Appendix T: Licensing analysis

Introduction

T.1 This appendix presents the methodology for and results of the following two analyses:

(a) our SPLA input cost analysis;[1] and

(b) our comparison of the prices that Microsoft charges Azure customers for Windows Server and SQL Server with the prices that it charges AWS and Google.

T.2 Our SPLA input cost analysis provides an estimate of what Microsoft's Windows Server and SQL Server licensing input costs would be if it paid the same wholesale prices that it charges AWS and Google via their respective SPLA contracts. It then expresses these hypothetical input costs as a proportion of customer spend to give an indication of the significance of the licensing input in competing for cloud customers.

T.3 For our comparison of the prices that Microsoft charges Azure customers with the prices it charges AWS and Google, we estimated what Microsoft's Windows Server and SQL Server licensing input costs would be if Microsoft paid the same wholesale prices that it charges AWS and Google. We then calculated the difference between these hypothetical input costs to serve each Azure customer and each Azure customer's actual spend on Windows Server and SQL Server licensing IP. The difference between these figures serves as an indicator of the scale of the difference between Microsoft's customer-facing prices for each product and the wholesale prices that it charges AWS and Google.

T.4 Both analyses use the same data set. Therefore, this appendix first sets out the variables of interest for each analysis and the adjustments we have made to overcome certain data limitations. We then present the full methodology for and results of each analysis in turn.

Data

T.5 Across both analyses, we used a data set containing annual data on each Azure UK customer in the Year 2022. We used 2022 data as this was the most recent year for which complete annual data was available.

[1] As outlined in (Description of the software licensing practices), AWS and Google can resell Windows Server and SQL Server as part of their own cloud solutions subject to the terms of the Service Level Provider Agreements (SPLAs) they have with Microsoft.

(a) For the purposes of our SPLA input cost analysis, the main variables of interest were:

(i) total Windows Server usage in vcore hours;[2] and

(ii) PAYG usage of SQL Server in vcore hours, excluding SQL Server PaaS usage.

(b) For our comparison of the prices that Microsoft charges Azure customers for Windows Server and SQL Server with the prices that it charges AWS and Google the main variables of interest were:

(i) usage of Windows Server licences deployed using the AHB, measured in 'vcore hours';[3]

(ii) PAYG usage of SQL Server measured in vcore hours, excluding SQL Server PaaS usage;

(iii) Windows Server AHB licensing IP spend; and

(iv) SQL Server PAYG licensing IP spend.

T.6 For the billing metrics and wholesale prices that Microsoft charges AWS and Google we used information from AWS' and Google's SPLA contracts with Microsoft.

T.7 In this section of the appendix, we set out an explanation of these data points and the adjustments we made to overcome certain data limitations.

Utilisation rates

T.8 Microsoft's usage data is based on billing data, which rounds up the volumes of usage up to the nearest vcore-hour. However, AWS and Google pay for Windows Server and SQL Server by the [✂] and [✂] respectively. Therefore, to accurately estimate how much it would cost Microsoft to host its customers' Windows Server and SQL Server usage if it were subject to AWS' and Google's SPLA terms, we have adjusted the Microsoft data according to the average utilisation rate of Windows Server VMs, ie the proportion of billed hours that customers actually use Windows Server VMs on Azure for. Microsoft submitted that the average utilisation rate is [✂]%, so we have multiplied the Microsoft usage volumes data by [✂]% for the purposes of this analysis.

[2] Virtual core hours (vcore hours) are hours of usage normalised for the number of virtual core processing units included in the instance being used. For example, an hour of usage of a VM with four vCPUs constitutes four vcore hours.
[3] As described below, the Azure Hybrid Benefit (AHB) allows eligible customers to effectively deploy their existing on-premises Windows Server and SQL Server licences on Azure for no additional licensing cost.

T.9 As noted below, our analysis focuses on SQL Server IaaS usage on VMs (ie as installed on a VM). We understand that the majority of SQL Server IaaS usage occurs on Windows Server VMs (eg [80-90]% on Azure). Moreover, SQL Server IaaS usage can only occur on Windows Server VMs on GCP.[4] Therefore, we consider that the same adjustment is appropriate for both products.

Windows Server AHB IP spend

T.10 As described in (Chapter 6, Differences between using Microsoft software products on Azure compared to on non-Azure clouds via SPLA), customers with existing on-premises Windows Server or SQL Server licences and Software Assurance subscriptions or qualifying subscription licences, qualify for the AHB, which allows them to effectively migrate these licences to Azure without paying any additional licensing fees. Alternatively, customers that are not eligible for the AHB can purchase a licence-included service and thereby pay for the Windows Server and/or SQL Server software IP on a PAYG basis.

T.11 As noted above, our price differential analysis aims to compare the prices that Microsoft charges its own customers with the prices it charges AWS and Google. As such, we requested data on Azure customers' spend on Windows Server and SQL Server software IP as separate from the underlying compute costs. Microsoft submitted that it cannot provide separate IP spend data for Windows Server PAYG usage, as [✂].[5] However, Microsoft did provide IP spend data relating to AHB usage. As such, our analysis for Windows Server focuses on the difference in customer-facing and wholesale prices relating to AHB usage only.

T.12 The Windows Server AHB IP spend data that Microsoft provided is [✂].[6] Microsoft submitted that this data may not be a reliable estimate of Azure customers' IP spend relating to AHB usage for the following reasons:

(a) [✂].

(b) There may be missing observations. In particular, if a customer purchased an on-premises licence and Software Assurance [✂].[7]

(c) Microsoft added that the AHB IP spend data [✂].

(d) Microsoft also submitted that a more reliable measure of the IP spend for AHB-benefitting customers would be the list price for on-premises Windows Server licences and Software Assurance.

[4] [✂] response to the CMA's information request [✂].
[5] Microsoft's response to the CMA's information request [✂].
[6] Microsoft's response to the CMA's information request [✂].
[7] Microsoft's response to the CMA's information request [✂].

T.13 First, we consider that comparing [✂] to the SPLA input costs relating to the same volumes of usage is the analytically correct approach. Our analysis effectively analyses the options available to a customer that either has an on-premises licence and is deciding whether to use Azure or whether to use AWS or GCP or is purchasing an on-premises licence with a view to later using it on the cloud. For a customer in either of these scenarios, [✂] and the price AWS or Google pays for that customer to use that software on their respective cloud is the SPLA input cost. These are therefore relevant comparators.

T.14 Second, we have inspected the data and found that in some cases customers show up in the data set as [✂]. Out of all spend by customers with positive Windows Server AHB usage, [10-20]% of that spend was by customers with zero Windows Server AHB IP spend in the data. This missing data is disproportionately concentrated among customers in lower revenue brackets.[8] To address this limitation, we have dropped all customers with positive Windows Server AHB usage and zero Windows Server AHB IP spend for the purposes of our analysis relating to Windows Server. As noted below, we have also excluded customers with less than <$10k spend from our analyses completely, which were disproportionately impacted by this limitation. This means that our analysis still includes a significant proportion of Windows Server AHB customers in the $10k-1M revenue bracket and almost all Windows Server AHB customers in the four highest brackets.

T.15 Third, although [✂] we have not seen any reason to treat it as inaccurate.

T.16 Fourth, a cloud provider conducted an analysis of the average difference in Azure customers' Software Assurance spend and its Windows Server input costs as a proportion of VM infrastructure costs (see appendix S). This analysis is almost equivalent to ours except that it uses the list prices for Software Assurance to estimate the numerator, as Microsoft suggests above. The differences in price as a proportion of VM compute costs that this cloud provider's analysis finds are consistent with the results of our analysis below. This suggests that the Windows Server AHB IP spend data that we have used provides a reliable measure of customer spend, once we have dropped customers that are affected by the data limitation described above.

SQL Server Editions

T.17 There are three editions of SQL Server that are available to license via the SPLAs: SQL Server Enterprise; SQL Server Standard; and SQL Server Web Edition.[9]

[8] Only 1.5% of the customers affected are in the 3 highest revenue brackets. CMA analysis of [✂] response to the CMA's information request [✂].
[9] [✂] response to the CMA's information request [✂].

