BEHIND THE NUMBERS
EARNINGS QUALITY & DIVIDEND SUSTAINABILITY RESEARCH

BTN Research

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Current EQ Rating*	Previous EQ Rating
5-	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 an explanation of the EQ Review Rating scale, please refer to the end of this report

We initiate earnings quality coverage with a 5- (Strong) rating

The company is one of the largest semiconductor producers in the world and Apple is its top customer. The ADS represents five ordinary shares trading in US Dollars. The company's balance sheet is clean with cash net of debt equal to six-months of cash flow. Working capital does not appear to have problems with receivables at normal levels with fast collection and they are not stretching payables for cash.

The biggest issue we see with regard to earnings quality involves the significant capital spending and the timing and speed of depreciation. In recent quarters, TSM beat estimates and we believe this was the primary cause. The company appears poised to see some of that reverse in the near term as new plants come online with higher depreciation running through the income statement. Those higher costs also flow into inventory. That is why we are giving it a minus rating at this time. However, in the long-run, we believe TSM's strong commitment to growth investing and results are solid albeit lumpy at times. That is the reason for the 5 (Strong) rating.

- Growth investing in capital spending is very high. Capital spending routinely is greater than depreciation, which helps future sales, but crimps current free cash flow. In recent years, the lowest ratio of capital spending to cash from operations has been 55% and it's often 30%-40% of sales.

- TSM has the balance sheet to support this in our view. It has a large net cash balance and it is committed to paying a cash dividend. The coverage is getting tighter and TSM may not grow the dividend as much in the future.

- **The huge capital spending becomes rising depreciation. In 2019, TSM modified its depreciation schedule for machinery and equipment from 2-5 years to 5-years. That helped create a period where depreciation fell in 2019 and in early 2020, which helped EPS.** We believe the recent EPS beats of 6-cents in 2019, 6-cents in 1Q20, and 7-cents in 2Q20 are partially due to the change in depreciable life assumptions.

- The company's guidance coming into 2020 was high-teen growth for depreciation and it is sticking to that forecast after 2Q's results. With depreciation down y/y in 1H20 – that indicates this could be a sizeable earnings headwind for the next few quarters.

- **Equipment under Installation is part of PP&E, but it is not depreciated until it becomes operational. This reached 39% and 42% of PP&E in 4Q19 and 1Q20. That meant assets being depreciated were flat to down. That helped depreciation expense decline in recent periods. At the end of 2Q20, the EUI dropped to 10% of PP&E so a large amount of new equipment is now subject to depreciation.**

- **Deprecation is 21%-25% of sales so it has a sizeable impact on changes in gross margin.** Gross margin has moved in a range of about 700bp with 400bp due to depreciation. New equipment and technology normally boosts volumes and allows these huge fixed costs to be spread over more chips. However, often when first

starting up, the huge fixed costs arrive first and the inventory and sales arrive on a lagged basis – which can also hurt gross margin in the short-run. As factory utilization falls, fixed costs do not decline, and inventory production costs per unit increase.

- **Inventory is impacted by these changes in depreciation and operating levels.** Inventory DSIs are normally about 50 days – and it is there now. However, there were several quarters in late 2018-early 2019 when DSIs were above 70 days. That was the result of having lower sales and fixed costs per unit increase.

- We view some of this as timing issues more than aggressive accounting. Overall, starting new facilities and supplying high-end chips and producing more volume to spread the fixed costs over is a good thing. Early on, the benefits may not be seen as fixed costs show up first.

- TSM does look to adjust inventories to the lower of cost or fair market value at times when utilization is at or below normal levels. There have been several adjustments over the years. However, the inventory turns fast enough and two-thirds of inventory is normally work-in-progress so the marks have been immaterial in our view.

- TSM also invests heavily in R&D – generally 8% of sales or higher. We view this as more commitment toward future sales. The minor fluctuations as a percentage of sales have more to do with sales changing than R&D being raised or lowered. We are seeing it rise each year.

TSM Spends Heavily on Capital Spending – Which Supports Growth

As a foundry, TSM is an asset-heavy business. It is supplying customers who in turn are using TSM semiconductors in the newest cellphones, 5G infrastructure, data centers, etc. Thus, technology changes fairly rapidly. As a result, TSM needs to continually upgrade its production facilities to incorporate newer technology – emphasizing smaller sized chips with more capacity and faster speeds. Investing in that manner allows TSM to retain customers.

