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Microsoft EQ Review

Current EQ Rating*	Previous EQ Rating
4-	na

6- "Exceptionally Strong"
5- "Strong"
4- "Acceptable"
3- "Minor Concern"
2- "Weak"
1- "Strong Concerns"

Note that a "+" sign indicates the earnings quality improved in the most recent quarter while a "–" sign indicates deterioration

*For a more detailed explanation of the EQ Review Rating scale, please refer to the end of this report

We initiate earnings quality coverage with a rating of 4- (Acceptable)

- Overall, we do not see significant warning signs in MSFT's accounting. However, as we note below, we do flag a decline in unearned revenue days in its Intelligent Cloud segment which accounts for the 4- rating rather than a 4+.

- Like many software companies, MSFT's revenue recognition requires a large amount of judgment in determining what portions of revenue are recognized upfront and what portion is recognized over time. This is complicated in MSFT's case by 1) the mix of revenues related to products linked to cloud services such as Office 365 which are recognized over time versus products with more on-premises components which are recognized up-front and 2) large, longer-term contracts with products such as Azure in which contract details may limit upfront billing which can deflate unearned revenue relative to revenue and bookings. Management has warned to expect volatility in bookings and unearned revenue as a result.

- Management gives quarterly forecasts for the upcoming quarter's commercial unearned revenue balance and the company has met or exceeded those forecasts in

the last several quarters. However, we note that unearned revenue days of sales in the Cloud Services segment declined by more than 3 days in the 6/19 quarter which was the first year-over-year decline in several quarters. The company did cite growth in large commercial Azure contracts with less billed upfront as well as higher than expected on-premises contracts, both of which would have depressed unearned revenue. Still, quarterly sales growth did appear to benefit from the revenue mix. Managements forecast for commercial unearned revenue and Intelligent Cloud sales would seem to indicate another decline in unearned revenue days will be coming in the 9/19 quarter.

- Reported cash flow from operations grew by 19% in the fiscal year ended 6/19, but the growth falls to 9% after adjustment for working capital movements including an $18 million payment last year for the TCJA. More importantly, free cash flow growth has been stunted by a rapid rise in capex due to the company's buildout of its cloud infrastructure. Capex as a percentage of sales has risen from 8.4% of sales in 2017 to 11.1% in 2019 which is a more than $6 billion drain on free cash flow growth. While this should continue to rise, the rate of spending growth has declined considerably in the last few quarters, in line with management's expectation for a moderation in the spending increase. This should provide a tailwind to free cash flow growth moving forward. The dividend only consumes 36% of free cash flow and there is a surplus of cash after the buyback as well indicating both are easily sustainable at the current pace.

- A decline in amortization expense has added about 1.3 cps to EPS in both of the last two quarters. This is somewhat puzzling given the addition of GitHub's intangibles to the mix in the 12/18 quarter and we suspect it is related to technology assets picked up in the 2016 acquisition of LinkedIn becoming fully amortized. We do not view this as a material concern at this point as the benefit was not a material factor in the 16 cps and 14 cps earnings beats posted in the 6/19 and 3/19 quarters, respectively.

- Sales and marketing expense as a percentage of sales has been declining and fell 110 bps in the 6/19 quarter. Management indicated that the 4% increase in spending in fiscal 2019 was driven by increased investment in commercial sales infrastructure, GitHub and LinkedIn which was offset by lower marketing. We are skeptical that the company will be able to continue to cut marketing expense without negatively impacting sales, especially if it wants to continue to drive sales growth in consumer areas such as Surface, Xbox, and Consumer Office products.

- Other income was approximately $140 million higher than management forecasted due to mark-to-market gains on its equity portfolio. This added another 1.3 cps to earnings in the period which was also not material to the 16 cps earnings beat.

Revenue Recognition

The software business has changed significantly over the last few years. Software used to be primarily a standalone product that was purchased once, installed on a computer or server, operated independently at the customer's location. Now, much of the software on the market may have a portion of the product that is loaded on the customer's computer at the time of purchase but is heavily dependent on a constant flow of information with the software company's servers (cloud-based). Rather than updates being purchased when released, they are now part of a package of services which are licensed along with the software on a subscription basis.

