

Appendix C: financial analysis of Apple’s and Google’s mobile ecosystems

Introduction

1. As part of the market study, we have undertaken analysis of the financial performance of Apple and Google.
2. This financial analysis is an important part of our evidence base as it supports our understanding of the two companies’ incentives and strategies in relation to particular products and services. This financial analysis should be read alongside our economic analysis across the four themes of our study. It supports our understanding of where Apple and Google have been able to generate returns persistently higher than would be expected in a competitive market.
3. This appendix sets out:
 - our analysis of the sources of each company’s reported revenues and profits, with a particular focus on the contribution made by the products and services within the scope of the market study;
 - a more detailed assessment of the financial performance of their respective app stores; and
 - estimates of the companies’ return on their investments, with a particular focus on Apple’s ‘Return on Capital Employed’ (ROCE).¹
4. We have considered the two companies’ financial performance separately, starting with Apple. For each party we have analysed financial performance at a global level, and also at the UK level where possible.² We have also sought to understand any trends or relationships between UK and global financial performance.
5. Our analysis is based on global data from both companies published financial reporting,³ supplemented by information we obtained from Apple and Google

¹ We have not conducted a ROCE analysis for Google as part of this market study as we have previously conducted a full analysis as part of our online platforms and digital advertising market study. However, we have updated our previous ROCE analysis for 2019 to 2021 using publicly available information from Alphabet’s 10k.

² Despite the core focus of this study being the UK, it is more appropriate, in certain circumstances to analyse financial performance at a global level.

³ For Apple, up to the year ending 25 September 2021 and for Google up to the year ending 31 December 2021.

to enable more detailed breakdowns and UK specific analysis where appropriate.^{4,5,6}

Apple

6. This section sets out our analysis of the financial performance of Apple.

Revenues

7. In assessing Apple's financial performance, we have started by analysing Apple's revenues using information sourced from its public financial statements. In the financial year ending September 2021, Apple had total global revenues of £267.4 billion, which comprised of £217.4 billion from Devices⁷ and £50 billion from Services.^{8,9}

8. Figure C.1 depicts Apple's total global revenues split by devices and services. It shows that while the majority of Apple's revenue continues to come from device sales, the contribution and importance of services to Apple has been increasing steadily in recent years. Services accounted for almost 19% of revenue in 2021, up from 8% in 2011.¹⁰ In the UK, we estimate that Apple had total revenues of around £[10-15] billion in 2021. The majority of this, over £9 billion, was earned from mobile products and services.^{11,12}

9. Between 2011 and 2015, revenue from devices drove Apple's overall revenue growth. This trend began to shift from 2016 to 2020, during which devices revenue was relatively stable, with growth in total revenue primarily driven by growth in services. Specifically, services revenue grew at a compound annual growth rate (CAGR)¹³ of 23% between 2016 and 2021, which accounted for the majority of overall growth in revenue during this period.

10. As illustrated in Figure C.1, this pattern changed in the results recently published for the year ending September 2021, which showed a sharp rise in Apple's global devices revenue from £173.4 billion in 2020 to £217.1 billion.

⁴ Data obtained directly from Apple and Google covers periods up to 31 December 2021.

⁵ We used Bank of England data to convert from US Dollars into Great British Pounds for Apple and Google (XUAAUSS). This was done using the yearly data from the Bank of England [Database](#). For data relating to Apple's 10K we used the average exchange rate that corresponded to their financial year (XUDLUSS).

⁶ Growth rates in our analysis are based of USD growth unless otherwise stated.

⁷ Here Devices refers to the following categories, together: iPhone, Mac, iPad, Wearables, Home and Accessories. We note that this is referred to as 'Products' in Apple's 10K.

⁸ Services include the App Store, Digital content, Advertising, Cloud services, Payment services, AppleCare, plus Licensing.

⁹ [Apple 2021 10K](#), page 29.

¹⁰ Calculated as a proportion of revenue figures from Apple 10K reports.

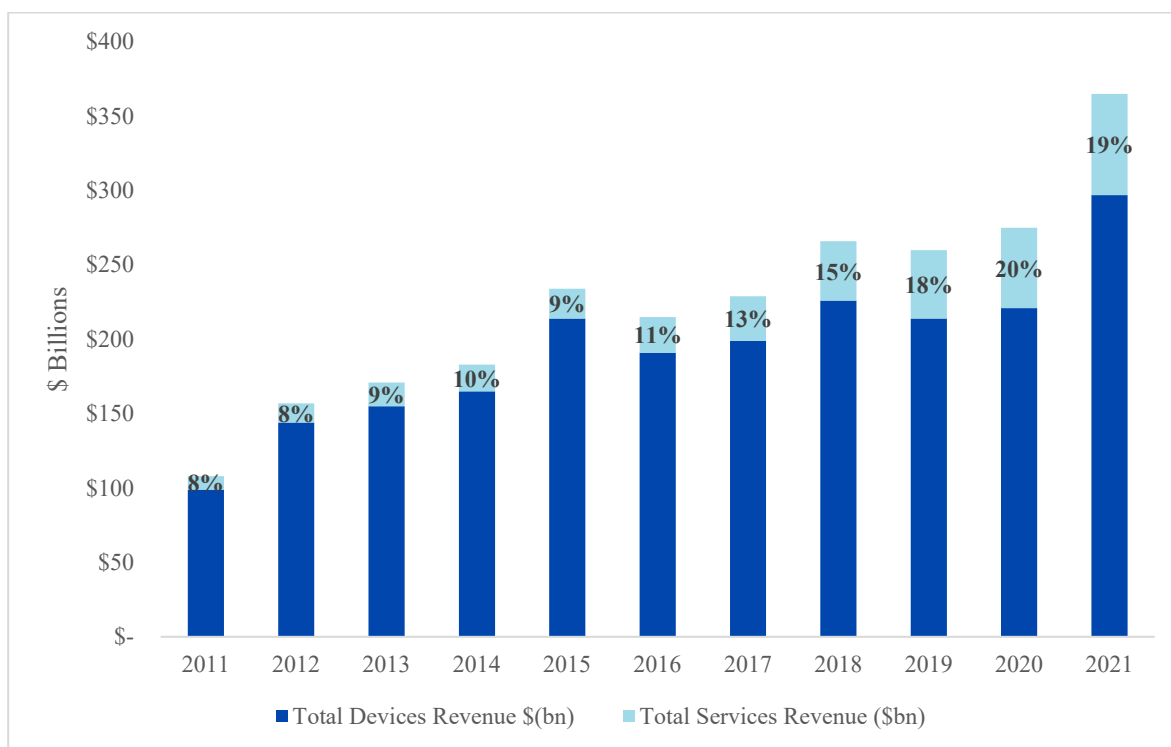
¹¹ Apple does not provide a breakdown of its UK revenues in its 10K.

¹² These are revenue figures provided by Apple which are based on Calendar Year 2020.

¹³ CAGR is the mean annual growth rate of a balance over a specified period of time longer than one year. In this instance, the CAGR is the mean annual growth of revenue between 2016 and 2020.

According to its 10K, the biggest contributor to the increase in revenue was an increase in iPhone sales, linked to Apple launching two new iPhone models during the same financial year, the first and fourth quarters of 2021, and a favourable mix of iPhone sales.¹⁴

Figure C.1: Apple Global Revenue (Devices & Services) between 2011 and 2021¹⁵



Source: CMA Analysis from Apple 10K data

11. We have next considered the breakdown in devices revenue: Figure C.2 provides a granular breakdown of Apple’s global revenue from device sales in 2021. The chart shows that Apple’s device revenue is largely made up of iPhone sales (65%), followed by Wearables, Home and Accessories (13%). In the third quarter of 2015, Apple launched its Apple Watch.¹⁶ From our review of Apple’s 10K data, we note that the segment of device revenue which includes the Apple Watch showed the highest growth within the Devices segment between 2015 and 2021.¹⁷

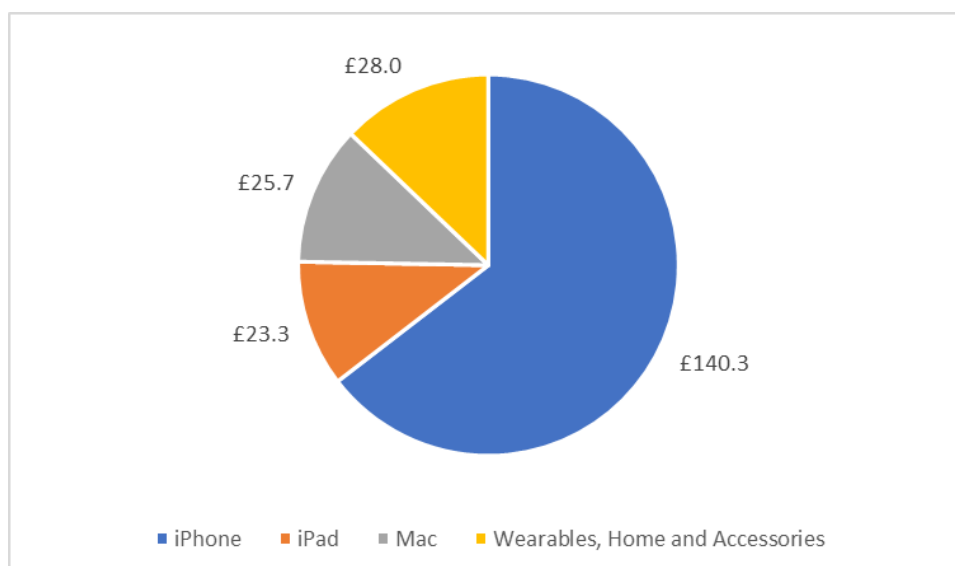
¹⁴ [Apple 10K 2021](#), page 21

¹⁵ For financial years 2011-2014 Apple provided a breakdown of Net Sales by Product in its 10K as: iPhone; iPad; Mac; iPod; Accessories; and iTunes, Software and Services. Therefore, this period we considered the category iTunes, Software and Services to be equivalent to Services, as provided in Apple’s 10K from 2015 onwards.

