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Application Software
North America

Building a Better Office

Ace Your Review – Buy HR Software CDAY and PAYC

Deep Dive

Daniel Jester AC
+1-415-951-1832
daniel.jester@citi.com

- We are expanding Citi's coverage of software application companies which provide essential support to business operations across HR, supply chains, and financials – initiating on **PAYC** (Buy), **COUP** (Neutral), **PLAN** (Neutral / High Risk), **PCTY** (Neutral) and assuming from Walter Pritchard **CDAY** (Upgrade to Buy from Neutral / High Risk) and **OTEX** (maintaining Neutral).

- Fundamentally, we are positive on the group and expect several years (or more) of strong growth across many of the key end markets. Digital transformation efforts into the cloud, which garnered momentum with large enterprises and in the front office, are increasingly moving down to small/mid-sized organizations and into the back office.

- For Human Capital Management specifically (CDAY, PAYC & PCTY), we think our analysis is differentiated, taking both a top down and bottoms up, metro area level, approach. We see a $1-2B+ plus opportunity for SaaS software players in the US as businesses upgrade away from legacy/regional players, who still hold >50% share.

- Our new, proprietary survey of >120 senior HR officers shows 48% of respondents see higher spending on HCM software next year, with an expected increase of ~4.2% Y/Y. We'd note this pace of spending growth exceeds Citi's recent CIO survey. Payroll, core HR, benefits, and performance management software were 4 of the 5 highest investment priorities for HR executives.

- Valuations for group have improved, but still leave us leaning to be selective. Since peaking late in the summer, on average for the back office application software group, forward EV / Sales multiples have compressed from ~10.5x to ~8.5x, but this is still >1x greater than this time just one year ago.

- **Buy CDAY**: The company's SaaS solution, Dayforce has momentum, including with larger clients and CDAY should see the biggest sales improvement Y/Y in 2020 vs. the peer group. Longer-term, we see a major opportunity outside of the US, where CDAY is ahead of its peers who still seem focused on the US. Our target price is $58.

- **Buy PAYC**: A compelling mix of sales growth (>25%) and profits (>20% FCF margins), PAYC shares have pulled back on multiple compression over the past few months, which we view as a buying opportunity as underlying sales trends are still favorable (improving efficiency from field sales offices, stronger unsolicited in-bound inquiries, and a growing inside sales function). Our target price is $262.

Data Summary

Company	Ticker	Currency	Price	Date & Time	Rating Old	Rating New	Target Price Old	Target Price New	Div Yld (%)	ETR (%)	Last Rpt Year	Current Fiscal Year EPS Old	Current Fiscal Year EPS New	Next Fiscal Year EPS Old	Next Fiscal Year EPS New
Paycom Software Inc	PAYC	US$	203.50	24 Oct 16:00	-	1	-	262.00	0.0	28.7	Dec-18	-	3.39	-	4.27
Ceridian	CDAY	US$	45.12	24 Oct 16:00	2H	1	52.00	58.00	0.0	28.5	Dec-18	0.43	0.46	0.66	0.70
Anaplan Inc	PLAN	US$	47.99	24 Oct 16:00	-	2H	-	49.00	0.0	2.1	Jan-19	-	-0.48	-	-0.41
Coupa Software Inc	COUP	US$	131.63	24 Oct 16:00	-	2	-	141.00	0.0	7.1	Jan-19	-	0.18	-	0.35
OpenText Corp	OTEX	US$	39.88	24 Oct 16:00	2	2	38.00	43.00	1.8	9.6	Jun-19	2.83	2.84	3.10	3.03
Paylocity Hldg	PCTY	US$	100.28	24 Oct 16:00	-	2	-	105.00	0.0	4.7	Jun-19	-	1.64	-	2.04

1 = Buy, 2 = Neutral, 3 = Sell, H = High Risk
Source: Citi Research

Earnings Estimates

				Last Reported Year					Current Fiscal Year					Next Fiscal Year				
Company Name	Ticker	Last Rpt Year	Currency	1Q	2Q	3Q	4Q	FY0	1Q	2Q	3Q	4Q	FY1	1Q	2Q	3Q	4Q	FY2
Paycom Software Inc	**PAYC**	**Dec-18**	**US$**	**0.95**	**0.59**	**0.52**	**0.61**	**2.67**	**1.19**	**0.75**	**0.67**	**0.78**	**3.39**	**1.49**	**0.93**	**0.85**	**1.00**	**4.27**
Ceridian	**CDAY**	**Dec-18**	**US$**	**0.05**	**-0.29**	**0.08**	**0.04**	**-0.07**	**0.14**	**0.12**	**0.08**	**0.12**	**0.46**	**0.19**	**0.20**	**0.15**	**0.17**	**0.70**
Old		*Dec-18*	*US$*	*0.05*	*-0.29*	*0.08*	*0.04*	*-0.07*	*0.14*	*0.12*	*0.07*	*0.10*	*0.43*	*0.18*	*0.19*	*0.14*	*0.15*	*0.66*
Anaplan Inc	**PLAN**	**Jan-19**	**US$**	**-0.25**	**-0.18**	**-0.18**	**-0.13**	**-0.74**	**-0.16**	**-0.12**	**-0.12**	**-0.08**	**-0.48**	**-0.13**	**-0.12**	**-0.10**	**-0.07**	**-0.41**
Coupa Software Inc	**COUP**	**Jan-19**	**US$**	**-0.01**	**0.05**	**0.08**	**0.05**	**0.18**	**0.03**	**0.07**	**0.06**	**0.01**	**0.18**	**0.06**	**0.07**	**0.11**	**0.11**	**0.35**
OpenText Corp	**OTEX**	**Jun-19**	**US$**	**0.60**	**0.80**	**0.64**	**0.72**	**2.76**	**0.63**	**0.81**	**0.66**	**0.74**	**2.84**	**0.64**	**0.89**	**0.70**	**0.80**	**3.03**
Old		*Jun-18*	*US$*	*0.54*	*0.76*	*0.54*	*0.72*	*2.56*	*0.60*	*0.80*	*0.64*	*0.72*	*2.76*	*0.60*	*0.80*	*0.67*	*0.76*	*2.83*
Paylocity Hldg	**PCTY**	**Jun-19**	**US$**	**0.20**	**0.23**	**0.60**	**0.34**	**1.38**	**0.26**	**0.31**	**0.74**	**0.33**	**1.64**	**0.33**	**0.39**	**0.91**	**0.42**	**2.04**

Source: Citi Research

Contents

Portfolio Manager Summary

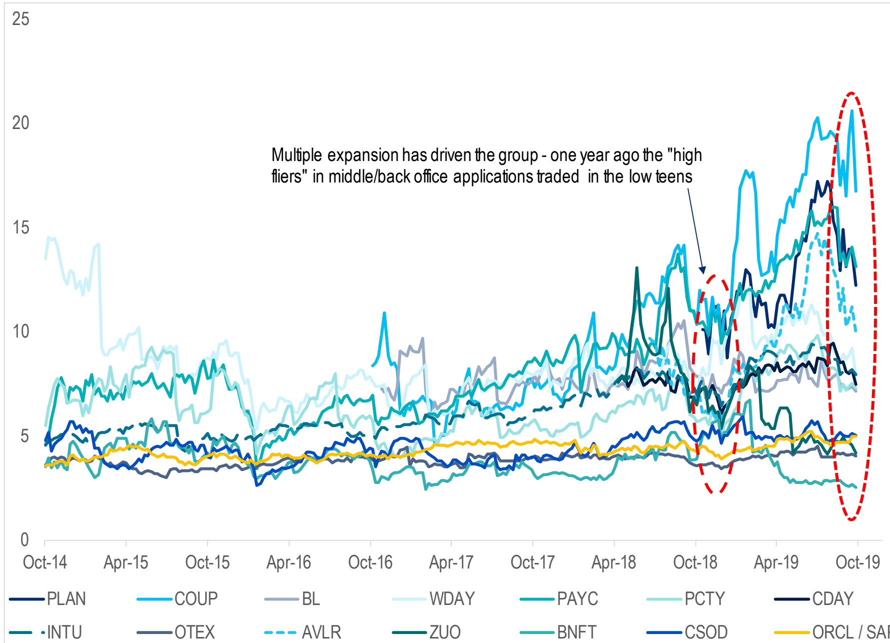
We are expanding Citi's coverage of software application companies which provide essential support to business operations – CDAY (Buy $58 TP), PAYC (Buy $262 TP), COUP (Neutral $141 TP), PLAN (Neutral / High Risk $49 TP), OTEX (Neutral $43 TP) and PCTY (Neutral $105 TP). Digital transformation – having revolutionized the front office, and elevated "big data" and "analytics" to common parlance – is accelerating in the back office as employers tackle a broad swath of challenges – lackluster productivity growth, increasing complexity across the enterprise, globalized supply chains facing trade tensions, rising compliance needs and tight labor markets, just to name a few. ERP is not going away, but on the periphery there are a number of briskly scaling, SaaS software application suites – including human capital management (HCM), spending/supply chain management (SCM), financials (FP&A, tax) – which are seeing >20% growth. Among these cohorts, HCM is ahead of the adoption curve, while some of the financial analytics and payments tools are in the early days.

For HCM specifically, we think our work is differentiated in three key ways. First, we are taking a holistic view of the market, building and expanding on Citi's legacy coverage of parts of the sector. Second, our market analysis (Figures 9-14) takes both a top down and bottoms up, metro area level, approach, to frame the growth opportunity over the next 3-4 years. Third, we incorporate the results of our new, proprietary survey of >120 senior HR officers, which shows solid demand for HCM applications continuing into 2020.

Fundamentally, we are positive on the group overall and expect several years (or more) of strong growth across many of the key end markets. For HCM, we are nearing the middle innings of a decade-long upgrade in human resource technology in the US into the cloud. CDAY, PAYC and PCTY, have, all in their own way, been successful in offering enterprise-like software experiences across a suite of functions (payroll, core HR, recruiting, talent, etc.) to small and medium firms. Our survey of >120 senior HR officers, detailed later in this report, showed 48% of respondents see higher spending on HCM software next year, with an expected increase of ~4.2% Y/Y. We'd note this pace of spending growth exceeds Citi's technology team's recent CIO survey for technology overall. Elsewhere, there are very broad and deep markets for both SCM and financials applications, which we think will support strong growth over 3-5+ years.

Yet from a tactical perspective, valuations for group the leave us leaning to be selective. Since peaking late in the summer, on average for the back office application software group, forward EV / Sales multiples have compressed from ~10.5x to ~8.5x, but this is still >1x greater than this time just one year ago. There are heighted concerns about how macro uncertainty will impact the group and for some of these "hyper growth" names, like COUP, we think there could be better entry points (see: Alert: Chinks in the software armor? Or just another sentiment scare? - Evolved views of how investors are looking at the sector; Alert: There goes the Alamo? - Updated Macro / Software Views).

Figure 1. Back Office & HCM Software – EV / Sales (FY2)



Source: Citi Research, FactSet

With this context, we like **CDAY** which has successfully navigated the transition from legacy bureau to cloud HCM provider with its Dayforce application now at ~4k clients. In the near-term, revenue should pick up as go-lives at larger clients accelerate, and CDAY should see the biggest revenue growth improvement Y/Y in 2020 (+3pts Y/Y vs. -4 pts for HCM peers). In our view, CDAY management has several levers to pull to accelerate growth over the next few years – growing up-market in the US, potential major expansion in government (such as Canada gov't contract ongoing), improving its small business opportunity in Canada, and expanding internationally, for which Dayforce was designed. While still early days, we do not think many of these secondary opportunities are priced into the stock, noting in particular that adoption rates for cloud HCM outside of the US are at least several years behind.

With a track record of 30%+ topline growth and ~40% EBITDA margins, HCM player **PAYC** is "best of class" balancing growth and profits. With think the consensus view of a 500bps+ Y/Y deceleration in revenue growth into 2020 could prove to be overly conservative, as PAYC is benefiting from a number of favorable underlying sales trends, including improving efficiency from field offices, stronger unsolicited in-bound inquiries, a growing inside sales function, and increasing average client size. The company's new Direct Data Exchange, which tracks employee self-service in PAYC's applications and provides cost savings information to clients, provides a powerful ROI tool which could promote usage and further reduce churn.

Figure 2. Citi vs. Consensus Estimates

	CDAY		COUP		OTEX		PAYC		PCTY		PLAN	
	Sales	EBITDA	Sales	EBIT	Sales	EBITDA	Sales	EBITDA	Sales	EBITDA	Sales	EBIT
Current Fiscal Quarter												
Citi	**196.7**	**42.5**	**96.3**	**5.0**	**701.3**	**257.0**	**171.5**	**62.4**	**124.0**	**29.0**	**86.2**	**(17.0)**
Consensus	196.5	42.4	96.2	4.9	701.8	257.1	171.5	62.3	124.1	29.2	86.5	(16.7)
Diff	*0.1%*	*0.1%*	*0.1%*	*2.7%*	*-0.1%*	*0.0%*	*0.0%*	*0.2%*	*-0.1%*	*-0.6%*	*-0.3%*	*NM*
Current Fiscal Year												
Citi	**812.8**	**186.7**	**372.6**	**12.4**	**2,978.0**	**1,130.0**	**729.5**	**306.7**	**564.3**	**162.6**	**341.4**	**(68.4)**
Consensus	813.8	185.8	372.2	12.5	2,967.0	1,144.5	729.4	306.4	564.7	163.4	342.3	**(68.0)**
Diff	*-0.1%*	*0.5%*	*0.1%*	*-0.6%*	*0.4%*	*-1.3%*	*0.0%*	*0.1%*	*-0.1%*	*-0.5%*	*-0.3%*	*NM*
Next Fiscal Year												
Citi	**921.8**	**222.7**	**478.2**	**31.1**	**3,089.0**	**1,198.0**	**907.4**	**381.5**	**675.8**	**197.5**	**448.5**	**(63.5)**
Consensus	917.5	221.7	476.5	32.1	3,046.0	1,194.6	899.1	377.4	678.0	202.5	449.6	(61.9)
Diff	*0.5%*	*0.5%*	*0.4%*	*-3.2%*	*1.4%*	*0.3%*	*0.9%*	*1.1%*	*-0.3%*	*-2.5%*	*-0.3%*	*NM*