MSFT must identify the nature of each component of its software products when determining how to recognize revenue from each one. The company describes this as follows in its 10-K:

> *"When a cloud-based service includes both on-premises software licenses and cloud services, judgment is required to determine whether the software license is considered distinct and accounted for separately, or not distinct and accounted for together with the cloud service and recognized over time.* ***Certain cloud services, primarily Office 365, depend on a significant level of integration, interdependency, and interrelation between the desktop applications and cloud services, and are accounted for together as one performance obligation. Revenue from Office 365 is recognized ratably over the period in which the cloud services are provided."***

While the cloud-based offerings like Office 365 are relatively straight-forward and are all recognized over time, the company does have some commercial "hybrid contracts" which do contain components that are recognized up-front with the remainder recognized over time. In addition, some commercial contracts for products such as Azure or certain storage products are licensed on a volume basis where revenue is recognized as the customer utilizes the service. However, any usage over and above the contracted amount are charged at a contracted rate and the revenue associated with such an overage is recognized in the period it occurs.

To make it more complicated, the company is striking more longer-term contracts related to cloud services, particularly with Azure and commercial services. These large contracts can result in huge boosted to reported billings. However, the details of some of these longer-term contracts may not provide for large billings up front which leads to a more muted impact on both the amount of revenue recognized upfront as well as the amount that is booked as unearned revenue. Changes in the mix of contracts signed can lead to quarterly lumpiness in how much revenue is deferred in unearned revenue versus being recognized in revenue. Amy Hood, MSFT's CFO, gave a good description of this in the 9/18 quarter conference call:

> *"And so what that means is you'll see some volatility in that,* ***and you're also going to see some volatility in commercial unearned specifically because whenever you see hybrid strength it won't land as much in unearned.*** *So as the business gets bigger and we do bigger and larger deals and some of them are on-prem and some of them are in Azure, you're going to see volatility frankly in both of those. But what I try to do is think about the impact of all the key datapoints, which is how do we in quarter, how did we do on the unearned revenue on the balance sheet, and how do we do in overall bookings. And if I triangulate between all those three, just like I did in Q4, I feel really good about our commercial performance.*
>
> *Our commercial revenue annuity mix increased 1 point year over year to 90 percent. Commercial unearned revenue was $27.3 billion, growing 22 percent and 21 percent in constant currency, in line with expectations. On an expiry base that was roughly flat year over year, commercial bookings were better than expected and increased 15 percent and 16 percent in constant currency benefiting from larger, long-term Azure contracts, growth in Azure consumption overages and pay as you go contracts, and strength in on-premises revenue.* ***These contract types impact bookings, reported revenue, and unearned revenue in different ways – let me explain. First, under ASC 606, hybrid and on-premises offerings drive bookings growth and more in-period revenue recognition, therefore there is less impact on unearned revenue. Second, growth in Azure consumption overages and pay as you go contracts drive bookings growth and in-period revenue but have little impact on unearned revenue. And finally, long-term Azure contracts drive significant bookings growth but have a smaller impact on in-period revenue and unearned revenue.*** *The inclusion of LinkedIn results was immaterial to the growth rates of commercial unearned and commercial bookings."*

Clearly, the percentage of revenues from a new booking that is deferred will be impacted by the product type as well as the details of the contract. Analysts must be aware of all these factors when interpreting quarterly results.

On a historical note, on July 1, 2017, the company chose to early-adopt ASC 606 for revenue recognition. The biggest impact related to revenue from *Windows 10*. Revenues for that operating system had previously been recognized mostly over time. However, under ASC 606, it was deemed appropriate to recognize the revenue up-front. MSFT also elected to restate historical results for the change which led to a massive $6.6 billion increase in revenue in fiscal 2017 (ended 6/30) and a $2.5 billion increase for provision for income taxes. This has since lapped and is not materially impacting currently comparable, results but analysts building models must be very careful to utilize restated results prior to the 6/17 quarter particularly for sales, receivables, unearned revenue.