T.18 According to Microsoft's website, Enterprise Edition delivers 'high-end data center capabilities' for 'mission-critical workloads', Standard Edition delivers 'basic data management' for 'departments and small organisations'; and Web Edition is a low-cost option that provides 'scalability, affordability and manageability capabilities for small to large-scale Web properties'.[10]

T.19 Enterprise Edition is significantly more expensive than Standard Edition which is significantly more expensive than Web Edition. The proportion of usage that we assign to each edition substantially therefore impacts our estimates of the SPLA input costs for SQL Server.

T.20 Microsoft's usage data for SQL Server does not break down into usage of each edition. We consider the following evidence that we have used to inform the relative proportions of usage of each edition that we have used in both analyses discussed below:

(e) evidence from Microsoft on the number of SQL Server licences sold to on-premises customers that are eligible for the AHB in each year from 2020-2023;

(f) data provided by AWS and Google on the relative usage of each edition on AWS and GCP; and

(g) submissions from Azure customers that quantified their usage of each SQL edition.

T.21 Data from Microsoft on the number of SQL Server licences sold to on-premises customers that are eligible for the AHB in each year from 2020-2023 shows that Microsoft sold licences for Standard Edition and Enterprise Edition in almost exactly equal proportions in each year. On-premises licences are sold using a subscription model rather than on a pay-as-you-go basis, so the proportion of sales of on-premises licences of each edition may not translate directly into relative proportions of usage on Azure.[11] This data also does not include sales of Web Edition. Nevertheless, we consider this to be a relevant data point.

T.22 Data provided by AWS and Google on the relative usage of each edition of SQL Server as part of licence-included SQL services on their respective clouds may not provide a reliable indication of the relative usage of each edition on Azure, as usage patterns on AWS and GCP are at risk of being influenced by the licensing practices themselves. To the extent that a particular edition of SQL Server is more expensive on AWS and GCP (see below), then usage of that edition may be reduced by customers choosing to use Azure instead. The risk of usage patterns being affected is more pronounced for the most expensive editions of SQL Server.

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[10] Editions and supported features of SQL Server 2022 - SQL Server, accessed 27, November 2024.
[11] Microsoft's response to the CMA's information request [✂].

In this respect, Enterprise Edition is significantly more expensive than Standard edition and Standard edition is significantly more expensive than Web edition.

T.23 In addition, we have seen some evidence that larger customers are more likely to use Enterprise Edition and are more likely to multi-cloud. For example, out of eight customers that appear in the top two revenue brackets for both AWS and Azure (ie that multi-cloud), all but one have at least [5-10] times higher SQL Server usage on Azure than on AWS.[12] This suggests that large customers with a propensity to multi-cloud are more likely to deploy SQL Server workloads on Azure.

T.24 In light of the above, we consider that usage of the more expensive editions of SQL Server is likely to be greater on Azure than is observed in the AWS and GCP data, particularly in the case of larger customers. Nevertheless, we set out AWS' and Google's data on relative usage of each edition of SQL Server as part of licence-included SQL services in Tables T.1 and T.2 below.

Table T.1: Relative usage of each edition of SQL Server as part of licence-included services on AWS across customer revenue brackets in 2022

Revenue bracket ($)	*AWS Enterprise Edition (%)*	*AWS Standard Edition (%)*	*AWS Web Edition (%)*
<10k	[0-5]	[40-50]	[50-60]
10k-1M	[5-10]	[60-70]	[20-30]
1M-5M	[10-20]	[60-70]	[10-20]
5M-10M	[20-30]	[60-70]	[10-20]
10M-20M	[10-20]	[60-70]	[20-30]
>20M	**[20-30]**	**[60-70]**	**[5-10]**

Source: CMA analysis of AWS' response to the CMA's information request [✂].

Table T.2: Relative usage of each edition of SQL Server as part of licence-included services on GCP across customer revenue brackets in 2022

Revenue bracket ($)	*GCP Enterprise Edition (%)*	*GCP Standard Edition (%)*	*GCP Web Edition (%)*
<10k	[0-5]	[40-50]	[50-60]
10k-1M	[10-20]	[50-60]	[30-40]
1M-5M	[20-30]	[30-40]	[30-40]
5M-10M	[30-40]	[50-60]	[10-20]
10M-20M	[0-5]	[80-90]	[10-20]
>20M	**[20-30]**	**[70-80]**	**[0-5]**

Source: CMA analysis of Google's response to the CMA's information request [✂].

T.25 Overall, Enterprise Edition, Standard Edition and Web Edition account for [10-20], [60-70]% and [10-20]% of usage on AWS,[13] and [20-30]%, [50-60]% and [10-20]% on usage on GCP in 2022.

T.26 Standard Edition is the most popular edition overall. Within the revenue brackets, smaller customers are much more likely to use Web Edition and less likely to use

[12] CMA analysis of responses to the CMA's information requests [✂].
[13] CMA analysis of AWS' response to the CMA's information request [✂].

Enterprise Edition. Equally, larger customers are more likely to use Enterprise Edition and less likely to use Web Edition.

T.27 Google's data shows that the proportion of Enterprise Edition usage increases with customer size up until the $10-20M bracket and drops off significantly thereafter. This may reflect that Google's highest revenue brackets are small sample sizes: Google has [✂] customers in the >$20M bracket and [✂] in the $10-20M bracket. However, this may also reflect that larger customers are more likely to multi-cloud. As such, customers in Google's highest revenue brackets may have deployed their Enterprise Edition workloads on Azure.

T.28 As explained above, we consider that applying the relative proportions of usage of each edition on AWS and GCP to customers in our analyses would underestimate the input costs that Microsoft would incur if it paid the same wholesale prices that it charges AWS and Google.

T.29 Evidence gathered from customers regarding their usage of each edition supports this last point. We asked a selection of Azure customers what their relative usage of each edition of SQL Server is. We received responses from customers in the >$20M bracket, $10M-20M bracket, $5M-10M bracket and the $1M-5M bracket. None of these customers mentioned using the Web Edition, while the average relative usage of Enterprise Edition in each bracket was 55%, 71%, 45% and 50% respectively. This suggests that Azure customers in the top two revenue brackets use more Enterprise Edition and less Web Edition than AWS or GCP customers.

T.30 In a follow-up response to the Licensing working paper, Microsoft submitted an analysis of AWS' SQL Server SPLA licensing costs as a proportion of its total UK revenues.[14] To calculate the numerator, Microsoft multiplied AWS' SQL Server annual vcore hours data by the AWS' SPLA prices. As AWS' data was not broken down into usage of each edition, Microsoft assumed the following three flat ratios of Enterprise to Standard edition: 50:50, 40:60 and 25:75.

T.31 As we are unable to determine the relative proportion of usage of each edition for Azure customers, we have adopted the same flat ratios of Enterprise to Standard edition as Microsoft. The evidence presented above, eg from Azure customers that responded to our request for information, suggests that these ratios may be broadly accurate for Azure customers. In particular, the 50:50 ratio may be more accurate for customers in the highest revenue brackets, whereas the 25:75 ratio may be more accurate for customers in the lower revenue brackets.

[14] Microsoft's submission to the CMA [✂].

SPLA terms

T.32 As noted above, we used information from AWS' and Google's SPLA contracts with Microsoft to estimate how much it would cost to host Azure customers' Windows Server and SQL Server usage according to the terms of their respective SPLAs.

T.33 We set out below our approach to this data, which has been informed by the terms of their respective SPLAs.

SQL Server PAYG

T.34 According to AWS' and Google's SPLA terms, SQL Server, but not Windows Server, is eligible for BYOL on Listed Provider clouds (ie, across Azure, AWS and GCP). This means AWS and Google would not incur any input costs to host SQL Server workloads where customers have brought their own on-premises SQL Server licences to Azure. Accordingly, we have estimated the SQL Server licensing input costs using SQL Server pay-as-you-go (PAYG) usage data only. We have estimated the Windows Server licensing input costs using all Windows Server usage.