Source: Citi Research, FactSet

Figure 3. Citi Back Office Software Application & Payroll Comp Sheet

Company	Rating	PT	Price 10/24/2019	Market Cap	Enterprise Value	EBIT Margin CY'18	EBIT Margin CY'19	EBIT Margin CY'20	EV / FCFF CY'18	EV / FCFF CY'19	EV / FCFF CY'20	Rev Growth CY'18	Rev Growth CY'19	Rev Growth CY'20	EV / Rev CY'18	EV / Rev CY'19	EV / Rev CY'20	P / E NTM	Dividend Yield
BNFT	NR	NR	$22.47	$733	$871	-2%	-2%	2%	NM	64.6x	40.5x	10%	1%	15%	3.4x	2.9x	2.5x		0.0%
CDAY	1	$58	$44.44	$6,592	$7,070	14%	16%	18%	NM	NM	NM	10%	11%	9%	9.5x	8.7x	7.7x	70x	0.0%
CSOD	NR	NR	$58.19	$3,475	$3,449	12%	15%	18%	NM	48.4x	37.9x	14%	12%	6%	6.4x	6.1x	5.3x	41x	0.0%
PAYC	1	$262	$202.28	$11,815	$11,333	37%	36%	37%	NM	NM	70.2x	32%	31%	29%	20.0x	15.5x	12.6x	50x	0.0%
PCTY	2	$105	$98.97	$5,512	$5,323	18%	22%	23%	NM	NM	61.4x	27%	25%	22%	12.6x	10.3x	8.5x	56x	0.0%
WDAY	2	$192	$156.07	$35,332	$34,964	10%	11%	13%	NM	NM	NM	36%	32%	28%	12.6x	9.9x	8.1x	76x	0.0%
Cloud HCM + Payroll					**Average**	**15%**	**16%**	**18%**		**56.5x**	**52.5x**	**21%**	**19%**	**18%**	**10.7x**	**8.9x**	**7.5x**	**59x**	**0.0%**
ADP	2	$172	$160.74	$70,113	$70,338	21%	23%	24%	32.1x	27.5x	25.2x	7%	7%	6%	5.1x	4.8x	4.5x	25x	2.0%
ORCL	2	$54	$54.25	$184,993	$206,402	44%	44%	44%	15.0x	14.6x	14.7x	4%	2%	0%	5.2x	5.2x	5.1x	14x	1.8%
SAP-DE	1	€ 126	€ 118.40	€ 142,080	€ 152,354	29%	29%	30%	33.0x	44.9x	62.8x	23%	-3%	8%	5.4x	5.0x	4.6x	22x	1.3%
PAYX	2	$84	$83.98	$30,357	$30,692	37%	36%	37%	34.4x	28.1x	24.3x	7%	10%	11%	8.5x	7.7x	7.1x	26x	2.9%
INTU	2	$285	$258.50	$67,210	$65,940	34%	34%	34%	39.5x	31.4x	29.1x	13%	15%	12%	10.4x	9.3x	8.4x	33x	0.8%
SGE-LON	2	£7.20	£7.04	£7,610	£8,103	24%	22%	23%	25.1x	18.8x	19.2x	14%	4%	6%	3.4x	3.2x	3.0x	22x	2.4%
Other HCM + Payroll					**Average**	**31%**	**31%**	**32%**	**30x**	**28x**	**29x**	**11%**	**6%**	**7%**	**6.3x**	**5.9x**	**5.5x**	**24x**	**1.9%**
AVLR	NR	NR	$70	$4,991	$4,550	-17%	-5%	0%		NM	NM	n/a	n/a	34%	16.7x	12.5x	9.9x		0.0%
BL	NR	NR	$47	$2,606	$2,481	2%	4%	6%	NM	NM	NM	44%	29%	24%	10.9x	8.8x	7.3x	138x	0.0%
BOX	NR	NR	$16	$2,363	$2,560	-4%	0%	5%	NM	NM	NM	27%	21%	14%	4.3x	3.7x	3.3x	99x	0.0%
COUP	2	$141	$131	$8,127	$8,074	4%	3%	7%	NM	NM	NM	n/a	39%	43%	31.8x	22.3x	17.3x	413x	0.0%
OTEX	2	$43	$40	$10,780	$12,389	34%	35%	36%	8.5x	11.7x	10.1x	24%	11%	3%	4.4x	4.3x	4.1x	14x	1.8%
PLAN	2H	$49	$47	$6,071	$5,768	0%	-21%	-14%	NM	NM	NM	n/a	n/a	54%	26.6x	17.3x	13.1x		0.0%
ZUO	NR	NR	$14	$1,584	$1,421	-21%	-16%	-10%		NM	NM	n/a	n/a	19%	6.2x	5.2x	4.4x		0.0%
Other Back Office					**Average**	**0%**	**0%**	**4%**	**8x**	**12x**	**10x**	**32%**	**25%**	**27%**	**14.4x**	**10.6x**	**8.5x**	**166x**	**0.3%**

Source: Citi Research, FactSet Priced as of October 24, 2019 @ 10:45AM ET

Summary of Stock Views

Buy CDAY: Dayforce has momentum and an attractive international expansion opportunity. We are assuming coverage from Walter Pritchard and upgrading to Buy from Neutral / High Risk. CDAY has largely successfully navigated its hybrid position as a cloud HCM provider to medium and large business with its Dayforce application, while concurrently managing its legacy bureau business for margin. Dayforce's differentiation lies in the tight integration of payroll with time-tracking as well as the broader HCM suite. This is especially relevant for companies with meaningful hourly employee bases. In the near-term, revenue should pick up as Dayforce go-lives at larger clients accelerate, and CDAY should see the biggest improvement in Y/Y in 2020 vs. the peer group. Longer-term, we see a major opportunity outside of the US, where CDAY is ahead of its peers who still seem focused solely on the US, and further opportunities to boost penetration with current customers (~20% of recent revenue growth from current customers). CDAY is competing in a process to replace Canada public employee payroll platform (~$25mm opportunity over the next 12 months, potentially more beyond), while CDAY's recent acquisition of RITEQ should boost its momentum in Asia Pacific. Our 3Q19, 4Q19 and 2020 revenue estimates (mil) are $196.7 (+10.4% Y/Y), $216.1 (+11%), and $922 (13%), and our adjusted EBITDA estimates (mil) are $42.5, $52 and $222, respectively. Our target price is based on FY24 FCFF – the point when we expect the operating margins converge to their long-term potential – and arrive at a $58 price target by applying a 35x multiple to FY24 FCFF, discounted back at a WACC of 9.2%.

Buy PAYC: A compelling mix of growth and profits as slowing fears overdone. PAYC is a strong mid-market HCM SaaS player focused on companies with several hundred employees, typically larger than PCTY's core client but towards the low-end of CDAY's. Clients of this size are still looking for a provider to bundle multiple features on to the platform, and PAYC has introduced ~2 new modules per year since it IPO'ed in 2014. PAYC is the premium valued name in the HCM group, trading at ~13x consensus 2020 sales, reflecting "best of class" recurring revenue growth (~29% in FY19). The challenge for PAYC is sustaining this growth, and consensus estimates are factoring in significant deceleration in the topline over the next two years vs. the group (down almost 7 pts through 2021 vs. ~2 pts on average for CDAY, PCTY & WDAY), which seems overly conservative given favorable underlying sales trends (improving efficiency from field sales offices, stronger unsolicited in-bound inquiries, and a growing inside sales function) and a highly engaged founder/CEO with a track record of delivering. Our 3Q19, 4Q19 and 2020 revenue estimates (mil) are $171.5mm (+28.7% Y/Y), $188.7mm (+25.6%), and $911.3mm (24.9%), and our adjusted EBITDA estimates (mil) are $62.4mm, $71.5mm and $385.5mm, respectively. Our target price is based on FY24 FCF, and arrive at a $262 price target by applying a 38x multiple to FY24 FCFF, discounted back at a WACC of 9.5%.

Neutral COUP: Solid product; net neutral macro uncertainties, but elevated valuation has us looking for a better entry point. COUP offers a set of integrated SaaS applications which help businesses monitor and optimize spending across a variety of use cases in ways which previously were typically managed with point-based solutions. The core – procurement, invoicing, (which combined are ~50% of sales), expensing and payments – is the backbone for COUP and directly competes with some applications from large ERP providers. On balance, we see COUP as a potential "net neutral" should macroeconomic conditions weaken in the next 12-24 months – but we think the valuation today (>17x EV / FY2021 sales) leaves little room for error. Our 2020 and 2021 revenue and operating income estimates are close to consensus. Our target price is based on FY26 FCF, at which we think the company will be close to its long-term financial targets, and arrive at $141 target price by applying a 38x multiple to FCF, discount back at a WACC of 10.5%.

Neutral PLAN: "Plan"-ing for expansion, but will the macro cooperate? PLAN is a leading SaaS player in what it describes as the "connected planning" space. The company's software solutions allow for real-time planning and analysis, with the most widespread use cases being sales planning, sales operations, and FP&A. Targeting, but not solely relying on, the largest 2k global companies (Global 2K), the company currently has ~1,250 clients (~400 G2K). PLAN is built as an enterprise solution using an in-memory modeling engine which typically connects disparate databases within an organization and allows user to perform real-time analysis. While not our base case, we think PLAN is more at risk if companies pause investment in the near-term, reflecting the relatively narrow set of use cases and partner ecosystem which is still scaling. PLAN's planning engine allows for companies to embark on projects which have otherwise been difficult using other tools, but relative to others like COUP (can reliably point to quick cost savings) or HCM providers (managing talent is front and center of executive teams), PLAN's current offerings seems less "mission critical" if macro volatility increases. Our sales and EBIT forecast for the upcoming fiscal quarter / year are all slightly below consensus. Our target price is $49, based on 37x 2026F FCF, discounting back at 9%.

Neutral OTEX: Solid capital allocator on the hunt for acquisitions. We are assuming coverage of OpenText Corp (OTEX) from Walter Pritchard, maintaining a Neutral rating but increasing our target price to $43 from $38. OTEX is a leader in Enterprise Information Management, helping ~74k clients more efficiently use both structured and unstructured data across its lifecycle with key products in content management, business networks, and business-to-business middle office solutions. OTEX is a more defensive play in software and historically the company has been viewed as an adept consolidator of technologies and an allocator of capital. We anticipate this to continue in the near-term as other levers of growth could take time to come to fruition. Our revenue and profit estimates for the upcoming quarter are below consensus. Our forecast is for ~$701mm of revenue, ~$243mm of Cloud revenue (~17% Y/Y), adjusted EBITDA of ~$257mm and an EBITDA margin of 36.6% (down ~140bps Q/Q). We value OTEX based on 14x FY2021 EPS of $3.03. This multiple is slightly higher than the long-term average, which reflects our view of uplift from a stronger balance sheet, M&A optionality, and a slowly increasing share of revenues from cloud.

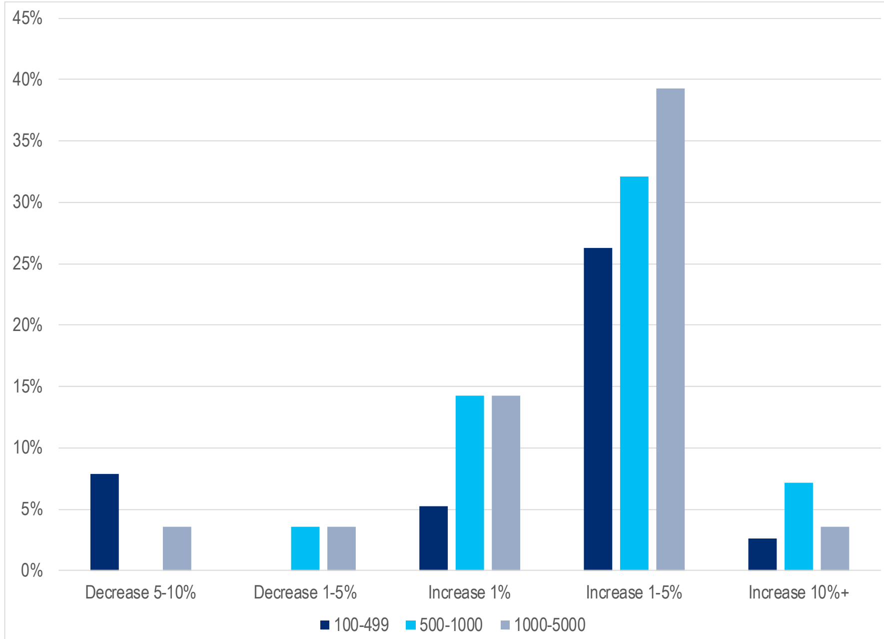
Neutral PCTY: Solid down-market, but not cheap; FCF improvement something to watch. PCTY is a leading mid-market HCM SaaS play focused on companies between 20-1000 employees (average ~100), with ~20k clients today. Similar to peers, the company offers an integrated solution for payroll, core HR, talent, benefits, and workforce management. The company has recently accelerated the pace of adding smaller businesses to its platform. Yet this is the part of the market which we believe is the most at risk from increasing competition over the medium-term, including well-funded start-ups and legacy players like INTU planning to move up-market, over time, towards the 50-100 employee client size. Potential positive catalysts could be improving FCF conversion, although we already factor some of this into our estimates. Our fiscal 1Q20 and 2020 revenue estimates (mil) are $124 and $564 (+21% Y/Y) and our adjusted EBITDA estimates are $29 and $163, respectively. Our target price is based on FY24 FCF – the point when we expect the operating margins converge to their long-term potential – and arrive at a $105 price target by applying a 34x multiple to FY24 FCF, discounted back at a WACC of 10%.

Market Analysis

The conversion to Cloud HCM is still a tailwind in the US, and major opportunity (particularly for mid-sized businesses). In the US, we are nearing the middle innings of a decade-long upgrade in human resource technology into the cloud. CDAY, PAYC and PCTY, have, all in their own way, been successful in offering enterprise-like software experiences across a suite of functions (payroll, core HR, recruiting, talent, etc.) to medium and large firms. There is a strong pull from clients to provide employees a more "consumer" like experience when dealing with HR functions, and "employee experience" is a key focus for US companies to retain talent with unemployment at multi-decade lows. The total market is relatively fragmented with CDAY, PAYC and PCTY share in the US <5%, while CDAY's focus has expanded more internationally where adoption rates of cloud HCM SaaS solutions are well behind the US (several years behind in Europe, 5+ in Asia Pac). At the enterprise level (5k+ employees) companies like WDAY and SAP have notched some recent successes, but there is little overlap between small/medium businesses (SMB) and Enterprise HCM software. At the enterprise level, businesses moved faster to the cloud as they had more benefit (given higher complexity) to move to the cloud. Payroll and core HR information storage are farther along the cloud adoption curve, but a full third of the market is still using older technology which we expect to transition over next few years.

Tactically HCM is a solid late cycle play given its core importance for employers and HCM-related shares have held up well in prior downturns. Payroll is core to the employment experience, even during a recession. HCM companies charge customers on a "per employee per month" basis (PEPM), so during a macro slowdown there could be some topline impact if customer employee counts fall. All three HCM companies in this report – CDAY, PAYC and PCTY, were not public during the past recession, but we think payroll leader ADP (~20% US share) is a relatively decent proxy for gleaning some historic context of how shares could trade if macro slowing becomes more pronounced. ADP posted positive returns during the year ahead of each of the past three recessions, and significantly outperformed the S&P 500 in two of the past three, despite headline pressure from lower employment. Plus, ahead of the financial crisis, HCM software players Ultimate Software (now private) and SuccessFactors (now part of SAP) both outperformed (Figure 21). Lower interest rates are something to watch into 2020 as companies earn interest income on payroll float, but any share price turbulence from this relatively exogenous factor would be a buying opportunity, in our view.

