairment loss to write the asset down to its recoverable amount

<b>Term</b>	<b>Description</b>
Intangible item	An identifiable item without physical substance
Intangible asset	An identifiable item without physical substance which meets the recognition criteria to be capitalised as an asset on the balance sheet
Internally generated	Produced through organic growth rather than as a result of acquisitions
Key audit matter	Those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance (ISA 701, paragraph 8)
M&A	Mergers and acquisitions
ONS	Office of National Statistics
P&L	(Statement of) profit or loss
Purchased	An intangible asset separately acquired or acquired in a business combination
R&D	Research and development
Secretariat	The technical staff of the UKEB
SG&A	Selling, general and administrative – a categorisation of expenses
UKEB	The UK Endorsement Board
Unrecognised	An item which has not been recognised in the financial statements

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<b>Term</b>	<b>Description</b>
Value relevance	The ability of a company's financial information to influence investment and lending decisions, in turn affecting their valuation in financial markets

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# Appendix B: Research Methodology

- B1. This Appendix provides further details about how the population and the sample used to conduct this study were selected.
- B2. The two forms of analysis are intended to complement each other. Population data allowed for a broad analysis of the prevalence of intangibles across the population of companies listed on the London Stock Exchange. The sample data allowed for more detailed analysis of granular information such as the specific types of intangibles in the financial statements and qualitative information disclosed in the notes, conducted on a more limited number of companies.

## Population

- B3. The quantitative analysis of the population focuses on all companies listed on the London Stock Exchange (LSE), including on the Alternative Investment Market (AIM), who apply IFRS Accounting Standards and were not purely investment vehicles (e.g., listed funds and trusts). As of 2021 there were a total of 1093 companies with these characteristics, 731 of which were listed on the AIM.
- B4. Population data was collected from the Reuters-Eikon and Datastream databases, and was comprised of companies' financials, performance metrics, industry classifications, index constituency, and capital markets indicators (e.g., market capitalisation).
- B5. Data from the year-end financial statements of each entity for the 2011-2021 period was used.
- B6. Table 3 provides summary data for the population of companies analysed in this report, broken down by year:

**Table 3: Population summary data**

Year	Total Assets (£'tn)	Total Revenue (£'tn)	Total Market Capitalisation (£'tn)	Number of companies
2011	9.73	1.96	1.25	1,173
2012	9.55	1.99	1.37	1,181
2013	9.02	2.03	1.68	1,176
2014	9.17	1.93	1.66	1,204
2015	9.06	1.67	1.74	1,210
2016	10.40	1.76	1.82	1,172
2017	10.60	2.06	2.31	1,174
2018	10.72	2.09	2.23	1,144
2019	11.05	2.10	2.21	1,098
2020	11.79	1.65	1.91	1,055
2021	11.50	1.80	2.55	1,093

Source: Reuters-Eikon

## Sample

- B7. The analysis of the population of entities was complemented by the review of the financial statements of a random sample of 80 companies, drawn from the population of companies listed in 2021 (therefore including companies listed on both the main market of the LSE and on AIM). The sample was stratified by quartile of market capitalisation, meaning that 20 random companies were drawn for each quartile.
- B8. A review of the financial statements of a sample of 80 companies listed on both the main market and AIM was conducted to better understand the type and nature of intangible assets recognised therein.
- B9. Statistical analysis reported in Table 4 shows that the features of the sample are not statistically different from the ones of the population, suggesting that randomisation was appropriate, and the sample is not biased. This includes the sample companies having a very similar distribution of intangibles and goodwill to the population.