SQL Server prices

T.35 As set out above, pricing differs for the three editions of SQL Server that are available to license through the SPLAs. Google's SPLA [✂].[15] As such, we have used the standard SPLA list prices for Standard Edition and Web Edition for AWS and the standard SPLA list price for Web Edition for Google.[16]

SQL PaaS

T.36 We used data on usage of Windows Server and SQL Server on VMs (ie, IaaS usage) only. This means that SQL PaaS products are not included in the estimates. SQL PaaS products such as Azure's SQL Database are among the most popular cloud services, see (distribution of cloud use by spend in Chapter 6). Therefore, our SPLA input cost analysis likely understates the significance of the SQL Server input as a proportion of customer spend on all cloud services. Additionally, our price differential analysis likely understates the price disadvantage that AWS and Google face in competing for customers that demand SQL PaaS, particularly relative to total spend.

[15] [✂] response to Ofcom's information request [✂]; [✂] submission to the CMA [✂].
[16] Note, this is also the approach taken in Microsoft's analysis of SQL Server input costs described above.

Customers with <$10k Azure spend

T.37 We have excluded customers with <$10k spend from both analyses presented below for the following reasons.

T.38 First, as noted above, the limitation relating to the Windows Server AHB IP spend data point disproportionately affects these customers. This means that once we have excluded all customers affected from our analysis, only a small minority of Windows Server AHB customers with <$10k spend remain.

T.39 Second, we consider that patterns of SQL Server usage for customers in this revenue bracket are less well described by the flat ratios of SQL Server Enterprise Edition to Standard Edition that we assume for both analyses, given that we see higher levels of Web Edition usage for customers in this bracket.

T.40 Customers with <$10k spend account for a [✂] minority [✂] of total Azure spend. Therefore, our analyses still cover the [✂] majority of Azure spend.

SPLA input cost analysis

Methodology

T.41 As outlined above, we estimated the licensing input costs that Microsoft would incur to host its customers' Windows Server and SQL Server usage if it paid the same wholesale prices that it charges AWS and Google. To do this, we multiplied each Azure customer's total 2022 vcore hours of usage of each product by the respective per-vcore hour price for each product in each of AWS' and Google's SPLAs. We then took these hypothetical licensing input costs as a proportion of the customer spend denominators outlined below.

T.42 We present the mean average licensing input costs as a proportion of each denominator for customers in each of five revenue brackets to give an indication of how the significance of the input may vary in relation to customers of different sizes.

T.43 For SQL Server, we also present the median results to account for the fact that some revenue brackets encompass a broad range of heterogenous customers. In particular, the lower brackets include a high concentration of customers at the bottom end of the spend distribution and a long tail of customers with significantly higher spend. As noted above, larger customers are more likely to use more expensive versions of SQL Server. This means that the mean SQL Server input

cost proportions may be less representative of the majority of the customers within these brackets.[17]

The denominators

T.44 As discussed in (Chapter 6, Microsoft's analysis of AWS' and Google's licensing costs), what is the most appropriate denominator to compare the licensing costs to depends on the level of aggregation at which customers make decisions about where to deploy their cloud workloads. For example, a cloud provider has submitted that it has submitted that it discounts at the deal level, ie across the bundle of services that a customer includes in a single purchasing decision. It is therefore appropriate to consider the significance of the input relative to the cost base of the services included within each deal.

T.45 Our evidence suggests that some customers are more likely to make a single decision about where to deploy all their cloud workloads, while others are more likely to decide on a workload-by-workload basis. In particular, evidence from cloud providers suggests that digital native customers, larger enterprises and enterprises with complex regulatory requirements are more likely to multi-cloud (see Chapter 3). Additionally, our data analysis suggests that the prevalence of multi-cloud tends to increase with customers' total spend on cloud services, with 50% of customers in the highest revenue bracket using more than one cloud (see appendix I).

T.46 Customers with a higher propensity to multi-cloud are less likely to decide which cloud to deploy all their workloads on in one go. Even customers that do not multi-cloud may choose to deploy some workloads on one cloud and later add others in a completely unrelated decision.

T.47 To account for this apparent variation in the level of aggregation at which customers make these decisions, we have compared the Windows Server licensing input costs to:

(h) customer spend on Azure services, and

(a) spend on Windows Server VMs on Azure.

T.48 We have compared the SQL Server and combined Windows Server and SQL Server licensing input costs to:

(i) customer spend on Azure services, and

(j) spend on Windows Server VMs and SQL Server licensing IP on Azure.

[17] For Windows Server, the mean and median results are very similar.

T.49 Windows Server is used as an operating system on VMs. SQL Server is a software product that is installed on VMs, and predominantly Windows Server VMs. For example, [90-100]% of SQL Server usage on Azure (excluding SQL PaaS) occurred on Windows Server VMs in 2022. As such, a Windows Server VM is the narrowest set of downstream products that Windows Server can serve as an input for, whereas a Windows Server VM with SQL Server installed is the narrowest set of downstream products that SQL Server can serve as an input for. On the other hand, the full set of Azure services that a customer uses represents the broadest bundle that each of Windows Server and SQL Server can serve as an input for.

T.50 As such, comparing the licensing input costs to these two denominators provides an upper and lower bound estimate of their significance relative to competition for cloud customers. Based on the evidence outlined above, we consider that these two extremes are less likely to represent the significance of the licensing input costs in competing for any single customer than values within the range that we present for each revenue bracket. Additionally, the significance in competing for larger customers may be closer towards the upper bound, whereas the significance in competing for smaller customers may be closer towards the lower bound.

Combined licensing costs

T.51 [10-20]% of Azure customers that use Windows Server also use SQL Server on a PAYG basis, whereas [90-100]% of SQL Server PAYG customers also use Windows Server.[18] Customers that use both Windows Server and SQL Server PAYG account for [✂]% of total Azure revenue. Therefore, for many Windows Server customers, and almost [✂] SQL Server PAYG customers, it is appropriate to consider the combined cost of licensing both products.

T.52 To account for this, we present the combined costs of hosting Azure customers' Windows Server and SQL Server PAYG usage as a proportion of spend for customers that use both Windows Server and SQL Server PAYG (in addition to presenting results for each product separately).

Results

T.53 This subsection presents the results of our SPLA input cost analysis. We note that in the figures and tables below ACR stands for Azure Consumed Revenue and denotes total customer spend on Azure services, VM denotes spend on Windows

[18] Our analysis focuses oFIgun SQL Server PAYG usage as customers can BYOL to AWS and Google (ie BYOL usage is not subject to SPLA terms).

Server VMs and VM+SQL denotes spend on Windows Server VMs and SQL Server IP on Azure.

T.54 Figure T.1 and Table T.3 below shows Microsoft's Windows Server licensing input costs if it paid the same wholesale prices that it charges AWS. These costs are expressed as a share of customer spend across all services and Windows Server VM spend on average for Windows Server customers in each revenue bracket.

Figure T.1

[✂]

Table T.3: Windows Server input costs as a proportion of customer spend on all Azure services and Windows Server VM spend on Azure, AWS SPLA prices

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[60-70]
1M-5M	[5-10]	[50-60]
5M-10M	[5-10]	[50-60]
10M-20M	[5-10]	[60-70]
>20M	[5-10]	[70-80]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.55 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range of values presented for each revenue bracket. Therefore, our analysis suggests that Windows Server accounts for at least [5-10]% and as much as [70-80]% of the relevant spend denominator for customers in across all brackets.

T.56 Figure T.2 and Table T.4 below shows Microsoft's SQL Server licensing input costs if it paid AWS' SPLA wholesale prices. These costs are expressed as the mean average share of customer spend on all cloud services and spend on Windows Server VMs and SQL Server IP for SQL Server customers in each revenue bracket.

