

Appendix D: 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 with respect to their mobile ecosystems.
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 of the barriers to entry and expansion 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 might 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;
 - an 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).
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. We have also sought to understand any trends or relationships between UK and global financial performance.

Apple

5. This section sets out our analysis of the financial performance of Apple. It is based on public data obtained from Apple’s published financial reporting, which includes the most recent financial year ending 25 September 2021, as well as information obtained from Apple using our information gathering powers, covering periods up to December 2020.

Revenues

6. 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 \$365.8 billion, which comprised of \$297.4 billion from Devices¹ and \$68.4 billion from Services.^{2,3}
7. Figure D.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 2011.⁴ In the UK, the CMA estimates that Apple had total revenues of around £[10-15] billion in 2020, with device revenue also making up the majority (around 80%) of total UK revenue.⁵
8. 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)⁶ of 23% between 2016 and 2020, which accounted for the majority of overall growth in revenue during this period.
9. As illustrated in Figure D.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 \$221 billion in 2020 to \$297 billion. 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.⁷

¹ 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.

² Services include the App Store, Digital content, Advertising, Cloud services, Payment services, AppleCare, plus Licensing.

³ [Apple 2021 10K](#), page 29.

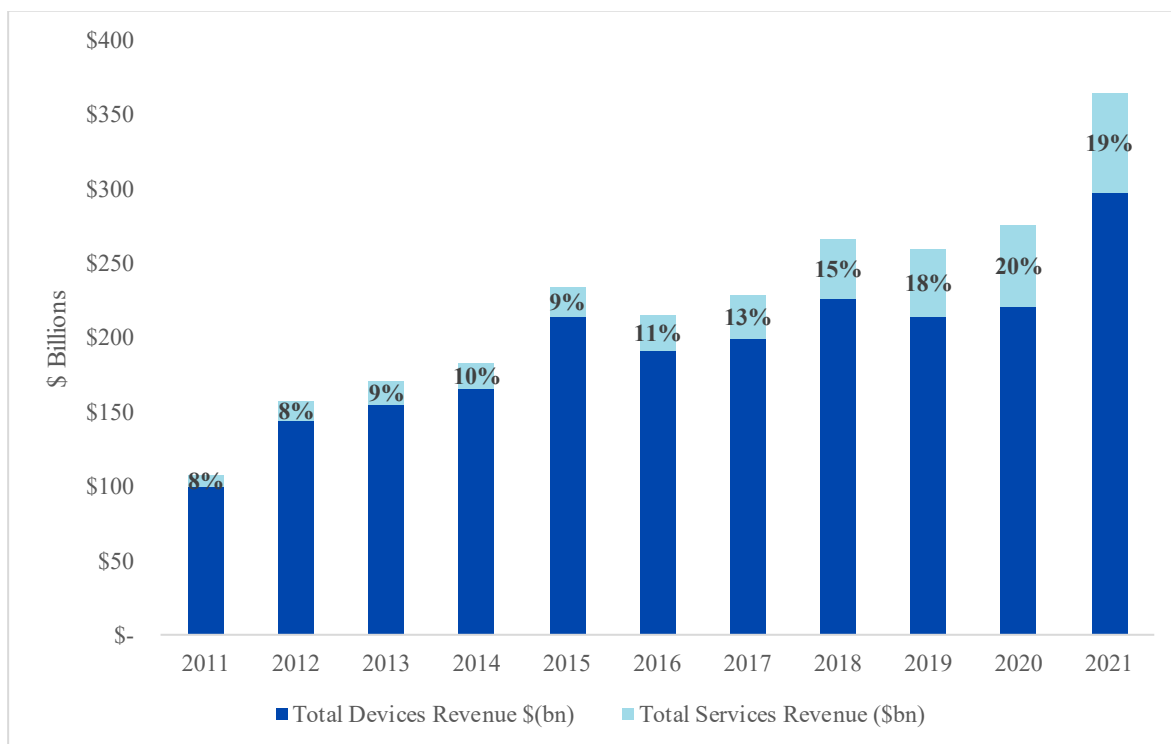
⁴ Calculated as a proportion of revenue figures from Apple 10K reports.

⁵ These are revenue figures provided by Apple which are based on Calendar Year 2020.

⁶ 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.