Figure 4. HCM Software Budget 2020 vs. 2019 by Company Size (% of respondents)

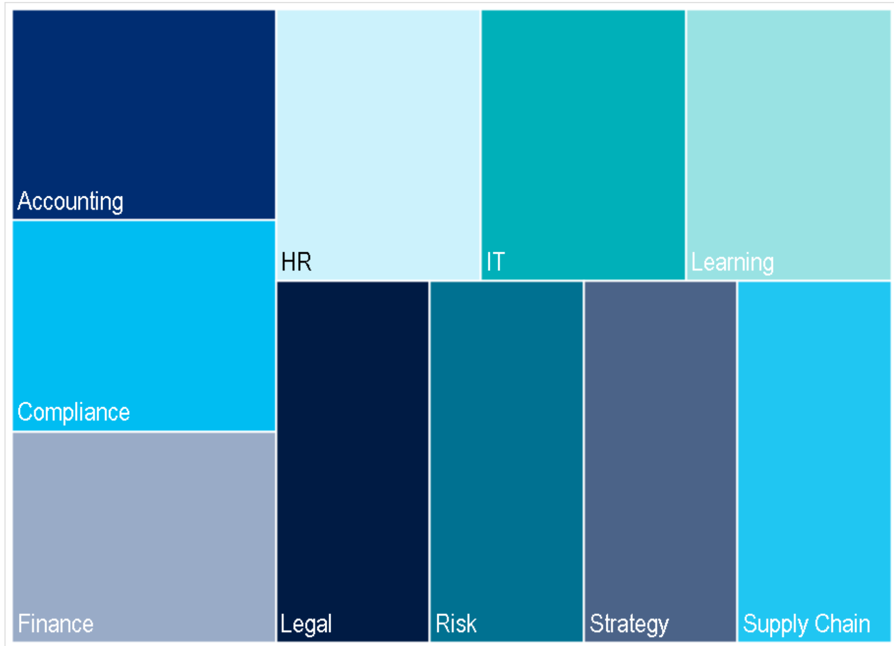


Source: Citi Research

Our new, proprietary senior HR officer survey shows broad-based HCM growth for 2020. We surveyed over 120 senior human resource officers in October, all of whom were responsible for technology, to gauge investment trends into 2020. A 48% of respondents see higher spending on HCM software next year, with an expected increase of ~4.2% Y/Y. We'd note this pace of spending growth exceeds Citi's recent CIO survey, and is consistent with the relatively strong focus from CIOs on back office application deployments: Citi CIO Survey: September 2019: Forward U.S. IT Budget Growth Expectations Stabilize at 3.5% Y/Y on the Backdrop of Greater Macro Uncertainty. Across all organizational sizes training software was cited as a key investment priority for 2020, with payroll, core HR, benefits and performance management rounding out the top 5. We think the survey results are supportive to our overall favorable position on the group.

The six companies in this report span the continuum from "hyper-growth" (COUP, PLAN) to "value" (OTEX), and their product portfolios are just as diverse. And to be fair, not all revenues for these companies are "purely" back office. Yet as we ramped up on this segment of the software market, "Building a Better Back Office" was a constant unifying theme. All of the companies here in some way boost worker efficiency, optimize corporate costs, or let workers use the power of the application to improve outcomes.

Figure 5. Select Back Office Functions



Source: Citi Research

Over the past decade companies, large and small, have made significant advancements modernizing the core application infrastructure of how business gets done inside an organization. First, SaaS came to the front of the house, in applications such as CRM, customer service, marketing, and e-Commerce, which had a direct impact on revenue (hence better clarity on ROI). Then 'back end' functions such as finance / ERP, HCM / payroll, supply chain / logistics, procurement / T&E, among others, have seen vary degrees of movement to the cloud. Driving this shift away from on-premise technology solutions to the cloud has been:

– **Installation / management** – Much of this is handled by the cloud software vendor or their partners, simplifying the process for customers. This matters most to small and medium-sized customers, which lack IT expertise and/or human capital, but it also impacts large enterprises that have decided install/maintaining large software systems is not an area of core competency.

– **Easier consumption of new technology** – There is significantly less work around adopting upgrades, new versions and features, especially in markets where software is changing and advancing quickly. This issue is most important in larger customers, which are more apt to customize

– **Financial flexibility** – Lower adoption costs with pricing monthly or annually vs. large up-front / perpetual commitment

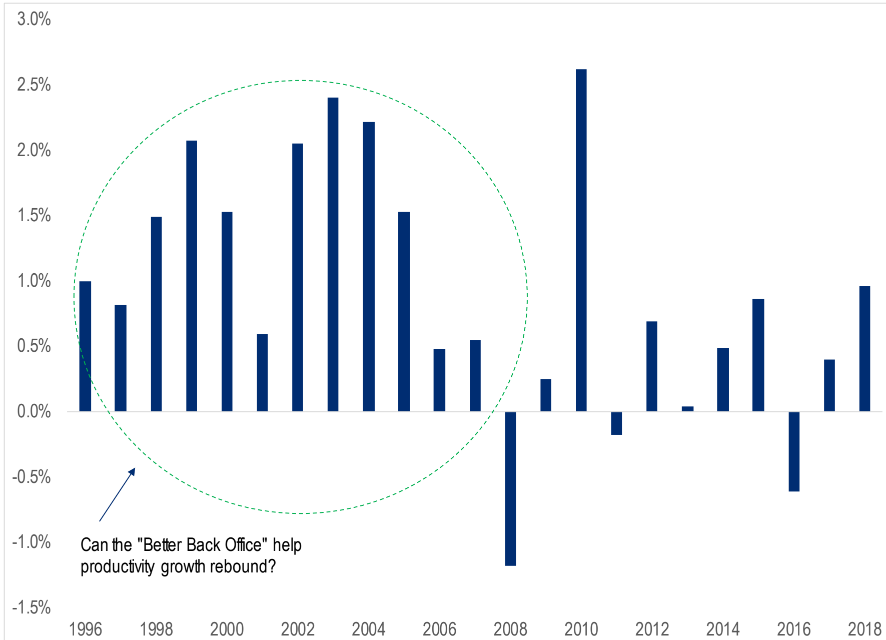
– **Harness computing power of public cloud** -- This is most important to smaller customers that lack data center footprints, but with technologies such as artificial intelligence and machine learning, is becoming important to customers of all sizes

– **User Experience** – In many cases applications can be used across traditional desktop and mobile ecosystems seamlessly.

Ongoing digital transformation efforts from US companies is pushing demand for application software, increasingly in the cloud. Secular and cyclical trends are focusing companies on optimizing back office efforts. Below we quickly touch on a few of the "mega-trends" supportive of back office innovation, in our view.

Boost Productivity – As shown below, US productivity growth, which surged from the mid-1990s to the just about the financial crisis, has disappointed consistently during the past decade.

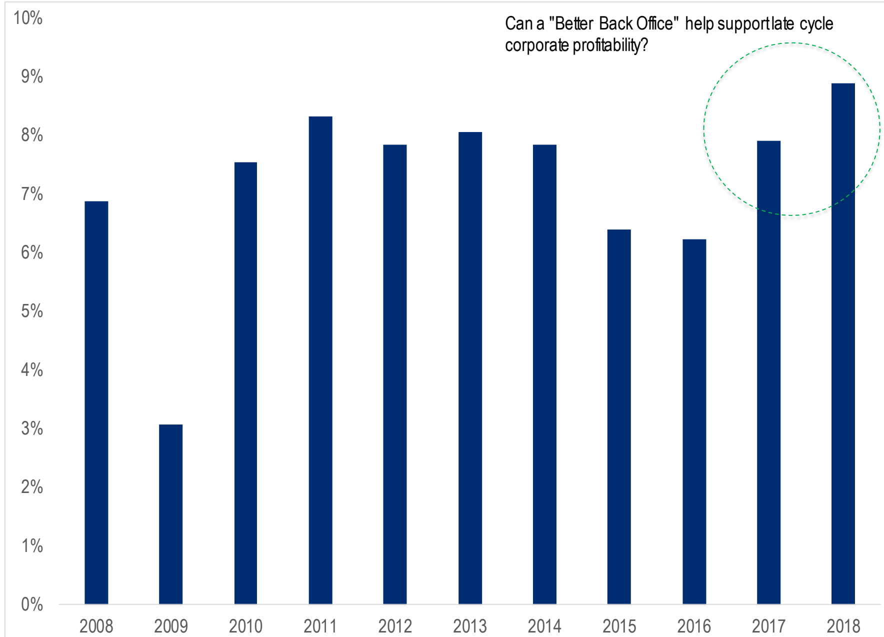
Figure 6. US Private, Non-farm Business Productivity Growth Y/Y



Source: Citi Research, BLS

Late-economic Cycle Focus on Costs / Efficiency – US profit margins entered 2019 at the highest of the cycle. While every business is different, slowing macro growth in 2019 is likely to increase corporate focus on how to boost worker efficiency / reduce costs to support margins amid meaningful macro uncertainty.

Figure 7. US Average Corporate Net Income Margins

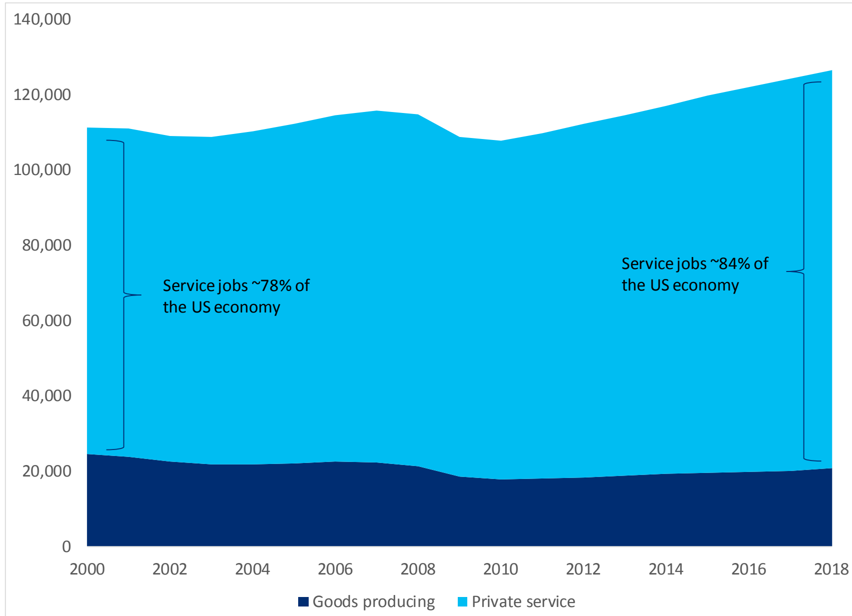


Source: Citi Research, Company Reports

Increasing Regulatory Burdens – Globally, regulatory regimes are tightening including GDPR and Europe and CCPA in California, heightening focus on compliance and auditing. And it's not just privacy which is driving increased focus on back office systems and processes. In the US, there are over 180 federal labor laws and vast patchwork of constantly evolving state and local regulations. According to a recent report by the US Department of Labor, on average there were 200-250 new labor laws past annually at the state level. In particular, this type of evolving complexity supports HCM demand.

Attracting and Retaining Talent – In the US, an unemployment rate at 50-year lows has companies laser-focused on talent (recruiting & development) and "employee experience". Plus, in the US, the shift away from a goods-focused economy towards more services heightens the focus on workers and worker skills, boosting demand for talent and corporate focus on providing a more "modern" (i.e. consumer-like) workplace experience (Figure 8).

Figure 8. US Private Sector Employment



Source: Citi Research, BLS

Thematically, back office software application spans a wide gamut of the organization from HR to legal to logistics and supply chain. CDAY, PAYC and PCTY focus on HR – both supporting HR professionals in key functions like recruiting and talent management, and are also deployed across the organization so most (or all) employees access the applications for payroll, benefits, time management, etc. Similarly OTEX content management platform can span the organization. Tools like Anaplan and Coupa have narrower user cases, with Anaplan's strengths in FP&A and sales planning, and Coupa focused on organizational activities involved in spending (procurement, invoicing, contract management, expenses, etc).

Human Capital Management (HCM) software has moved to the cloud quicker than average among the various big verticals in the back office as companies looked to improve decision making / compliance by centralizing employee data and attempting to reduce the number of point solutions, but there is still significant runaway over the next few years. Below we outline some of the key functions HCM software can support:

- **Core HR** – Employee records management and compliance. By centralizing data, SaaS applications improve accuracy (single source of truth) and help streamline compliance / security measures in a single repository vs. multiple systems. Frequently includes employee self-service features.
- **Payroll** – For small and medium sized organizations, this is often of core pain point to be solved by looking at a new vendor. Payroll is complex, including calculation of local/state/federal taxes, garnishments, prorating, check reconciliation, etc. Accuracy is of paramount importance given the major implications for companies if they make errors in paying their employees or their taxes. For CDAY's SaaS solution, PAYC and PCTY, all customers purchase payroll. Flexible payroll is an emerging trend to watch with several major companies developing tools here, which could be an incremental opportunity as a majority of US employees live "paycheck-to-paycheck".

- **Benefits** – Tools to facilitate employee enrollment and employer administration of benefits, including state and federal programs. Increasing these tools include AI/ML component can guide/suggest benefits for customers.

- **Time Management** – For reporting when and where employees earn hours, scheduling, and time off. Can include features such as geo-location, scheduling optimization / automation, and mobile "check in/out".

- **Recruiting** – Tools to help in the process of bringing candidates into the company, including applicant tracking, background checks, on-boarding and related compliance.

- **Talent Management** – Tools to help manage the career of employees within an organization, including goal-setting, performance evaluation, compensation planning.

- **Learning Management Systems** – Tools to create, assign, distribute, and store training materials, often including some combination of video, audio, surveys and tests.

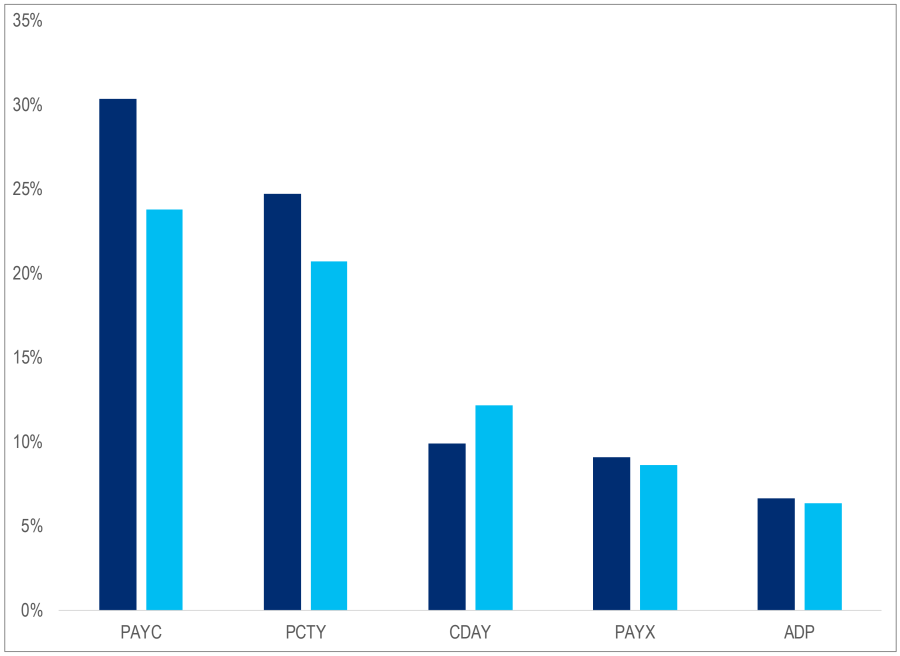
- **Employee Experience** – Tools to engage direct with employees, including feedback experiences and surveys.