¹⁶ [Apple 10K 2015](#), page 23

¹⁷ Since 2018 Apple has changed the categories by which it classifies its products/services. Since 2018 ‘Other products’ was replaced with ‘Wearables, Home and Accessories’. For our analysis we have categorised ‘Other Products’ as ‘Wearables, Home and Accessories’ for 2015-2017. This category has grown by approximately 331% in sterling terms from £6.5 billion in 2015 to £28.1 billion in 2021.

Figure C.2: Split of Global Apple Devices Revenue 2021 (£ billion)



Source: CMA Analysis from Apple 10K data

12. Whereas Apple provides this revenue breakdown between its main products, Apple does not publish any comparable breakdown of revenues by category of services within its 10K accounts. We therefore asked Apple to provide a breakdown of its services revenue for the period 2018 to 2021 to understand its key drivers of growth.
13. At the global level the App Store is the largest contributor to services revenue (at [20-40]%) followed by Advertising (Third Party Licensing Arrangements)^{18,19} (at [20-40]%) in 2021. Digital Content²⁰ and Other²¹ represent [0-20]% and [20-40]% respectively.²² These splits are illustrated in Figure C.3. The largest component of Apple's licensing revenue is Apple's agreement with Google in which Google pays a share of search advertising revenues to Apple in return for Google Search being the default search engine on Safari.
14. Data provided by Apple suggests that this revenue stream accounts for a greater portion of services revenue at a UK level than globally, with the App Store representing a smaller portion of UK services revenue. Specifically,

¹⁸ Apple told us that Advertising 'Third Party Licensing Arrangements' captures net revenue 'primarily generated from licensing agreements with third party entities, including search engine companies (eg Google, Bing, and Yahoo) and hardware developers who develop electronic accessories for certain of Apple's products'.

¹⁹ Apple response to RFI dated 28 September 2021, paragraph 7.1.

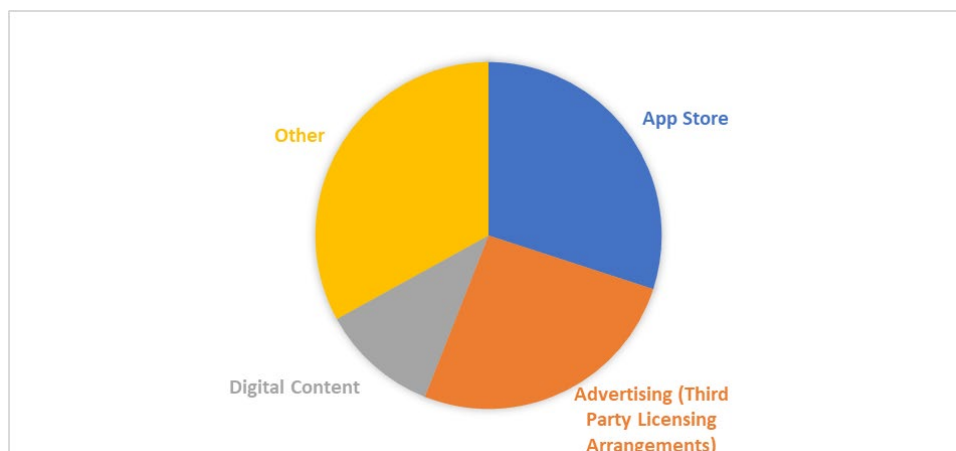
²⁰ Digital Content comprises subscriptions such as Apple Music, Arcade, News+ and TV+.

²¹ Other Services revenue comprises: Apple Care, Cloud Services, Payment Services (Apple Pay and Apple Card) and Other.

²² Apple's iOS does not feature either as a separate product or service within the revenue breakdowns as iOS is not licenced or sold to third parties. Rather, to enter Apple's mobile ecosystem a user must purchase an Apple device, ie an iPhone or iPad.

Google's estimated search payments to Apple in 2021 were £[1-1.5] billion for the UK, with the substantial majority of this (£[0.5-1] billion) relating to mobile.

Figure C.3: Split of Global Apple Services Revenue 2021



Source: CMA analysis

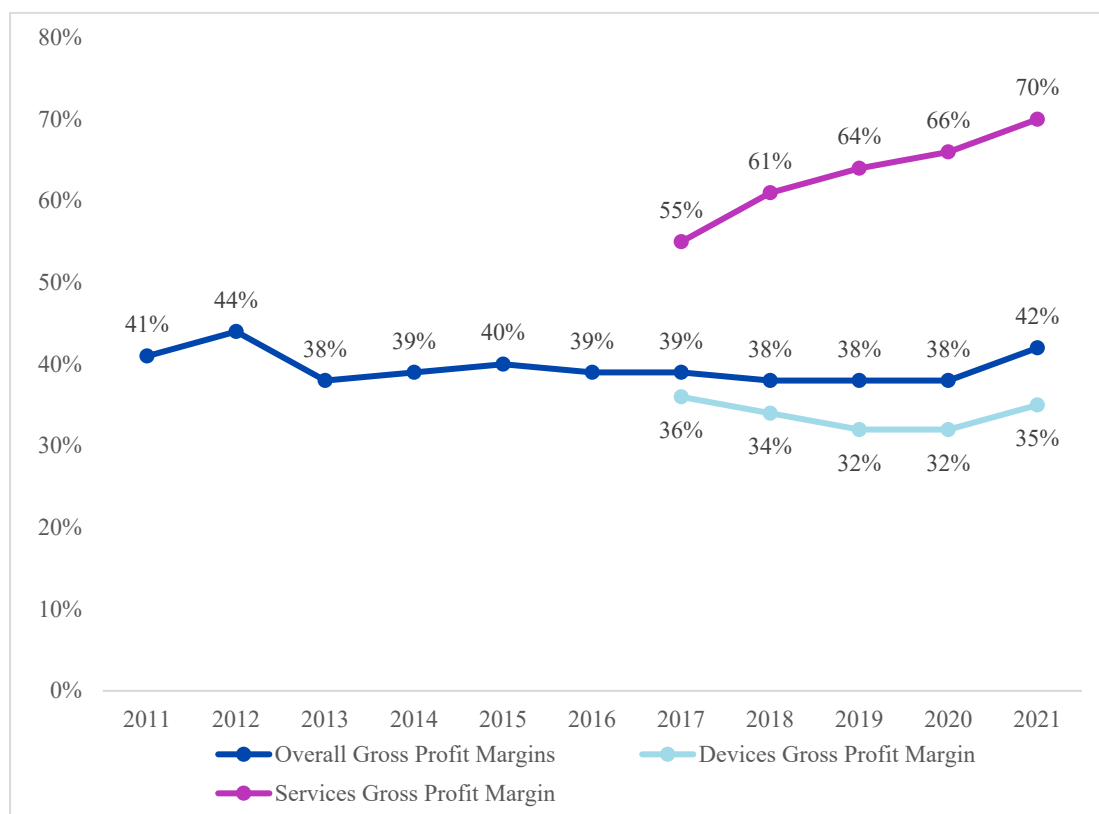
Notes: Based on the mid-point of the ranges highlighted above.

Profit Margins

15. Based on information contained within Apple's 10K reports, Figure C.4 presents Apple's global gross margins, which have been fairly stable since 2013 on an overall basis, ranging between 38% and 42%. From 2017, Apple started reporting gross margins separately for Devices and Services and as Figure C.4 highlights, gross margins for devices have declined slightly since then. By contrast, services have experienced a notable increase in gross margins from an already high base of 55% in 2017 to 70% in 2021, and now stand at double the size of gross margins earned on device sales.²³

²³ Apple 2017 - 2021 10K Reports.

Figure C.4: Global Apple Devices and Services Gross Profit Margins 2011-2021



Source: CMA chart from data based on Apple's 2021 10K filing

16. Using data provided to us by Apple, we have looked at the individual gross margins of Apple's various devices and services and how they contribute to the margins of the overall business. We note that, based on global numbers, the iPhone has the highest gross profit margin of Apple's devices, and the iPhone margin has remained relatively stable since 2018. Almost all Apple's devices, including wearables, had a positive gross margin performance over this period. Since the iPhone also has the highest net revenue, it remains the largest contributor to income for Apple.
17. By contrast, Apple's services businesses which are most clearly linked to use of Apple devices, such as the App Store and advertising, have low direct costs, and therefore much higher gross margins. Specifically, the App Store and Advertising (including Third Party Licensing Arrangements and platforms) businesses both had gross margins of [75-100]% for 2021. In terms of overall contribution to services gross profit, the App Store and advertising revenues (including Third Party Licensing Arrangements and Platforms) are also the largest contributors accounting for [75-100]% of services gross profit globally for 2021.
18. Within an integrated mobile ecosystem, it may be the case that some of the direct costs associated with one product may also affect, at least indirectly,

the quality of another product or service, and therefore the gross margin data needs to be considered in that context. For example, since Apple's services revenue and profit rely on users purchasing an iPhone, the overall assessment of profitability should consider both separately, as well as the interaction between the two.