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- B10. The key advantage of hand-collecting information from financial statements for a more contained sample of companies is to allow the review of more granular information about intangibles than that provided can be conducted using information from a data aggregator such as Reuters-Eikon. This is because data aggregators typically contain only information reported on the face of the financial statements, whilst hand-collected data can focus on more granular information contained in the notes to the financial statements. Both IAS 38 and IFRS 3 prescribe notes disclosures about recognised intangible assets.
- B11. Tests were conducted to ensure that the sample was a random draw from the population. To start with, t-tests were conducted to test whether the sample means of a number of indicators (e.g., revenue, market capitalisation, total assets) were different from the population means. The null hypothesis that the means were equal could not be rejected.
- B12. The concentration of the data/skewness of the distribution, however, can impact the reliability of the underlying statistical assumptions for a t-test.<sup>46</sup> To overcome this issue, tests were conducted, excluding the top first and fifth percentiles for the variables tested, as suggested in the literature. Nearly all tests could not reject the null of equal means (one exception is for revenues, excluding the top 5%), suggesting that the sample was a random draw from the population.<sup>47</sup>
- B13. The collection of a random sample ensured that the review was not biased towards characteristics like company size and industry and therefore that the results could be generalised, compatibly with the sample collected.
- B14. The summary statistics of the sample of companies drawn from the population is provided in Table 4.

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<sup>46</sup> For very skewed distributions the Central Limit Theorem (CLT), which states that the sample mean has a normal distribution regardless of the underlying distribution of its data, may not be valid. This assertion was tested by calculating sample means of 1000 randomly generated samples of 80 companies drawn from the population and testing whether those were normally distributed – which led to the conclusion that they were not. The same exercise was conducted excluding the largest 5% of companies, which led instead to the conclusion that the sample means were normally distributed.

<sup>47</sup> As noted by Fagerland and Sandvik (2009) “...for markedly skewed distributions, the mean can be a poor measure of central tendency because outliers inflate its value. This can be ameliorated by removing the smallest and the largest values in the sample”. Alternative tests are available and “the most common non parametric alternative is the Wilcoxon – Mann – Whitley U-Test”.

**Table 4: Sample summary statistics**

		<b>Total assets (£'bn)</b>	<b>Revenues (£'bn)</b>	<b>Market capitalisation (£'bn)</b>
Whole sample/population	Mean difference	208.22	1216.43	422.03
	t-statistic	0.03	1.25	0.34
	p-value	0.69	0.81	0.74
Excluding top 1%	Mean difference	1018.79	175.72	152.64
	t-statistic	0.71	0.54	0.28
	p-value	0.76	0.71	0.61
Excluding top 5%	Mean difference	115.32	255.99	81.61
	t-statistic	0.60	2.76***	0.53
	p-value	0.72	1.00	0.70

For all tests the null hypothesis that the sample mean is equal to the population mean could not be rejected. \*\*\*: significant at the 1% level.

## Appendix C: Intangibles Terminology

Software related	Customer related
Acquired software and IP & Internal Software Development	Acquired customer relationships
Application software	Acquisition related intangible assets - customer related
Capitalised software	Contracts and other intangibles
Computer software (16 <sup>48</sup> )	Customer relationships & contracts (3)
External software	Customer & distributor relationships
Other software assets	Customer contracts
Portal	Customer contracts & relationships (5)
Purchased software (2)	Customer lists
SIP, RTP and SBC licences	Customer lists, contracts, licences and other assets
Software (11)	Customer relationships & supply agreements
Software and licences	Customer relationships (12)
Software development	Customer relationships and brands
Software licences	Customer relationships and contracts

<sup>48</sup> Number in brackets represents number of times this category title was used in the sample (if greater than 1).

<b>Research &amp; Development related</b>	<b>Brand related</b>
Assets under construction (2)	Brand names
Assets under the course of development & Power Supply licence & Website development costs	Brand names /intellectual property & trademarks
Capitalised development (3)	Branding
Development & website costs	Brands (12)
Development costs & know-how	Brands and intellectual property
Development costs (7)	Brands, trade names and patents
Development costs/patents and licences	Intellectual property
Development expenditure	Intellectual property rights
Intellectual property	Licences and trademarks/ intellectual property
Internal developments & technology platform	Patents, brands and trademarks
Internally generated IP	Patents, trademarks and licences
Know-how & assets in course of construction	Trade names (2)
Landfill void	Trademark (3)
Licences (3)	Trademarks & franchise agreements
Licence and patents	
Patents and licences	
Product development costs & technology	
Product related intangibles	
Technology	
Website & patents	
Website and development costs & website technology	