For all three HCM companies in this report, it starts with payroll and core HR where there are high attach rates. Payroll in particular is a competitive moat, especially for companies that are medium sized or bigger, given the complexity around tax and the necessity for 99.99%+ accuracy. Some common themes emerged in our discussions with management at all three companies, one being that errors in payroll inevitably lead to client churn. On the other hand, attach rates for modules like recruiting and learning are generally lower, on average. This offers an opportunity deeper customer relationships and lift PEPM, although there are many strong point solution options in those categories. Generally, the larger the customer the more often they want a "best of breed" HCM stack vs. a single platform favored by SMB.

How Much "Cycle Support" Remains for HCM

A majority of the stocks in this category are enjoying strong YTD '19 performances with shares of PAYC (+66%) and PCTY (+66%) outpacing the broad subsector YTD (+29%), with CDAY line. Revenue growth over the past few years has been brisk for mid-market players like PAYC and PCTY, while all the HCM names outpaced the legacy names. In the next two sections we will set the stage for: 1) Our view that there remains ample runway for new client growth, looking both top down and bottom up; and 2) Demand "pull" from HR executives appears solid going into 2020.

Figure 9. 3-Year Trailing Average Growth Rate (CY2017-2019E) vs. 3-yr Forward

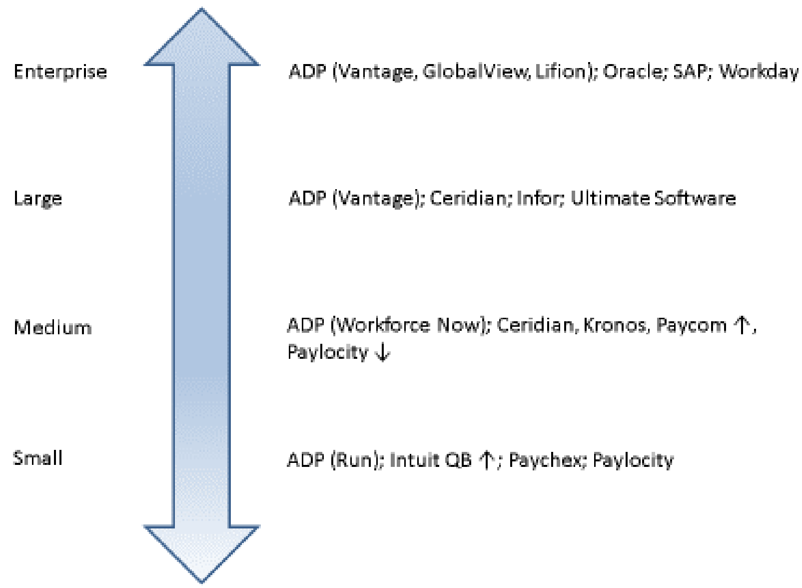


Source: Citi Research, FactSet

SaaS HCM has been scaling for some time in the US, but we think there are at several more years of elevated growth. Dayforce is approaching its second decade, while Paycom has entered its third, so these are solutions with extensive history of use cases. Roughly two-thirds of small and medium sized businesses which use human capital management software have core HR and payroll deployed via the cloud. This overstates penetration at the very low end of the market as ~35% of small businesses manually do payroll, so there is still ample opportunity. At the high end of the market the cloud penetration rate is closer to 50% (for at least one application), with a large on-prem footprint remaining. The up-tick in momentum in the shift to the cloud is likely to continue shifting business towards SaaS names, and our base case is that local/regional payroll providers and legacy players like Paychex and ADP remain share donors. Outside of the US, even in large enterprises, WDAY recently noted that penetration rates are relatively low, offering major expansion opportunity for CDAY (among our coverage).

Payroll is the competitive moat in HCM with relatively well structured market segmentation from small to enterprise. As shown below, we see four distinct cohorts – enterprise, large (low thousands of employees), medium (hundreds), and small (tens of employees). ADP competes across all the cohorts, but most companies focus on one or two segments of the market. For CDAY, its biggest competitors are Ultimate Software and ADP. For PAYC is ADP, PCTY, and to a lesser extent Ultimate and CDAY. For PCTY it is competing with ADP, PAYX and PAYC, and also independent accountants and bookkeepers. Plus, at the low end of the market all the players compete against local, regional, and start-up providers (more discussion of this below).

Figure 10. Segmentation of Select HCM/Payroll Providers by Client Size



Source: Citi Research; Arrows indicate either recent trend or indicated strategy evolution

ADP, covered by our colleague Ashwin Shirvaikar, is the industry leader for payroll with ~20% share in the US, but it's facing competition and our illustrative modeling assumptions do not expect significant client growth in the coming years. The company competes across all cohorts and its share has been stable over the past few years. The company has been updating its product and has had some success with its Run by ADP (small business) solution which has grown ~10% CAGR during the past five years. Its mid-market product, Workforce Now, is gradually shifting to the cloud over the next few years. Lifion, its new SaaS solution for large enterprise, is rolling out at a modest pace, and should be a key competitive product to watch over the next 2-4 years. In our illustrative market model for the US payroll space we keep the company roughly stable.

Figure 11. US Business Market Summary (2018E)

Firm Size	Number of Firms	Total Employment (mil)	Avg Employees (#)
0-4	3,704,594	5.9	2
5-9	1,026,517	6.7	7
10-19	637,044	8.6	13
20-99	557,263	21.8	39
100-499	92,387	18.1	196
500+	20,530	69.7	3,397

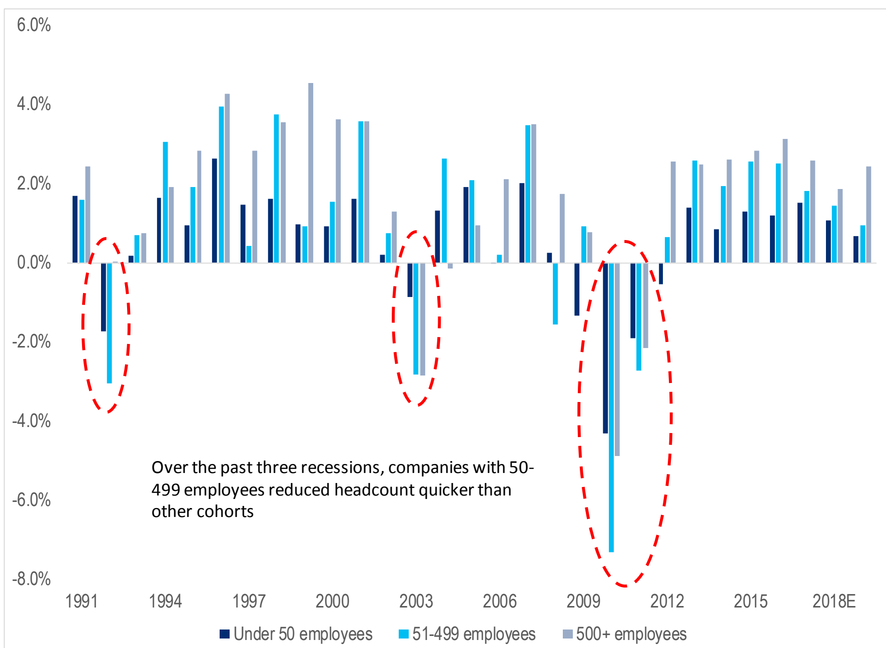
Source: Citi Research, BLS

Our assumption is that PAYX, also covered by Ashwin Shirvaikar, client count is at risk over a 2-3 years period. Paychex focuses on small business with an average client having about 15 employees. Over the past few years growth in its client base has slowed to <2%. This segment of the market has seen increased competition. INTU, already a major payroll provider for very small businesses (<10 employees) through Quickbooks, is trying to move up-market. Plus, there are several scaling start-ups, including Gusto which closed a $200mm Series D round earlier this year (~100k clients). These options may lack some of features legacy payroll providers right now, but the gap is closing. In 2020/21 we think competition in the below 50 employee market picks up meaningfully, which most negatively impacts PCTY in our coverage.

For CDAY, our base case is that is that company grows 2-3pts of share through 2022 as it accelerates go-lives. In the past year the company has made progress in expanding in mid-market and some enterprise accounts and Dayforce client growth has good momentum, hitting ~4k in mid-2019 (+21% Y/Y). Given the lag between wins and go lives (up to a year for the most complex installs, 6-9 months closer to average), and the increasing average size of wins, revenue should accelerate into 2020. CDAY has a strong offering with its continuous calculation payroll engine, which allows for employers to see live edits to payroll, a differentiator for businesses with hourly employees. The company is also making a push in government, one of five industries which they focus – the others being Retail, Financial Services, Manufacturing, and Healthcare. For the most part, we exclude government from our analysis, and could be upside if CDAY gains further momentum here. We'd note our growth assumption for the market is slightly below our model growth, reflecting the international expansion.

PCTY client growth is likely to be the highest among our HCM coverage, but also the most at risk from macro factors. Our assumption is that PCTY continues to benefit from churn off of legacy providers with a mid-teens+ client growth over the next few years, building on the success the company has had recently is getting somewhat smaller clients. Our base case is that the company grows to ~2-3% share by 2022. However, were the economy to slow, history shows that mid-size companies – 50-499 employees, tend to get hit greater than other employer groups, potentially creating a headwind to PEPM growth. Thus, our Bull/Bear scenarios for PCTY have wide spread.

Figure 12. Employment chg Y/Y by Company Employee Count



Source: Citi Research, BLS

Similarly, PAYC also faces macro middle market exposure, but ultimately we think the company will be better positioned, in part by its expanded market focus. We think the move up market over the past year or two will ultimately allow the company cushion some of the slowdown (though certainly not all) in the topline over the next few years as the company scales (grown its client base ~16% over the past three years). Similar to CDAY, we think PAYC can grow its share by 2-3pts by 2022.

Small / local and legacy players could see high single digit declines over the next few years, which would be a brisk pace of change. In our illustrative model below, we incorporate our assumptions for public companies. For most other companies, we assume a growth rate near ~5%, which is the roughly half the pace of long-term industry-wide growth rate for HCM software applications, based on several industry consultant projections. The haircut reflects the fact that while payroll is typically the most important module in a HCM application, there are many other features not directly tied to payroll. Of these "other companies" we have Ultimate growing faster given it pace of growth prior to going private earlier this year.

Underpinning our assumption is ~1.5% annual US employment growth. Under this model, "Other" which includes enterprise companies like ORCL and SAP, and local / regional payroll providers, needs to shrink from about a third of the market to about 22% of the market by 2022. Given the push from traditional players like ADP to transform into the cloud over the next 2-3 years, we think competitors are focused firmly on getting new clients in the door. On average, clients change payroll services once every ~8 years.

Figure 13. US HCM / Payroll Illustrative Market Share Model

	2018				2022		
	Customer Served		Market Share	CAGR	Customer Served		Market Share
	by business (ths)	by employee (mil)		2018-2022	by business (ths)	by employee (mil)	
ADP	710	26	20%	0%	710	26	19%
CDAY -DF	4	3	3%	16%	7	6	5%
INTU QB Payroll	1,400	14	11%	7%	1,835	15	11%
iSolved	45	3	2%	5%	55	3	2%
PAYC	24	4	3%	12%	36	7	5%
Paycor	36	4	3%	5%	43	4	3%
PAYX	670	11	8%	-1%	633	9	7%
PCTY	18	2	1%	16%	33	3	2%
Ultimate	5	11	9%	8%	7	15	11%
WDAY	2	8	7%	15%	3	15	11%
Small Business Manual	1,050	2	2%	-13%	615	1	1%
Other	2,074	40	31%	-6%	2,213	30	23%
Total US Private Employees	6,038	127		1.50%	6,192	134	

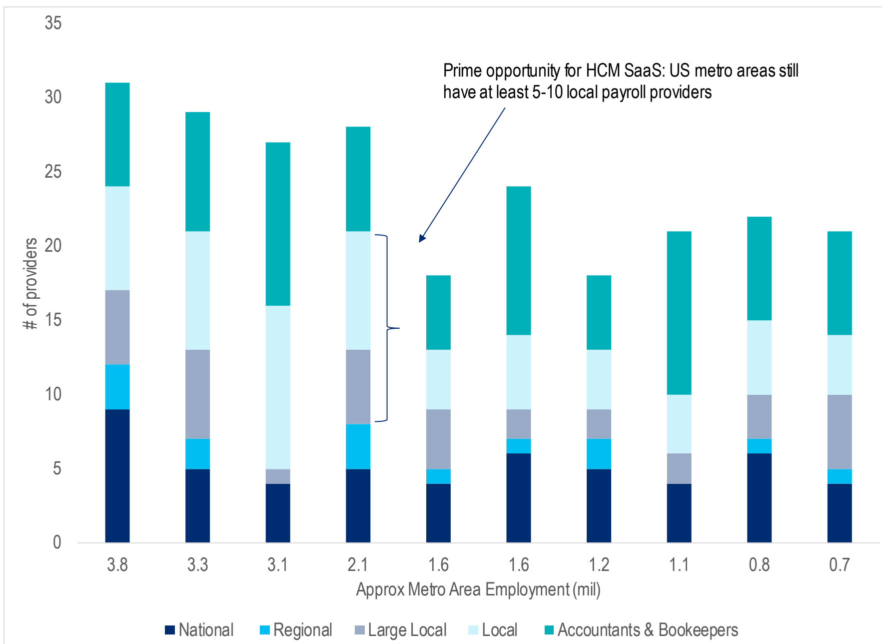
Source: Citi Research estimates, Company Reports, BLS; Other includes regional, local, and ERP providers such as SAP and ORCL

One of the challenges in stress testing these assumptions is the large "other" bucket, so we spent some time at the US metro area level to see what options SMB businesses have, and the results suggest solid run-way. Given the SMB focus of this report (average payroll counts are ~100, ~200, and ~800 for PCTY, PAYC, and CDAY, respectively), we tried an unscientific, but illustrative, tactic: we hit the web and searched: "payroll service", taking a deep dive through ten different metro areas in the US. Selection was not random – we tried to get a sample of large and medium population metro areas (all >0.5 million employees) as seen on the y-axis below. We then went through the first 50-75 search results and categorized the payroll companies by:

- National – All of the publically traded companies, plus large private companies (>1% share)
- Regional – Large organizations with 50+ employees or offices in multiple states
- Large Local – Organizations with tens of employees and/or multiple offices in the same state
- Local – Typically a few employees at a single location
- Accounting / Bookkeeping – Typically local CPAs who offer payroll through an application like Quickbooks

All the metro areas continue to have a relatively large number of local players – at least 5-10 in each of the metros we examined. Further there is evidence this undercounts the higher end of the small business market which can be served by companies which do not have a physical office in a metro area, but still may service it remotely or via office-less reps.