⁷ [Apple 10K 2021](#), page 21

Figure D.1: Apple Global Revenue (Devices & Services) between 2011 and 2021⁸



Source: CMA Analysis from Apple 10K data

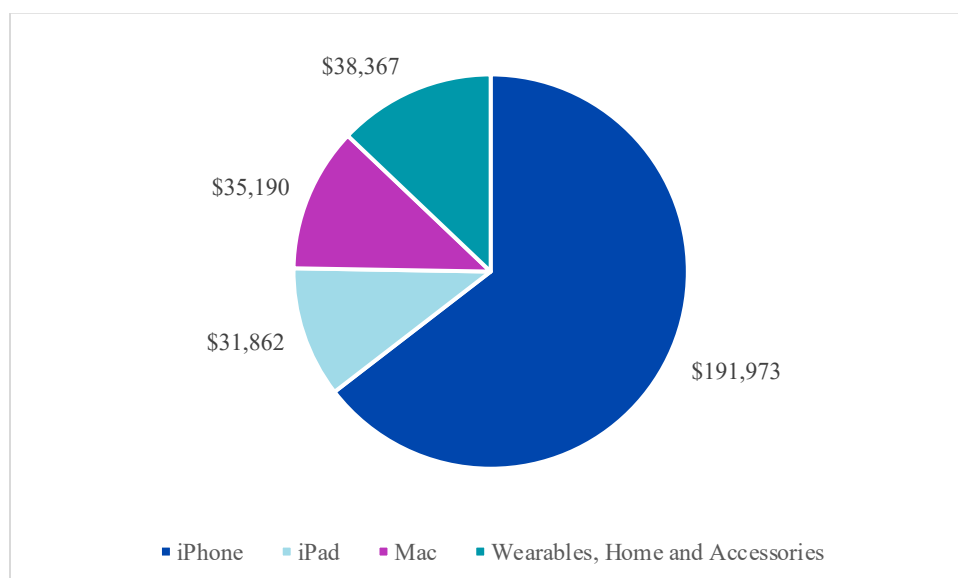
10. We have next considered the breakdown in Devices revenue: Figure D.2 provides a granular breakdown of Apple’s global revenue from device sales in 2021. The chart shows that Apple’s device revenue is largely made up of iPhone sales (65%), followed by Wearables, Home and Accessories (13%). In the third quarter of 2015, Apple launched its Apple Watch.⁹ From our review of Apple 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 2020.¹⁰

⁸ 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.

⁹ [Apple 10K 2015](#), page 23

¹⁰ 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 280% from \$10.1 billion in 2015 to \$38.4 billion in 2021.

Figure D.2: Split of Global Apple Devices Revenue 2021



Source: CMA Analysis from Apple 10K data

11. 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. As a result, in order to understand the key drivers of its services growth, we asked Apple to provide a breakdown of Apple's services revenue for the period 2018 to 2020 to understand its key drivers of growth.
12. This is illustrated in Figure D.3, which shows that, at the global level the App Store is the largest contributor to services revenue (at [20-40]%) followed by Advertising (Third Party Licensing Arrangements)^{11,12} (at [20-40]%) in 2020. Digital Content¹³ and Other¹⁴ represent [0-20]% and [20-40]% respectively.¹⁵ 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.
13. As previously noted in the CMA's market study on online platforms and digital advertising, in 2019, Google paid around £1.2 billion in return for default positions in the UK alone, the substantial majority of which was paid to Apple for being the default on the Safari browser.¹⁶ Data provided by Apple

¹¹ 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'.

¹² Apple response to RFI dated 28 September 2021, paragraph 7.1.

¹³ Digital Content comprises subscriptions such as Apple Music, Arcade, News+ and TV+.

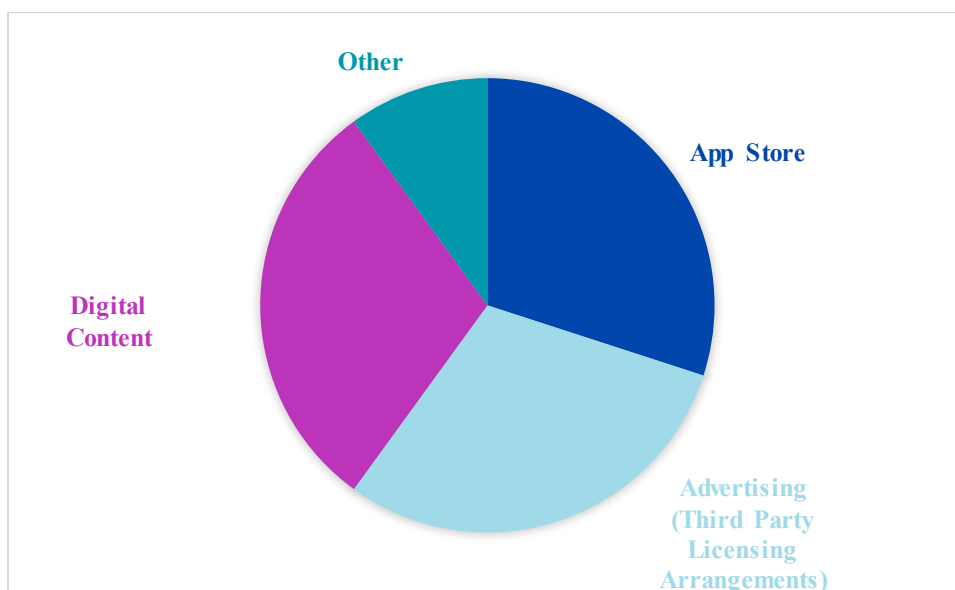
¹⁴ Other Services revenue comprises: Apple Care, Cloud Services, Payment Services (Apple Pay and Apple Card) and Other.