Figure T.2

[✂]

Table T.4: SQL Server input costs as a proportion of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, AWS SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[20-30]	[60-70]	[20-30]	[20-70]	[10-20]	[40-50]
1M-5M	[5-10]	[20-30]	[5-10]	[20-30]	[0-5]	[10-20]
5M-10M	[0-5]	[20-30]	[0-5]	[10-20]	[0-5]	[10-20]
10M-20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
>20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.57 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range that we present for each revenue bracket. Therefore, our analysis suggests that SQL Server accounts for at least [0-5]% and as much as [60-70]% of the relevant spend denominator across all brackets.

T.58 Figure T.3 and Table T.5 below shows Microsoft's SQL Server input costs if it paid AWS' SPLA wholesale prices. These costs are expressed as the median share of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP spend for customers in each revenue bracket.

Figure T.3

[✂]

Table T.5: Median SQL Server input costs as a proportion of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, AWS SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[50-60]	[10-20]	[40-50]	[10-20]	[30-40]
1M-5M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
5M-10M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
10M-20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
>20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.59 The median results are generally lower than the means across the revenue brackets. However, these results suggest that the significance of the SQL Server

input for any single customer falls within a similar range of proportions as the mean results presented above.

T.60 Figure T.4 and Table T.6 below shows Microsoft's combined Windows Server and SQL Server licensing input costs if it paid AWS' SPLA wholesale prices. These costs are expressed as a share of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on Azure on average for customers in each revenue bracket that use both products.

Figure T.4

[✂]

Table T.6: Combined Windows Server and SQL Server input costs as a proportion of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, AWS SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[30-40]	[100-200]	[30-40]	[100-200]	[20-30]	[80-90]
1M-5M	[10-20]	[70-80]	[10-20]	[70-80]	[10-20]	[60-70]
5M-10M	[10-20]	[70-80]	[10-20]	[70-80]	[10-20]	[70-80]
10M-20M	[10-20]	[70-80]	[10-20]	[70-80]	[10-20]	[70-80]
>20M	[10-20]	[80-90]	[5-10]	[80-90]	[5-10]	[70-80]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.61 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range that we present for each revenue bracket. Therefore, our analysis suggests that Windows Server and SQL Server combined account for at least [5-10]% and as much as [100-200]% of the relevant spend denominator across all brackets.

T.62 Figure T.5 and Table T.7 below shows Microsoft's Windows Server licensing input costs if it paid the same wholesale prices that it charges Google. These costs are expressed as a share of customer spend across all services and Windows Server VM spend on average for Windows Server customers in each revenue bracket.

Figure T.5

[✂]

Table T.7: Windows Server input costs as a proportion of customer spend on all Azure services and Windows Server VM spend on Azure, Google SPLA prices

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[60-70]
1M-5M	[5-10]	[50-60]

5M-10M	[5-10]	[50-60]
10M-20M	[5-10]	[60-70]
>20M	[5-10]	[70-80]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.63 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range of values presented for each revenue bracket. Therefore, our analysis suggests that Windows Server accounts for at least [5-10]% and as much as [70-80]% of the relevant spend denominator for customers in across all brackets.

T.64 Figure T.6 and Table T.8 below shows Microsoft's SQL Server licensing input costs if paid Google's SPLA wholesale prices. These costs are expressed as a share of customer spend across all Azure services and separately spend on Windows Server VMs and SQL Server IP on Azure for SQL Server customers in each revenue bracket.

Figure T.6

[✂]

Table T.8: SQL Server input costs as a proportion of spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, Google SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[20-30]	[70-80]	[20-30]	[20-70]	[10-20]	[40-50]
1M-5M	[5-10]	[20-30]	[5-10]	[20-30]	[0-5]	[10-20]
5M-10M	[0-5]	[20-30]	[0-5]	[10-20]	[0-5]	[10-20]
10M-20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
>20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.65 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range that we present for each revenue bracket. Therefore, our analysis suggests that SQL Server accounts for at least [0-5]% and as much as [70-80]% of the relevant spend denominator for customers in each of the five highest revenue brackets.

T.66 Figure T.7 and Table T.9 below shows Microsoft's SQL Server input costs if it paid Google's SPLA wholesale prices. These costs are expressed as the median share of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP spend for customers in each revenue bracket.

Figure T.7

[✂]

Table T.9 Median SQL Server input costs as a proportion of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, Google SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[50-60]	[10-20]	[40-50]	[10-20]	[30-40]
1M-5M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
5M-10M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
10M-20M	[0-5]	[10-20]	[0-5]	[10-20]	[0-5]	[10-20]
>20M	[0-5]	[20-30]	[0-5]	[10-20]	[0-5]	[10-20]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.67 The median results are generally lower than the means across the revenue brackets. However, these results suggest that the significance of the SQL Server input for any single customer falls within a similar range of proportions as the mean results presented above.

T.68 Figure T.8 and Table T.10 below shows Microsoft's combined Windows Server and SQL Server licensing input costs if it paid Google's SPLA wholesale prices. These costs are expressed as a share of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on Azure on average for customers in each revenue bracket that use both products.

Figure T.8

[✂]

Table T.10: Combined Windows Server and SQL Server input costs as a proportion of customer spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure, Google SPLA prices

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[30-40]	[100-200]	[30-40]	[100-200]	[30-40]	[90-100]
1M-5M	[10-20]	[70-80]	[10-20]	[70-80]	[10-20]	[60-70]
5M-10M	[10-20]	[70-80]	[10-20]	[70-80]	[10-20]	[70-80]
10M-20M	[10-20]	[70-80]	[5-10]	[70-80]	[10-20]	[70-80]
>20M	[10-20]	[80-90]	[5-10]	[80-90]	[10-20]	[70-80]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.69 As discussed above, we consider that the significance of the input in competing for any single customer falls somewhere in the range that we present for each

revenue bracket. Therefore, our analysis suggests that Windows Server and SQL Server combined account for at least [5-10]% and as much as [100-200]% of the relevant spend denominator across the five highest revenue brackets.

Our comparison of the prices that Microsoft charges Azure customers for Windows Server and SQL Server with the prices that it charges AWS and Google

Methodology

T.70 As above (SPLA input cost analysis), we estimated the licensing input costs that Microsoft would incur to host Azure customers' Windows Server and SQL Server usage if it paid the same wholesale prices that it charges AWS and Google. To do this, we multiplied each Azure customer's total 2022 vcore hours of usage of each product by the respective per-vcore hour price in each of AWS' and Google's SPLAs. We then calculated the difference between these hypothetical input costs to serve each Azure customer and each Azure customer's actual spend on Windows Server and SQL Server licensing IP. The difference between these figures serves as an indicator of the scale of the difference between Microsoft's customer-facing prices for each product and the wholesale prices that it charges AWS and Google.

T.71 As such, our analysis effectively compares the customer-facing prices on Azure (net of discounts) and the wholesale prices that Microsoft charges AWS and Google, as both the IP spend figures and estimated input costs are multiples of the same volumes of usage.

T.72 We express the differences in SPLA input costs and licensing IP spend as (a) percentage differences, (b) a proportion of customer spend on Windows Server VMs (and SQL Server IP in the case of SQL Server) on Azure, and (c) customer spend across all Azure services.

T.73 The percentage differences demonstrate the magnitude of the difference between the upstream and downstream prices. The differences as a proportion of each denominator provide an indication of the additional input costs that AWS and Google would have to absorb to match Microsoft's competitive offering to customers that want to use each software product on public cloud (and cover their costs), all else equal.

T.74 As discussed above, to account for the likelihood that customers make decisions over cloud spend allocation at different levels of aggregation, we compare the difference in wholesale and customer-facing prices to both a broad and narrow denominator. The additional costs that AWS and Google must absorb to compete

with Microsoft for any single customer that wants to use each product on public cloud will fall within the range that we present for each revenue bracket.

T.75 We present the mean and median of each of (a), (b) and (c) for customers that use the relevant product in each revenue bracket to understand how the potential for the conduct to foreclose AWS and Google may vary with respect to customers of different sizes.