Analysis of Unearned Revenue Trends

As noted above, there are several factors including the product, customer type and contract details that can significantly impact the percentage of revenue that is recognized up-front versus how much is deferred in a given quarter. Management focuses its quarterly presentation on trends in its commercial bookings, commercial cloud revenue, and commercial unearned revenue in its quarterly slide presentations and conference call discussions. The following table shows the last six quarters of details provided on the slides:

	6/30/2019	3/31/2019	12/31/2018	9/30/2018	6/30/2018	3/31/2018
Reported Commercial Bookings Growth	22.0%	30.0%	18.0%	15.0%	18.0%	26.0%
Commercial Unearned Revenue	$34,108	$25,093	$25,317	$27,298	$30,113	$21,127
Commercial Unearned Revenue Growth	13%	19%	20%	22%		
Commercial Revenue Annuity Mix	90%	90%	89%	90%	90%	89%
Commercial Cloud Revenue	$11,000	$9,600	$9,000	$8,500	$7,900	$6,800
Commercial Cloud Gross Margin %	65%	63%	62%	62%	59%	58%

MSFT gives specific guidance on commercial unearned revenue targets for the upcoming quarter in each call. The actual numbers have either exceeded or been in-line for the last few quarters. CFO Amy Hood stated during the conference call:

> *"Even with the higher mix of larger, long-term Azure contracts with low upfront billings, commercial unearned revenue was in line with expectations at $34.1 billion,*

up 13% and 16% in constant currency. And this quarter, our annuity mix was again 90%."

Despite commercial unearned revenue rising 13% and matching expectations, it still lagged sales growth in many commercial product lines. The company breaks out "commercial cloud" revenue in the slides, but not total commercial revenue. Therefore, we can't calculate a true commercial unearned revenues days of sales figure. However, the commercial cloud revenue growth rate of almost 40% clearly indicates that a portion of commercial revenue outran the portion of revenue set aside as unearned. MSFT discloses the revenue growth rate of several key product lines with some of the largest commercial lines shown below:

	Sales Growth
Office Commercial Products and Cloud Services	14%
LinkedIn	25%
Dynamics Products and Cloud Services	12%
Server Products and Cloud Services	22%
Azure	64%

We can see further evidence of a low rate of revenue deferral in business segment detail provided by the company. The following table shows segment revenue, segment unearned revenue, and unearned revenue days of sales by segment.

Segment Revenue	6/30/2019	3/31/2019	12/31/2018	9/30/2018	6/30/2018	3/31/2018	12/31/2017
Productivity and Business Processes	$11,047	$10,242	$10,100	$9,771	$9,668	$9,006	$8,953
Intelligent Cloud	$11,391	$9,649	$9,378	$8,567	$9,606	$7,896	$7,795
More Personal Computing	$11,279	$10,680	$12,993	$10,746	$10,811	$9,917	$12,170
Total Revenue	$33,717	$30,571	$32,471	$29,084	$30,085	$26,819	$28,918
Segment Unearned Revenue							
Productivity and Business Processes	$16,831	$12,679	$12,635	$13,753	$14,864	$11,185	$11,290
Intelligent Cloud	$16,988	$12,531	$12,551	$13,298	$14,706	$9,987	$9,759
More Personal Computing	$3,387	$2,925	$2,898	$3,191	$3,150	$2,783	$2,760
Total Unearned Income	$37,206	$28,135	$28,084	$30,242	$32,720	$23,955	$23,809
Segment Unearned Revenue Days							
Productivity and Business Processes	139.0	113.0	114.2	128.4	140.3	113.3	115.1
Intelligent Cloud	136.1	118.5	122.1	141.6	139.7	115.4	114.2
More Personal Computing	27.4	25.0	20.4	27.1	26.6	25.6	20.7
Total Unearned Revenue Days	100.7	84.0	78.9	94.9	99.2	81.5	75.1

Note that each business segment contains both commercial and consumer components so a direct comparison from a single segment to the commercial unearned revenue number is not possible.