As a result, the capital spending is very high at TSM:

(Bills of NT$)	2Q20	1Q20	2019	2018	2017	2016
Sales	310.7	310.6	1070.0	1031.5	977.0	947.9
Cash from Ops	170.3	203.0	615.1	574.0	585.3	539.8
Capital Spend	126.7	192.6	460.4	315.6	330.6	328.0
Free Cash Flow	43.6	10.4	154.7	258.4	254.7	211.8
Dividend	64.8	64.8	259.3	207.4	181.5	155.6
Cap-Ex % Sales	40.8%	62.0%	43.0%	30.6%	33.8%	34.6%
Cap-Ex % CFO	74.4%	94.9%	74.8%	55.0%	56.5%	60.8%

Capital spending also consistently exceeds depreciation. This also shows that TSM reinvests heavily in the business plus invests further to support growth. We think it also means that depreciation is essentially a cash expense because of the cash shortfall between the two figures:

(Bills of NT$)	2Q20	1Q20	2019	2018	2017	2016
Depreciation	69.0	67.1	281.4	288.1	255.8	220.1
Capital Spend.	126.7	192.6	460.4	315.6	330.6	328.0

We want to point out upfront that TSM's balance sheet is not leveraged. It has a net positive cash position less all financed debt of 353 billion NT - or about 6-months of cash flow. It turns its receivables over quickly too. The company is committed to paying its dividend "*TSMC intends to maintain a sustainable quarterly cash dividend, and to distribute the cash dividend each year at a level not lower than the year before.*" Of late, the cushion to pay the dividend is tighter and it may not grow at past rates and could see more periods of flat payouts.

We think this heavy capital spending does have some large impacts on operating results.

Depreciation Has Several Impacts on Earnings – New Assumptions Helped Recent EPS Grow

TSM depreciates all the is equipment very rapidly. Here is a breakdown by asset category:

(Bills of NT$)	Gross	Deprec	Net	% of Net	Dep Life
Land & Improve	4.0	0.5	3.4	0.2%	20 years
Buildings	503.8	255.6	248.2	16.6%	10-20 years
Machinery/Eq	3455.5	2390.4	1065.1	71.3%	5 years
Office Eq	63.6	40.4	23.2	1.6%	5 years
EUI/CIP	153.6	0.0	153.6	10.3%	n/a
Total	4180.5	2686.9	1493.5	100.0%	

- EUI/CIP is Equipment Under Installation and Construction in Progress – it is not depreciated until it is in operation.

The bulk of assets are machinery and equipment being amortized over only 5 years. We agree that is very conservative. However, investors should realize that TSM changed its depreciation schedule to lengthen it in 2019. Prior to 2019, machinery was depreciated over 2-5 years. Office equipment was being depreciated over 3-5 years but changing that to 5-years is less consequential.

If we look at depreciation and net PP&E in recent years, we believe TSM has been gaining income from this change in depreciation lives:

(Bills of NT$)	2Q20	1Q20	2019	2018	2017	2016
Net PP&E	1493.6	1438.2	1352.4	1072.1	1062.5	997.8
Depreciation	69.0	67.1	281.4	288.1	255.8	220.1

- In 2019, net PP&E rose 26% and Depreciation fell 2%. We think some of this is due to the change in accounting assumptions. We will explore below the timing of when depreciation commences that also played a role as well. TSM beat estimates by 6-cents on the ADS during 2019. We estimate that had depreciation remained flat in 2019, it would have cost the ADS about 1.8% of EPS or 4-cents. If depreciation had increased by 10%, we estimate that would have cost the ADS about 9.4% of EPS or 21-cents. We consider this a material benefit to the accounting change.

- The company also gave guidance after 4Q19 to expect depreciation growth in the high teens for 2020. So far, depreciation is running lower y/y and is not even on pace to match the reduced level of 2019.

(Bills of NT$)	2Q20	2Q19	1Q20	1Q19
Depreciation	69.0	73.7	67.1	76.2

TSM beat by 6-cents in 1Q20 and 7-cents in 2Q20.

- In 1Q20, the decline in deprecation y/y added 6.9% to income or 5-cents for the ADS. If we assume at 16% increase in deprecation y/y per guidance of high-teens growth, that could have cut EPS by 12-cents. There is not much discussion on this in detail in the results or on the earnings calls. So, we would ask readers to treat this 5-12 cents as a potential range of recent positive EPS.

- In 2Q20, the decline in deprecation y/y added 3.5% or 3-cents for the ADS. Again, if depreciation had risen 16%, it would cut EPS by 9-cents.