T.76 We also present the median results to account for the fact that some revenue brackets encompass a broad range of heterogenous customers. In particular, the lower brackets include a high concentration of customers at the bottom end of the spend distribution and a long tail of customers with significantly higher spend (which, accordingly, are more likely to use more expensive editions of SQL Server). This means that the mean results may be less representative of the majority of the customers within these brackets.

T.77 To directly compare the input prices that AWS and Google face compared with Microsoft, we would ideally compare Microsoft's own Windows Server and SQL Server unit input costs with the prices it charges AWS and Google for each product. However, we do not have access to data on Microsoft's licensing input costs as there is no internal input cost for Microsoft. Therefore, as a proxy, our analysis compares the prices that Microsoft charges its customers to use Windows Server and SQL Server on Azure (ie, its customer facing prices) to the wholesale prices that it charges AWS and Google.

T.78 As such, this analysis understates any price disadvantage that AWS and Google may face as it does not account for the margin that Microsoft charges over its own licensing input costs (which may be large considering Azure's overall profitability – see Appendix E). That is, even if Microsoft charged a higher price to its customers than the 'wholesale' price it charges AWS and Google, the input price charged to the later may still be high enough to be consistent with foreclosure and a material disadvantage for AWS and Google in competing for cloud customers that want or need to use Microsoft software.

Windows Server AHB vs PAYG

T.79 As noted above, due to the availability of data our analysis for Windows Server focuses on the difference in customer-facing and wholesale prices relating to AHB usage only.

T.80 Microsoft submitted that Azure customers whose choice of cloud provider is most likely to be impacted by price factors are those eligible for and take advantage of the AHB discount.[19] In relation to this, Microsoft submitted that the Azure AHB

[19] Microsoft's submission to the CMA [✂].

discount is of limited importance to competition in the cloud market, and AHB is declining in relevance. [20] In particular, Microsoft submitted that:

(a) The share of Azure UK customers that run Windows Server that use AHB declined from [40-50]% in 2020 to [20-30]% in 2023. [21]

(b) [✂]. [22]

(c) Customers may consume some VMs with the AHB discount applied (where they have existing licences) and some without. Microsoft added that in 2023 [20-30]% of AHB UK customers on Azure had their entire consumption covered by AHB. [23]

(d) [✂].[24]

T.81 While we have not assessed the difference in Microsoft's customer-facing prices and the SPLA wholesale prices for Windows Server PAYG usage, we consider that our analysis of AHB usage provides a good indication of the foreclosing potential of the conduct with respect to Windows Server generally. We set out our reasoning below.

T.82 We consider that AHB is significant in the context of total Windows Server usage and the proportion of customer spend from customers with Windows Server AHB usage. We have found that AHB usage accounts for [30-40]% of total Windows Server usage on Azure in 2022.[25] While we consider this is in itself a material portion of usage, we believe it understates the importance of AHB. In particular, we consider that it is relevant to look at the proportion of customer spend generated by customers with AHB usage, which reflects the proportion of revenue-weighted customers that AWS and Google may be disadvantaged in competing for as a result of Microsoft's licensing practices.[26] In this regard, we found that [70-80]% of Azure spend is generated by customers with Windows Server AHB usage.[27]

T.83 We agree with Microsoft that it is relevant to consider customers that use some VMs running Windows Server with the AHB applied and some without the AHB applied. We have found that customers with both Windows Server AHB and PAYG

[20] Microsoft's submission to the CMA [✂].
[21] Microsoft's submission to the CMA [✂]. [✂].
[22] Microsoft's submission to the CMA [✂].
[23] Microsoft's submission to the CMA [✂].
[24] [✂] response to the CMA's information request [✂].
[25] Figure comes from dividing the total AHB Windows Server hours of usage from Microsoft's response to the CMA's information request [✂] by the total hours of Windows Server usage in Microsoft's response to the CMA's information request [✂] for the year 2022.
[26] In comparison, Microsoft's estimate, as set out above, is an unweighted share of customers, which we therefore consider understates the importance of AHB to competition.
[27] CMA analysis of Microsoft's responses to the CMA's information requests [✂].

usage account for [70-80]% of Azure spend.[28] That is, almost all Windows Server AHB customers (when weighted by revenue) are also Windows Server PAYG customers. This likely shows that customers that bring their qualifying Windows Server licences to Azure using the AHB tend to increase their usage of Windows Server on Azure thereafter, as it would be irrational for customers to deploy more expensive Windows Server PAYG VMs before exhausting their available licences that qualify for the AHB. Therefore, to the extent that Microsoft's licensing practices relating to the AHB influence customers' choice of cloud provider, AWS and Google would be disadvantaged with respect to both these customers' initial workloads that qualified for AHB, and their other Windows Server workloads.[29]

T.84 Further, we have also estimated the relative usage of Windows Server VMs with the AHB applied compared to VMs without the AHB for customers that have at least some AHB usage in the data.[30] Among these customers, AHB usage accounts for [40-50]% of total Windows Server usage. Therefore, to the extent that there is a significant difference in customer-facing and wholesale prices relating to AHB licences, even if there is no difference relating to PAYG usage, the effective difference across AHB and PAYG may still be significant. For example, assuming that the wholesale prices that AWS or Google pay are 1000% higher than Microsoft's customer-facing prices relating to AHB usage and equal to its PAYG prices, the wholesale prices would still be [✂] higher than the effective price that such customers pay across their total Windows Server consumption on average.

T.85 Finally, we present the difference in Windows Server AHB IP spend and SPLA input costs as a proportion of customers' total spend on Windows Server VMs both with and without the AHB applied. This gives an indication of the impact of the conduct relative to customers' overall Windows Server consumption.

SQL Server PAYG

T.86 As noted above, we have assessed the difference in Microsoft's customer-facing prices and SPLA input prices for SQL Server with respect to PAYG usage only. This is because SQL Server is eligible for BYOL to AWS and GCP. As such, AWS and Google would incur no input costs if they were to host Azure customers' SQL Server workloads that are eligible for the AHB on their clouds. That said, we note that marketing materials on Microsoft's website indicate that SQL Server may perform better and cost less when customers bring their own licences to Azure rather than AWS or GCP, and it is unclear whether this is related to a licensing

[28] CMA analysis of Microsoft's response to the CMA's information request [✂]. By implication, just 3.4% of Azure revenue-weighted customers do not use Windows Sever. These figures come from dividing the total revenue from customers that have positive Windows Server or SQL Server PAYG vcore hours of usage by total revenue from all customers.
[29] We note that, to the extent that customers are willing to multi-cloud and place their Windows Server workloads on separate public clouds, the effect on AWS and Google would be reduced.
[30] We consider that Microsoft's estimate of the proportion of customers with their entire consumption covered by AHB is less informative in this regard.

practice or restriction. In case that it is related, such price and quality differences could potentially contribute to foreclosure without impacting AWS' or Google's input costs, but our analysis has not assessed that.[31]

Results

T.87 This subsection presents the results of our comparison of the prices that Microsoft charges Azure customers for Windows Server and SQL Server with the prices that it charges AWS and Google. We note that in the tables and figures below ACR stands for Azure Consumed Revenue and denotes total customer spend on Azure services, VM denotes spend on Windows Server VMs and VM+SQL denotes spend on Windows Server VMs and SQL Server IP on Azure.

AWS SPLA prices

T.88 Figure T.9 and Table T.11 below shows the difference between the wholesale prices that Microsoft charges AWS and Google for Windows Server and its customer-facing prices relating to Windows Server AHB usage. These price differentials are presented as average percentage differences for customers in each revenue bracket.

Figure T.9

[✂]

Table T.11: Average percentage difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices

Revenue bracket ($)	*Percentage difference (%)*
10k-1M	[4000-5000]
1M-5M	[3000-4000]
5M-10M	[1000-2000]
10M-20M	[1000-2000]
>20M	[4000-5000]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.89 Our analysis suggests that the wholesale prices that Microsoft charges AWS for Windows Server are at least [1000-2000]% higher than its customer-facing prices relating to Windows Server AHB usage.