Figure 14. Still Many Local Payroll Providers – Prime Opportunity for HCM SaaS Share Gain



Source: Citi Research

Employers who use these local players are a big opportunity for HCM SaaS providers to take market share over the next few years, conservatively at least $1B in potential, and as evidenced below, a possibly towards $2.5B+ as PEPM grows. Expanding on this local data set above, we gross up our local findings to assume a similar market mix on a nationwide scale, taking haircuts against each bucket of payroll service providers to minimize double counting, acknowledging metro areas likely overstate the density of providers (vis-à-vis rural). We then model assumptions about client size and employee count to arrive at close to 7mm of payroll employee potential serviced by the these local providers. Finally, we scale for the revenue opportunity by applying a range of PEPM potentials, which shows a $1B opportunity at $10 PEPM and >$2.5B at $30. For reference, average industry PEPM for SaaS players could be $10-$20, on average, although all companies aspire to more. To gut check our work, members of the Independent Payroll Providers Association pay more than 5.7mm employees, so we think our estimates are generally reasonable. Note that 5.7mm employees is basically the size of PCTY and PAYC combined. Taking both the top-down and bottom up view, we think there is ample room for double digit client growth over the next few years for SMB HCM SaaS.

Figure 15. Bottom Up Model for HCM SaaS Opportunity vs. Local and Regional Legacy Providers

Bottoms Up Simple Model	Regional	Large Local	Local	Total	Notes
Payroll providers	15.0	36.0	62.0		Covers ~16% of US employees
Haircut	*75%*	*20%*	*5%*		Adjustments for double counting
US Scaled up	25.0	190.0	388.0		Assume survey sample ratios consistent across US
Clients per Co (ths)	5.0	1.0	0.5		
Total Clients	125.0	190.0	194.0		
Employees per Client (#)	**22.0**	**14.0**	**8.0**		Regional is national average, scales down to local
Total Employees (mil)	2.8	2.7	1.6	7.0	"Gut check": 5.7mm employees paid by Independent Payroll Providers Association members
Annual Revenue Potential by PEPM (bil)					
$10	0.3	0.3	0.2	0.8	
$15	0.5	0.5	0.3	1.3	
$20	0.7	0.6	0.4	1.7	
$25	0.8	0.8	0.5	2.1	
$30	1.0	1.0	0.6	2.5	

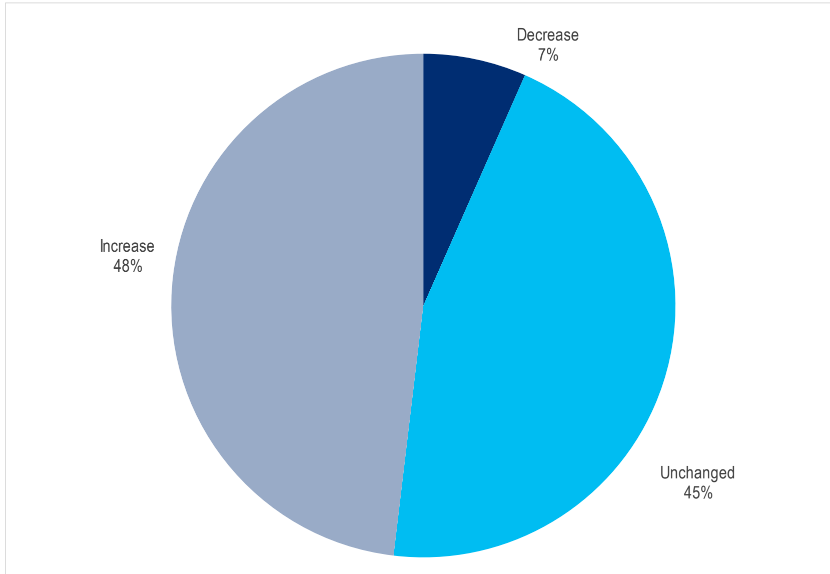
Source: Citi Research estimates

Finally, for CDAY the international opportunity (ex US and Canada) is just in its early days and we think and very meaningful opportunity over the next 3-5 years. In the OECD alone (ex US) there are ~315mil service workers, and opportunities are also extensive in parts of Asia Pac. Dayforce was built ready for international expansion, and the company sees the ex US market as being just as big as the US. PCTY and PAYC will likely stay US focused for the next few years, if not more.

SHRO Survey Shows Solid Demand Pull in to 2020

As discussed above, we are confident there is ample opportunity for the market to continue to grow at a double digit pace over the next few years, so long as underlying demand remains favorable. We think the landscape is encouraging following our survey of over 120 senior human resource officers in October. All respondents are involved in HCM technology decision making, with the split of participants roughly equal between representing companies under 500 employees, from 500 to 1,000, and from 100 to 5,000.

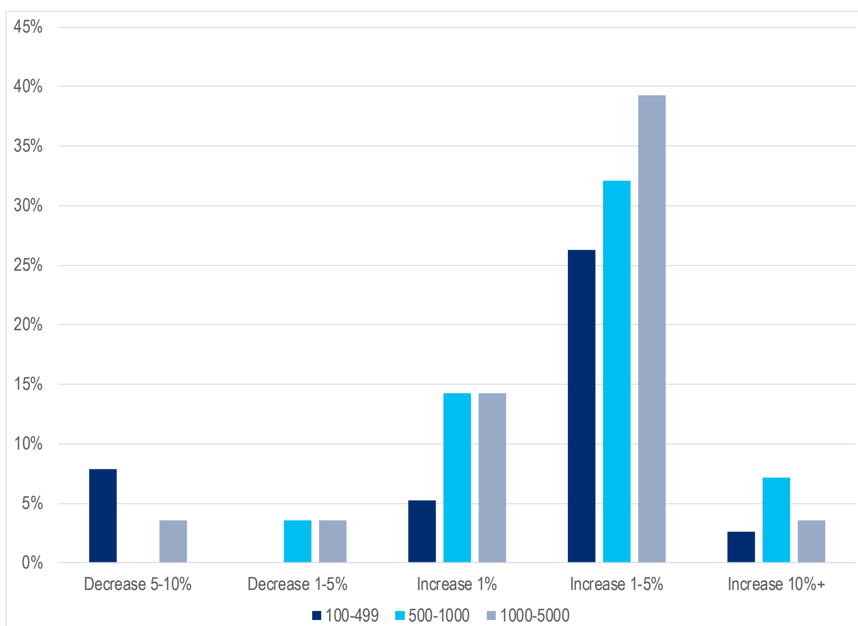
Figure 16. HCM Software Budget 2020 vs. 2019



Source: Citi Research

Nearly 48% of respondents in our survey see higher spending on HCM software next year. The average increase is expected to by ~4.2% Y/Y. We'd note this pace of spending growth exceeds our colleagues' recent CIO survey, and is consistent with the relatively strong focus from CIOs on back office application deployments: Citi CIO Survey: September 2019: Forward U.S. IT Budget Growth Expectations Stabilize at 3.5% Y/Y on the Backdrop of Greater Macro Uncertainty. As shown below, trends for spending were mostly consistent across company size.

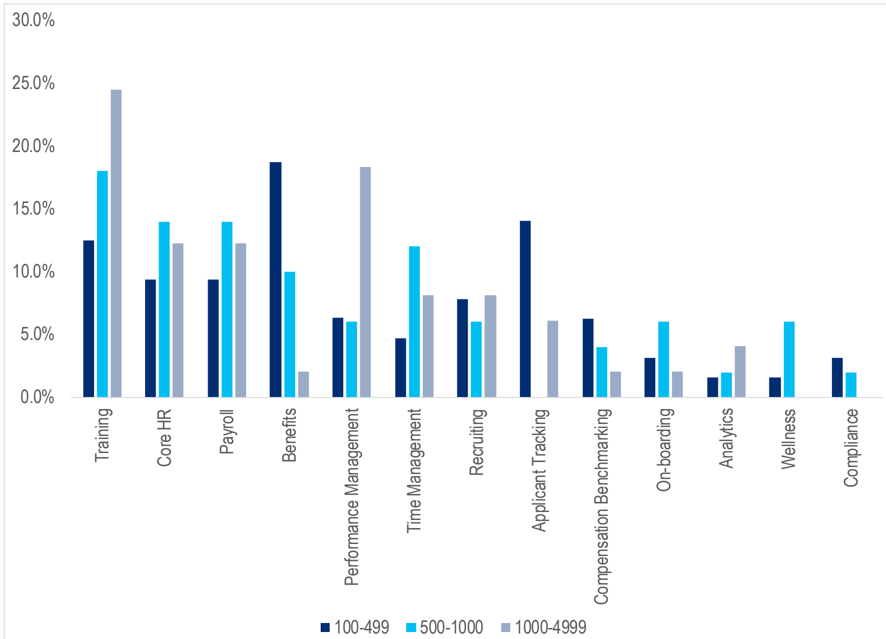
Figure 17. HCM Software Budget 2020 vs. 2019 by Company Size (% of respondents)



Source: Citi Research

Across all organizations, training was a frequently cited top investment priority for 2020. Core HR and payroll were also cited by at least 10% of SHROs across all size companies, and we think sets up a favorable demand dynamic for the group. For small and medium sized businesses specifically, benefits and recruiting-related applications (recruiting, on-boarding, applicant tracking, etc) were also frequently mentioned. Recruiting models generally have lower attach rates for HCM platforms compared to core HR and payroll, and there are numerous point solutions on the market here. But we think this still offers an opportunity, particularly for PAYC with its focus in the ~200 employee-sized companies.

Figure 18. SHRO HCM Software Investment Priorities for 2020



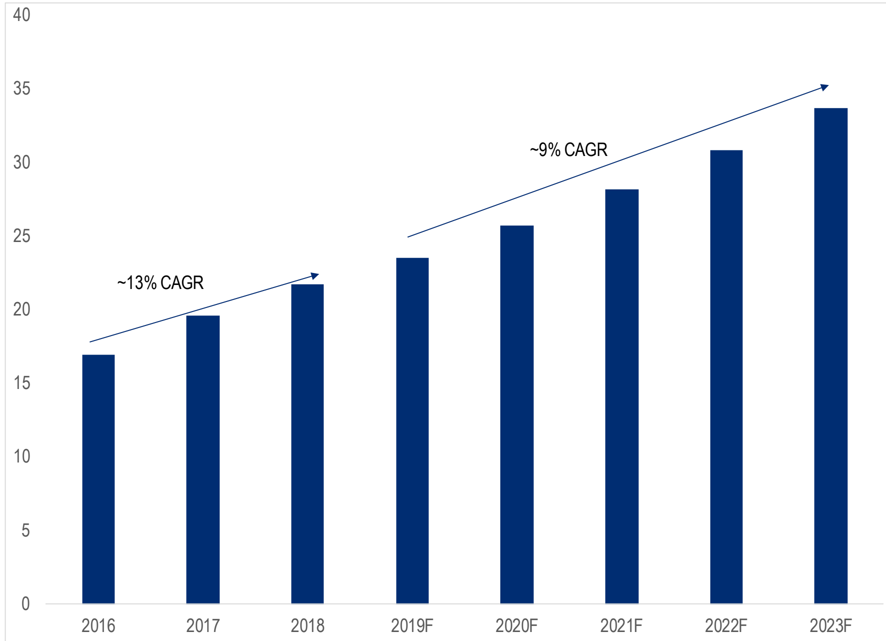
Source: Citi Research

The focus for all HCM SaaS companies is getting new clients in the door, and seemingly less on depending product penetration. This will still be the case in 2020 and potentially even into 2021/22. For US focused names like PCTY and PAYC, client growth is unlikely to remain in the mid-teens beyond the next few years, and eventually PEPM growth could become more of a focus to sustain elevated top-line growth. As shown in the below example, there are several options for this evolve over time, including new module launches (for example PAYC has launched 10 new modules since 2014) and lifting attach rates.

Our Take on HCM TAM

According to IDC, the global payroll and core HR market HCM software market will be a $23.5B market in 2019, split roughly 25% payroll and 75% core HR. Over the next five years they see the global market expanding towards $35B, a ~9% CAGR, with all the growth coming from adoption of public cloud solutions. On a relative basis, HR applications are expected to grow at a slightly faster pace than payroll for the industry overall, but this seems less impactful for CDAY, PCTY and PAYC which all have very high (or required) attach rates for these modules. Of this worldwide total, the US represents ~$14B.

Figure 19. Global Core HR & Payroll HCM Software Market Size ($ bil)



Source: Citi Research, IDC

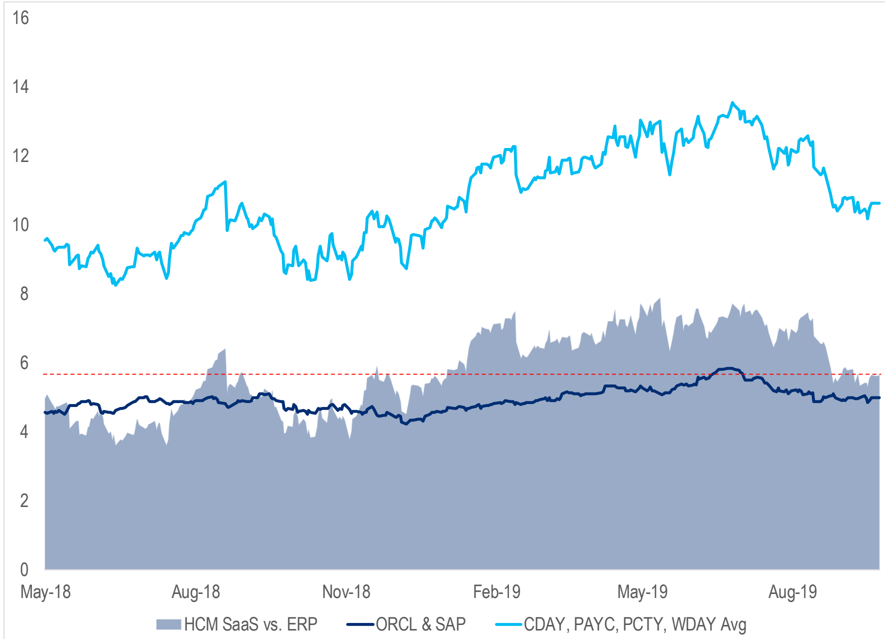
This only includes two buckets of modules so it is most useful for gauging the momentum of the overall market. Other important modules like recruiting can be quite additive to PEPM, and companies are briskly adding new features. PCTY today has ~$400 per year per employee of product to sell to customers, with a goal to hit $500 relatively quickly. With ~640k US companies in its target market employing ~45mm people, they see the entire market being ~$18B. CDAY believes the market is ~$20B in the US, and similarly large outside of the US. With low single digit share, CDAY, PAYC and PCTY all have ample near-term growth opportunity.