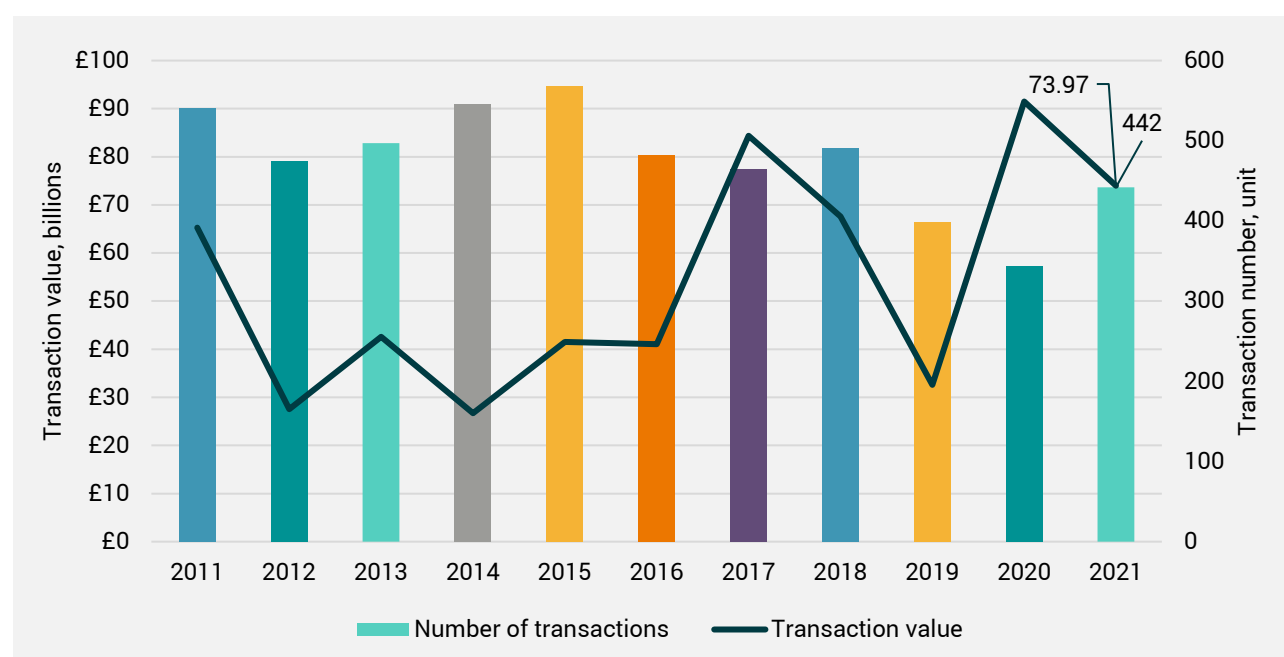
<b>Research &amp; Development related</b>	<b>Brand related</b>
Website development	
Website platform	
<b>Other related</b>	<b>Acquisition related</b>
Contracts and other intangibles	Acquired intangible assets
EUA/ROC/RECs	Acquired research and technology
Other (5)	Acquired technology
Other identified intangibles	Acquisition intangible assets
Other intangible assets (6)	Acquisition related intangibles

# Appendix D: Acquisitions – Market-Level Trends

## Acquisitions – market-level trends in the UK

- D1. Data was collected for all corporate transactions conducted by the companies in the population (excluding funds and trusts) from the Reuters-Eikon database over the period from 2011 to 2021. The data comprises of all completed corporate transactions where the target entities could be domiciled in the UK or outside of the UK and could either be listed or unlisted. The types of transactions analysed excluded share buybacks and any internal organisational restructuring.
- D2. Chart 21 shows the general trend in acquisitions by UK listed entities between 2011 and 2021.