¹⁵ 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.

¹⁶ [Digital Advertising Market Study](#), paragraph 33.

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.

Figure D.3: Split of Global Apple Services Revenue 2020



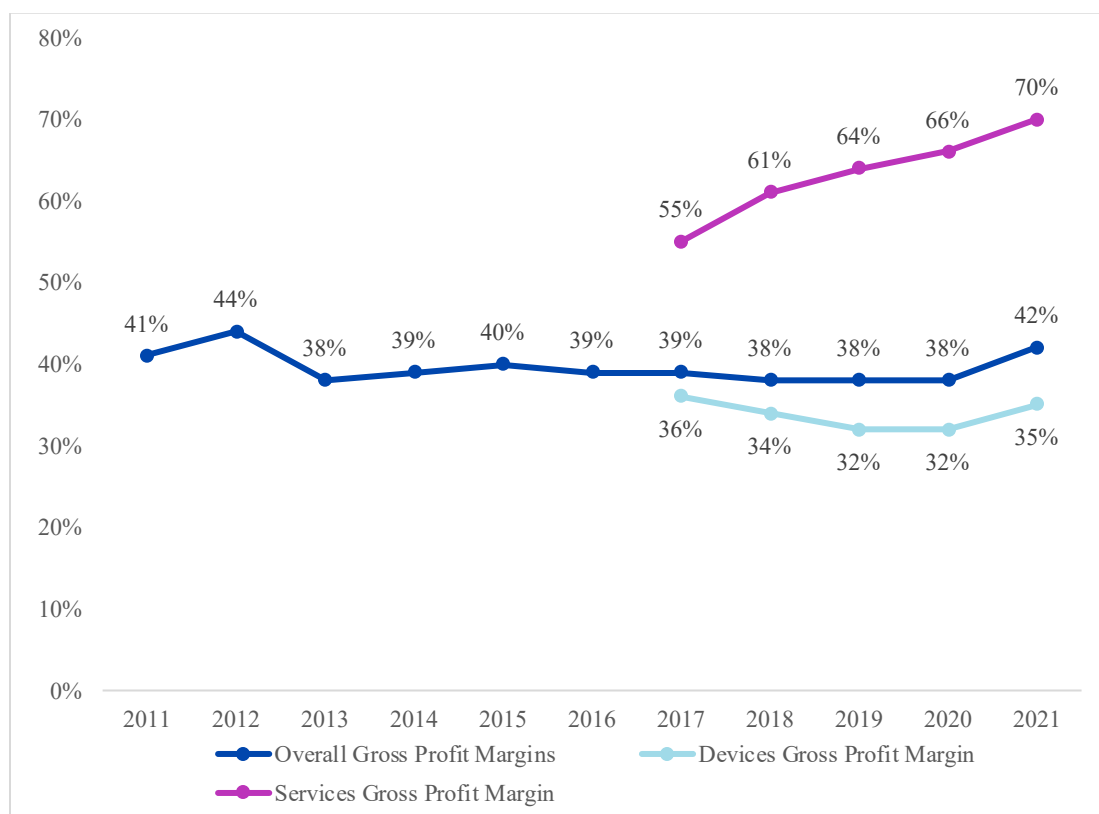
Source: CMA analysis

Gross Margins

14. Based on information contained within Apple's 10K reports, Figure D.4 presents Apple's 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 D.4 highlights, device gross margins 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 Devices.¹⁷

¹⁷ Apple 2017-2020 10K Reports.

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



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

15. 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. Since the iPhone also has the highest net revenue, it remains the largest contributor to net income for Apple.
16. 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 (Third Party Licensing Arrangements and platforms) businesses both had gross margins of [75-100]% for 2020. In terms of overall contribution to gross income, the App Store and Advertising (Third Party Licensing Arrangements) are also the largest contributors accounting for [75-100]% of gross services income globally for 2020.
17. 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, and also the interaction between the two.