We see in the bottom panel of the above table that total unearned revenue days rose slightly to 100.7 from 99.2 a year ago. However, unearned days for Productivity and Business Processes fell slightly to 139.0 from 140.3. Productivity and Business Services contains such products as Office Commercial, Office 365, Office Consumer (including 365), LinkedIn and the Dynamics business.

However, unearned revenue days fell 3.6 days in the Intelligent Cloud segment. This segment includes mostly commercial server products, Enterprise Products which includes support services and consulting, and most notably, Azure. Intelligent Cloud corresponds the closest to management's above commentary regarding the dynamics of large, hybrid commercial cloud service contracts which can impact the amount of revenue deferred versus recognized. While management has warned investors to expect quarterly volatility in such unearned revenue balances, it is worth noting that the 3.6-day drop in unearned days in the Intelligent Cloud segment is the first year-over-year decline in the last several quarters. As noted above, the company specifically cited a larger number of large, long-term contracts for Azure as well as higher than expected sales for its on-premises server business which would have resulted in more revenue being recognized upfront. Management has warned that there will be volatility in unearned revenue and the account did meet expectations. However, the drop in unearned revenue in the segment shows that the target was for a relatively low increase in unearned revenue relative to sales. Clearly, Intelligent Cloud revenue booked in the quarter did enjoy a boost from a larger percentage of sales being recognized rather than deferred.

Given the extent to which management focuses on its disclosures and discussion of factors impacting the deferrals, we are not overly concerned that investors are being misled by aggressive accounting. However, these measures are important to monitor and investors should remember that volatility goes both ways. We should see some periods where less revenue is recognized upfront and the unearned days figure increases. Therefore, we will be concerned if we see sustained declines in unearned revenue trends. We note that the forecast for unearned commercial revenue calls for another 12% increase over last year while its forecast for Intelligent Cloud sales implies about 23% growth. This is likely heralding another drop in unearned revenue days.

Adjusted Cash Flow Growth and Rising Capex

Operating cash flow for the fiscal year ended 6/19 rose by 18.9% over the year-ago period. However, last year's number was penalized by an $18 billion tax payment related to the enactment of the TCJA. After adjustment for this and other smaller working capital movements, operating cash flow rose by just over 9%.

Perhaps the most important current development in relation to cash flow is the rise in capital spending being driven by the company's buildout of infrastructure to support its rapidly growing cloud business. The following table shows capital spending as a percentage of revenue for the last three fiscal years.

Capital Spending

	6/30/2019	6/30/2018	6/30/2017
Reported Operating Cash Flow	$52,185	$43,884	$39,507
Capital Spending	$13,925	$11,632	$8,129
Free Cash Flow	$38,260	$32,252	$31,378
Capex % of Revenue	11.1%	10.5%	8.4%
Gross PPE	$71,807	$58,683	$47,913
Accumulated Depreciation	$35,330	$29,223	$24,179
Net PPE	$36,477	$29,460	$23,734
Depreciation Expense	$9,700	$7,700	$6,100
Avg Age	3.6	3.8	4.0
Depreciation % of Gross PPE	13.5%	13.1%	12.7%

Capex has jumped from 8.4% of revenue to more than 11% in the last three years. This has been a $5.8 billion drain on free cash flow growth. At the same time, depreciation expense as a percentage of gross PP&E has risen as most of this spending has been focused on computer equipment and software necessary to drive the cloud buildout. These items are depreciated over 2-3 years which is shorter than other asset classes. We can see the buildout in computer equipment and the associated buildings and improvements in the PP&E breakout below:

	2019	2018	2017
Land	$1,540	$1,254	$1,107
Buildings and Improvements	$26,288	$20,604	$16,284
Leasehold Improvements	$5,316	$4,735	$5,064
Computer Equipment and Software	$33,823	$27,633	$21,414
Furniture and Equipment	$4,840	$4,457	$4,044
Total at Cost	$71,807	$58,683	$47,913