**Chart 21: Value and number of corporate transactions by UK listed acquirors 2011 - 2021**

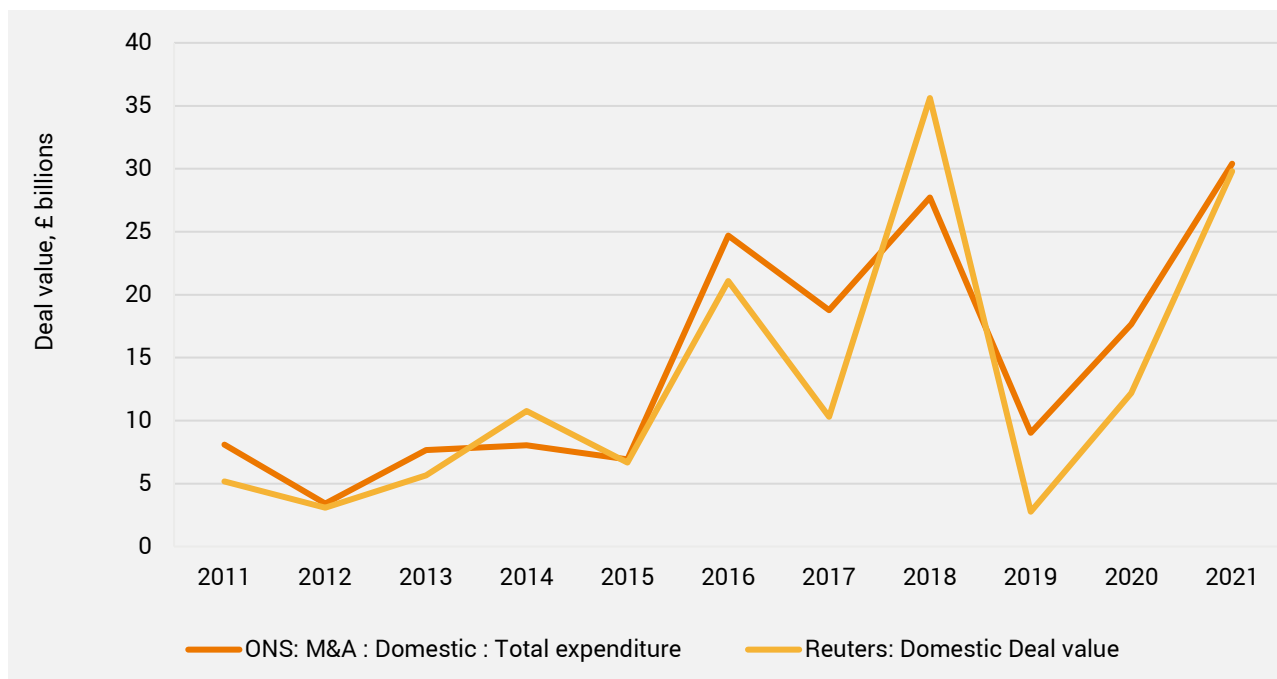


Source: Reuters-Eikon

- D3. During 2021, a total of 442 transactions were completed with a combined value of nearly £74 billion. Over the period, an average of 476 transactions were completed per year with an average total deal value of £54 billion per year. The data shows no clear trend over the period with respect to the value or the number of deals.
- D4. To ensure the robustness of any further analyses, the data obtained from Reuters-Eikon was cross-validated against ONS data.

- D5. Chart 22 plots the value of domestic deals<sup>49</sup> as calculated by the UKEB using Reuters-Eikon data against the value of domestic deals as published by the ONS. The two time-series show a high degree of correlation (92%).

**Chart 22: Reuters-Eikon data versus ONS data, mergers, correlation**



Source: Reuters-Eikon, ONS.