19. This was a point raised in submissions by Apple. Apple told us that, while it attributes direct costs for accounting purposes, some of these direct costs, such as the iPhone camera, can be relevant to the ability to earn revenues for more than one business area. As such, Apple did not consider it relevant or appropriate to consider the gross profit margin of the App store in isolation from other aspects of its ecosystem.
20. We recognise that the profits earned on one product or service should not necessarily be considered in isolation from the other products and services within the same ecosystem. Nevertheless, it is helpful to understand the extent to which distinct business activities are able to generate revenues over and above their directly attributable costs. This can be informative where they operate under different competitive conditions, as demonstrated by our competitive assessments in Chapters 3 - 6.
21. This subject is considered further within the next section, in which we assess the profits earned by the App Store, which is a core focus of this study. This analysis is largely based on information provided by Apple in response to our requests for information.

App Store

22. Globally, the App Store represents the largest segment within Apple's service business, comprising [20-40]% of total services revenue. In the UK in 2021, the App Store generated £[400-600] million revenue. By 'revenue' for the App Store, we refer to net billings, ie the amount that Apple charges as commission on the App Store. Apple records as revenue the level of gross billings paid by consumers for purchases in the App Store after subtracting the share paid to app developers, which we describe as net revenue.
23. Figure C.5 shows net revenue for the App Store in the UK and globally between 2018 and 2021, highlighting strong growth over the period. Net revenue increased by approximately [80-100]% on a global basis, and within the UK, between 2018 and 2021. We also note the average ratio between net

revenue and gross billings²⁴ over this period has been [20-40]% on a global basis, which is reflective of Apple's commission structure.

Figure C.5: UK and Global Net Revenue App Store 2018-2021

[✂]

Source: CMA analysis

24. We estimate that the App Store's gross profit margins averaged [75-100]% over the period 2018 to 2021.
25. We also considered Apple's operating margin for the App Store. Operating margins can provide a more complete picture of a product or service's profitability than gross margins because they account for operating expenses that were necessarily incurred in order to supply the product or service. We asked Apple to provide any existing analysis of operating margins for the App Store.
26. Apple submitted that any profit and loss documents prepared on an ad hoc basis with respect to the App Store are not maintained as profit and loss statements. According to Apple such ad hoc exercises would not account for all costs that are attributable to the App Store and would be allocated to the App Store if Apple attempted to compare relative profitability at the product and service level. Apple also noted that such exercises do not reflect fully burdened profitability.
27. However, we have seen examples of reports of the profitability of individual segments. We also note that in the recent Epic Games Inc vs Apple Inc litigation, the United States district court found that Apple calculated a fully burdened operating margin for the App Store as part of its normal business operations and that this calculation was largely consistent with Epic's expert witness's estimates of operating margins to be over 75% for both fiscal years 2018 and 2019.²⁵ In our view, this measure of profitability can therefore provide useful insights into the App Store's profitability and is consistent with the profit measure used to present the Play Store's profitability below.

²⁴ What Apple does not pass on to developers divided by the total revenue Apple obtains from selling digital content.

²⁵ United States District Court, Case No. 4:20-cv-05640-YGR – 'Apple counters that it does not maintain profit and loss statements for individual divisions and that Mr. Barnes' analysis is inaccurate. The Court disagrees with the latter. Mr. Barnes made appropriate adjustments based on sound economic principles to reach his conclusions. Apple's protestations to the contrary, notwithstanding the evidence, shows that Apple has calculated a fully burdened operating margin for the App Store as part of their normal business operations. Apple's financial planning and analysis team are tracking revenues, fixed and variable operating costs, and allocation of IT, Research & Development, and corporate overheads to an App Store P&L statement. The team's calculation was largely consistent with that of Mr. Barnes. Although there are multiple ways to account for shared costs in a business unit, the consistency between Mr. Barnes' analysis and Apple's own internal documents suggest that Mr. Barnes' analysis is a reasonable assessment of the App Store's operating margin.'

Apple's submissions on our assessment of the App Store on a stand-alone basis

28. Apple told us that the profitability of the App Store cannot meaningfully be assessed on a stand-alone basis. It told us that:
- the presence of substantial common costs means that it is not possible to allocate costs in a reliable and economically meaningful manner to a particular product or service within a given ecosystem;
 - improving the quality for one product or service increases the demand for other products or services within the same ecosystem; and
 - Apple does not operate on the basis of analysing the profitability of separate business units and does not attempt to allocate costs across business units to maintain separate P&Ls.
29. We agree that the presence of common costs complicates the assessment and allocation methods can be arbitrary. However, this does not necessarily undermine the conclusions we can draw from the results, especially if they are found to be insensitive to the allocation method.
30. Additionally, whilst we agree that interdependencies exist in Apple's integrated model, they also exist across ecosystems (and supply chains) which are not vertically integrated. It is normal for businesses and investors to assess the profitability of firms which operate in different markets.
31. Furthermore, it is not clear from the evidence whether or not Apple operates on the basis of analysing the profitability of separate business units. Whilst Apple said that it takes a whole-company approach, we have seen examples of reports of the profitability of individual segments.²⁶ In any case, it is Apple's decision to operate in these markets using a whole-company approach.
32. A recent paper by the UCL Institute for Innovation and Public Purpose (IIPP) argues that by not reporting the App Store as a separate operating segment with its own financials, Apple has managed to keep the profitability taken in by its App Store, and in turn its potential (abuse of) market power, hidden. The paper calls for mandatory inclusion of operating metrics for gatekeeper platforms using App Store as an example.
33. Apple argued that a stand-alone assessment of the App Store's profitability would need to account for the relationship that exists between the App Store

²⁶ As noted above, in the recent Epic Games Inc vs Apple Inc litigation, the United States district court also found that Apple calculated a fully burdened operating margin for the App Store as part of its normal business operations.

and app developers. It stated that as referenced in the Epic judgement, it is undisputed that third-party developers have benefited from the growth and development of the Apple ecosystem.²⁷

34. Apple also said that even if the App Store generates a hypothetical margin as high as 100%, this does not necessarily mean that profitability is excessive as such margins can be consistent with a fair split of the joint profit made available to Apple and app developers using the App Store.
35. We recognise that this interdependency exists and that Apple and developers both benefit from their co-existence. We consider that Apple also benefits from app developers' presence and investments in their products and software. These investments lead to higher quality apps being made available on iOS which contributes to the success of the iPhone. Furthermore, the presence of joint value does not address concerns about a lack of competition. Greater competition in app distribution should lead to improved outcomes for developers.
36. Apple also stated that the 30% commission rate was determined at a time when it was inconceivable that Apple had market power as a provider of mobile ecosystems. It said that in 2008, there was no comparative mobile app marketplace to be used as a benchmark to establish an appropriate commission rate as the App Store was the first of its kind. Apple said that it determined the commission rate based on (i) gaming stores such as Steam and Handango which also charged a commission of 30% and (ii) the comparative cost of distribution of hard goods and software which cost between 40-50%.²⁸
37. Apple told us that the 30% commission rate has not risen since being determined under competitive conditions and highlighted that it has lowered it in some cases and generated considerable value for app developers across the board by providing them with access to more and more users over time, as well as increased functionality.²⁹ Furthermore, it stated that any comparison of the commission rates charged by rivals must be considered relative to the 'quality' offered by their platforms.

²⁸ Apple further argued that the commission rate was already determined in 2008 shortly after the iPhone went to market. It stated that Apple had no market power in any relevant market, including phone handsets, or software distribution, to leverage into negotiations with developers.

²⁹ One example highlighted by Apple is when, in 2020, Apple reduced the commission rate for "small businesses" from 30% to 15%. Small businesses are defined as earning up to one million dollars in "proceeds" (defined as sales net of Apple's commission and certain taxes and adjustments).

38. We consider that even if the 30% commission fee was competitive when the iPhone was launched, it does not necessarily follow that the same commission rate over a decade later and in a mature market should still be treated as a competitive benchmark. Further, at the time of entry the iPhone and the App Store were very innovative products compared to the other mobile devices and innovative products are generally able to charge a higher price even in the face of competition. Over time we would expect prices to reduce as competitors catch-up and the product becomes less of an innovation.
39. In summary, we find that the App Store was highly profitable on any reasonable measure of gross or operating margins. Whilst this does not in itself demonstrate that prices are too high, it suggests that, if there were more competition, we would expect this to impact prices, and that the level of the commission and operating profits might fall over time to a greater extent than it has to date.
40. The scale of the operating profits associated with the App Store should also be seen in the context of Apple's overall return on capital invested in its business. Apple needs to earn sufficient returns to cover its investment into its mobile ecosystem from a combination of its mobile devices revenues and the revenues from the associated services businesses. We consider Apple's return on capital (ROCE) in the following section.

Return on Capital Employed (ROCE)

Introduction: Why we use ROCE as a measure of profit

41. As set out in our Guidelines for market investigations³⁰ we normally measure profitability using rates of Return on Capital Employed (ROCE), derived using accounting profits which are then adjusted to arrive at an 'economically meaningful measure of profitability'. ROCE is the annual return made on the investments needed to run the business. In a competitive market we would expect firms to 'earn no more than a "normal" rate of profit', at least on average over time. ROCE is calculated by dividing earnings before interest and tax (EBIT), by the value of capital that is employed in the relevant business. For our purposes, we consider the actual investment in capital (ie the cash spent on buying assets used to generate revenue).
42. ROCE is a good measure to test where profits for a particular firm or sector are high, because it can be compared against an objective benchmark, the

³⁰ Market investigation [Guidelines](#), (CC3 Revised), parag.115, Annex A paragraph 9.

weighted average cost of capital (WACC). The WACC is a calculation of a business's blended cost of capital ie: the weighted average cost of debt and equity.