- **We want to point out that on the 2Q20 call – TSM affirmed its guidance for depreciation for 2020 to be much higher y/y.** ***"our current estimate on 2020 depreciation year-on-year growth is still high teens growth. So that gives you an idea of what the second half depreciation will be. It will be higher than the first half."*** **That could create a headwind for 2H20 in our view.**

Equipment Under Installation Drives the Depreciation Figure

In the first table above, we noted that after 2Q20, 10% of the net PP&E was considered as Equipment Under Installation or Construction in Progress. These parts of PP&E are not yet being depreciated. The company says that depreciation begins when the assets are available for use and in the condition necessary for assets to be capable of operating in the intended manner. What happens is assets move from the EUI section of PP&E to the machinery section.

In addition to watching the amount of Capital Spending and the trend in Depreciation, investors should be watching this EUI account to see how many assets are actually subject to depreciation at the moment. Looking at recent results, some of the drop in depreciation could be foreseen:

(Bills of NT$)	2Q20	1Q20	2019	2018	2017	2016
EUI/CIP	153.6	606.5	528.3	172.9	167.4	387.2
Net PP&E	1493.6	1438.2	1352.4	1072.1	1062.5	997.8
assets to be depreciated	1340.0	831.7	824.1	899.2	895.1	610.6
Growth	57.5%	4.1%	-8.4%	0.5%	46.6%	
Depreciation	69.0	67.1	281.4	288.1	255.8	220.1
Growth	-6.4%	-11.9	-2.3%	12.6%	16.2%	

From 2017-19, the net assets installed and being depreciated were flat to down. The depreciation had to catch up to all the 2016 assets under construction becoming active in 2017 and 2018 and depreciation rose. In 2019, depreciation was helped by lengthening the asset lives as well as a lower asset total remaining to expense. That is why we gave a range of what the impact from stretching depreciation lives for assets was in the section above for recent periods. There is some impact from the change in policy and there is some impact from having a flat total of undepreciated assets.

A huge amount of new installation that was seen in 2019 and 1Q20, just moved to the machinery section and is ready to begin depreciation. So, assets subject to depreciation just rose 57.5% y/y in 2Q. That is more reason why investors should expect TSM is being truthful that its depreciation figure will rise considerably in 3Q20 and 4Q20.

Depreciation on Inventory and Gross Margin

Depreciation is a huge fixed cost for TSM. The bulk of it goes through Cost of Sales. Thus, it makes up part of the total expense that produces inventory. Plus, a fluctuating gross margin is often influenced by the depreciation figure. Plus, **TSM notes that gross margin is often negatively impacted when new technology production is introduced. This is due to the depreciation starting immediately as a fixed cost while the production of finished products ramps up and subsequent sales happen after the depreciation begins.**

Gross Margin	2Q20	1Q20	2019	2018	2017	2016
Adj Gross Margin	53.1%	51.7%	46.2%	48.7%	50.5%	50.5%
COGS Dep % Sales	20.1%	19.6%	24.0%	25.7%	24.1%	21.5%
Non-Dep GM	33.0%	32.1%	22.2%	23.0%	26.4%	29.0%

- Adjustments are minor marks to fair value for inventory

The total gross margin has moved within a range of 7-percentage points in recent years with depreciation accounting for about 4-percentage points of that move (leaving out the first half of 2020). We are pointing this out because with the figures for assets to be depreciated jumping significantly in 2Q20 – it seems likely depreciation as a percentage of sales will push down gross margin going forward.

The operating model is to have new technology boost the volume of inventory and spread that higher volume over fixed costs and reduce the per-unit production costs. That also requires the utilization rate of the facilities to be a high figure. As the utilization rate increases – it lowers unit costs by spreading fixed costs over more output and tends to boost gross margin. The reverse is also true. In 2019, there were a few points that hurt utilization particularly in the first half of the year – wafer contamination and a seasonal drop-off in smartphone demand as a key end market. Thus, 2020 has not only benefited from those issues vanishing and posting a higher utilization rate against a poor year but it also benefitted from the decline in depreciation expense discussed earlier. We only see TSM report actual percentages for utilization in annual filings:

	2Q20	1Q20	2019	2018	2017	2016
Utilization	up	up	81%	87%	91%	92%

We can also track this with DSIs for inventory. When sales are lower, the cost of producing inventory rises and DSI increases even if COGS follow sales down:

in bills of NT	2Q20	1Q20	4Q19	3Q19
Sales	310.7	310.6	317.2	293.1
COGS	146.1	149.8	158.0	153.6
Inventory	85.8	78.3	83.0	96.7
DSI	53.6	47.7	48.0	57.5

in bills of NT	2Q19	1Q19	4Q18	3Q18
Sales	241.0	218.7	289.8	260.3
COGS	137.3	128.3	151.7	137.0
Inventory	108.2	108.7	103.2	105.3
DSI	71.9	77.3	62.1	70.1

in bills of NT	2Q18	1Q18	4Q17	3Q17
Sales	233.3	248.1	277.6	252.1
COGS	121.7	123.2	138.8	126.2
Inventory	99.0	85.2	73.9	73.9
DSI	74.2	63.1	48.6	53.4

To sum this up – the first half of 2020, TSM had solid earnings driven by higher sales and lower inventory costs that were fueled further by lower depreciation and higher utilization. Gross margin rose 10-percentage points and the company beat forecasts handily. Going forward, we are not making a call on sales. However, we believe new equipment starting up will boost inventory costs and depreciation, which will pressure margins.

We should add that some of this represents timing issues related to recognizing higher fixed costs as sales will lag for new products in periods of starting up new production. We don't consider this to be aggressive accounting. In fact, even after stretching the property lives modestly in 2019 and gaining some EPS, we really cannot take TSM to task over a 5-year life expectancy for new machinery. The issue to focus on is that in any period of time, the depreciation and capital spending figures are big enough to materially influence the results in a positive or negative manner because they so directly impact gross margin and the value of inventory.

Inventory Adjustments Happen – But Have Been Largely Immaterial

In recent years, the company has had issues with an earthquake destroying some inventory, a computer virus, and some wafer contamination that led to some write-offs. In

addition, when it has periods of operating at or below normal capacity levels – the fixed costs are spread over fewer units which boosts the cost of inventory units. During those times, TSM seeks to ensure that the inventory is carried at the lower of cost or fair market value. Fair market value is estimated against selling prices and the time horizon is very short – less than 180 days. There have been adjustments for this at times as well. Many times, the adjustment to inventory valuation has been partially reversed.

In order to cost TSM 1-cent in EPS on the ADS, a charge needs to be about 1.5 billion NT$ +/- 0.1 billion depending on the exchange rate for the US$ to NT$. These charges have not been that large in recent years:

Inv. Adj.	2Q19	1Q19	2019	2018	2017	2016
Inv. to FMV	0.5	-0.2	-2.0	1.3	-0.8	1.5
Outside event	0.0	0.0	3.4	2.6	-0.1	2.5
Total	0.5	-0.2	1.4	3.9	-0.9	4.0

- Outside events are – contamination of wafers, computer virus, revaluated loss of earthquake and earthquake damage for years 2019-16.

We think most investors would consider the outside events to be 1-time items and ignore them even they were larger. On the adjustments to FMV, we think these tend to stay low because inventory turns over fairly quickly and the bulk of inventory is work in progress which should have a lower starting value than finished goods as part of the FMV adjustment process:

Inventory	2Q19	2019
Finished Goods	8%	11%
Work in Progress	66%	63%
Raw Materials	18%	20%
Supplies	9%	7%

Inventory Turnover for the last three years has been between 1.2-1.9x per quarter with an average of 1.5x per quarter. Currently, the inventory levels are low at just over 50 days.

TSM Spends Heavily on R&D Also

R&D has dipped a tad as a percentage of sales in 2020. We think that is more of a function of weaker sales in early 2019. The amount of spending continues to increase.

	2Q20	1Q20	2019	2018	2017	2016
R&D	24.9	25.0	91.4	85.9	80.7	71.2
% Sales	8.0%	8.0%	8.5%	8.3%	8.3%	7.5%

It could be possible for TSM to grow R&D spending faster than sales in short periods of time like in 2019. Had 2019's spending stayed at 8.3% it would have only produced about 1.7 cents in additional EPS. We're going to give TSM credit for staying the course and having the liquidity to plan further ahead and live with a small amount of lumpiness on earnings.

Receivables and Payables Look Fine Too

TSM is not having problems with receivables or tapping payables for cash either. We're seeing rapid collections and payment of both:

	2Q20	1Q20	4Q19	3Q19
A/R DSOs	43.9	43.0	40.2	45.2
A/P DSPs	24.7	24.2	23.2	22.0

	2Q19	1Q19	4Q18	3Q18
A/R DSOs	44.0	44.5	40.7	45.4
A/P DSPs	21.7	19.7	20.7	20.2

	2Q18	1Q18	4Q17	3Q17
A/R DSOs	35.5	39.7	40.2	43.0
A/P DSPs	23.0	21.5	19.8	21.0

Adobe Inc. (ADBE) 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 an explanation of the EQ Review Rating scale, please refer to the end of this report

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

Overall, we see ADBE's earnings quality as currently being solid. We have the following observations and identification of the key accounting-based factors driving earnings.