[31] For example, the Azure website states that migrating SQL Server to Azure VMs rather than AWS EC2 instances is up to 23% cheaper and allows for up to 22% faster performance. See: SQL Server on Azure Virtual Machines - Microsoft Azure.

T.90 Figure T.10 and Table T.12 shows the median percentage difference between Microsoft's customer-facing prices and the wholesale prices that AWS pays for Windows Server for customers in each revenue bracket.

Figure T.10

[✂]

Table T.12: Median percentage difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices

Revenue bracket ($)	*Percentage difference (%)*
10k-1M	[900-1000]
1M-5M	[1000-2000]
5M-10M	[1000-2000]
10M-20M	[1000-2000]
>20M	[3000-4000]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.91 The median percentage differences are generally lower than the means presented above. However, they still suggest that Microsoft charges AWS a significantly higher price for Windows Server than its customer-facing prices relating to Windows Server AHB usage.

T.92 Figure T.11 and Table T.13 below shows the difference between the wholesale prices that Microsoft charges AWS and Google for Windows Server and its customer-facing prices expressed as a proportion of total spend across all Azure services and spend on Windows Server VMs on Azure on average for customers in each revenue bracket.

Figure T.11

[✂]

Table T.13: Average difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices, as a proportion of total spend on Azure services and Windows Server VM spend on Azure

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[5-10]	[30-40]
1M-5M	[0-5]	[30-40]
5M-10M	[0-5]	[20-30]
10M-20M	[0-5]	[30-40]
>20M	[0-5]	[30-40]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.93 Our analysis suggests that the difference between Microsoft's customer facing prices and the wholesale prices it charges AWS for Windows Server account for at

least [0-5]% of customer spend across all Azure services and as much as [30-40]% of spend on Windows Server VMs across all revenue brackets.

T.94 As discussed above, the additional costs that AWS must absorb to match Microsoft's competitive offering to any single customer that wants to use Windows Server on public cloud and qualifies for the AHB falls within the range that we present for each revenue bracket. These results suggest that AWS faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.95 Figure T.12 and Table T.14 below shows the median difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices expressed as a proportion of total Azure spend and spend on Windows Server VMs on Azure.

Figure T.12

[✂]

Table T.14: Median difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices, as a proportion of total spend on Azure services and Windows Server VM spend on Azure

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[0-5]	[30-40]
1M-5M	[0-5]	[20-30]
5M-10M	[0-5]	[10-20]
10M-20M	[0-5]	[40-50]
>20M	[0-5]	[20-30]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.96 The median results are generally lower than the means presented above. However, they still suggest that AWS faces a disadvantage in competing for customers that want to use Windows Server on public cloud and qualify for the AHB, and this is particularly the case for customers that aggregate their cloud spend in a less aggregated way.

T.97 Figure T.13 and Table T.15 below shows the percentage difference between the wholesale prices that Microsoft charges AWS for SQL Server and its customer-facing prices relating to SQL Server PAYG usage on average for customers in each revenue bracket.

Figure T.13

[✂]

Table T.15: Average percentage difference between the wholesale prices that AWS pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[400-500]	[300-400]	[200-300]
1M-5M	[300-400]	[200-300]	[100-200]
5M-10M	[500-600]	[500-600]	[300-400]
10M-20M	[200-300]	[100-200]	[100-200]
>20M	[40-50]	[30-40]	[0-5]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.98 Our analysis suggests that the wholesale prices that Microsoft charges AWS for SQL Server are at least [0-5]% higher than its customer-facing prices for customers in highest revenue bracket. The wholesale prices are at least [100-200]% higher than Microsoft's customer-facing prices for customers in all other revenue brackets.

T.99 Figure T.14 and Table T.16 below shows the median difference between the wholesale prices that AWS pays for Windows Server and Microsoft's customer-facing prices expressed as a proportion of total Azure spend and spend on Windows Server VMs on Azure.

Figure T.14

[✂]

Table T.16: Median percentage difference between the wholesale prices that AWS pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[100-200]	[100-200]	[80-90]
1M-5M	[100-200]	[70-80]	[40-50]
5M-10M	[100-200]	[100-200]	[70-80]
10M-20M	[70-80]	[50-60]	[20-30]
>20M	[30-40]	[20-30]	[-5-0]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.100 The median percentage differences are generally lower than the means presented above. However, they still suggest that Microsoft charges AWS significantly higher prices for SQL Server than its PAYG customer-facing prices. As noted above, we

consider that the 25:75 ratio is less likely to be accurate for customers in the highest bracket.

T.101 Figure T.15 and Table T.17 below shows the difference between the wholesale prices that Microsoft charges AWS for SQL Server and its customer-facing prices relating to SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on average for SQL Server customers in each revenue bracket.

Figure T.15

[✂]

Table T.17: Average difference between the wholesale prices that AWS pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage, as a proportion of total revenues and Windows Server VM revenues

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[40-50]	[10-20]	[30-40]	[5-10]	[20-30]
1M-5M	[0-5]	[10-20]	[0-5]	[5-10]	[0-5]	[0-5]
5M-10M	[0-5]	[10-20]	[0-5]	[5-10]	[0-5]	[0-5]
10M-20M	[0-5]	[5-10]	[0-5]	[5-10]	[0-5]	[0-5]
>20M	[0-5]	[5-10]	[0-5]	[5-10]	[0-5]	[0-5]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.102 Our analysis suggests that the difference between Microsoft's customer facing prices and the wholesale prices it charges AWS for SQL Server account for at least [0-5]% of customer spend across all Azure services and as much as [40-50]% of spend on Windows Server VMs across all revenue brackets.

T.103 As discussed above, the additional costs that AWS must absorb to match Microsoft's competitive offering to any single customer that wants to use SQL Server on a PAYG basis on public cloud falls within the range that we present for each revenue bracket. These results suggest that AWS faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.104 Figure T.16 and Table T.18 below shows the median difference between the wholesale prices that Microsoft charges AWS for SQL Server and its customer-facing prices relating to SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP for SQL Server customers in each revenue bracket.

Figure T.16

[✂]

Table T.18: Median difference between the wholesale prices that AWS pays for SQL Server and AWS' customer-facing prices as a proportion of total Azure spend and spend on Windows Server VMs and SQL Server IP on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[5-10]	[30-40]	[5-10]	[20-30]	[0-5]	[10-20]
1M-5M	[0-5]	[5-10]	[0-5]	[0-5]	[0-5]	[0-5]
5M-10M	[0-5]	[5-10]	[0-5]	[0-5]	[0-5]	[0-5]
10M-20M	[0-5]	[0-5]	[0-5]	[0-5]	[0-5]	[0-5]
>20M	[0-5]	[5-10]	[0-5]	[0-5]	[-5-0]	[-5-0]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.105 The median results are generally lower than the means presented above. However, they also suggest that AWS faces a disadvantage in competing for customers that want to use SQL Server on a PAYG basis on public cloud, and this is particularly the case for customers that allocated cloud spend in a less aggregated way.

T.106 Figure T.19 and Table T.19 below shows the combined percentage difference in the wholesale prices that Microsoft charges AWS for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, on average for customers in each revenue bracket.

Figure T.17

[✂]

Table T.19: Average percentage difference between the wholesale prices that AWS pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[1000-2000]	[1000-2000]	[1000-2000]
1M-5M	[800-900]	[800-900]	[700-800]
5M-10M	[500-600]	[500-600]	[500-600]
10M-20M	[600-700]	[600-700]	[600-700]
>20M	[500-600]	[500-600]	[500-600]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.107 Our analysis suggests that the wholesale prices that Microsoft charges AWS for Windows Server and SQL Server are together at least [500-600]% higher than its

customer-facing prices across Windows Server AHB and SQL Server PAYG usage.

T.108 Figure T.18 and Table T.20 below shows the median percentage differences between the combined wholesale prices that Microsoft charges AWS for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage.