A Peak at History; Implications for Late-cycle Equity Performance

The methods of paying employees has changed over time, but being in the business of offering the process/ /service/software which allows employees to get paid isn't new – ADP went public in the 1960s and PAYX did so in the early 1980s. We posit that software HCM providers should be at least particularly insulated in a future downturn given the structural shift toward the cloud.

Tactically, valuations for HCM SaaS stocks look the most attractive since early 2019, based on a spread vs. large-cap ERP names, but they still are not cheap. EV / NTM sales trading multiples for the HCM group expanded ~3 turns from 9-10x towards 12-13x by mid-2019. Since then we have seen some retrenchment for the group towards ~10.6x. Current valuation levels are the lowest since 1Q, and the spread over large-cap is the lowest since January.

Figure 20. EV / NTM Sales HCM SaaS & ERP Benchmarks

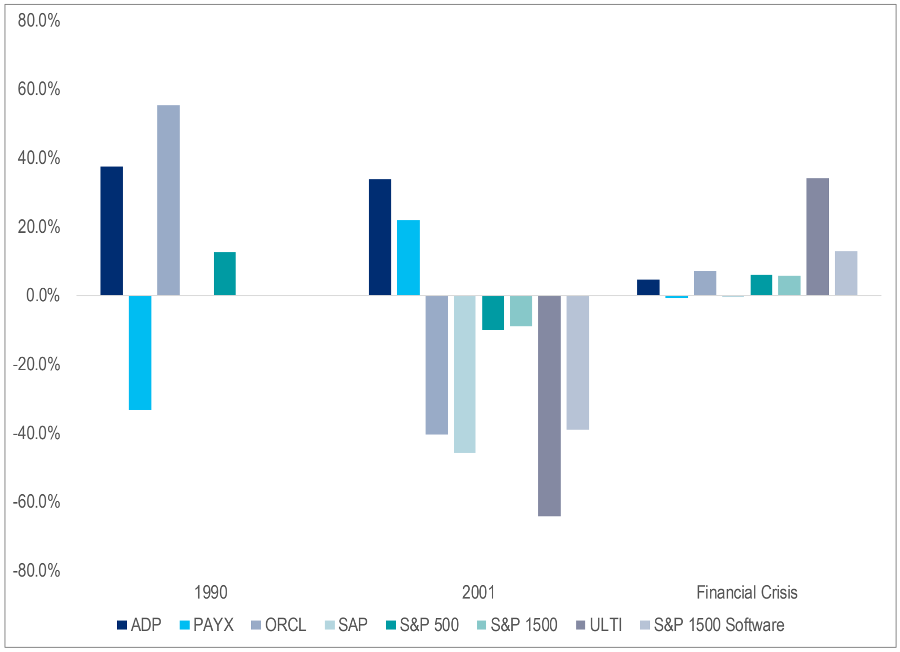


Source: Citi Research, FactSet

A decade into a bull market and some recession warnings both suggest investors should prepare for macro pressure, even if the base case outlook is for relatively benign economic conditions into 2020. Indeed, over the summer, Citi's economists noted that by one model, there is a >60% chance of recession over coming 12 months (see: US Economics Weekly - Recession signals flashing; proceed with caution).

ADP shares have held up well into each of the past three recessions and we think is a constructive proxy for sentiment for HCM SaaS into a macro slowdown. Each recession is different, but we think historical context of late cycle equity price dynamics is constructive for thinking about relative performance in the group. To get a sense of how investors look at payroll and HCM software stocks generally at the end of the economic cycle, we exam the past three US recessions – 1990, 2001, and the financial crisis (2007-09). We include ADP and PAYX as proxies, as even though they are not software companies, we think looking at how investors' perceived payroll in the past is how HCM SaaS could be viewed today. ADP has held up well late in the macro cycle, performing better than (or close to) the S&P 500 in the past three recessions. PAYX less so, which could reflect its focus on very small business which are more at risk of exits than larger companies. These leads us to believe that based solely on macro positioning of companies, one would favor CDAY (larger company exposure) over PCTY (smallest average client size among HCM SaaS names) in weakening macro. Another factor is the strength of ULTI into the past recession. We'd discount the share price performance during the 2001 "tech bubble" recession and instead focus on how well the shares held up in the financial crisis (much more scaled business at that point).

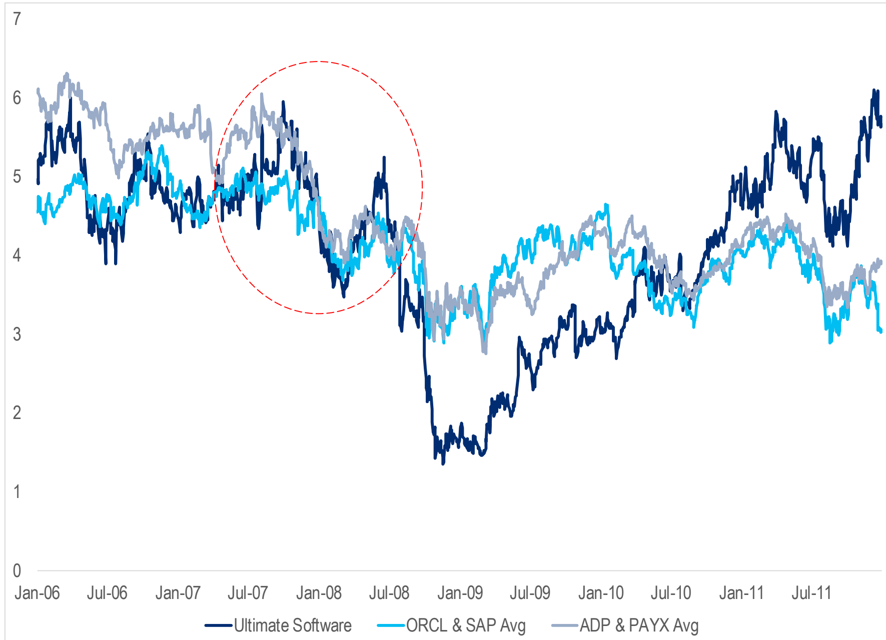
Figure 21. Share Price Change, 12 Months in Advance of Recession Start



Source: Citi Research, FactSet;

While not our base case, multiple compression risk is real if macro conditions weaken. Looking back at Ultimate, ADP/PAYX and ORCL/SAP during the financial crisis gives us comfort that in a mild recession re-rating for HCM SaaS would not be much more than the peer group. Indeed in late 2007, Ultimate was trading close to large cap ERP multiples and remained close for some time into the recession. It was not until mid-2008, about 2 quarters into the recession, at which point ULTI's multiple significantly compressed. Fundamentally, some big differences between time-periods – for one, ORCL was growing revenues >20% in FY2007-08 and it slowed to 4% in FY2009. For reference, UTLI's sales growth dropped from 32% in 2007 to 10% in 2009.

Figure 22. EV/NTM Sales During the Financial Crisis

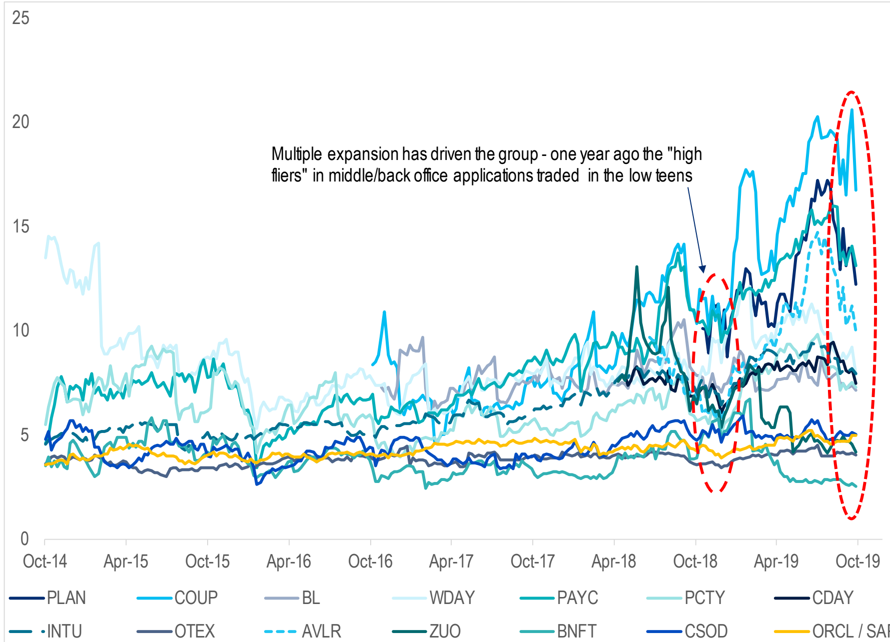


Source: Citi Research, FactSet

Pulling it all together on sector valuation, we think the HCM group looks tactically attractive despite historically high sales multiples across the group. Entering into 2020 where macro risks are likely to remain elevated, past share price trends for proxies are generally favorable. And while multiple compression is a major risk, we think the secular growth push in mid-market SaaS has staying power for the next few years, which should help support revenue trends. Finally, Ultimate's take out in 1Q19 at ~10x trailing revenues is a valuation floor for the group, in our view.

Broadening out from HCM to the entire back office, the chart below shows how much of the outperformance over the past year has been driven by historically large multiple expansion, which has started to come in, but still remains well above year-ago levels.

Figure 23. Back Office Software – EV / Sales (FY2)



Source: Citi Research, FactSet

Company Focus

Paycom Software Inc (PAYC)

Compelling Mix of Growth and Profits; Buy

- Initiation of Coverage

Buy	
Price (24 Oct 19 16:00)	US$203.50
Target price	US$262.00
Market Cap	US$11,889M
Expected share price return	28.7%
Expected dividend yield	0.0%
Expected total return	28.7%

- **We are initiating coverage of Paycom (PAYC) with the Buy rating and $262 target price.**
- PAYC is a leading HCM SaaS company focused on companies with 50 to 5,000 employees. PAYC's product suite includes applications which offer core HR, payroll, benefits, talent, workforce management and analytics solutions, both on desktop and mobile apps. The company has ~25k clients today.
- **We are Buy rated.** Share have come under pressure over the past few months, reflecting both macro (some rotation out of the highest multiple names in software) and some company-specific (i.e. potentially slowing growth in 2020+). We think this is a good buying opportunity for a high quality name as in our view underlying sales trends are holding up than consensus is anticipating.
- **Consensus estimates for topline growth over the next few years seem overly conservative**. Consensus now assumes sales growth in 2020 towards 23%, down from 29% in 2018. This seems conservative and in contrast to still sturdy underlying sales trends (improving efficiency from field sales offices, stronger unsolicited in-bound inquiries, and a growing inside sales function).
- **Tactically, PAYC still "expensive" at ~13x 2020 sales, yet we are willing to pay for profits/cash.** While the market is focused on growth (which we think will still be ~25% next year), PAYC's good profitability (FCF margins >20%) should provide support if macro conditions weaken.
- **3Q19 Preview:** Our sales outlook is near consensus, but with a slightly better average mix (more recurring / less implementation and other), and we model slightly better EBITDA at $62.5mm.
- **Valuation**: We value PAYC shares at 38x 2024F FCF, discounted back to achieve our target price of $262. Among our HCM coverage this is the highest multiple, reflecting the good balance of growth and profitability and success up-market.

EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons
2018A	0.95A	0.59A	0.52A	0.61A	2.67A	2.67A
2019E	**1.19A**	**0.75A**	**0.67E**	**0.78E**	**3.39E**	**3.39E**
Previous	na	na	na	na	na	na
2020E	**1.49E**	**0.93E**	**0.85E**	**1.00E**	**4.27E**	**4.21E**
Previous	na	na	na	na	na	na
2021E	**1.92E**	**1.20E**	**1.10E**	**1.27E**	**5.50E**	**5.22E**
Previous	na	na	na	na	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus.

Paycom (PAYC) is a leading HCM SaaS company focused on companies with 50 to 5,000 employees. PAYC's product suite includes applications which offer core HR, payroll, benefits, talent, and workforce management solutions, both on desktop and mobile apps. The company has a strong and historic focus on small and medium sized businesses, and more recently has lifted its company target range from up to ~2,000 employees to up to ~5,000 (the company has clients above this threshold). Led by CEO Chad Richison, who founded the company in 1998, we expect the company to post revenues of $729.5mm and adjusted EBITDA of $306.4mm in fiscal 2019. PAYC went public in 2014.

Broad HCM Suite; Direct Data Exchange Boosts Focus on Client ROI – PAYC has a broad HCM developed over the past 20 years and continues to add functionality through new modules to boost PEPM. Over the past five years the years has added 10 modules (self-developed). As shown below, the company has offering in most major HCM functions, including payroll (all clients purchase), core HR management, talent, time and engagement. One of the more recent applications launched has been the Direct Data Exchange, which allows employees to directly update their key information, bypassing HR for data entry. This tool boosts efficiency and saves money (PAYC shows how much employers save by not having to have HR manually enter data – research they cite suggestions >$4/entry). Plus it shows clients about employee usage/engagement with the PAYC platform so that issues can be addressed before clients churn away. PAYC retention rate of 92% stepped up last year after being 91% for some time.

Figure 24. PAYC Core Platform Offerings

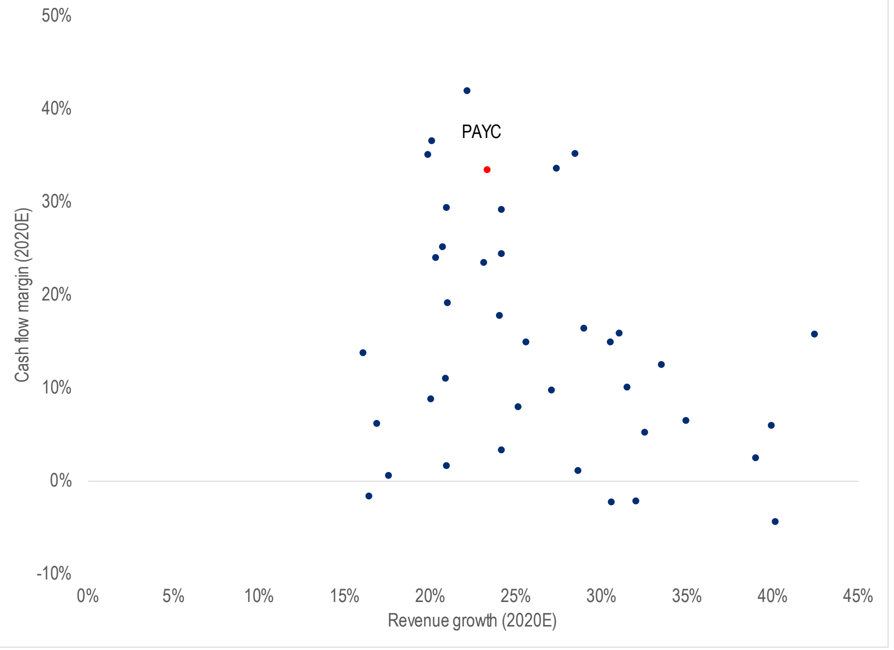
Payroll	Talent	Employee Engagement	Core HR Mgmt	Time & Attendence
Online payroll	Applicant Tracking	Performance Management	Compliance	Time / Attendence Mgmt
GL Connections	Tax Credits	Compensation	Benefits	Time clocks
Expense Mgmt	Background Checks	Employee Self-service	Cobra / ACA	Labor Management
Tax	Onboarding	Learning Mgmt System	Direct Data Exchange	Labor Allocation
Garnishments	E-verify	Workforce Analytics	Personal Forms	Enhanced ACA
Analytics	Analytics		Manager Self-service	Analytics
			Surveys	
			Analytics	

Source: Citi Research

Sales Outlook Remains Strong; Focus on Efficiency in Offices, Inbound – Tied to the compressing in the valuation multiple recently has been some concern about slowing topline growth. Consensus estimates now assume sales growth in 2020 towards 23%, down from 29% in 2018. While we think growth slows next year as the company continues to target larger clients, the level of deceleration seems conservative, in our view. We'd note favorable underlying sales trends (improving efficiency from field sales offices, stronger unsolicited in-bound inquiries, and a growing inside sales function) and a highly engaged founder/CEO with a track record of delivering. Given the investor focus on growth in this space, we think it's interesting that the company has moderated a bit on metro area market expansions – likely 2/3 this year, compared to 3-4 over the past few years. This gives us confidence that other measures to boost sales are succeeding. Inside sales is another opportunity, as the company has noted it could triple its revenue today just by upselling current clients. While few software companies get full penetration in their product suite, we think there is meaningful upside here over the next few years.