18. 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.
19. 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 Chapter 3 - 6.
20. In the next section, we consider the profits earned by the App Store, which is an important part of this study. This analysis is largely based on information provided to Apple in respect to information requests by the CMA.

App Store

21. Globally, the App Store represents the largest segment within Apple's service business, comprising [20-40]% of total services revenue. In the UK in 2020, 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.
22. Figure D.5 shows net revenue for the App Store in the UK and globally between 2018 and 2020, highlighting strong growth over the period. Net revenue increased by approximately [40-60]% on a global basis, and within the UK, between 2018 and 2020. We also note the average ratio between net revenue and gross billings (ie, what Apple does not pass on to developers divided by the total revenue Apple obtains from selling digital content) over this period has been [20-40%] on a global basis, which is reflective of Apple's commission structure.

Figure D.5: UK and Global Net Revenue App Store 2018-2020



Source: CMA analysis

23. As described above, we estimated the App Store's gross profit margins to be [75-100]% for 2020.
24. 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.
25. Apple submitted that any P&L 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.
26. However, we 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 2019.¹⁸ 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.
27. 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 will need to earn sufficient returns to cover its investment into its mobile ecosystem from a combination of its mobile devices revenues and the

¹⁸ 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.'

revenues from the associated services businesses. We next consider Apple's return on capital (ROCE).

Return on Capital Employed (ROCE)

Introduction: Why we use ROCE as a measure of profit

28. As set out in our Guidelines for market investigations¹⁹ 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'. 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).
29. 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 weighted average cost of capital (WACC). 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.
30. 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 guidance indicates 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'.²⁰
31. 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

¹⁹ Market investigation [Guidelines](#), (CC3 Revised), parag.115, Annex A paragraph 9.

²⁰ Market investigation [Guidelines](#), (CC3 Revised), paragraph 118.

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:

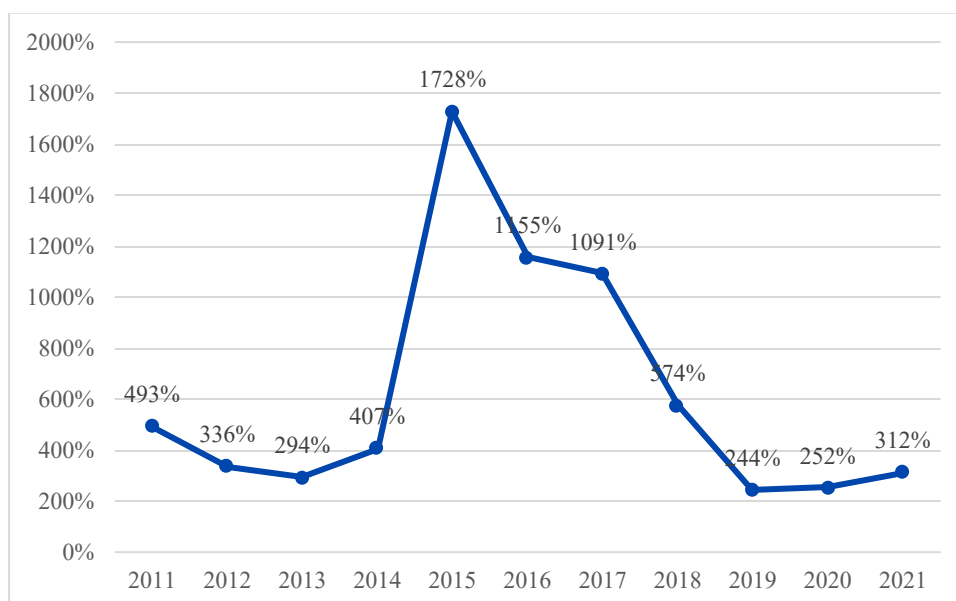
- financing costs both of a profit and loss and balance sheet nature (eg cash, interest and sources of finance), regardless of whether they are short- or long-term; and
 - taxation on income and any associated corporation tax or deferred tax assets and liabilities.
32. Our Guidelines also set out that, 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.²¹ In digital markets, this is particularly the case where there is internal investment in intangible 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.

Actual ROCE of Apple's overall business

33. 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.
34. 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 D.6 illustrates Apple's ROCE, based on its published data.

²¹ Market investigation [Guidelines](#), (CC3 Revised), paragraph 12.

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



Source: CMA analysis based on Apple 10K.

35. We calculated Apple's ROCE for the period 2011 to 2021 utilising information from its 10K.²² 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%.²³
36. 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.
37. 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 annum 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

²² 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.