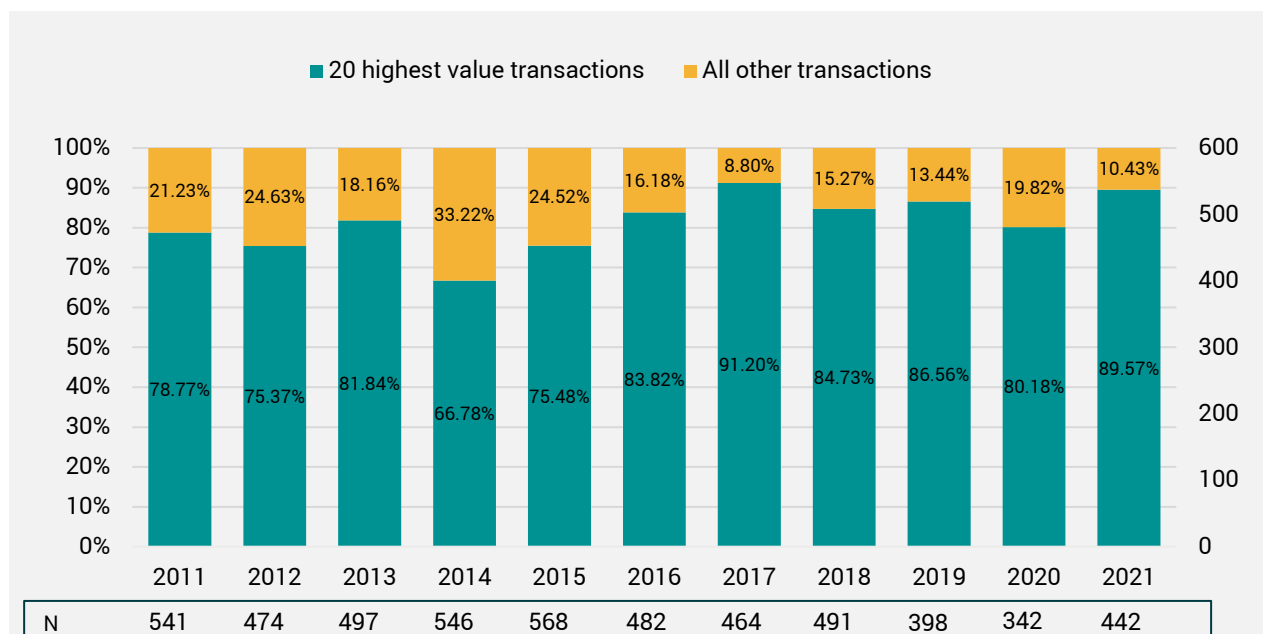
- D6. A similar review was conducted on the value of foreign deals, leading to comparable results.
- D7. The cross-validation suggests that the data on acquisitions from Reuters is robust.

## Concentration of acquisitions in the UK

- D8. The value of corporate transactions involving UK listed acquirers was found to be highly concentrated in each of the years considered.
- D9. The 20 largest transactions by consideration paid, were found to represent ~67% or more of the total value of all transactions in any given year.
- D10. Chart 23 illustrates the relative share of the 20-largest transactions to the total deal value for each year from 2011 to 2021.

<sup>49</sup> Transactions in which both the acquirer and the target company are domiciled in the UK are considered domestic.

**Chart 23: Concentration of the value of corporate transactions**



Source: Reuters-Eikon. N=number of transactions.

D11. Given that the recognition of intangible assets was found to largely be driven by corporate transactions, the 20 the largest transactions which took place in between 2011 and 2021 were analysed to determine how prevalent intangibles were within these deals. Since the concentration of deal value was highest among the 20 largest transactions it is expected that this review would provide the most meaningful information.

D12. The transactions analysed are listed in Table 5.

**Table 5: 20 largest M&A transactions by fair value of the consideration paid, 2011-2021**

N o.	Acquiring entity	Target entity	Total consideration paid (£ Mil)	Acquirer Industry	Year of completion
1	British American Tobacco PLC	Reynolds American Inc	71,915	Consumer Staples	2017
2	AstraZeneca PLC	Alexion Pharma. Inc	30,025	Healthcare	2021
3	Glencore PLC	Xstrata PLC	29,496	Materials	2013
4	Reckitt Benckiser Group PLC	Mead Johnson Nutrition Co	13,044	Consumer Staples	2017



<b>N o.</b>	<b>Acquiring entity</b>	<b>Target entity</b>	<b>Total consider ation paid (£ Mil)</b>	<b>Acquirer Industry</b>	<b>Year of comple tion</b>
5	London Stock Exchange Group PLC	Refinitiv US Holdings Inc	12,359	Financials	2021
6	BT Group PLC	EE Ltd	10,971	Telecommuni cations	2016
7	Vodafone Group PLC	UnityMedia GmbH	9,378	Telecommuni cations	2019
8	BHP Billiton PLC	Petro hawk Energy Corp	7,244	Energy and Power	2011
9	Melrose Industries	GKN PLC	7,955.70	Industrials	2018
10	Flutter Entertainment Plc	The Stars Group Inc	6,253	Media and Entertainment	2020
11	International Power PLC	GDF Suez Energy Services Intl	6,208	Energy and Power	2011
12	Aviva PLC	Friends Life Group Ltd	5,975	Financials	2015
13	Micro Focus Intl PLC	HP (Software Segment)	5,021	High Technology	2017
14	Imperial Brands PLC	Reynolds American Inc- Cigarette Brands	4,613	Consumer Staples	2015
15	CRH PLC	Lafarge SA & Holcim Ltd	4,610	Materials	2015
16	BP PLC	Reliance Industries Ltd-21 Oil Blocks	4,317	Energy and Power	2011
17	Informa PLC	UBM PLC	4,190	Media and Entertainment	2018
18	Standard Life PLC	Aberdeen PLC	4,089	Financials	2017