43. Another way of looking at this is that while all companies need to earn positive margins to be sustainable, margins themselves need to be considered alongside other measures in understanding whether a market is working well: some sectors with high asset investment and low operating costs will tend to have high margins, and in these circumstances would not necessarily equate to high economic profitability.
44. A finding that ROCE is higher than the WACC is not in itself indicative of a competition problem. A firm that innovates and gains a competitive advantage may earn higher ROCE for the period that it is able to sustain that competitive advantage. In a market characterised by effective competition, any excess of returns above the WACC would then be expected to be eroded over time, as competitors would see an opportunity to enter and earn high returns on capital. However, our Guidelines indicate that a finding that 'profitability of firms which represent a substantial part of the market has exceeded the cost of capital over a sustained period could be an indication of limitations in the competitive process'.³¹
45. We determine ROCE using EBIT (operating profits) as the measure of return, divided by the value of capital employed (calculated as total assets minus current liabilities) in the relevant business. The general principle is that all revenues, costs, assets and liabilities necessarily arising from the operation of the business to supply the relevant activities should be included. In practice this means the following items should be excluded:
 - financing costs both of a profit and loss and balance sheet nature (eg cash, interest and sources of finance), regardless of whether they are short- or long-term; and
 - taxation on income and any associated corporation tax or deferred tax assets and liabilities.
46. Our Guidelines also set out that, in industries with a relatively low level of tangible assets, such as service and knowledge-based industries, the book value of capital employed may bear little relationship to the economic value because of the presence of significant intangible assets.³² In digital markets, this is particularly the case where there is internal investment in intangible

³¹ Market investigation [Guidelines](#), (CC3 Revised), paragraph 118.

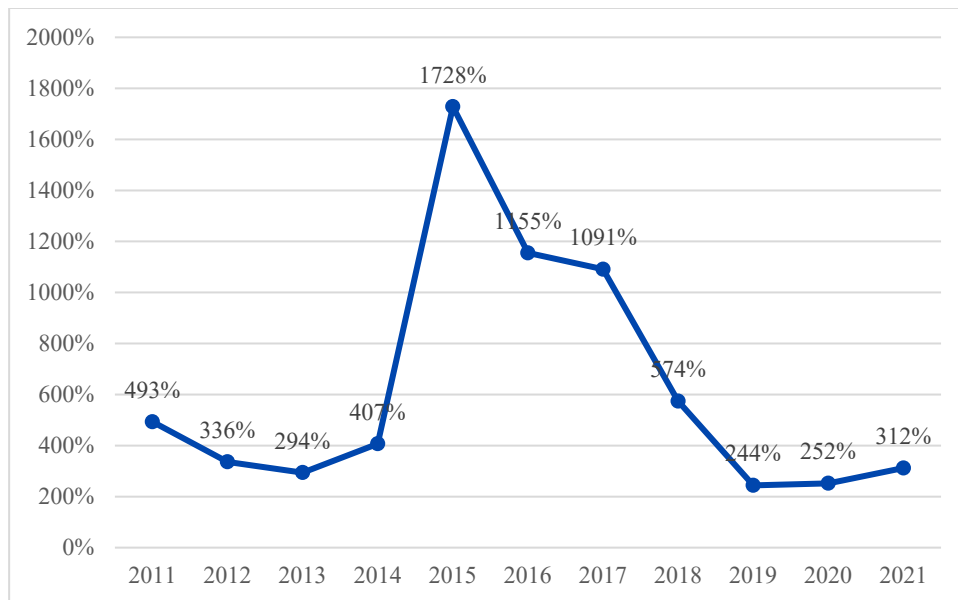
³² Market investigation [Guidelines](#), (CC3 Revised), paragraph 12.

assets such as intellectual property (IP), R&D and patents, rather than acquisition of technology from third parties. We have considered the need to include intangible assets in the form of R&D in Apple’s asset base below.

ROCE of Apple’s overall business

- 47. We have analysed Apple’s financial results over an 11-year timescale including results in 2021 where available, which we view as a sufficiently long period to capture a full business cycle, such that the reflection of profitability levels is not distorted by unusual macroeconomic conditions or one-off events.
- 48. The trends in revenue and gross margin indicate that the last few years can be seen generally to represent a ‘maturity’ rather than ‘growth’ phase for Apple’s devices business. In particular, we note that revenue growth slowed, with the exception of 2021. Many of the features originally designed by Apple have now been replicated by third parties offering smartphones, largely on Android. In that context, we would normally expect that Apple’s margins would start to reduce towards the cost of capital. However, Apple’s ROCE has remained very high. Figure C.6 illustrates Apple’s ROCE, based on its published data.

Figure C.6: Apple Return on Capital Employed 2011-2021



Source: CMA analysis based on Apple 10K.

Note:

1. We note the volatility in returns in 2014 and 2015. This is because of Apple’s low net assets in both years driven by an increase in net working capital. We consider sensitivities to this in Figure C.7. Our numbers suggest in recent years that working capital has been neutral as opposed to negative.

49. We calculated Apple's ROCE for the period 2011 to 2021 utilising information from its 10K.³³ On this basis, Apple achieved a very high ROCE for a company with significant asset investments. Although the level of return has fallen from a peak in 2015, in the last three years Apple's ROCE remained of the order of 250-300%.³⁴
50. As noted at Chapter 2, for a period of time, high profits can be indicative of innovative sectors working well, as the substantial investment and risk associated with bringing forward new innovation is rewarded. One example of such a high-risk investment would be when Apple entered the smartphone market. However, this analysis suggests that Apple's profits are substantial and persistent.
51. Given the scale of the actual ROCE and by how much it exceeds any reasonable benchmark, we have not at this stage undertaken a detailed assessment of Apple's WACC. As a reference point, we would normally expect investors to have an expectation of earning returns of the order of 10% per year for investing in shares of large firms with significant assets and exposure to the wider economy. In the digital advertising market study, we estimated Google and Facebook to have a WACC of around 10%. In other words, a ROCE above 10% is indicative of Apple making higher returns on its invested capital than normally required by investors in the shares of comparable companies.

Sensitivities to our ROCE analysis

52. We have considered possible sensitivities to assess the extent to which adopting different assumptions would materially affect our findings. In particular, we considered the three following sensitivities:
- we considered the possibility that Apple's asset base (the 'CE' in ROCE) might be understated, due to the inclusion of liabilities not related to the core business on its balance sheet;
 - we considered separating out the ROCE of Apple's devices business to understand its profitability as a standalone business and whether Apple is

³³ As noted above, we calculated Apple's ROCE by dividing its operating income by its capital employed. We calculated its capital employed from information in its 10K as: total assets less current liabilities and removed cash and equivalents and marketable securities. Operating income has also been calculated from data in the 10K.

³⁴ We note in particular that in the Online Platforms and Digital Advertising Market Study, we calculated the 10-year average ROCE of Alphabet to be 39%. We calculated that Facebook's ROCE has been between 38% and 50% since 2016 following significant growth in its business. See [Appendix D: Profitability of Google and Facebook \(publishing.service.gov.uk\)](#) figure D.2 and figure D.10 respectively.

earning sufficient returns in devices to cover the cost of its overall investments; and

- we considered whether it would be appropriate to include any sensitivities associated with intangible assets that might not be recorded on the balance sheet.

Sensitivities to the size of Apple's asset base

53. One objective of a ROCE analysis is to assess how actual returns on investment compare to the level of returns on investment in competitive markets. To achieve this objective, the level of assets should represent a reasonable estimate of what it would cost for a competitor to replicate the operational assets of the firm being analysed. As noted above, only assets and liabilities necessarily arising from the operation of the business to supply the relevant business activities should be included in the measure of capital employed used to calculate ROCE.
54. Excluding cash, Apple also has a significant net current liability balance, which reduces the level of capital employed by Apple. Although we would expect firms to accumulate liabilities during their ordinary course of business, it is possible that some of these liabilities are not directly linked to the relevant business activities and that a competitor would not be able to replicate this net liability position. As a result, we have considered a sensitivity which excludes Apple's net current liability position, which has the effect of increasing capital employed and reducing Apple's ROCE.
55. In this sensitivity, the only net assets included are Apple's non-current assets – both PPE, and other non-current assets (NCAs). A review of Apple's classification of its other NCAs suggests that they include some items which do not appear to be relevant to the calculation of Apple's ROCE, such as restricted cash. As such, we would expect some of these assets to be reasonably excluded from this assessment.
56. On the basis that we have only partial information to fully classify NCAs in terms of whether they should be included in Capital Employed, the sensitivities that we have included are:
 - a) Capital Employed comprises net PPE plus all other NCAs; and
 - b) Capital Employed comprises net PPE only.³⁵

³⁵ We have used the values from Apple's 10K 2011-2021 for PPE and non-current assets.

57. Sensitivity (a) is likely to overestimate the correct replacement cost of the assets required by an entrant or competitor and therefore underestimates ROCE, whereas sensitivity (b) may understate the level of capital employed and hence, overstates ROCE. These would therefore represent upper and lower bounds for an approach to measuring ROCE where capital employed is based on accounting measures for non-current assets. Table D.1 illustrates the values of assets included in this sensitivity, by comparison to the base case for ROCE.