- ADBE has been shifting sales to Cloud-based services and away from on-premises licenses for years. This has led to an increase in the portion of the company's revenues generated by subscription agreements which now stands at over 90% and climbing. Ordinarily, one would expect to see deferred revenue days of sales increase as a result of a larger percentage of revenues being deferred rather than recognized upfront. However, ADBE's deferred revenue days have instead been declining YOY for the last several quarters. This would ordinarily be a classic red flag possibly indicating aggressive revenue recognition or a pending slowdown in revenue growth. However, ADBE's contracts are far from homogenous with varying time frames and billing patterns. Shifts in the type of contract being signed can have a meaningful impact on deferred revenue trends.

- In the last two quarters, the company attributed the muted increase in deferred revenue to the fact that the COVID environment shifted sales to its Adobe.com platform which are billed monthly and away from traditional channel sales which are billed annually. This is a reasonable explanation. However, the company did not give explanations in the conference calls or SEC filings for the decline in deferred revenue days seen in the two pre-COVID quarters which raises some questions. Were it not for our questions on weaker deferred revenue growth in those quarters,

we would have rated the company's earnings quality a 5 (Strong). Looking forward, strong ARR trends confirm the company's booking of new business is strong, so we are not concerned that the deferred revenue trends in the last two quarters indicate increased aggressiveness in revenue recognition or are signaling a slowdown in revenue growth. We will be watching for deferred revenue growth to trend upwards as conditions return to normal and sales shift back to regular channels.

- ADBE adds back stock-based compensation to its non-GAAP results which is typical in the tech industry. Stock-based compensation has been trending at around 17% of non-GAAP operating income. While less than some of the big software peers we have reviewed, this is still a sizeable portion of total expenses being ignored by investors focusing on non-GAAP earnings. Also, stock-based compensation has been increasing so the exclusion of the expense is benefitting non-GAAP growth.

- The company also adds back amortization of acquired intangibles to non-GAAP figures. While ADBE made a large acquisition in 2018, it is not relying on acquisitions to fuel growth. Intangibles amortization is declining as older intangibles become fully amortized and the expense is now down to just over 6% of non-GAAP operating profits. Excluding amortization is actually penalizing non-GAAP growth at this point.

- ADBE capitalizes the costs to obtain contracts (mainly commissions) as required and amortizes the balance over an estimated benefit period of 5 years. This assumed benefit period seems reasonable and compares favorably to the assumed benefit period for several peers. The company does not disclose periodic capitalization of costs or the associated amortization expense on the balance which would be helpful. However, the ending balance of capitalized costs regularly hovers around 15 days of sales which reduces the concern of any artificially benefit related to the account. In addition, we note that assuming a five-year amortization period, we estimate quarterly amortization expense is only between 4-5 cps compared to the non-GAAP earnings figure of $2.57 in the 8/20 quarter, making this a relatively immaterial issue.

Revenue Breakdown

ADBE reports revenue under three operating segments: Digital Media, Digital Experience, and Publishing. Growth for each one of these segments is shown in the table below for the last eight quarters:

Table 1

	8/28/2020	5/29/2020	2/28/2020	11/29/2019
Digital Media	$2,337	$2,232	$2,169	$2,078
growth	19.1%	18.1%	22.1%	21.5%
Digital Experience	$838	$826	$858	$859
growth	2.1%	5.4%	15.5%	24.5%
Publishing	$50	$70	$64	$55
growth	-2.0%	0.0%	-21.0%	-15.4%
Total	$3,225	$3,128	$3,091	$2,992
growth	13.8%	14.0%	18.8%	21.4%

	8/30/2019	5/31/2019	3/01/2019	11/30/2018
Digital Media	$1,962	$1,890	$1,777	$1,710
growth	21.9%	22.3%	21.6%	23.0%
Digital Experience	$821	$784	$743	$690
growth	33.7%	33.8%	34.1%	25.5%
Publishing	$51	$70	$81	$65
growth	-25.0%	11.1%	26.6%	-1.5%
Total	$2,834	$2,744	$2,601	$2,465
growth	23.7%	25.0%	25.1%	22.9%

Digital Media

Over 70% of ADBE's revenue comes from its Digital Media segment. The bulk of Digital Media consists of the *Adobe Creative Cloud* which accounts for more than 80% of Digital Media revenue. This is a subscription service that offers access to products such as *Photoshop, Illustrator*, and *Lightroom*. These products are used by creative professionals such as artists, designers, web developers and other content generators to produce printed content and online graphic and video content.