Figure T.18

[✂]

Table T.20: Median percentage difference between the wholesale prices that AWS pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[100-200]	[100-200]	[90-100]
1M-5M	[200-300]	[100-200]	[100-200]
5M-10M	[300-400]	[200-300]	[200-300]
10M-20M	[300-400]	[300-400]	[200-300]
>20M	[200-300]	[200-300]	[200-300]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.109 The median percentage differences are generally lower than the mean results presented above across most revenue brackets. However, they still suggest that Microsoft charges AWS significantly higher prices for SQL Server than its PAYG customer-facing prices.

T.110 Figure T.19 and Table T.21 below shows the combined difference in the wholesale prices that Microsoft charges AWS for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on average for SQL Server customers in the four highest revenue brackets.

Figure T.19

[✂]

Table T.21: Average combined difference between the wholesale prices that AWS pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, as a proportion of total Azure spend and spend on Windows Server VMs on Azure

50:50 Enterprise to Standard *40:60 Enterprise to Standard* *25:75 Enterprise to Standard*

Revenue bracket ($)	ACR (%)	VM (%)	ACR (%)	VM (%)	ACR (%)	VM (%)
10k-1M	[10-20]	[50-60]	[10-20]	[40-50]	[10-20]	[30-40]
1M-5M	[5-10]	[30-40]	[5-10]	[20-30]	[0-5]	[20-30]
5M-10M	[5-10]	[30-40]	[5-10]	[30-40]	[0-5]	[20-30]
10M-20M	[5-10]	[40-50]	[5-10]	[30-40]	[5-10]	[30-40]
>20M	[0-5]	[40-50]	[0-5]	[30-40]	[0-5]	[30-40]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.111 Our analysis suggests that the difference between the wholesale prices that Microsoft charges AWS for Windows Server and SQL Server and its customer-facing prices account for at least [0-5]% [✂] of spend across all Azure services and as much as [50-60]% [✂] of spend on Windows Server VMs and SQL Server IP across all revenue brackets.

T.112 As discussed above, the additional costs that AWS must absorb to match Microsoft's competitive offering to any single customer that wants to use Windows Server and SQL Server on a PAYG basis on public cloud falls within the range that we present for each revenue bracket. These results suggest that AWS faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.113 Figure T.20 and Table T.22 below shows the median combined difference in the wholesale prices that Microsoft charges AWS for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG prices, as a proportion of total spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure.

Figure T.20

[✂]

Table T.22: Median combined difference between the wholesale prices that AWS pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, as a proportion of total Azure spend and spend on Windows Server VMs on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[30-40]	[5-10]	[30-40]	[5-10]	[20-30]
1M-5M	[5-10]	[20-30]	[0-5]	[20-30]	[0-5]	[10-20]
5M-10M	[0-5]	[30-40]	[0-5]	[30-40]	[0-5]	[20-30]
10M-20M	[5-10]	[40-50]	[0-5]	[40-50]	[0-5]	[40-50]
>20M	[0-5]	[20-30]	[0-5]	[20-30]	[0-5]	[20-30]

Source: CMA analysis of Microsoft's response to the CMA's information request [✂]; Microsoft's response to Ofcom's information request [✂].

T.114 The median results are generally lower than the means presented above across most revenue brackets. However, they also suggest that AWS faces a disadvantage in competing for customers that want to use Windows Server and SQL Server on a PAYG basis on public cloud, and this is particularly the case for customers that aggregate their cloud spend in a less aggregated way.

Google SPLA prices

T.115 Figure T.21 and Table T.23 below shows the difference between the wholesale prices that Microsoft charges Google for Windows Server and its customer-facing prices relating to Windows Server AHB usage. These price differentials are presented as average percentage differences for customers in each revenue bracket.

Figure T.21

[✂]

Table T.23: Average percentage difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices

Revenue bracket ($)	*Percentage difference (%)*
10k-1M	[4000-5000]
1M-5M	[3000-4000]
5M-10M	[1000-2000]
10M-20M	[1000-2000]
>20M	[4000-5000]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.116 Our analysis suggests that the wholesale prices that Microsoft charges Google for Windows Server are at least [1000-2000]% higher than its customer-facing prices relating to Windows Server AHB usage.

T.117 Figure T.22 and Table T.24 shows the median percentage difference between Microsoft's customer-facing prices and the wholesale prices that Google pays for Windows Server for customers in each revenue bracket.

Figure T.22

[✂]

Table T.24: Median percentage difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices

Revenue bracket ($)	*Percentage difference (%)*
10k-1M	[900-1000]
1M-5M	[1000-2000]
5M-10M	[1000-2000]

10M-20M	[1000-2000]
>20M	[3000-4000]

Source: CMA analysis of Microsoft's response to the CMA's information request [✂]; Microsoft's response to Ofcom's information request [✂].

T.118 The median percentage differences are generally lower than the means presented above. However, they still suggest that Microsoft charges Google a significantly higher price for Windows Server than its customer-facing prices relating to Windows Server AHB usage.

T.119 Figure T.23 and Table T.25 below shows the difference between the wholesale prices that Microsoft charges Google and Google for Windows Server and its customer-facing prices expressed as a proportion of total spend across all Azure services and spend on Windows Server VMs on Azure on average for customers in each revenue bracket.

Figure T.23

[✂]

Table T.25: Average difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices, as a proportion of total spend on Azure services and Windows Server VM spend on Azure

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[5-10]	[30-40]
1M-5M	[0-5]	[30-40]
5M-10M	[0-5]	[20-30]
10M-20M	[0-5]	[30-40]
>20M	[0-5]	[30-40]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.120 Our analysis suggests that the difference between Microsoft's customer facing prices and the wholesale prices it charges Google for Windows Server account for at least [0-5]% of customer spend across all Azure services and as much as [30-40]% of spend on Windows Server VMs across all revenue brackets.

T.121 As discussed above, the additional costs that Google must absorb to match Microsoft's competitive offering to any single customer that wants to use Windows Server on public cloud and qualifies for the AHB falls within the range that we present for each revenue bracket. These results suggest that Google faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.122 Figure T.24 and Table T.26 below shows the median difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices expressed as a proportion of total Azure spend and spend on Windows Server VMs on Azure.

Figure T.24

[✂]

Table T.26: Median difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices, as a proportion of total spend on Azure services and Windows Server VM spend on Azure

Revenue bracket ($)	*ACR (%)*	*VM (%)*
10k-1M	[0-5]	[30-40]
1M-5M	[0-5]	[20-30]
5M-10M	[0-5]	[10-20]
10M-20M	[0-5]	[40-50]
>20M	[0-5]	[20-30]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.123 The median results are generally lower than the means presented above. However, they still suggest that Google faces a disadvantage in competing for customers that want to use Windows Server on public cloud and qualify for the AHB, and this is particularly the case for customers that aggregate their cloud spend in a less aggregated way.

T.124 Figure T.25 and Table T.27 below shows the percentage difference between the wholesale prices that Microsoft charges Google for SQL Server and its customer-facing prices relating to SQL Server PAYG usage on average for customers in each revenue bracket.

Figure T.25

[✂]

Table T.27: Average percentage difference between the wholesale prices that Google pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[400-500]	[300-400]	[200-300]
1M-5M	[300-400]	[200-300]	[100-200]
5M-10M	[500-600]	[500-600]	[300-400]
10M-20M	[200-300]	[100-200]	[100-200]
>20M	[40-50]	[30-40]	[0-5]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.125 Our analysis suggests that the wholesale prices that Microsoft charges Google for SQL Server are at least [0-5]% higher than its customer-facing prices for customers in highest revenue bracket. The wholesale prices are at least [100-200]% higher than Microsoft's customer-facing prices for customers in all other revenue brackets.

T.126 Figure T.26 and Table T.28 below shows the median percentage difference between the wholesale prices that Google pays for Windows Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage.