Capital expenditures are expected to continue to climb to meet the growing demand for cloud services, but the growth rate is expected to moderate. MSFT issues quarterly capex forecasts with the forecast for the 9/19 quarter calling for capex to be roughly flat with the 6/19 quarter. This implies an approximate 6% year-over-year increase. The following table shows the growth rate for quarterly capex spending the last several quarters:

	6/30/2019	3/31/2019	12/31/2018	9/30/2018	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Capex YOY Growth Rate	1.8%	-12.6%	43.3%	68.9%	74.3%	73.1%	30.1%	-1.4%

The 6% forecast for the 9/19 quarter represents an acceleration over the last two quarters, but it does continue a clear trend in decelerated capex spending and lines up well with management's expectations for a continued increase in spending but at a moderating pace. If the trend lasts, it will provide a boost to free cash flow growth and an increase in dividend coverage.

Regarding dividend coverage, MSFT's dividend consumes only about 36% of free cash flow and that figure has remained fairly stable over the last several quarters.

Dividend Cover

	6/30/2019	6/30/2018	6/30/2017
Free Cash Flow	$38,260	$32,252	$31,378
Cash Spent on Dividends	$13,811	$12,699	$11,845
Dividend % FCF	36.1%	39.4%	37.7%
Share Repurchases	$19,543	$10,721	$11,788
Cash After Dividends & Repurchases	$4,906	$8,832	$7,745
Cash from Stock Option Exercises	$1,142	$1,002	$772
Share Count	7,753	7,775	7,806
growth	-0.3%	-0.4%	

MSFT does maintain a generous share repurchase program partly to counter dilution from its stock compensation plans although it does result in a slight reduction of the share base. Still, there is a healthy cushion of cash left after the dividend and buyback and both are clearly sustainable at the current pace.

Lower Amortization Expense

The following table shows amortization of intangibles for the last eight quarters:

	6/30/2019	3/31/2019	12/31/2018	9/30/2018
Quarterly Amortization Expense	$383	$431	$530	$556

	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Quarterly Amortization Expense	$515	$560	$562	$563

The lower amortization expense added about 1.3 cps to earnings growth in the last two quarters. This should be considered a non-operational benefit, but it was not a material factor in the 16 cpc and 14 cps earnings beats the company posted in those two periods.

The company does not give an explanation for the decline in amortization expense. Almost all the company's intangible assets are related to the 12/8/16 acquisition of LinkedIn in which it booked $7.9 billion of intangibles and its 10/25/18 acquisition of GitHub in which it booked $1.3 billion in intangibles. The following shows the breakdown in intangibles and amortization periods for the two deals:

	GitHub		LinkedIn	
Customer Related	$648	8 yrs	$3,607	7 yrs
Technology-Based	$447	5 yrs	$2,109	3 yrs
Marketing Related	$170	10 yrs	$2,148	20 yrs
Contract Based	$2	2 yrs	$23	5 yrs
Total	$1,267	7 yrs	$7,887	9 yrs

The decline in amortization seems unusual given the addition of GitHub's intangibles to the amortized pool of intangibles in the 12/18 quarter. We can only speculate that the decline in amortization expense was a result of certain technology-based intangibles from the LinkedIn acquisition becoming fully-amortized.

We also note that while the company is choosing to amortize its GitHub technology assets over 5 years rather the 3 years it chose for LinkedIn, the lower period used for GitHub's marketing related intangibles more than makes up for that as the overall weighted average amortization period for GitHub's intangibles is two years lower than the comparable figure for LinkedIn. On the surface, this seems to imply a more conservative accounting treatment as the lower amortization period results in about $40 million more in annual amortization expense. However, MSFT booked 63% of the LinkedIn purchase price as unamortized goodwill and 29% as amortized intangibles. However, 73% of the GitHub deal was booked as goodwill while only 17% was booked as amortized intangibles. If 73% of the GitHub purchase price was subject to amortization, it would result in about $130 million a year more in amortization expense. This is only about 1.3 cps on an annual basis making it a relatively immaterial issue.