Digital Media also includes *Document Cloud* which accounts for the remained of Digital Media revenue. These products are built around the *Acrobat* and *Acrobat Reader* platforms for document creation coupled with the *Adobe Sign* and *Adobe Scan* document service

products. These products are used for everything from invoicing, contract creation, compliance, and reporting.

We see above that Digital Media revenue has been in the 20% range. This has been driven largely by growth in new users with recent growth being boosted by the jump people working from home in the COVID environment.

The bulk of Digital Media revenue is sold as a subscription with cash received upfront and recognized over time. The company presents Annualized Recurring Revenue for the segment which is the annual value of all subscription-based contracts in effect at the end of the period.

Table 2

	8/28/2020	5/29/2020	2/28/2020	11/29/2019	8/30/2019
Creative ARR	$8,294	$7,934	$7,582	$7,253	$6,866
	20.8%				
Document Cloud ARR	$1,339	$1,241	$1,150	$1,079	$993
	34.8%				
Total Digital Medica ARR	$9,633	$9,175	$8,732	$8,332	$7,859

We can see that both *Creative Cloud* and *Document Cloud* ARR figures are showing strong growth trends both YOY and sequentially.

Digital Experience

The Digital Experience segment accounts for about 25% of total company revenue. ADBE's Digital Experience segment addresses the need for companies to perform customer data analytics, content delivery, campaign design, and advertising activities. Its *Adobe Experience Cloud* platform includes products such as *Analytics, Audience Manager, Experience Manager, Campaign*, and *Advertising Cloud*. We see from Table 1 above that growth in the segment has slowed dramatically in the last few quarters. The decline in growth in the last two quarters was largely due to the company discontinuing its transaction-driven *Advertising Cloud* offerings in the 5/20 quarter. After adjustment for *Advertising Cloud*, Digital Experience revenue growth was 14% in the 8/20 quarter.

Publishing

Publishing is the smallest segment at less than 2% of total revenue and declining. This segment includes the company's legacy *PostScript* and *PDF* printing technologies.

Ongoing Move to Subscription Model

ADBE has been moving its software to a Cloud-based service model for years with currently 93% of revenue being generated in subscription form. The following table shows the percentage of each segment's revenue that is generated from a subscription Cloud-based service:

Table 3

	8/28/2020	5/29/2020	2/28/2020	11/29/2019
% of Digital Media That Is Subscription	95.8%	95.7%	94.9%	92.9%
% of Digital Experience That Is Subscription	87.0%	85.6%	86.1%	84.5%
% of Publishing That Is Subscription	62.0%	45.7%	43.8%	55.2%
Total	93.0%	91.9%	91.4%	89.8%

	8/30/2019	5/31/2019	3/01/2019	11/30/2018
% of Digital Media That Is Subscription	93.8%	93.9%	93.6%	93.6%
% of Digital Experience That Is Subscription	82.7%	83.4%	82.4%	80.3%
% of Publishing That Is Subscription	52.9%	40.0%	35.8%	45.5%
Total	89.9%	89.5%	88.6%	88.6%

Note that all three segments are seeing their revenue mixes shift to subscription-based models.

Despite the Shift to Subscriptions, Deferred Revenue Days of Sales Are Declining

ADBE offers its products on a subscription basis, on-premises/on device license basis, and per-usage basis. Revenue from subscription customers is recognized ratably over the term of agreements "generally ranging from 1 to 36 months." As shown above, subscription revenue comprises about 93% of revenue. On-premises products are generally recognized at the time of sale. Product revenue amounted to 3.4% of revenue in the latest quarter and is steadily declining. All else equal, such a mix shift would lead us to expect a gradual rise

in deferred revenue days of sales as a greater percentage of new revenue signed would be deferred each quarter. However, ADBE's contracts are far from homogenous as the wide range of contract time frames, from 1-36 months, would suggest. Consider the company's discussion of its revenue recognition policies from the 11/19 10-K:

> *"Our contracts with customers may include multiple goods and services. For example, some of our offerings include both on-premise and/or on-device software licenses and cloud services. Determining whether the software licenses and the cloud services are distinct from each other, and therefore performance obligations to be accounted for separately, or not distinct from each other, and therefore part of a single performance obligation, may require significant judgment.* ***We have concluded that the on-premise/on-device software licenses and cloud services provided in our Creative Cloud and Document Cloud subscription offerings are not distinct from each other such that revenue from each offering should be recognized ratably over the subscription period for which the cloud services are provided.*** *In reaching this conclusion, we considered the nature of our promise to Creative Cloud and Document Cloud customers, which is to provide a complete end-to-end creative design or document workflow solution that operates seamlessly across multiple devices and teams. We fulfill this promise by providing access to a solution that integrates cloud-based and on-premise/on-device features that, together through their integration, provide functionalities, utility and workflow efficiencies that could not be obtained from either the on-premise/on-device software or cloud services on their own.*
>
> ***Cloud-hosted subscription services may be sold on a fee-per-subscription period basis or based on consumption or usage.***
>
> ***We recognize revenue ratably over the contractual service term for hosted services that are priced based on a committed number of transactions where the delivery and consumption of the benefit of the services occur evenly over time, beginning on the date the services associated with the committed transactions are first made available to the customer and continuing through the end of the contractual service term. Over-usage fees and fees based on the actual number of transactions are billed in accordance with contract terms as these fees are incurred and are included in the transaction price of an arrangement as variable consideration. Fees based on a number of transactions or impressions per month, where invoicing is aligned to the pattern of performance, customer benefit and consumption, are typically accounted for utilizing the "as-invoiced" practical expedient. Revenue for subscriptions sold as***

a fee per period is recognized ratably over the contractual term as the customer simultaneously receives and consumes the benefit of the underlying service.

The above quote would indicate that while some usage-based contracts could potentially skew the mix of deferred revenue, it seems the overwhelming majority of the subscription business is booked ratably. However, deferred revenue patterns will also be impacted by the timing of billings, as the company points out:

"The deferred revenue balance is influenced by several factors, including seasonality, the compounding effects of renewals, invoice duration, invoice timing, size and new business linearity within the quarter. "

The following table shows the calculation of the company's deferred revenue days of sales for the last 12 quarters. Note that we use Subscription plus Service & Support sales in our calculation and exclude product revenue as those revenues are recognized upfront.

Table 4

	8/28/2020	5/29/2020	2/28/2020	11/29/2019
Subscription Revenue	$3,000	$2,874	$2,825	$2,687
Services & Support Revenue	$116	$126	$123	$138
Subscription and Service & Support Revenue	$3,116	$3,000	$2,948	$2,825
Total Deferred Revenue	$3,448	$3,461	$3,614	$3,501
Total Deferred Revenue Days of Sales	100.7	105.0	111.6	112.8

	8/30/2019	5/31/2019	3/01/2019	11/30/2018
Subscription Revenue	$2,547	$2,456	$2,305	$2,184
Services & Support Revenue	$130	$135	$125	$130
Subscription and Service & Support Revenue	$2,677	$2,591	$2,430	$2,314
Total Deferred Revenue	$3,256	$3,135	$3,218	$3,054
Total Deferred Revenue Days of Sales	110.7	110.1	120.5	120.1

	08/31/2018	06/01/2018	03/02/2018	12/01/2017
Subscription Revenue	$2,022	$1,923	$1,793	$1,696
Services & Support Revenue	$120	$121	$114	$118
Subscription and Service & Support Revenue	$2,142	$2,044	$1,907	$1,814
Total Deferred Revenue	$2,707	$2,634	$2,573	$2,495
Total Deferred Revenue Days of Sales	115.0	117.3	122.8	125.2

We can see in the table that deferred revenue days of sales have been declining YOY for the last several quarters. The company mentions in the 11/19 10-K that significant movements in deferred revenue during fiscal 2019 were partly due to deferred revenue balances picked up in acquisitions. During the 11/18 quarter, ADBE bought Marketo which resulted in the booking of $74 million in deferred revenue at the close of the deal. We do not see any significant YOY change in deferred revenue days in the 11/18 or 3/19 quarter, so we doubt the Marketo acquisition had much of an impact on the comparison.

In the 3/19 quarter, the company bought the remaining interests in Allegorithmic for $106.2 million. Only about $9 million of the purchase price was allocated to all of net liabilities (where deferred revenue would be booked) so we doubt that had any meaningful disruption of comparisons.