²³ 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.

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

38. 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 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

39. 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.
40. 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.

41. 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.
42. 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.²⁴
43. 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)

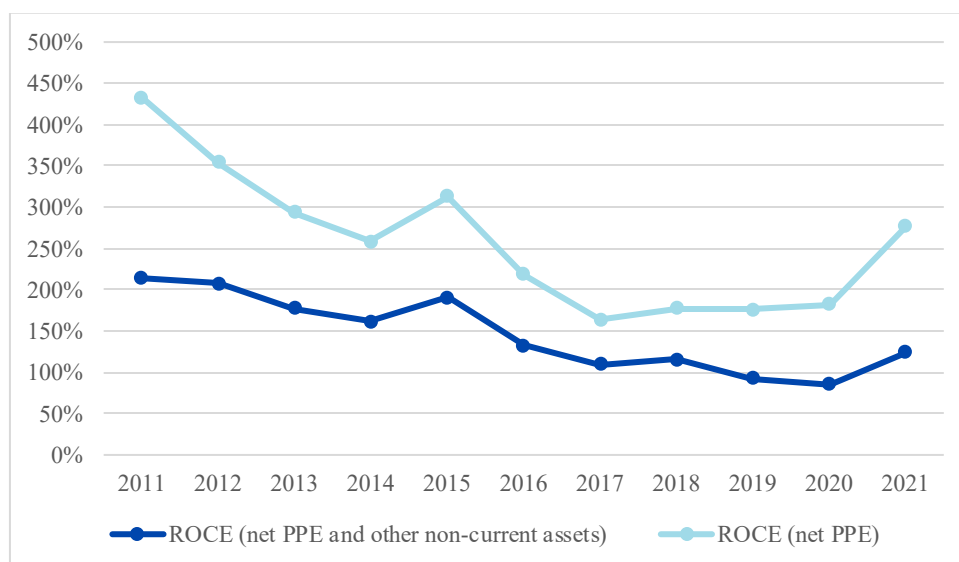
	2021 (\$m)	Original ROCE	Net PPE plus all other NCAs	Net PPE only
Net PPE	39,440	Yes	Yes	Yes
Other non-current assets	48,849	Yes	Yes	No
Current assets	72,197	Yes	No	No
Current liabilities	(125,481)	Yes	No	No
Total net assets for use in sensitivity		35,004	88,289	39,440

Source: CMA Analysis of Apple 10K 2021

44. Figure D.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.

²⁴ We have used the values from Apples 10K 2011-2021 for PPE and non-current assets.

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



Source: CMA analysis of Apple 10K

45. 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*
46. The analysis above is on the basis of a single, integrated, assessment of the profitability of Devices and Services 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.
47. 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 the Devices business 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.
48. 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.

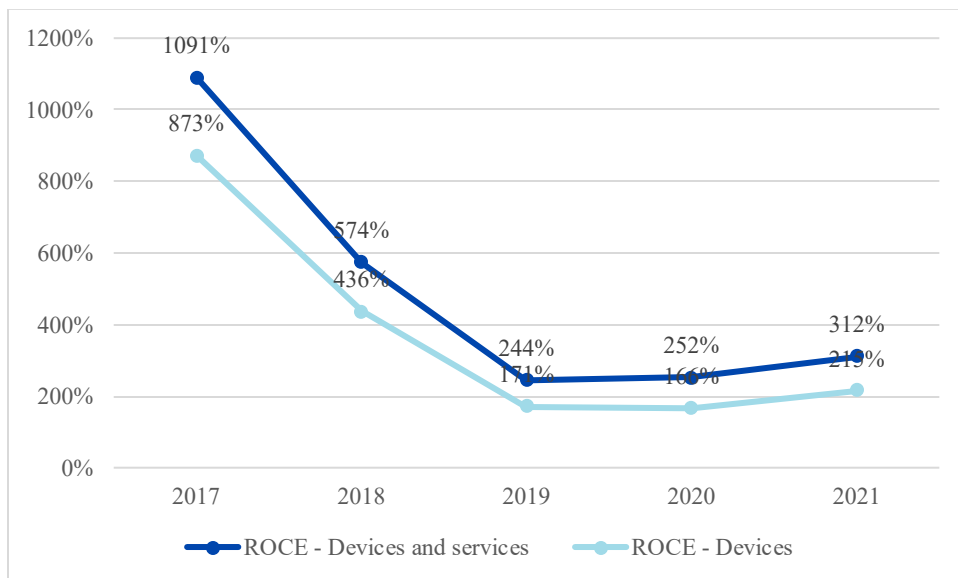
49. To carry out this assessment, we have also had to calculate an EBIT for Apple's Devices business. EBIT is calculated as gross margin (revenues less directly attributable costs) as discussed above, net of an allocation of common costs.
50. Apple told us that any analysis that relies on operating expenses 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 do 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.
51. 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;²⁵ 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.
52. 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 Devices and Services. 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 ROCE of Apple's Devices business, if it were operated as a standalone business.
53. As can be seen at Figure D.8 below, under these assumptions, the ROCE of Apple's Devices segment varied between 873% in 2017 and 215% in 2021,