PAYC Offers a Compelling Mix of Growth & Profitability – Among high-growth software stocks PAYC stands among the top echelon for combining sales growth and profitability. Revenue growth is expected to be ~29% in 2019, following growth of 31% in 2018 and 34% CAGR since 2015. Over the time growth has been fueled roughly equal by: 1) Adding new clients; and 2) Increasing client size and higher PEPM. As shown below for a group of ~40 high growth US software stocks (>15% expected sales growth), growth at this pace is not uncommon. What is uncommon is the company's strong cash generation, with operating cash margins near the top of the group. We think this balance of solid growth and high profitability shows the strength of the business model.

Figure 25. High Growth Software Stocks – Sales Growth vs. Cash Flow Margin



Source: Citi Research, FactSet; Updated Oct 15, 2019

Build It Themselves Bias with Very Seasoned Executive Team – PAYC has a strong cultural bias towards building vs. buying, with numerous examples. The company has developed all its software internally, and has a robust recruiting program to attract technical talent into the organization very early in their careers. This is critical given the company's location outside of a traditional tech center. For sales roles, they typically develop staff from early in their careers and tends to avoid hiring from competitors. The company manages their own data centers and is building a new campus in Grapevine, TX that eventually could expand towards 1k employees. This track record suggests to us that the predominant use of cash will be to self-fund investments and afterward use excess cash for buybacks. Plus, senior management has been extremely stable – CEO Richison has led the company since he founded it in 1998. PAYC's CFO and chief of sales have also been in their roles since at least 2007.

Previewing 3Q19 Results

PAYC will report after market close on October 29. Below we provide key metrics for fiscal 3Q19 compared to our model, consensus and guidance. Our sales outlook is near consensus, but with a slightly better average mix (more recurring / less implementation and other), and we model slightly better EBITDA at $62.5mm. We'd note that FCF estimates have a very wide range, and excluding the outliers are closer to the low-$30mm level.

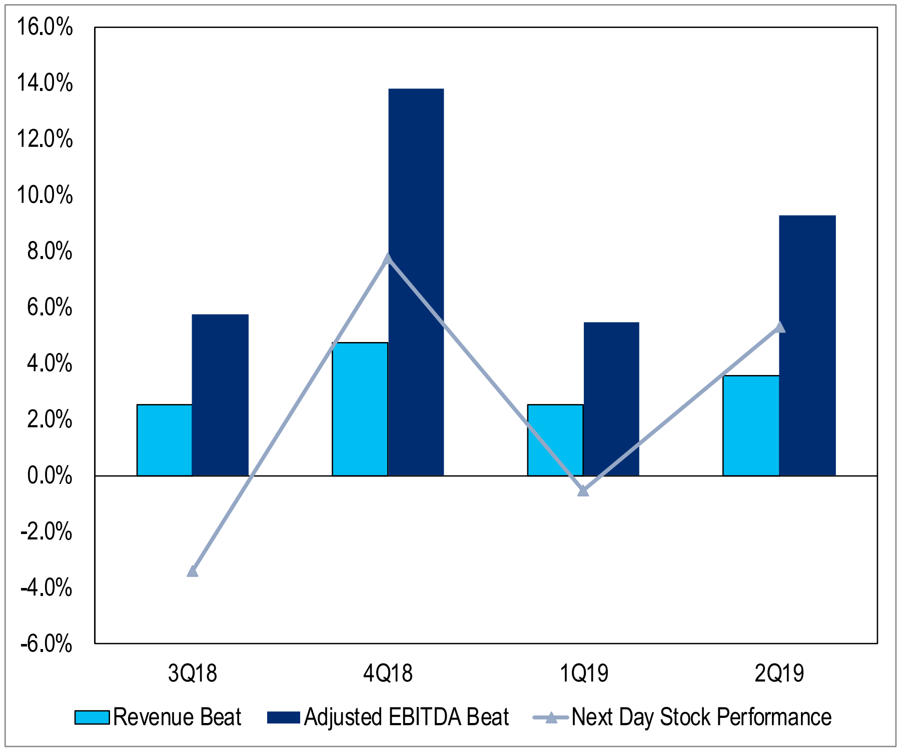
Figure 26. PAYC FY3Q19 Preview Cheat Sheet

	FY3Q19						Variance	
	Estimates		Actual	Guidance			Citi vs. Cons	
	Citi	Consensus	3Q18	Low	Mid	High	$	%/bps
Total Revenue	**171.5**	**171.5**	**133.3**	**170.0**	**171.0**	**172.0**	**0.1**	**0.0%**
% growth y-o-y	28.7%	28.6%		27.5%	28.3%	29.0%		
Recurring	168.2	167.8	130.8				0.4	0.3%
% growth y-o-y	28.6%	28.3%						
Other	3.3	3.1	2.5				0.2	6.6%
% growth y-o-y	34.4%	26.1%						
Adjusted EBITDA	**62.5**	**62.3**	**49.2**	**61.0**	**62.0**	**63.0**	**0.2**	**0.4%**
% margin	36.5%	36.3%	36.9%	35.9%	36.3%	36.6%		12 bps
EPS	$0.67	$0.67	$0.52				(0.0)	-0.3%
% growth y-o-y	28.3%	28.6%						
FCF (OCF-Capex)	36.8	47.1	33.1				(10.4)	-22.0%
% growth y-o-y	11.0%	42.4%						

Source: Citi Research, Company Reports, FactSet

Tactically, over the past four quarters PAYC has beat its revenue guidance by ~3.3% and EBITDA closer to ~8.5% as shown in the chart below. Recent stock performance has been fairly consistent around earnings – above average beats are rewarded by the market, while below average beats leads to the opposite.

Figure 27. PAYC Revenue / EBITDA Beat vs. Guidance and Stock Performance



Source: Citi Research, Company Reports, FactSet

Turning towards the full year guidance, we'd expect PAYC to guide relatively conservatively. Over the past two years, following 3Q results the company lifted FY guidance essentially by the magnitude of the beat.

Figure 28. PAYC Guidance Bridge 3Q17 to 2017 & 3Q18 to 2018

	Sales	EBITDA		Sales	EBITDA
3Q17 Beat vs. Mid-point	1.3	8.7	3Q18 Beat vs. Mid-point	3.3	2.7
Prior FY 17 Mid-point	430.5	123.5	Prior FY 18 Mid-point	555.0	232.0
Updated FY17 Mid-point	431.5	132.0	Updated FY18 Mid-point	559.5	234.0
Difference	1.0	8.5	Difference	4.5	2.0
Difference Vs. Beat	(0.3)	(0.2)	Difference Vs. Beat	1.2	(0.7)

Source: Citi Research, Company Reports

Below we provide key metrics for 2019 from our model, compared to consensus and guidance. Similar to 3Q19 consensus, the range of estimates for FCF is large and excluding outliers seems closer to the low $150mm range for FY2019.

Figure 29. PAYC Fiscal 2020 Citi vs. Guidance / Consensus

	FY2019						Variance	
	Estimates		Actual	Guidance			Citi vs. Cons	
	Citi	Consensus	2018	Low	Mid	High	$	%/bps
Total Revenue	**729.5**	**729.4**	**565.8**	**728.0**	**729.0**	**730.0**	**0.1**	**0.0%**
% growth y-o-y	28.9%	28.9%		28.7%	28.8%	29.0%		
Recurring	716.2	716.1	556.7				0.1	0.0%
% growth y-o-y	28.6%	28.6%						
Other	13.4	13.3	9.1				0.1	0.5%
% growth y-o-y	47.1%	46.4%						
Adjusted EBITDA	**306.6**	**306.4**	**240.9**	**306.0**	**307.0**	**308.0**	**0.2**	**0.1%**
% margin	42.0%	42.0%	42.6%	42.0%	42.1%	42.2%		2 bps
EPS	$3.39	$3.39	$2.67				(0.0)	-0.2%
% growth y-o-y	26.6%	26.8%						
FCF (OCF-Capex)	155.2	162.5	124.9				(7.3)	-4.5%
% growth y-o-y	24.2%	30.1%						

Source: Citi Research, Company Reports, FactSet

Risks

Potential Upside Risks to our Target Price:

PEPM Growth Accelerates – PAYC has focused on improving return on investment for customers and has offered some new features to the platform at little or no incremental cost. Over time there could be opportunities to lift prices for legacy features or boost penetration with new paid applications, lifting PEPM more than we anticipate.

Up-Market Expansion Garners Momentum – PAYC may be able to sustain faster growth for longer if they are successful in selling to larger companies, although we do not think they will expand far beyond their current target range (up to 5k employees).

Potential Downside Risks to our Target Price include:

US Labor Market Conditions – PAYC derives its revenue selling software solutions to small, mid-size, and large companies (50-5000 employees) in the US based on a "per employee per month" (PEPM) model. Slowing growth and/or contraction in PAYC's client workforce could be negative.

HCM Market Competition – The HCM space is highly competitive and fragmented, particularly for small and mid-sized businesses, including legacy national payroll players, local/regional payroll providers, and software solution providers. Software providers such as PAYC have garnered recent success as companies have looked for more modern solutions, but legacy providers are also investing to upgrading their offering, which could result in greater competition and CAC in the future.

Multiple Compression – As noted above, PAYC is trading towards the high of its historical range, which could result in multiple compression should topline growth slow.

Valuation

We value PAYC shares at $262. Consistent with the rest of the group, we value the shares based on a FCF multiple, which for PAYC we use 2024 (same as CDAY/PCTY), as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth). As shown below, we value the shares at 38x FCF, discounting back, to achieve our 12-month target price. Regarding sensitivities, a 100 bps change in the WACC drives $6/share of valuation differential, while a 1x change in the FCF multiple is ~$6/share of value. Our working assumption is that the company will build cash on the balance sheet, but the company has repurchased shares in the past and we would not be surprised if the company where to pursue periodic buybacks in the future.

Figure 30. PAYC Price Target Calculation

Price Target Calculation		
Valuation Year: FY2024		**Notes**
FCF	527.0	
x FCF Multiple	38.0	
= Implied Future Enteprise Value	**20,026.1**	
Discount Rate (WACC)	9.0%	
Discount Period (Years)	4.2	
Implied Enteprise Value (1-yr fwd)	**13,944.6**	
+ Cash (2023)	1,369.1	
-Total debt (2023)	33.5	
- Minority Interest	0.0	
= Implied Future Equity Value	**15,313.7**	
Diluted Shares Outstanding (1-yr fwd)	58.5	
Implied Equity Value per Share	**262.0**	

Source: Citi Research

The trading multiple for PAYC has trended between 8-16x (EV / forward sales) over the past two years, with an average near ~12.5x, which is close to current levels. The spread over the comp group, which today is roughly ~4.5 turns, has narrowed rapidly since early September, when it peaked out over 6 turns, although the spread remains above average. This is a notable risk to our call – if the multiple spread over the group continues to narrow, it may be difficult for PAYC to outperform.

Figure 31. PAYC EV / Sales vs. HCM and Large Cap ERP

Source: Citi Research, FactSet. Comp group includes: WDAY, PCTY, CDAY, BNFT, CSOD

Below we provide some of the details of our financial model. Leading first is our revenue model. Implementation times are short for PAYC, measured usually in weeks, not months. Key drivers of our model include: client growth, which we assume gradually slows towards ~10% from ~14% over the next few years, reflecting both market penetration and the move towards larger companies (which are fewer). Indeed, we think the company moves towards an average client size of north of 230 employees over time from the high 180s today. Finally we assume PEPM grows in the mid-single digits. When the company IPO'ed it had 18 modules which would have cost a customer ~$400/annually (~$33 PEPM), and since then they have added 10 more modules, leaving ample room to expand revenues per customer over time. Implicit in our model is slower growth in PEPM in 2019 and 2020 vs. 2018 / 2021+ reflecting lower interest rates on client balances.