N o.	Acquiring entity	Target entity	Total consideration paid (£ Mil)	Acquirer Industry	Year of completion
19	GlaxoSmithKline PLC	Novartis AG-Vaccines Business	3,979	Healthcare	2015
20	AVEVA Group PLC	OSIsoft LLC	3,825	High Technology	2021

## A simple illustrative example of capitalising versus expensing intangibles

D13. To understand how capitalising versus expensing intangibles would affect ROA, a simple illustrative example was developed with artificial data, reported in Table 6. The following assumptions were used:

- a) Five years of data are generated for an individual company under two scenarios: one in which it capitalises an intangible asset on the balance sheet, and one in which the costs incurred are expensed through the P&L; the example has been worked out so that the company is profitable.
- b) Revenue for each year is randomly generated as  $5000\text{CU}^{50} \pm$  a random integer between 0CU and 500CU.
- c) Cost of sales for each year is randomly generated as  $2000 \pm \text{CU}$  a random integer between 0CU and 200CU.
- d) Starting PPE is 8000CU, depreciated over a useful life of 10 years using a reducing balance approach No CAPEX is introduced over the course of the five years for simplicity.<sup>51</sup>

D14. In example one (capitalisation), an intangible asset with a carrying amount of 2000CU is recognised on the balance sheet at the beginning of Year 1 and amortised over a useful life of ten years using a reducing balance approach. This can be thought of as an acquired asset. In example two (expensing), intangible expenses equal to 2000CU are incurred in year one. These can be thought of as investment that is expensed through P&L because it does not meet the capitalisation criteria in IAS 38.

<sup>50</sup> "CU" is an abbreviation for "Currency Units", which is used to stand in for any specific currency.