²⁵ The proportion of gross profits generated by Devices was as follows: 80% (2017); 76% (2018); 70% (2019); 66% (2020) 69% (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.

54. This analysis indicates that Apple’s Devices segment would also be highly profitable if considered on a standalone basis.

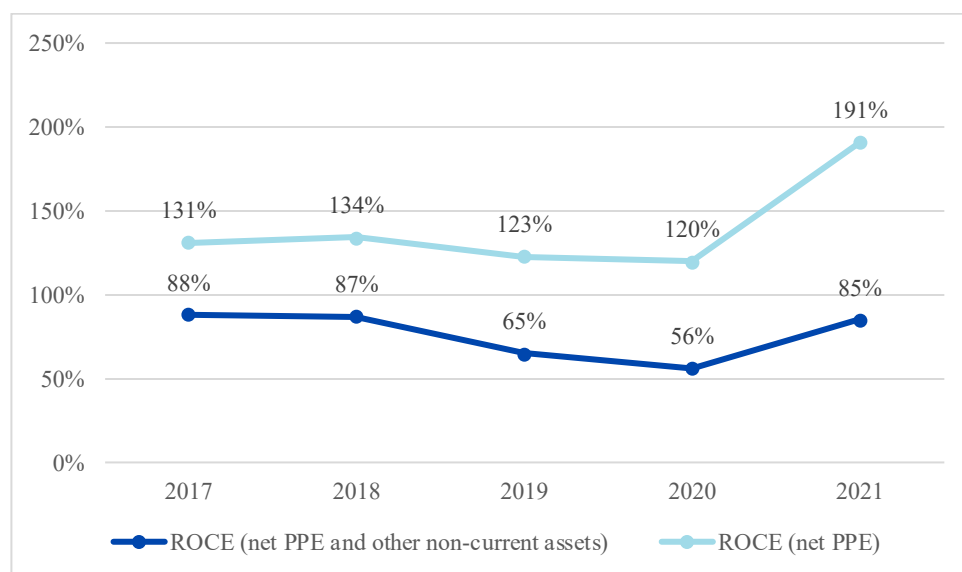
Figure D.8: ROCE of Devices 2017-2021



Source: CMA analysis of Apple 10K

55. 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 D.9: Alternative ROCE calculations 2017 to 2021



Source: CMA analysis of Apple 10K

56. Our analysis indicates that, under this combination of sensitivities, the analysis still shows a consistently high estimate of Apple's ROCE. The average ROCE for the Devices business for the period 2017 to 2021 was:
- 73% for net PPE plus all other NCAs; and
 - 143% for net PPE only.
57. 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 operated the Devices business as a separate, standalone business.
- *R&D*
58. We note that Apple has been increasing its annual expenditure in R&D on an absolute basis, exceeding \$20 billion in 2020, 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.
59. 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 rto 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 will not change the finding that returns are high.
60. 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 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.

61. We have therefore maintained our standard approach of assuming R&D to be 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. We welcome any further evidence from Apple or other stakeholders on the approach to profitability analysis, and whether there are examples of R&D investment which would be appropriate for capitalisation in this calculation.

Summary of findings on Apple's financial performance

62. Based on the analysis above, we find 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 2020;
 - This is driven by commission levels which result in revenues well above cost on App Store, and the fees earned by Apple from what it calls 'Advertising (Third Party Licensing Arrangements)', ie its 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 on most sensitised measures. If Apple's Devices business was considered as a separate, standalone, business, and all the assets of the integrated devices and services business were allocated to Devices, the standalone Devices business would still earn well above any normal benchmark ROCE level, before any incremental operating profits from services are included.