We also praise MSFT for not adding amortization of acquired intangibles back to its non-GAAP earnings as so many of its technology peers are prone to do.

Lower Sales and Marketing

MSFT has been enjoying lower marketing expense as a percentage of sales for the last several quarters as shown in the following table:

	6/30/2019	3/31/2019	12/31/2018	9/30/2018
Sales	$33,717	$30,571	$32,471	$29,084
Sales and Marketing	$4,962	$4,565	$4,588	$4,098
Sales & Marketing % of Sales	14.7%	14.9%	14.1%	14.1%

	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Sales	$30,085	$26,819	$28,918	$24,538
Sales and Marketing	$4,760	$4,335	$4,562	$3,812
Sales & Marketing % of Sales	15.8%	16.2%	15.8%	15.5%

Sales and marketing expense as a percentage of sales ran in the 15-16% range through the 2016-2017 time frame, so the decline to the 14% range is unusual. The company stated that the 4% increase in spending on sales and marketing for the fiscal year was driven by increased investments in commercial sales capacity, GitHub, and LinkedIn which was partially offset by a decline in marketing. We are skeptical that the company will be able to

continue to cut marketing expense without negatively impacting sales, especially if it wants to continue to drive sales growth in consumer areas such as Surface, Xbox, and Consumer Office products.

Other Income Rises

Other income/expense was $191 million in the quarter. While this is down from the year-ago quarter's $301 million, it was below the company's forecasted $50 million as a result of recording higher-than-anticipated mark-to-market gains on equity investments in its portfolio. This only amounted to about 1.3 cps so it was not a material component of the 16 cps earnings beat in the quarter.

Explanation of EQ Rating Scale

Rating	Description
6- "Exceptionally Strong"	Indicates uncommonly conservative accounting policies to the point that revenue and earnings are essentially understated relative to the company's peers. Higher possibility of reporting positive earnings surprises
5- "Strong"	Indicates the company has no areas of concern with its reported results and we see very little risk of the company disappointing due to recent results being overstated from aggressive reporting in recent periods.
4- "Acceptable"	Indicates the company may have exhibited a minor "red flag", but the severity of the issue is not yet a concern. Minimal risk of an earnings disappointment resulting from previous earnings or cash flow overstatement
3- "Minor Concern"	Indicates the company has exhibited either a larger number of or more serious warning signs than companies receiving a 4. The likelihood of an immediate earnings or cash flow disappointment is not considered to be high, but the signs mentioned deserve a higher degree of attention in the future.
2- "Weak"	Indicates the company's recently reported results have benefitted materially from aggressive accounting. Follow up work should be performed to determine the nature and extent of the problem. There is a possibility that upcoming results could disappoint as the impact of unsustainable benefits disappears.
1- "Strong Concerns"	Indicates that the company's recent results are significantly overstated and that we view a disappointment in upcoming quarters is highly likely.

In addition to the numerical rating, the EQ Review Rating may also include either a minus or plus sign. A minus sign indicates that our analysis shows the overall earnings quality of the company has worsened since the last review and there is a possibility the numerical rating will fall should the problem continue into the next quarter. Likewise, a positive sign indicates that the overall earnings quality is improving, and the company may see an upgrade in its numerical rating should the trend continue.

Key Points to Understand About the EQ Score

The EQ Review Rating is much more than a blind, quantitative scoring method. While we utilize proprietary adjustments, ratios, and methods developed over decades of earnings quality analysis, the foundation of all of our analysis is reading recent SEC filings, press releases, conference call transcripts and in some cases, conversations with managements.

The EQ Review Rating is not comparable to a traditional buy/sell rating. The Rating is intended to specifically convey the extent to which reported earnings may be over/understated. Fundamental factors such as forecasts for future growth, increasing competition, and valuation are not reflected in the rating. Therefore, a high score does not in itself indicate a company is a buy but rather indicates that recent results are a good indication of the underlying earnings and cash generation capacity of the company. A low score (1-2) will likely result in us performing a more thorough review of fundamental factors to determine if the company warrants a full-blown sell recommendation.

Disclosure

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