Nevertheless, we begin to see an accelerating year-over-year decline in deferred revenue days of sales beginning in the 5/19 quarter. We saw no explanation for any depression of deferred revenue in conference call transcripts or SEC filings for the 11/19 or 2/20 quarters. However, the company noted in the last two quarters which were impacted by COVID that it saw a significant shift in sales to its online Adobe.com platform and away from its traditional channel revenue. Here is the explanation of the shift from the 8/20 quarter conference call:

> *"Deferred Revenue exiting the quarter was $3.45 billion. As I mentioned last quarter, our Adobe.com offerings, typically billed monthly, are reported as unbilled backlog, whereas channel offerings billed annually up front are reported as deferred revenue. The strength in acquisition on Adobe.com during the quarter continues to drive a mix-shift from deferred revenue to unbilled backlog."*

This is a reasonable explanation for the slowdown in the growth of deferred revenue relative to sales growth and new business growth trends are strong. We are therefore not alarmed that the slowdown in deferred revenue growth represents the company becoming more aggressive in recognizing revenue or that it is foreshadowing a slowdown in revenue growth. Should the shift towards Adobe.com sales from channel sales hold until COVID subsides, we can expect to see more YOY declines in deferred revenue days. However, when that day comes, if we don't see a rebound deferred revenue growth, it will become a point of concern.

Non-GAAP Analysis

As is typical for tech companies, ADBE adds back both stock-based compensation and amortization of intangibles assets to its non-GAAP numbers. The following table shows these add-backs as a percentage of non-GAAP operating profit:

Table 5

	8/28/2020	5/29/2020	2/28/2020	11/29/2019
Adjusted Operating Income	$1,403	$1,335	$1,245	$1,274
Stock-Based and Deferred Compensation	$244	$227	$214	$208
% of Adjusted Operating Income	17.4%	17.0%	17.2%	16.3%
Amortization of Intangibles	$90	$92	$94	$96
% of Adjusted Operating Income	6.4%	6.9%	7.6%	7.5%

	8/30/2019	5/31/2019	3/01/2019	11/30/2018
Adjusted Operating Income	$1,153	$1,050	$985	$953
Stock-Based and Deferred Compensation	$199	$204	$187	$166
% of Adjusted Operating Income	17.3%	19.4%	19.0%	17.4%
Amortization of Intangibles	$100	$96	$103	$66
% of Adjusted Operating Income	8.7%	9.1%	10.5%	6.9%

Stock-based compensation as a percentage of adjusted operating profit is holding fairly steady at 17-20%. While not as large as a percentage of adjusted profits as salesforce.com (CRM) and Autodesk (ADSK) which are closer to 40%, stock compensation is still a material part of operating expenses that is being ignored by investors who focus on the non-GAAP results alone. The rationale for excluding the expense is that it is non-cash in nature. However, we counter that if the company did not pay this compensation in stock, it would have had to pay a similar amount in cash, not to mention that the company will have to spend cash to repurchase shares to avoid diluting shareholders.

ADBE is not overly acquisitive. However, in October of 2018, it spent $4.7 billion acquiring Marketo. About 73% of the purchase price was booked as goodwill and will never be amortized. However, amortization expense is declining as intangible assets are becoming fully amortized so ironically, non-GAAP profit growth is actually being penalized by excluding amortization expense. We disagree with ignoring the amortization of acquired intangibles as it ignores the cost of the deals, but since the company is not relying on

acquisitions to generate growth, we are not as concerned by amortization expense as we are with some companies.

Besides stock compensation and amortization of intangibles, the only other regular non-GAAP adjustments the company makes is to zero out the effect of investment gains and losses. This is a reasonable adjustment and the amounts are typically immaterial.

Capitalized Costs to Obtain Contracts

ADBE is required to capitalize the costs to obtain contracts which include expenses such as commissions. These costs are amortized over the estimated period of time over which the company will benefit from the customer relationship which is currently 5 years. As is typical, when the benefit period is assumed to be less than one year, the company expenses the costs immediately. We note that the 5-year assumed benefit period is substantially less than the 10 years used by Paycom Software (PAYC) and more in-line with the 3-5 years used by Citrix Systems (CTXS) and 4 years used by salesforce.com (CRM). We therefore do not take issue with the company's choice of a benefit period.

ADBE does not disclose the amount of costs capitalized during the period or the periodic amortization expense associated with capitalized contract costs which would be helpful in getting a clearer picture of this account. However, it does disclose the ending balance of capitalized contract costs which tracks closely from quarter to quarter at around 15 days of sales. Therefore, with the information given, we do not see evidence that the company is artificially benefitting from changes in the account. Furthermore, the balance of capitalized contract costs was $538 million at the end of the 8/20 quarter. Quarterly amortization of that amount over 5 years would only be about 4.5 cps versus the non-GAAP EPS figure of $2.57 making this a relatively immaterial issue.

Explanation of EQ Rating Scale

Rating	Explanation
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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