Figure T.26

[✂]

Table T.28: Median percentage difference between the wholesale prices that Google pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[100-200]	[100-200]	[80-90]
1M-5M	[100-200]	[80-90]	[40-50]
5M-10M	[100-200]	[100-200]	[70-80]
10M-20M	[70-80]	[50-60]	[20-30]
>20M	[30-40]	[20-30]	[-5-0]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.127 The median percentage differences are generally lower than the means presented above. However, they still suggest that Microsoft charges Google significantly higher prices for SQL Server than its PAYG customer-facing prices. As noted above, we consider that the 25:75 ratio is less likely to be accurate for customers in the highest bracket.

T.128 Figure T.27 and Table T.29 below shows the difference between the wholesale prices that Microsoft charges Google for SQL Server and its customer-facing prices relating to SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on average for SQL Server customers in each revenue bracket.

Figure T.27

[✂]

Table T.29: Average difference between the wholesale prices that Google pays for SQL Server and Microsoft's customer-facing prices relating to SQL Server PAYG usage, as a proportion of total Azure spend and spend on Windows Server VMs and SQL Server IP on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[40-50]	[10-20]	[30-40]	[5-10]	[20-30]
1M-5M	[0-5]	[10-20]	[0-5]	[5-10]	[0-5]	[0-5]
5M-10M	[0-5]	[10-20]	[0-5]	[5-10]	[0-5]	[0-5]
10M-20M	[0-5]	[5-10]	[0-5]	[5-10]	[0-5]	[0-5]

>20M	[0-5]	[5-10]	[0-5]	[5-10]	[0-5]	[0-5]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.129 Our analysis suggests that the difference between Microsoft's customer facing prices and the wholesale prices it charges Google for SQL Server account for at least [0-5]% of customer spend across all Azure services and as much as [40-50]% of spend on Windows Server VMs across all revenue brackets.

T.130 As discussed above, the additional costs that Google must absorb to match Microsoft's competitive offering to any single customer that wants to use SQL Server on a PAYG basis on public cloud falls within the range that we present for each revenue bracket. These results suggest that Google faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.131 Figure T.28 and Table T.30 below shows the median difference between the wholesale prices that Microsoft charges Google for SQL Server and its customer-facing prices relating to SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP for SQL Server customers in each revenue bracket.

Figure T.28

[✂]

Table T.30: Median difference between the wholesale prices that Google pays for SQL Server and Microsoft's customer-facing prices as a proportion of total Azure spend and spend on Windows Server VMs and SQL Server IP on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[5-10]	[30-40]	[5-10]	[20-30]	[0-5]	[10-20]
1M-5M	[0-5]	[5-10]	[0-5]	[0-5]	[0-5]	[0-5]
5M-10M	[0-5]	[5-10]	[0-5]	[0-5]	[0-5]	[0-5]
10M-20M	[0-5]	[5-10]	[0-5]	[0-5]	[0-5]	[0-5]
>20M	[0-5]	[5-10]	[0-5]	[0-5]	[-5-0]	[-5-0]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.132 The median results are generally lower than the means presented above. However, they also suggest that Google faces a disadvantage in competing for customers that want to use SQL Server on a PAYG basis on public cloud, and this is particularly the case for customers that allocated cloud spend in a less aggregated way.

T.133 Figure T.29 and Table T.31 below shows the combined percentage difference in the wholesale prices that Microsoft charges Google for Windows Server and SQL

Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, on average for customers in each revenue bracket.

Figure T.29

[✂]

Table T.31: Average percentage difference between the wholesale prices that Google pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[1000-2000]	[1000-2000]	[1000-2000]
1M-5M	[800-900]	[800-900]	[700-800]
5M-10M	[500-600]	[500-600]	[500-600]
10M-20M	[600-700]	[600-700]	[600-700]
>20M	[500-600]	[500-600]	[500-600]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.134 Our analysis suggests that the wholesale prices that Microsoft charges Google for Windows Server and SQL Server are together at least [500-600]% higher than its customer-facing prices across Windows Server AHB and SQL Server PAYG usage.

T.135 Figure T.30 and Table T.32 below shows the median percentage differences between the combined wholesale prices that Microsoft charges Google for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage.

Figure T.30

[✂]

Table T.32: Median percentage difference between the wholesale prices that Google pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage

Revenue bracket ($)	50:50 Enterprise to Standard (%)	40:60 Enterprise to Standard (%)	25:75 Enterprise to Standard (%)
10k-1M	[100-200]	[100-200]	[90-100]
1M-5M	[200-300]	[100-200]	[100-200]
5M-10M	[300-400]	[200-300]	[200-300]
10M-20M	[300-400]	[300-400]	[200-300]
>20M	[200-300]	[200-300]	[200-300]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.136 The median percentage differences are generally lower than the mean results presented above across most revenue brackets. However, they still suggest that Microsoft charges Google significantly higher prices for SQL Server than its PAYG customer-facing prices.

T.137 Figure T.31 and Table T.33 below shows the combined difference in the wholesale prices that Microsoft charges Google for Windows Server and SQL Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage expressed as a proportion of customer spend across all Azure services and spend on Windows Server VMs and SQL Server IP on average for SQL Server customers in the four highest revenue brackets.

Figure T.31

[✂]

Table T.33: Average combined difference between the wholesale prices that Google pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, as a proportion of total Azure spend and spend on Windows Server VMs on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[50-60]	[10-20]	[40-50]	[10-20]	[30-40]
1M-5M	[5-10]	[30-40]	[5-10]	[30-40]	[0-5]	[20-30]
5M-10M	[5-10]	[30-40]	[5-10]	[30-40]	[0-5]	[20-30]
10M-20M	[5-10]	[40-50]	[5-10]	[30-40]	[5-10]	[30-40]
>20M	[0-5]	[40-50]	[0-5]	[30-40]	[0-5]	[30-40]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.138 Our analysis suggests that the difference between the wholesale prices that Microsoft charges Google for Windows Server and SQL Server and its customer-facing prices account for at least [0-5]% of spend across all Azure services and as much as [50-60]% of spend on Windows Server VMs and SQL Server IP across all revenue brackets.

T.139 As discussed above, the additional costs that Google must absorb to match Microsoft's competitive offering to any single customer that wants to use Windows Server and SQL Server on a PAYG basis on public cloud falls within the range that we present for each revenue bracket. These results suggest that Google faces a disadvantage in competing for such customers, and this is particularly the case for customers that allocate their cloud spend in a less aggregated way.

T.140 Figure T.32 and Table T.34 below shows the median combined difference in the wholesale prices that Microsoft charges Google for Windows Server and SQL

Server and its customer-facing prices relating to Windows Server AHB and SQL Server PAYG prices, as a proportion of total spend on all Azure services and spend on Windows Server VMs and SQL Server IP on Azure.

Figure T.32

[✂]

Table T.34: Median combined difference between the wholesale prices that Google pays for Windows Server and SQL Server and Microsoft's customer-facing prices relating to Windows Server AHB and SQL Server PAYG usage, as a proportion of total Azure spend and spend on Windows Server VMs on Azure

	50:50 Enterprise to Standard		*40:60 Enterprise to Standard*		*25:75 Enterprise to Standard*	
Revenue bracket ($)	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*	*ACR (%)*	*VM (%)*
10k-1M	[10-20]	[30-40]	[5-10]	[30-40]	[5-10]	[20-30]
1M-5M	[5-10]	[20-30]	[0-5]	[20-30]	[0-5]	[10-20]
5M-10M	[0-5]	[30-40]	[0-5]	[30-40]	[0-5]	[20-30]
10M-20M	[5-10]	[40-50]	[0-5]	[40-50]	[0-5]	[40-50]
>20M	[0-5]	[20-30]	[0-5]	[20-30]	[0-5]	[20-30]

Source: CMA analysis of Microsoft's responses to the CMA's information requests [✂]; Microsoft's response to Ofcom's information request [✂].

T.141 The median results are generally lower than the means presented above across most revenue brackets. However, they also suggest that Google faces a disadvantage in competing for customers that want to use Windows Server and SQL Server on a PAYG basis on public cloud, and this is particularly the case for customers that aggregate their cloud spend in a less aggregated way.