Google

Revenues

63. In assessing Google's financial performance in respect of the markets in this study, we have started with Alphabet Inc's group financial statements which break down reporting into three main segments:²⁶
- 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. These businesses are generally not directly related to Google's core businesses.
64. All the revenues within the scope of this study sit within Google Services.²⁷ As with Apple, Google does not provide any revenue breakdown between its main products, 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 drivers of its Google Services growth, we asked Google to provide a breakdown of Google's services revenue for the period 2018 to 2020.
65. The revenue breakdown we received from Google included revenue from the following, at both a UK and a global level: search advertising; YouTube advertising; Play Store; Gmail; in app advertising; operating systems; browsers and Google maps. The information provided by Google covers the markets in the scope of this study, but does not cover all Google Services revenue, as reported in Google's 10K.²⁸ The total revenue figures presented in this section include each of the revenue categories broken down above, but not include revenue from other businesses, either Google's other Google Services businesses, or the Cloud and Other Bets businesses. On this basis, total UK revenues in 2020 were £[5-10] billion, which grew by [0-20]% between 2019 and 2020.²⁹

²⁶ [Alphabet Inc 2020 10K Report](#)

²⁷ We note that Google's definition of Google Services includes hardware, whereas Apple separates Devices from Services in its reporting.

²⁸ Google told us that: 'The data available is stored in different systems and on different bases, which means that it is not possible to provide a coherent and consistent dataset according to the precise breakdowns requested by the CMA. For this reason, Google cannot provide "Other" revenues or "Total" revenues that provide a consistent view of Google's revenue globally or for users in the UK.'

²⁹ Global revenue, as defined above amounted to \$[160-170] billion for 2020.

66. For the purposes of our market study, we also asked Google to separate out revenues which are earned using a mobile device (including tablets) from those which are earned through other non-mobile devices.³⁰ This analysis showed that the majority of Google's UK revenue (around [60-80]% for 2020) relates to its services being consumed on a mobile device. This is similar to the split for Google's global revenues (around [60-80]% for 2020) and has remained at a similar ratio between 2019 and 2020.
67. 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 2020, 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.

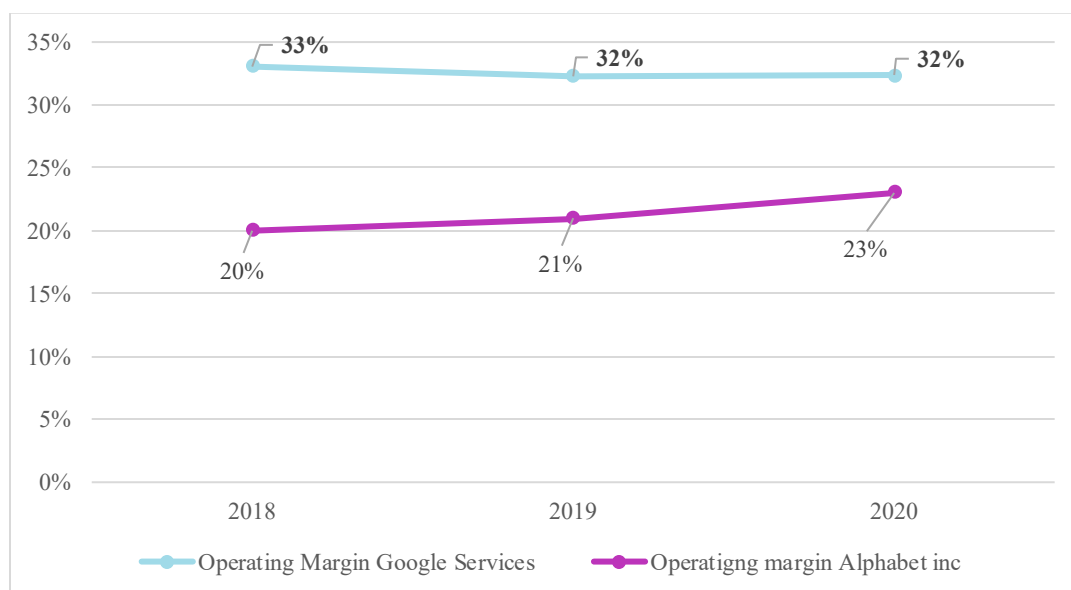
Profit Margins

68. 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,³¹ we calculated that Alphabet Inc had a gross margin of 53.6% in 2020. In the same year, its operating margin was 23%.
69. 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 32% in 2020, as illustrated in Figure D.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.

³⁰ 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), are not US GAAP compliant, and may differ from publicly reported revenue. Furthermore, while we requested this data for 2018, 2019, and 2020, Google noted it could only provide data in this form for 2019 and 2020 except for UK data for Google Play store and Chrome and global data for Google Play store, Google One and Chrome, which was provided for the full period requested.

³¹ 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 2020 10K Report](#) page 38.

Figure D.10: Operating Margins for Google Services and Alphabet Inc 2018-2020



Source: CMA chart from data contained within Alphabet 10K

70. 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.
71. 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 requested by the CMA, 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, 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.³²
 - 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

³² [REDACTED].

example, costs related to Android can benefit Google Play, and broader research efforts, similarly so.