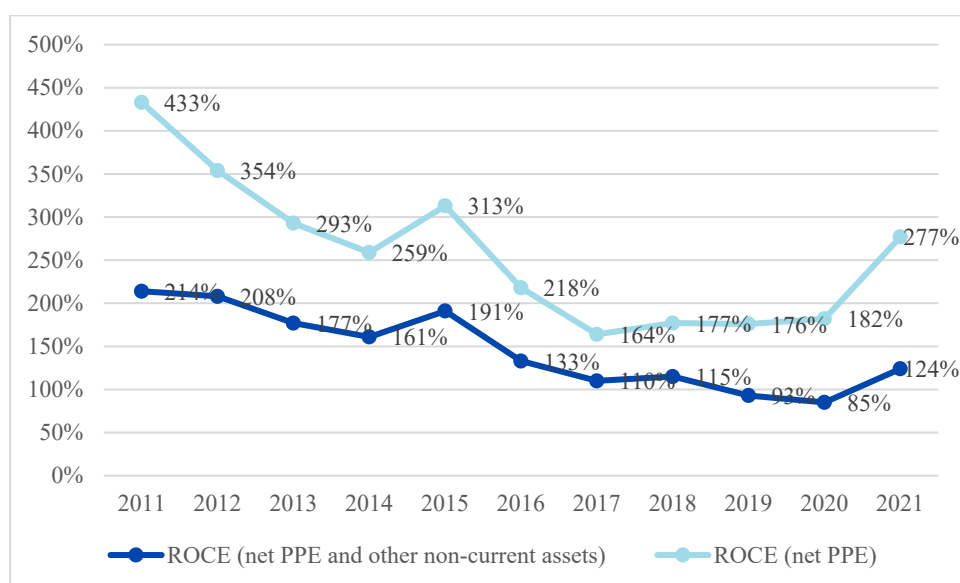
Table D.1: Apple assets and liabilities for inclusion in ROCE calculations, 2021 (£m)

	2021 (£m)	Original ROCE	Net PPE plus all other NCAs	Net PPE only
Net PPE	28,832	Yes	Yes	Yes
Other non-current assets	35,710	Yes	Yes	No
Current assets	52,778	Yes	No	No
Current liabilities	(91,731)	Yes	No	No
Total net assets for use in sensitivity	25,589	25,589	64,542	28,832

Source: CMA Analysis of Apple 10K 2021

58. Figure C.7 demonstrates that under these fixed asset sensitivities, Apple displayed a consistently high ROCE over the period 2011 to 2021. ROCE in 2021 was 124% for the lower sensitivity based on total non-current assets and was 277% for net PPE only. Over the previous five years, the average ROCEs have been around 100% and 180% respectively.

Figure C.7: CMA analysis of Apple's ROCE under alternative asset assumptions (2011 to 2021)



Source: CMA analysis of Apple 10K

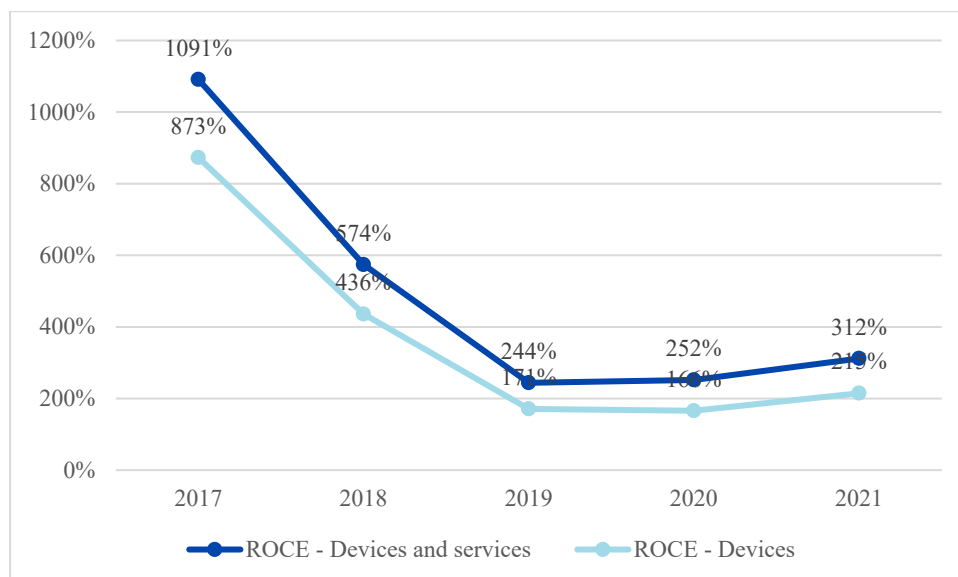
59. In our view, this analysis indicates that this sensitivity would not change our conclusion that Apple's return on investment has been significantly higher than a benchmark level.
- *ROCE of Apple's Devices business*
60. The analysis above is presented on the basis of a single, integrated, assessment of the profitability of Apple's Devices and Services segments in combination. We are aware that within a mobile ecosystem, investments in one part of the ecosystem (eg devices) may benefit its other parts of the ecosystem (eg services) business, by allowing Apple to provide more effective apps. Similarly, investments in services may benefit the devices business by making devices more attractive to users.
61. Nevertheless, devices and services also operate under different competitive conditions, as demonstrated by our competitive assessments in different parts of the mobile ecosystem. In that context, we consider that it is informative to understand whether Apple would be making a high ROCE based on its devices as a standalone business. Apple's services revenues depend on the sale of Apple devices. Therefore, in understanding the effect of potential changes in competitive conditions in services, it is informative to understand whether Apple is making sufficient returns in devices to cover the costs of its investments.
62. In our analysis we have taken the conservative approach of assuming Apple's entire asset base (and consequently the capital employed) relates solely to the Devices segment. Although this is conservative, it reflects that we expect that most tangible asset investments would not be avoidable, if Apple did not operate the elements of the services business within the scope of this study.
63. To carry out this assessment, we have also had to calculate an EBIT for Apple's devices business. EBIT is calculated as gross margin (revenues less directly attributable costs) as discussed above, net of an allocation of common costs.
64. Apple told us that any analysis that relies on operating expenses at the product level, such as operating margin, are entirely driven by the criteria adopted for the allocation of operating expenses across lines of businesses, and Apple does not believe they are meaningful. We accept that any allocation of common costs can be somewhat arbitrary. At the same time, it is also normal business practice to calculate operating profits, at least at an aggregate business level, as businesses have to recover common costs, and returns to investors are determined by profits after operating costs. As a

result, there are a number of well-established methodologies for the allocation of common costs for this purpose.

65. In this context, we have made an assumption to calculate the EBIT for devices based on an allocation related to their contribution to Apple's gross profits using the following steps:
- we have used the breakdown of Devices and Services gross profits from Apple's 10K to calculate the proportion of gross profits generated by devices;³⁶ and
 - we have then estimated the share of operating costs that would be allocated to devices, by applying the same proportion of gross profits generated by devices to total operating cost data from Apple's 10K.
66. We were only able to perform this process for the period 2017 to 2021 inclusive, as prior to 2017 Apple did not provide a breakdown of gross profits into its Devices and Services segments. In practice, we consider the choice of allocation method would not have a material effect on the conclusions, and we therefore consider that this calculation gives a reasonable indication of the scale of the EBIT of Apple's devices business, if it were operated as a standalone business.
67. As can be seen at Figure C.8 below, under these assumptions, the ROCE of Apple's Devices segment varied between 873% in 2017 and 215% in 2021, with an average ROCE of 253% over the 5-year period, by comparison to the ROCE of the combined devices and services business which varied from 1091% in 2017 to 312% in 2021.
68. This analysis indicates that Apple's Devices segment would also be highly profitable if considered on a standalone basis.

³⁶ The proportion of gross profits generated by Devices was as follows: 80% (2017); 76% (2018); 70% (2019); 66% (2020) 69% (2021).

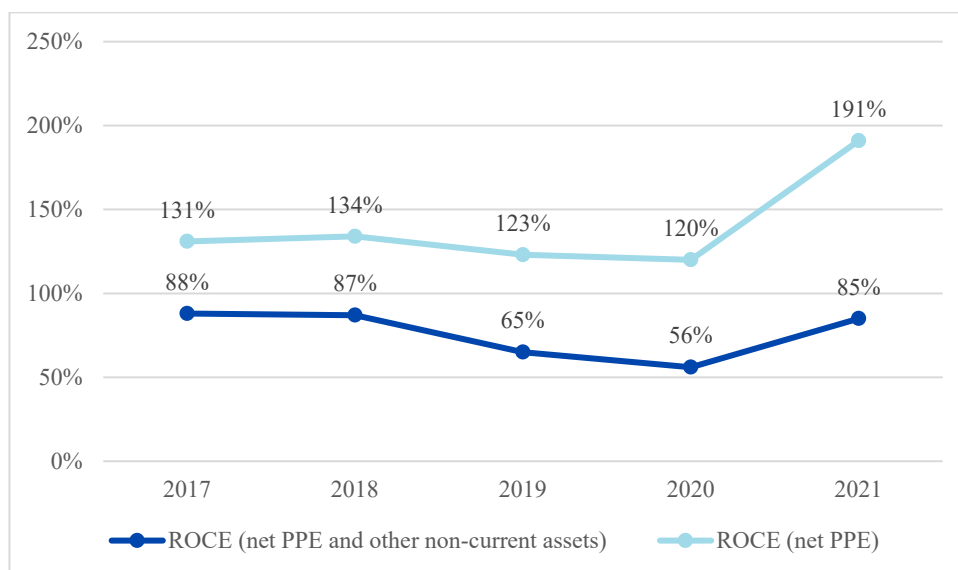
Figure C.8: ROCE of Devices 2017-2021



Source: CMA analysis of Apple 10K

69. Finally, we have considered the consequence of combining both sensitivities, ie we have calculated the ROCE of the Devices business segment over the higher capital employed bases described above.