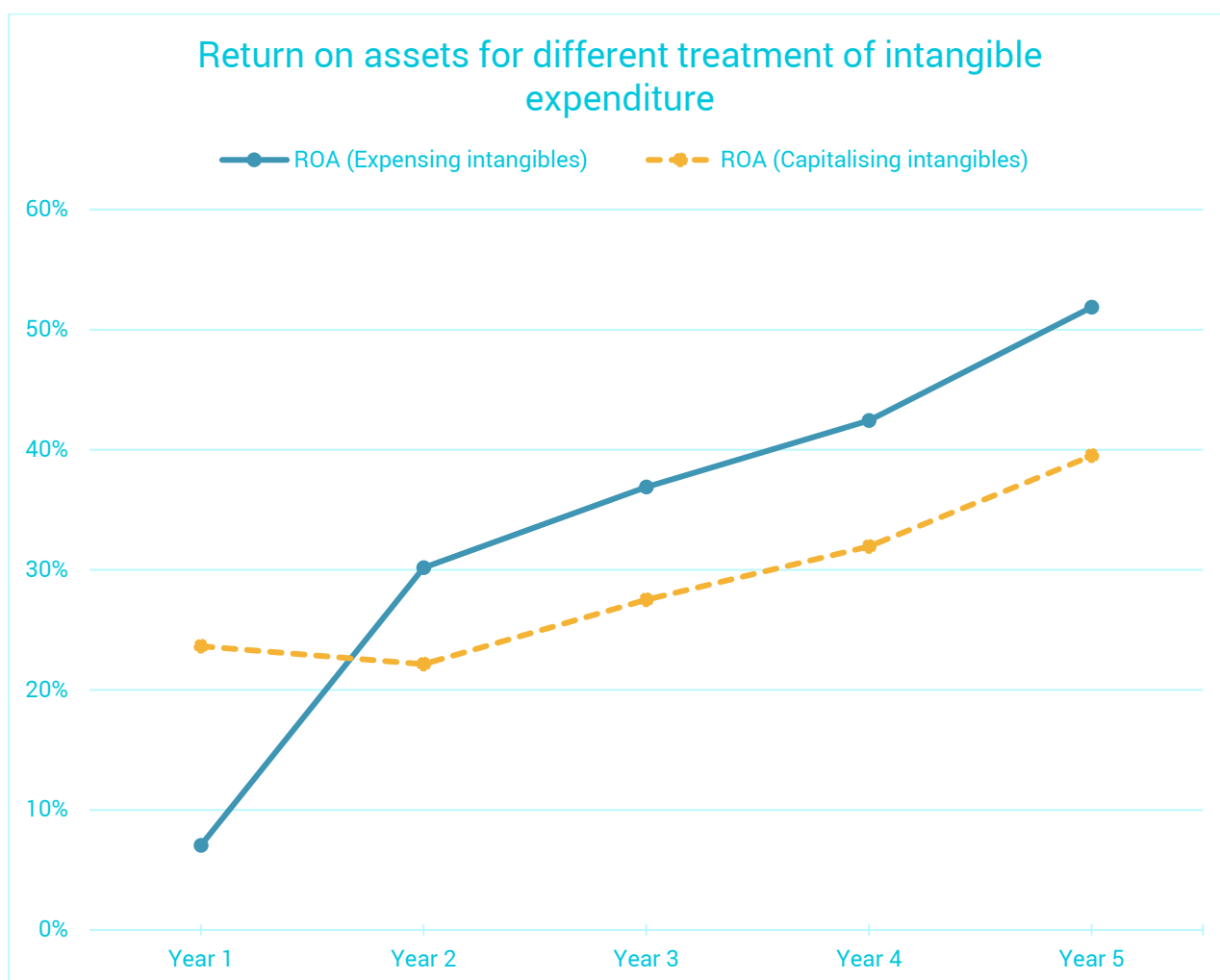
<sup>51</sup> Two models where capex was introduced to both maintain and increase intangible assets were developed. The overall results were unchanged.

**Table 6: Comparing the impact of intangibles recognition on return on assets**

<b>Capitalising intangibles</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Expensing intangibles</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Revenues	5,164	4,768	4,951	5,232	5,333	Revenues	5,164	4,768	4,951	5,232	5,333
Cost of sales (excl int expenses)	1,800	1,876	1,913	2,175	2,086	Cost of sales (excl int expenses)	1,800	1,876	1,913	2,175	2,086
Depreciation	800	720	648	583	525	Depreciation	800	720	648	583	525
Amortisation	200	180	162	146	131	Amortisation					
Intangible expenses						Intangible expenses	2,000				
Profit	2,364	1,992	2,228	2,328	2,591	Profit	564	2,172	2,390	2,474	2,722
PPE	8,000	7,200	6,480	5,832	5,249	PPE	8,000	7,200	6,480	5,832	5,248
Intangible assets	2,000	1,800	1,620	1,458	1,312	Intangible assets					
Total Assets	10,000	9,000	8,100	7,290	6,561	Total Assets	8,000	7,200	6,480	5,832	5,248
ROA (Capitalising intangibles)	24%	22%	28%	32%	39%	ROA (Expensing intangibles)	7%	30%	37%	42%	52%

- D15. As reported in Table 6, in year 1 under the “expensing” scenario the entity has a lower reported ROA because, all things equal, it would have a much lower operating profit figure than in the “capitalising” scenario.
- D16. However, in Years 2-4 the reported ROA is higher in the “expensing” scenario, consistent with the anecdotal evidence.
- D17. The ROAs over time are illustrated in Chart 24.

**Chart 24: Return on assets for different treatment of intangible expenditure.**



Source: UKEB

- D18. While this model is illustrative of how inconsistent accounting may affect ROA, they are liable to the criticism that results do not reflect real-life conditions. As such, an example using reported data obtained from the financial statements of companies is contained in Section 3 of the main body of the report.

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