- 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.

72. 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.
73. As described above, Google's overall services global operating margin in 2020 was 32.4%. The segments with the highest operating margins were Search advertising with operating margins of [50-75]% and Play Store, with operating margins of [50-75]%.³³ On an absolute basis Search Advertising was the largest contributor to 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 2020 and that mobile operating systems and browsers are not directly monetised.
74. 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 global operating margin reduced materially when Android's total costs of \$[1-5] billion for 2020 were factored in. We have considered this in more detail below.

³³ 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.

Play Store

75. 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.
76. As shown in Figure D.11, UK Play Store (non-advertising) revenues for 2020 were \$[200-400] million, which represented a very low proportion of the global Play Store (non-advertising) revenues of \$[10-15] billion for 2020. However UK revenues have grown at a faster rate than global Play Store (non-advertising) revenues since 2018, by [10-20]%.

Figure D.11: UK and Global Revenue Play Store (excluding Advertising) 2018-2020

[✂]

77. As depicted in Figure D.12, global Play Store (non-advertising) gross margins³⁴ on a global basis have increased slightly by [0-10] percentage points between 2018 and 2020. Global operating margins have also shown a small but steady increase, rising by [0-10] percentage points between 2018 and 2020. As described above, global Play Store operating margins were [50-75]% in 2020.

Figure D.12: Global Play Store Gross and Operating Margins 2018-2020

[✂]

78. Operating income earned from the Play Store (including advertising) more than covered Android's total costs for 2020. If these costs were attributed in whole to the Play Store, this would still leave Google with a relatively high global operating margin in 2020.^{35,36}
79. 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.³⁷ Figure D.13 depicts the relative contribution of advertising towards the total Play Store revenue. Based on internal documents, we understand that

³⁴ Excluding Android costs.

³⁵ The total of Play Store advertising and non-advertising.

³⁶ CMA analysis.

³⁷ 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).

Google expects Play Store advertising to continue to grow much more quickly than other Play Store revenues.

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

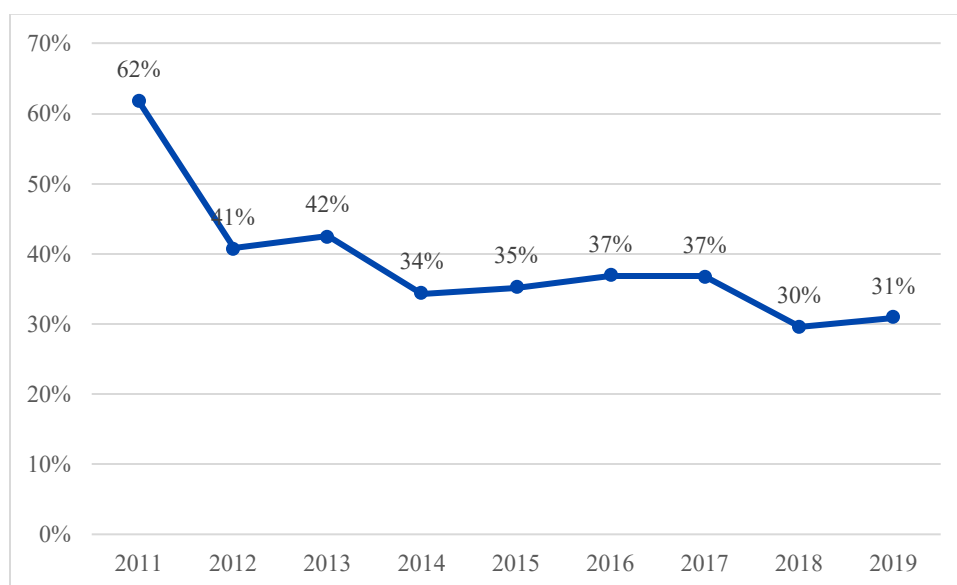
[✕]

Source: Google chart from internal documents

Actual ROCE of Google's overall business (now Alphabet)

80. 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.
81. As can be seen at Figure D.14, this indicated that the Alphabet Group was able to generate an average ROCE of 39% over the period between 2011 and 2019.³⁸

Figure D.14: Alphabet ROCE 2011 to 2019



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

82. 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.

³⁸ CMA Online platforms and digital advertising market study, [Appendix D](#).

Summary of findings on Google's financial performance

83. Based on the analysis above, we find:

- Google was highly profitable through the last 10 years, making high profits and a high return on capital;
- 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 is driven by commission levels 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.