Figure C.9: Alternative ROCE calculations 2017 to 2021



Source: CMA analysis of Apple 10K

70. Our analysis indicates that, under this most cautious combination of sensitivities, the analysis still shows a consistently high estimate of Apple's ROCE. The average ROCE for the Devices segment for the period 2017 to 2021 was:

- 73% for net PPE plus all other NCAs; and
- 143% for net PPE only.

71. In our view, this analysis illustrates that Apple's actual ROCE for devices would be consistently very high and well above any reasonable benchmark return on capital, even if Apple produced and sold devices as a standalone business.
72. In addition to Apple's devices ROCE, we also considered Apple's gross margin excluding App store, the largest segment within Apple's service business. We calculated that Apple's gross margin would decrease from 43% to 38% excluding the revenue from App Store (including advertising),³⁷ In other words, Apple would still have high gross margins even if it didn't generate profits from App Store commissions.
- *R&D*
73. We note that Apple has been increasing its annual expenditure in R&D on an absolute basis since 2011, reaching £16 billion in 2021, and that the percentage of R&D spend relative to sales has also increased, from 2.2% in 2011 to almost 6% for 2021. Under accounting principles, R&D is typically treated as an expense and accounted for in the firm's profit and loss account. However, there may be circumstances where this expenditure leads to the creation of an asset that will provide future economic benefits and therefore represents capital investment from an economic perspective. In these circumstances, the level of capital employed recorded on a firm's balance sheet may be understated.
74. One potential approach to ROCE for a firm investing in long-term assets through R&D is to adjust the capital employed to include that part of the firm's R&D expenditure, ie to assume it creates an intangible asset. Such a change would have two offsetting effects on the calculation of ROCE. In addition to increasing the firm's level of capital employed by moving expenses into its capital base, the firm's EBIT will also increase since it removes some of its operating expenses out of its cost base. In other words, both profit and capital employed will increase. As a result, while this could change the percentage ROCE, it might not change the finding that returns are high.
75. More detailed information than is publicly available is required to carry out an accurate adjustment for Apple's ROCE calculation. We would normally expect that much of a firm's R&D investment would relate either to expansion into new business ventures outside the scope of current businesses, or to incremental improvement to products which might be correctly treated as current costs. Nonetheless, our initial estimates indicate that even if an

³⁷ CMA analysis using App Store revenue at the top end of our range ie: 40% of services revenue.

approach was taken that would have the greatest effect on the size of the capital base, for instance all R&D was capitalised and amortised over a long period, Apple's ROCE would continue to be substantially higher than a reasonable benchmark.

76. We have therefore maintained our standard approach of including R&D within current costs in our analysis, both on the basis that any alternative treatment would not change our conclusions, and also that we have not seen evidence that Apple's R&D meets the criteria that would support capitalisation. Further consideration of the impact of capitalising these costs is provided within our assessment of Apple's submission on our ROCE calculations.

Apple's submissions on our ROCE calculations

77. Apple argued that the extreme and volatile ROCE outcomes demonstrate that the approach we followed in the interim report is misconceived. It suggested that:

- the levels of profitability calculated by the CMA are unrealistically high and the volatility points to the measure being flawed; and
- the CMA's methodology yields negative ROCE in FY2004 and FY2005 even though Apple's operating profit was positive in those years.³⁸

78. Apple provided two reasons to explain why it considered our measure of ROCE to be incorrect: our treatment of cash and marketable securities and its treatment of intangibles.

- *Treatment of cash balances*

79. Apple argued that all assets (including cash and other liquid assets as part of total liabilities) should be included in the definition of total assets. Apple presented adjusted ROCE figures highlighting that the inclusion of cash and marketable securities within capital employed very substantially reduces Apple's ROCE.³⁹

80. We consider Apple's submission that cash should be included in the measurement of assets to be unjustified for this analysis, given that Apple's

³⁸ Apple explained that ROCE can be negative with positive operating profit only if capital employed is negative. Apple indicated that negative capital employed can only occur in circumstances where companies have such a high negative working capital that it exceeds the size of their net fixed assets. Apple instead stated that it has consistently showed a high and positive working capital over the period 2000-2021.

³⁹ Apple highlighted ROCE including cash and all marketable securities averaged 32% for 2011 to 2021. Apple highlighted ROCE including an illustrative valuation of intangible assets, cash and marketable securities averaged 30% for 2011 to 2021.

cash balances are not being employed to support ongoing operations. The purpose of evaluating return on capital relative to WACC is to assess whether actual return on investment in business activities is sufficient to reward investors for making those investments in business activities. Whether or not a company also chooses to hold cash, which is a no-risk investment, is a separate financing decision, and is irrelevant to the question of whether return on investments in the business (ROCE) is sufficient to reward investment in the business.

81. There are limited circumstances where cash should be included in the balance sheet for ROCE purposes and measured against the WACC. This would normally only be in cases where there are particularly low assets and a cash buffer is required as part of the capital needed to operate the business and where investors would be at risk of losing that cash investment. This should be distinguished from the circumstances where cash is held as part of the choice of capital structure, ie that a business chooses to hold cash balances as a potential source of financing for future investment, rather than distributing that cash to shareholders.
82. Given Apple's profitability, there is no realistic prospect of these cash balances being used to fund losses and therefore being converted into equity investments to fund current operations. We are therefore not persuaded that the scenario presented where Apple includes cash in the asset base for capital employed is relevant to the assessment of whether ROCE is above the WACC.
 - *Sensitivities to the definition of intangible assets*
83. Apple stated that it is one of the largest firms in the world in terms of R&D investment and it has significant brand value. Apple suggested that it is therefore inconceivable that it has no intangible assets. Apple further argued that although the inclusion of intangible assets may not materially affect the ROCE in the current period, the accumulation of intangible assets is likely to affect (and lower) the ROCE in future periods.
84. Apple calculated, as an illustrative example, an alternative scenario for ROCE based on taking a different approach to measuring intangible assets. Apple capitalised R&D costs, adding them back to EBIT, and took a similar approach to advertising expenses and amortised its investments in R&D and the value of its brand over a 10-year period.
85. Apple said that making these illustrative adjustments to account for intangible assets further reduces returns and highlighted that under its ROCE including intangible assets approach, returns average 158% (FY 2011-2021).

86. We agree that there are likely to be some uncapitalised intangible assets, although we consider that these are likely to be less than under Apple's assumptions. Yet even under those assumptions, we still observe very high levels of ROCE. If we were to take Apple's suggested approach to intangibles, ROCE averages over 150% between 2011 and 2021. This is materially above what would be required to sufficiently reward investors with a fair return. In other words, although the size of the ROCE would decrease under Apple's assumptions the scale of the difference between ROCE and WACC would remain materially above any reasonable benchmark return on capital.

ROCE as a relevant measure in these markets

87. Apple further submitted that our levels of profitability are unrealistically high with the volatility pointing to the measure being flawed and that due to the difficulties estimating the ROCE reliably, comparisons between ROCE and WACC are not meaningful. Moreover, Apple disputed the relevance of a ROCE vs WACC comparison in innovative technology markets. It also argued that that our methodology yields negative ROCE in FY2004 and FY2005 even though Apple's operating profit was positive in those years.
88. We agree that the level of Apple's ROCE has fluctuated year-on-year, as illustrated in Figure C.6. Given these fluctuations we have analysed returns earned by Apple over an 11- year period rather than focus on ROCE in any particular year. Furthermore, our sensitivities, adjusting for capital employed comprising of net PPE plus all other NCAs and capital employed comprising net PPE only, show a less volatile (and still extremely high) ROCE trend. Despite some fluctuations in the measure over time, even our most cautious estimates of ROCE remain consistently well above a reasonable benchmark for WACC. We therefore do not consider that volatility undermines the reliability of ROCE as a measure, nor does it affect our assessment of whether Apple's profits have been consistently above a level that would sufficiently reward investors with a fair return.
89. It is correct that in periods of negative capital employed such as FY2004 and FY2005 that ROCE is meaningless. However, as we have shown, capital employed has now been large and positive over a long period.
90. Furthermore, we consider that the maturity and stability of this market is another reason why ROCE is a suitable measure. The market is highly concentrated, with both Apple and Samsung having high market shares for a sustained period of time; and the markets are at a stage where there has been no disruptive innovation for a number of years. On the contrary, there are many other entrants that have tried to compete in developing smartphones with similar technologies to Apple.

Apple's submissions on an alternative competitive benchmark to WACC

91. Apple stated that it launched the iPhone in 2007 and faced effective competition in 2007-2011 from Nokia, Blackberry and many other rivals such as Samsung, LG, Sony Ericsson and Motorola as well as effective competition from another new entrant, Google, which launched its own mobile operating system, Android, in 2008. It therefore argued that this was a period that provides a reasonable competitive benchmark for assessing levels of profitability.
92. Apple further argued that its profitability is not excessive when compared to a period of effective competition under both ours and other measures of ROCE. Apple highlighted that under our approach to calculating ROCE, Apple's profitability was significantly higher during 2007-2011 (731% on average) than over 2017-2021 (495% on average).
93. We are not persuaded by this argument. 2007-2011 was a period of disruptive innovation when you would expect 'first movers' to gain significant market share and profits. Furthermore, whilst the relative ROCE has gradually fallen since 2011, Apple's absolute profits have grown over this period. Cash returns for investors remain high and the incremental returns on new investment continue to exceed any reasonable benchmark.
94. Overall, after reviewing the information submitted, we concluded that the arguments put forward by Apple did not provide evidence to change our initial view that our ROCE analysis demonstrates that profits are materially above what would be required to sufficiently reward investors with a fair return.

Our estimate of Apple's UK mobile profits above benchmark profit levels

95. For illustrative purposes we have considered how ROCE would convert into an annual profit number as an estimate of how much profit Apple's UK mobile business earned over and above what was required to sufficiently reward investors with a fair return. This figure is illustrative of the profits potentially available from more effective competition to Apple's UK mobile business, which should be providing incentives for investment. By considering the device and services businesses together, we also provide a combined analysis which takes account of Apple's concerns that the profits of the individual businesses cannot be properly considered independently. We considered a number of scenarios, all of which suggested that profits were high relative to this benchmark.

96. To estimate this figure for Apple's UK mobile business we:
- First, used our 2021 central case Apple Group level ROCE calculation (Figure C.6). To reflect Apple's submissions, we also considered a scenario where we adjusted this figure by adopting a similar intangibles adjustment approach highlighted by Apple. We capitalised R&D and advertising costs⁴⁰ adding them to capital employed and EBIT and amortising over a period of ten years.
 - Second, used our expected investor return of 10% to calculate an required return on capital for Apple at the Group level for 2021.
 - Third, estimated UK total revenue as a percentage of Group total revenue to estimate an economic profit figure for Apple's UK business, applying this ratio to Group economic profits.⁴¹
 - Finally, subtracted our estimate of non-mobile gross profit.
97. This approach is conservative as it allocates all Apple's assets to mobile, and also assumes that all operating costs are allocated to mobile. Using this conservative approach, we found that Apple's earned at least £2 billion more profit in 2021 from its UK mobile business than the benchmark level required to remunerate investors. There are a number of scenarios for how to calculate this measure, and our assessment is that they all suggest at least a comparable level of returns, and in many cases higher.

Summary of findings on Apple's financial performance

98. Based on the analysis above, we have found that:
- Apple was highly profitable through the last 10 years, making high profits and a high return on capital. Although Apple has historically been a devices business, its business model is evolving, and the share of profits attributable to its services business was rapidly increasing from 2016 to 2021.
 - Its services revenue comes primarily from: the App Store – for which commission levels charged result in revenues well above cost on App Store; and the fees earned by Apple from what it calls 'Advertising (Third Party Licensing Arrangements)', which is predominantly made up of its

⁴⁰ Apple does not report Advertising expenses from 2016 onwards. We therefore used 2011-2015 % advertising cost to SG&A as a proxy for 2016-2021.

⁴¹ As discussed above, the UK share of advertising (licensing) revenue is higher than for the UK business generally. We adjusted the share of UK revenue to reflect this higher proportion for this high margin activity, and a lower proportion for other mobile revenues.

share of revenue from Google acting as the default search engine on Safari.

- Apple's profitability, when measured as a return on capital, is high, at over 100% ROCE per annum for Apple even when adopting cautious sensitivity analysis. If Apple's devices business was considered as a standalone business, and all the assets of the integrated devices and services business were allocated to this business, the standalone devices business would still earn well above any normal benchmark ROCE level, before any incremental operating profits from services are included.
- We estimate that this high return, combined with additional margins from the services businesses, means that Apple was able to earn at least £2 billion of profits in 2021 from their UK mobile business over and above what was required to sufficiently reward investors with a fair return. These profits would be expected to decrease if Apple's UK mobile business faced greater competition, either through lower prices or greater investment in quality.

Google

Revenues

99. In assessing Google's financial performance in respect of the markets in this market study, we have started with Alphabet Inc's group financial statements which break down reporting into three main segments:⁴²
- Google Services includes products and services such as ads, Android, Chrome, hardware, Google Maps, Google Play, Search, and YouTube.
 - Google Cloud includes Google's infrastructure and data analytics platforms, collaboration tools, and other services for enterprise customers.
 - Other Bets which Google refer to as a combination of multiple operating segments that are not individually material from a revenue perspective. These businesses are generally not directly related to Google's core businesses.
100. All the revenues within the scope of this study sit within Google Services.⁴³ , Google does not publish any comparable breakdown of revenues by category of services within its 10K accounts. As a result, in order to understand the key

⁴² [Alphabet Inc 2020 10K Report](#).

⁴³ We note that Google's definition of Google Services includes hardware, whereas Apple separates Devices from Services in its reporting.

drivers of its growth in relation to its mobile business, we asked Google to provide a breakdown of its services revenue for the period 2018 to 2021.

101. The UK revenue breakdown we received from Google included all revenue items in the 10K (ie revenue from Cloud, Network Ads, Other, Other Bets, Search Ads & Related, and YouTube Ads), with the exception of Hedging gains (losses), which is not available for Google's UK business. On this basis, total UK revenues in 2021 were £[10-15] billion.⁴⁴
102. The majority of this, over £7 billion, was earned from mobile products and services. Google's revenue analysis suggests that, within the mobile ecosystem, there are some differences between the share of revenues generated from different business areas in the UK versus globally. The largest proportion of global revenue relating to mobile devices in 2021, representing [40-60]% of all mobile revenues, is generated within mobile search advertising, followed by YouTube advertising (at [0-20]%) and revenues generated from the Play Store (at [0-20]%). By contrast, Google generates a significantly larger proportion of its UK mobile revenues, [60-80]%, from search advertising.

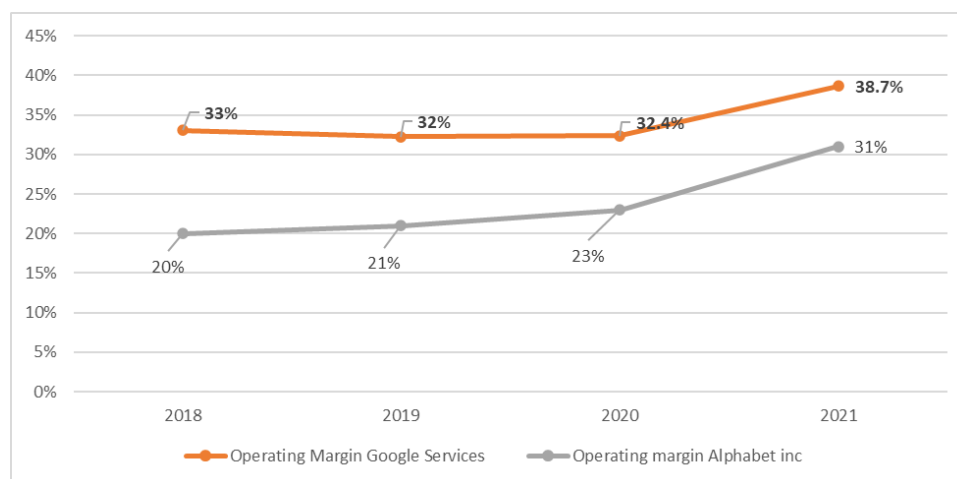
Profit Margins

103. In our assessment of Google's profit margins, we started with information contained within Alphabet Inc's financial statements. Using Google's measure of 'cost of revenues' within its 10K report,⁴⁵ we calculated that Alphabet Inc had a gross margin of 57% in 2021. In the same year, its operating margin was 31%.
104. As described above, the business units in the scope of this study sit within the Google Services segment. Google also provides revenue and operating income data for this segment, which showed that Google Services is the most profitable segment within Alphabet Inc, with an operating margin of 39% in 2021, as illustrated in Figure C.10. The size of the published profit margins for Google is not directly comparable to the size of the margins in the analysis for Apple above, as Apple publishes gross margins, which are calculated before an allocation of operating costs.

⁴⁴ Google notes that in compiling this data, several finance and engineering data systems had to be used which may not be used for financial reporting purposes. The revenue data does not include accounting adjustments (such as exchange rate impacts and discounts), is not US GAAP compliant, and may differ from publicly reported revenue.

⁴⁵ Google states that its 'cost of revenues' includes TAC (traffic acquisition costs); content acquisition costs; expenses included with data centres and inventory related costs for hardware. See [Alphabet Inc 2021 10K Report](#) pages 36 and 37.

Figure C.10: Operating Margins for Google Services and Alphabet Inc 2018-2021



Source: CMA chart from data contained within Alphabet 10K

105. As with Apple, we sought to understand the individual margins of Google's services within the scope of the study and how they contribute to the margins of the overall Google Services business. We therefore requested a breakdown of Google's total UK and global revenues and costs, including operating expenses, for all mobile related products and services.

106. While Google has provided revenues broken down by mobile and non-mobile devices, Google submitted that it does not record costs which relate to mobile and to non-mobile devices separately. Moreover, to provide the level of detail for the cost data we requested, Google had to use several finance data systems that may not be used for financial reporting and that may not generally be published externally. Therefore, Google submitted that the cost data provided is not US GAAP compliant and may differ from publicly reported costs. Google noted the following with regards to the cost information provided:

- [REDACTED]
- Costs are not recorded or broken down by device nor are costs allocated to individual countries.⁴⁶
- Google does not take a narrow view of costs on an isolated product area basis. Costs incurred in one Google product can benefit other Google products and as such Google considers the impact on the profitability of its business as a whole rather than the impact on a particular product. For example, costs related to Android can benefit Google Play, and broader research efforts, similarly so.

⁴⁶ [REDACTED].

- Data provided with regards to search includes both the revenue-generating advertising business and the free search organic business. Google also notes the cost data provided represents a best effort view of the costs associated with Search, although not all costs associated with Search can be identified.
107. We have taken a number of steps to address Google's concerns. For instance, we aggregated revenue and cost data between non-mobile and mobile categories and conducted our analysis on a global basis, to reflect the fact that costs are not recorded by device or allocated to individual countries. We also conducted certain sensitivities, for instance in relation to the allocation of Android's costs, as explained below. Therefore, whilst there may be some limitations associated with the data provided by Google, we are nonetheless of the view that it provides a reasonable guide to the scale of the relative profitability of Google's products.
108. As described above, Google's overall services global operating margin in 2021 was 39%. The segments with the highest global operating margins were Search advertising with global operating margins of [50-75]% and Play Store, with global operating margins of [50-75]%.⁴⁷ On an absolute basis, in 2021 Search advertising was the largest contributor to global operating income followed by the Play Store. In respect of the other markets within this study, we note that YouTube Other (ie non-advertising) and Google One had negative global operating margins in 2021 and that mobile operating systems and browsers are not directly monetised.
109. We have considered Google's monetisation strategy with regards to the costs related to Android and browsers, and as such we have assessed the consequence for margins if these costs are allocated to the Total Play Store (including advertising) and Search advertising, respectively. Adopting this approach, the impact on Search advertising global operating margins is very small. However, the Play Store Total (advertising and non-advertising) global operating margin reduced materially when Android's total costs of £[1-5] billion for 2021 were factored in.⁴⁸ We have considered this in more detail below.

⁴⁷ This includes both Play Store advertising and non-advertising. Play Store revenues include both revenues earned by the app store from app developers from the consumption and hosting of apps, which are the revenues directly in scope of this study, and also revenues from advertising on the Play Store.

⁴⁸ We used Bank of England data to convert from US Dollars into Great British Pounds (XUAAUSS). This was done using the yearly data from the Bank of England [Database](#).

Play Store

110. As described in the preceding paragraphs, the Play Store represents the second largest component of operating income within Google Services. As this is an area of particular focus within the present market study, we have analysed the performance of the Play Store in more depth.
111. As shown in Figure C.11, UK Play Store (non-advertising) revenues for 2021 were £[200-400] million, which represented a very low proportion of the global Play Store (non-advertising) revenues of [£5-10] billion for 2021. However, UK Play Store (non-advertising) revenues have grown at a faster rate than global Play Store (non-advertising) revenues since 2018, by [20-30] percentage points.^{49,50}

Figure C.11: UK and Global Revenue Play Store (excluding Advertising) 2018-2021

[✂]

112. In 2021, global Play Store (non-advertising) gross margins were [50-75]%. As depicted in Figure C.12, global Play Store (non-advertising) gross margins⁵¹ on a global basis have increased slightly by [0-10] percentage points between 2018 and 2021. Global operating margins have also shown a small but steady increase, rising by [0-10] percentage points between 2018 and 2021. As described above, global Play Store (non-advertising) operating margins were [50-75]% in 2021.

Figure C.12: Global Play Store Gross and Operating Margins 2018-2021

[✂]

113. Operating income earned from the Play Store (including advertising) more than covered Android's total costs for 2021. If these costs were attributed in whole to the Play Store, this would still leave Google with a relatively high global operating margin in 2021.^{52,53} Furthermore, we estimate that Google Services operating margin would decrease from 39% to 35% excluding the revenue from Play Store (including advertising).⁵⁴

⁴⁹ Global Play Store (non-advertising) in 2018 includes revenue from Play Video, which is not included in the 2021 revenue data. However, given the small size of Play Video revenue, this should not materially affect the comparison of the 2018 and 2021 revenue.

⁵⁰ We used Bank of England data to convert from US Dollars into Great British Pounds. This was done using the yearly data from the Bank of England Database.

⁵¹ Excluding Android costs.

⁵² The total of Play Store advertising and non-advertising.

⁵³ CMA analysis.

⁵⁴ CMA analysis using global Play Store revenue at the top end of our range (£10 billion).

114. Finally, we note that Google also records revenue for advertising within the Play Store separately. We note this category of revenue is growing at a fast rate.⁵⁵ Figure C.13 depicts the relative contribution of advertising towards the total Play Store revenue. Based on internal documents, we understand that Google expects Play Store advertising to continue to grow much more quickly than other Play Store revenues.

Figure C.13: Play Store Operating income contribution between advertising and non-advertising revenue

[X]

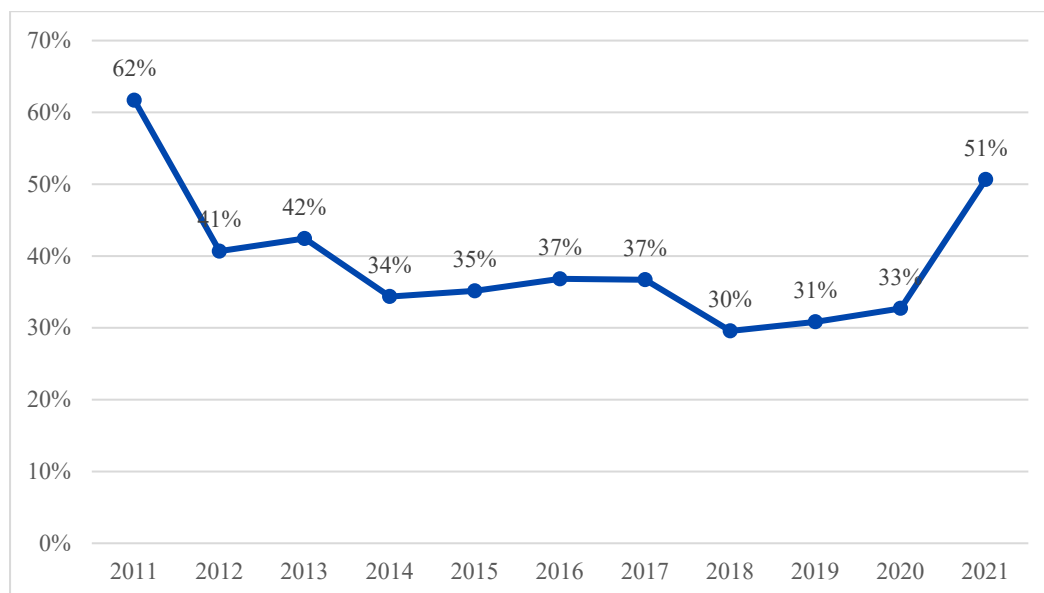
Source: Google chart from internal documents

Alphabet Group ROCE

115. We have not conducted a ROCE analysis for Google as part of this market study as we have previously conducted a full analysis as part of our online platforms and digital advertising market study. However, we have updated our previous ROCE analysis for 2019 to 2021 using publicly available information from Alphabet’s 10K.

116. As can be seen at Figure C.14, this indicated that the Alphabet Group was able to generate an average ROCE of 39% over the period between 2011 and 2021.⁵⁶

Figure C.14: Alphabet ROCE 2011 to 2021



Source: CMA Online platforms and digital advertising market study, [Appendix D, figure D.2 \(updated for 2020 and 2021\)](#)

⁵⁵ We note that Google submitted with regards to Play Store Advertising that it does not include all the costs that Play Store advertising would face if it were run as a standalone business (e.g. Android distribution costs, R&D costs and other investment costs).

⁵⁶ CMA Online platforms and digital advertising market study, Appendix D (updated for 2020 and 2021).

117. As part of the online platforms and digital advertising market study, we also calculated a ROCE for 2018 for the Google segment of the Alphabet group of 38%. This increased to 44% if the European Commission fine which Alphabet accrued in its 2018 accounts is excluded.

Our estimate of Google's UK mobile profits above benchmark level of profits

118. As with Apple, for illustrative purposes we have considered how ROCE would convert into an annual profit number as an estimate of how much profit Google's UK mobile business earned over and above what was required to sufficiently reward investors with a fair return. This figure is illustrative of the profits potentially available from more effective competition to Google's UK mobile business, which should be providing incentives for investment.
119. We have not updated our analysis on the profits mobile search earned above benchmark levels but to inform an estimated level of UK mobile profits above a benchmark level, we have used as a starting point the figure of £1.7 billion calculated by the CMA in its market study into online platforms and digital advertising.
120. To calculate our estimate of UK mobile profit above benchmark levels for Google for 2021 we have:
- First, applied our estimate of Google's search revenue growth between 2018 and 2021 to our £1.7 billion figure for profits above benchmark from the market study into online platforms and digital advertising.
 - Second, applied to this calculation our estimate of the percentage share of Google's UK mobile search revenue to total UK search revenue.
 - Third, estimated 2021 EBIT for other UK mobile revenue not related to Google's search business. Given that all assets have been attributed to search, this represents additional return on Google's investment in assets.
121. As in the previous market study, we consider that we are taking a conservative approach by assuming that all assets are allocated to Google's search business. We have also assumed that there is a proportionate increase in assets associated with the growth in mobile search revenue, ie. that none of Google's assets are fixed. Following this conservative approach, we found that Google's UK mobile business earned at least £2 billion more profit in 2021 than the benchmark level of profits. As with our analysis of Apple, there are a number of scenarios for how to calculate this measure, and our assessment is that they all suggest at least a comparable level of returns.

Summary of findings on Google's financial performance

122. Based on the analysis above, we find:

- Google was highly profitable through the last 10 years, making high profits and a ROCE consistently above a reasonable benchmark for WACC.
- Although most of its operating income comes from Search advertising in absolute terms, the Play Store has become an increasingly important source of revenue for Google and represents the second largest component of operating income within Google Services.
- This growth has been driven by commission fees charged to developers which result in revenues well above direct and operating costs for the Play Store, and this would still be the case if the costs of Android were allocated in full to the Play Store.
- Google was able to earn at least £2 billion of profits in 2021 from their UK mobile business over and above what was required to sufficiently reward investors with a fair return. These profits would be expected to decrease if the Google's UK mobile business faced greater competition, either through lower prices or greater investment in quality.