Figure 32. PAYC Revenue Build

	FY2015A	FY2016A	FY2017A	FY2018A	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E
Revenue Build									
Recurring (mil)	**220.0**	**323.5**	**425.4**	**556.7**	**716.2**	**893.1**	**1,109.4**	**1,343.1**	**1,601.5**
% growth y-o-y	48.4%	47.1%	31.5%	30.9%	28.6%	24.7%	24.2%	21.1%	19.2%
% growth q-o-q									
% of total revenue	97.9%	98.3%	98.2%	98.4%	98.2%	98.0%	97.9%	97.9%	98.0%
% of FY									
bps diff y-o-y									
Retention	91.0%	91.0%	91.0%	92.0%					
Total Clients	**15,004**	**17,817**	**20,591**	**23,533**	**26,828**	**30,449**	**34,256**	**38,195**	**42,014**
% growth y-o-y		18.7%	15.6%	14.3%	14.0%	13.5%	12.5%	11.5%	10.0%
# growth q-o-q		2,813.0	2,774.0	2,942.0	3,294.6	3,621.7	3,806.2	3,939.4	3,819.5
Clients by Parent Company	8,906	10,464	11,111	12,754	14,539	16,502	18,565	20,701	22,770
% growth y-o-y		17.5%	6.2%	14.8%	14.0%	13.5%	12.5%	11.5%	10.0%
People Records		2,400,000	3,000,000	3,700,000	4,551,000	5,477,190	6,413,689	7,321,874	8,234,874
% growth y-o-y			25.0%	23.3%	23.0%	20.4%	17.1%	14.2%	12.5%
# growth q-o-q			600,000	700,000	851,000	926,190	936,499	908,184	913,000
Avg employees per client	140.0	147.5	157.2	169.3	182.2	192.3	198.9	202.5	205.8
% growth y-o-y			6.6%	7.7%	7.6%	5.6%	3.4%	1.8%	1.7%
Implied PEPM	**8.7**	**10.3**	**10.9**	**11.6**	**12.2**	**12.7**	**13.6**	**14.5**	**15.4**
% growth y-o-y		17.5%	6.8%	6.3%	4.9%	4.1%	6.8%	6.7%	6.6%
Sales teams	36	42	45	49	51				
% growth y-o-y		16.7%	7.1%	8.9%	4.1%				
Avg clients per sales team	247	249	247	260	285				
% growth y-o-y									
Implementing and other (mil)	**4.7**	**5.6**	**7.6**	**9.1**	**13.4**	**18.2**	**23.5**	**29.2**	**33.4**
% growth y-o-y	71.4%	19.9%	36.3%	19.1%	47.1%	36.1%	29.3%	24.2%	14.6%
% growth q-o-q									
% of total revenue	2.1%	1.7%	1.8%	1.6%	1.8%	2.0%	2.1%	2.1%	2.0%
Implementing and other per new account		1,988	2,748	3,087	4,055	5,020	6,177	7,409	8,757
% growth y-o-y									
% growth q-o-q									
Total	**224.7**	**329.1**	**433.0**	**565.8**	**729.5**	**911.3**	**1,132.9**	**1,372.3**	**1,634.9**
% growth y-o-y	48.8%	46.5%	31.6%	30.7%	28.9%	24.9%	24.3%	21.1%	19.1%

Source: Citi Research, Company Reports ; Note People Record are average annual figures

For costs, our working assumptions are that S&M drops modestly towards 23% of sales from 24%, reflecting increasing sales efficiency and larger customers. R&D remains in the ~8-9% of sales range as the company needs to continue to innovate, especially as the company adds more complex, larger companies as customers. G&A declines towards 11% of sales at the end of the forecast period. Of these assumptions, we have greater confidence in relative R&D stability, while we have less confidence in the trend of S&M, which could be influenced by competition and customer size. For G&A, the trend from ~14% to ~11% over time is consistent with other software names – this is the biggest lever to pull to get leverage as the business scales. Eventually, we think this could bottoms out towards 10% of sales.

Figure 33. PAYC Model Income Statement

PAYC Model Summary million USD; Non-GAAP	FY2018A				FY2019E				FY2016A	FY2017A	FY2018A	FY2019E	FY2020E	FY2021E	FY2022E
	1QA	2QA	3QA	4QA	1QA	2QA	3QE	4QE							
	03/31/16	06/30/16	09/30/16	12/31/16	03/31/17	06/30/17	09/30/17	12/31/17							
Revenue	**153.9**	**128.3**	**133.3**	**150.3**	**199.9**	**169.3**	**171.5**	**188.7**	**329.1**	**433.0**	**565.8**	**729.5**	**911.3**	**1,132.9**	**1,372.3**
% growth y-o-y	28.8%	30.6%	31.6%	31.8%	29.9%	32.0%	28.7%	25.6%	46.5%	31.6%	30.7%	28.9%	24.9%	24.3%	21.1%
Recurring	151.9	126.1	130.8	147.9	196.9	166.0	168.2	185.1	323.5	425.4	556.7	716.2	893.1	1,109.4	1,343.1
% growth y-o-y	28.8%	30.9%	31.5%	32.5%	29.6%	31.7%	28.6%	25.1%	47.1%	31.5%	30.9%	28.6%	24.7%	24.2%	21.1%
Implemenation & Other	2.0	2.2	2.5	2.4	3.1	3.3	3.3	3.7	5.6	7.6	9.1	13.4	18.2	23.5	29.2
% growth y-o-y	27.4%	16.8%	37.4%	1.6%	51.6%	51.3%	34.4%	52.5%	19.9%	36.3%	19.1%	47.1%	36.1%	29.3%	24.2%
Cost of Revenue	**20.7**	**20.0**	**21.8**	**23.7**	**26.4**	**24.9**	**27.7**	**29.4**	**51.8**	**68.1**	**86.2**	**108.5**	**134.4**	**166.6**	**201.0**
% growth y-o-y	24.5%	20.2%	33.4%	28.3%	27.4%	24.5%	27.1%	24.3%	47.1%	31.3%	26.6%	25.8%	23.9%	23.9%	20.7%
% of revenue	13.5%	15.6%	16.4%	15.7%	13.2%	14.7%	16.1%	15.6%	15.8%	15.7%	15.2%	14.9%	14.7%	14.7%	14.6%
Gross Profit	**133.2**	**108.3**	**111.5**	**126.7**	**173.5**	**144.4**	**143.8**	**159.3**	**277.3**	**365.0**	**479.6**	**621.1**	**776.9**	**966.4**	**1,171.3**
% growth y-o-y	29.5%	32.7%	31.2%	32.5%	30.3%	33.4%	29.0%	25.8%	46.4%	31.6%	31.4%	29.5%	25.1%	24.4%	21.2%
% margin	86.5%	84.4%	83.6%	84.3%	86.8%	85.3%	83.9%	84.4%	84.2%	84.3%	84.8%	85.1%	85.3%	85.3%	85.4%
Sales and Marketing	30.4	30.2	35.2	40.5	37.1	39.0	45.4	50.5	115.6	105.8	136.4	172.0	213.9	263.9	316.7
% growth y-o-y	22.9%	15.1%	34.8%	41.1%	21.7%	29.3%	29.0%	24.6%	25.7%	-8.5%	28.9%	26.1%	24.4%	23.4%	20.0%
% of revenue	19.8%	23.5%	26.4%	27.0%	18.5%	23.1%	26.5%	26.8%	35.1%	24.4%	24.1%	23.6%	23.5%	23.3%	23.1%
Research and Development	9.0	10.5	11.3	12.5	15.4	16.3	15.0	16.0	20.1	28.5	43.2	62.7	78.2	96.6	116.4
% growth y-o-y	35.6%	40.0%	52.9%	77.7%	71.5%	55.5%	33.0%	28.1%	136.2%	41.7%	51.6%	45.1%	24.7%	23.6%	20.4%
% of revenue	5.8%	8.2%	8.5%	8.3%	7.7%	9.6%	8.7%	8.5%	6.1%	6.6%	7.6%	8.6%	8.6%	8.5%	8.5%
General and Administrative	16.2	17.6	20.1	20.9	22.7	25.2	26.0	26.5	53.2	55.1	74.8	100.4	123.8	142.5	158.8
% growth y-o-y	22.1%	27.9%	46.7%	45.5%	39.5%	43.5%	29.4%	27.0%	18.2%	3.5%	35.8%	34.2%	23.4%	15.1%	11.4%
% of revenue	10.6%	13.7%	15.1%	13.9%	11.3%	14.9%	15.2%	14.0%	16.2%	12.7%	13.2%	13.8%	13.6%	12.6%	11.6%
Total Operating Expenses	**58.7**	**61.7**	**70.7**	**78.3**	**80.0**	**85.9**	**91.9**	**98.8**	**196.8**	**199.2**	**269.5**	**356.5**	**442.4**	**536.0**	**631.7**
% growth y-o-y	25.1%	23.7%	42.6%	48.4%	36.2%	39.3%	29.9%	26.1%	30.1%	1.2%	35.3%	32.3%	24.1%	21.2%	17.9%
% of revenue	38.2%	48.1%	53.1%	52.1%	40.0%	50.7%	53.6%	52.3%	59.8%	46.0%	47.6%	48.9%	48.5%	47.3%	46.0%
Operating Income	**74.5**	**46.6**	**40.8**	**48.3**	**93.6**	**58.5**	**52.0**	**60.6**	**80.5**	**165.8**	**210.1**	**264.6**	**334.5**	**430.4**	**539.6**
% growth y-o-y	33.2%	46.9%	15.3%	13.0%	25.7%	25.6%	27.5%	25.3%	111.2%	105.9%	26.8%	25.9%	26.4%	28.7%	25.4%
% margin	48.4%	36.3%	30.6%	32.2%	46.8%	34.5%	30.3%	32.1%	24.5%	38.3%	37.1%	36.3%	36.7%	38.0%	39.3%
Net Income	**55.8**	**34.8**	**30.6**	**35.4**	**69.3**	**43.7**	**39.2**	**45.7**	**51.6**	**132.3**	**156.6**	**197.8**	**249.5**	**321.4**	**403.3**
% growth y-o-y	57.2%	69.9%	32.1%	-33.4%	24.2%	25.6%	27.9%	29.0%	120.0%	156.4%	18.4%	26.3%	26.1%	28.8%	25.5%
% margin	36.2%	27.1%	23.0%	23.6%	34.6%	25.8%	22.8%	24.2%	15.7%	30.6%	27.7%	27.1%	27.4%	28.4%	29.4%
EPS - Basic	$0.96	$0.60	$0.53	$0.62	$1.21	$0.76	$0.68	$0.79	$0.90	$2.29	$2.71	$3.44	$4.33	$5.58	$7.00
% growth y-o-y	55.9%	70.1%	32.7%	-32.7%	25.1%	26.2%	28.1%	28.7%	116.0%	155.2%	18.6%	26.7%	25.9%	28.8%	25.5%
EPS - Diluted	**$0.95**	**$0.59**	**$0.52**	**$0.61**	**$1.19**	**$0.75**	**$0.67**	**$0.78**	**$0.88**	**$2.25**	**$2.67**	**$3.39**	**$4.27**	**$5.50**	**$6.90**
% growth y-o-y	56.6%	70.2%	32.8%	-32.7%	25.1%	26.3%	28.0%	28.5%	117.1%	156.2%	18.8%	26.6%	26.0%	28.8%	25.5%
Adjusted EBITDA	**80.7**	**53.5**	**49.2**	**57.5**	**103.3**	**69.4**	**62.4**	**71.5**	**94.5**	**185.7**	**240.9**	**306.7**	**385.5**	**493.9**	**616.7**
% growth y-o-y	33.9%	46.3%	21.8%	18.7%	28.0%	29.7%	26.9%	24.5%	96.5%	96.6%	29.7%	27.3%	25.7%	28.1%	24.9%
% margin	52.5%	41.7%	36.9%	38.2%	51.7%	41.0%	36.4%	37.9%	28.7%	42.9%	42.6%	42.0%	42.3%	43.6%	44.9%

Source: Citi Research

Finally, below is our model cash flow and balance sheet. We model PAYC building cash on the balance sheet, which we think could be used for expansion capital (PAYC builds not buys) or buybacks.

Figure 34. PAYC Model Cash Flow Statement

Cash Flow Statement	2015	2016	2017	2018	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E
Net Income	**20.9**	**43.8**	**123.5**	**137.1**	**171.2**	**204.4**	**264.4**	**334.4**	**405.8**	**479.7**
Depreciation and Amortization	9.4	13.6	19.4	29.7	41.5	51.8	64.4	77.9	92.8	107.6
Amortization of debt discount and issuance	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stock-based compensation	3.0	22.5	36.1	36.6	49.4	60.1	76.0	91.9	110.0	128.3
Deferred income taxes, net	(1.0)	(1.8)	(7.7)	21.1	9.4	0.0	0.0	0.0	0.0	0.0
Other	0.2	(0.1)	1.1	(1.8)	1.0	0.0	0.0	0.0	0.0	0.0
Net change in working capital	10.2	20.8	(42.4)	(37.8)	(48.2)	(56.2)	(60.4)	(66.2)	(72.6)	(72.9)
Accounts receivable	0.4	1.0	(0.2)	(1.8)	(1.0)	(0.6)	(1.2)	(1.3)	(1.4)	(1.4)
Prepaid expenses	(1.6)	(0.9)	(0.5)	(2.7)	(1.9)	(2.3)	(2.8)	(3.1)	(3.3)	(3.3)
Inventory	(0.2)	0.4	0.5	(0.3)	(0.3)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)
Other assets	(0.8)	0.1	(0.2)	(0.8)	(2.5)	0.0	0.0	0.0	0.0	0.0
Deferred contract costs	0.0	0.0	(48.6)	(60.7)	(73.4)	(83.7)	(102.0)	(110.2)	(120.9)	(120.3)
Accounts payable	(0.4)	(1.6)	0.1	1.1	4.1	1.4	3.0	2.5	3.2	2.9
Income taxes, net	(5.8)	6.1	(6.4)	3.1	(6.7)	0.0	0.0	0.0	0.0	0.0
Accrued commissions and bonuses	3.6	(0.7)	1.6	1.1	5.9	2.2	4.5	4.8	5.2	5.2
Accrued payroll and vacation	1.3	1.9	2.2	3.7	5.9	2.2	4.5	4.9	5.3	5.2
Deferred revenue	9.7	10.7	11.9	13.0	18.4	20.2	24.6	26.3	28.7	28.3
Accrued expenses and other current liabilitie	4.0	3.9	(2.7)	6.5	3.1	4.6	9.4	10.1	11.0	10.9
Net Cash Flow from Operations	**43.0**	**99.0**	**130.1**	**184.8**	**224.3**	**260.1**	**344.4**	**438.0**	**536.1**	**642.7**
Property and equipment	(16.5)	(43.8)	(59.4)	(59.9)	(68.9)	(72.1)	(89.5)	(101.5)	(117.1)	(114.3)
Cash paid for acquisition, net of cash acquir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of short-term investments from fu	0.0	0.0	(66.2)	(145.0)	(46.4)	0.0	0.0	0.0	0.0	0.0
Proceeds from maturities of short-term inve	0.0	0.0	141.2	155.5	34.2	0.0	0.0	0.0	0.0	0.0
Net change in funds held for clients	(36.1)	(161.5)	(305.5)	112.0	(136.9)	192.1	210.9	228.6	235.0	204.4
Other	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Investing Activities	**(52.3)**	**(205.1)**	**(289.9)**	**62.6**	**(218.1)**	**120.0**	**121.4**	**127.1**	**117.9**	**90.1**
Payments on long-term debt	(1.1)	4.0	5.6	(0.9)	(0.9)	0.0	0.0	0.0	0.0	0.0
Repurchases of common stock	0.0	(35.6)	(56.9)	(105.2)	0.0	0.0	0.0	0.0	0.0	0.0
Withholding taxes paid related to net share s	0.0	(14.4)	(32.9)	(20.2)	(38.4)	0.0	0.0	0.0	0.0	0.0
Net change in client funds obligation	36.1	161.5	231.0	(121.4)	149.5	(192.1)	(210.9)	(228.6)	(235.0)	(204.4)
Dividends										
Others	(0.1)	(0.1)	(1.2)	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Financing Activities	**34.9**	**115.5**	**145.7**	**(247.8)**	**110.2**	**(192.1)**	**(210.9)**	**(228.6)**	**(235.0)**	**(204.4)**
FX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Change in Cash	25.6	9.4	(14.1)	(0.4)	116.4	188.0	254.9	336.6	418.9	528.4
Starting Cash		50.7	60.2	46.1	45.7	162.2	350.2	605.1	941.6	1,360.5
Ending Cash	50.7	60.2	46.1	45.7	162.2	350.2	605.1	941.6	1,360.5	1,889.0

Source: Citi Research

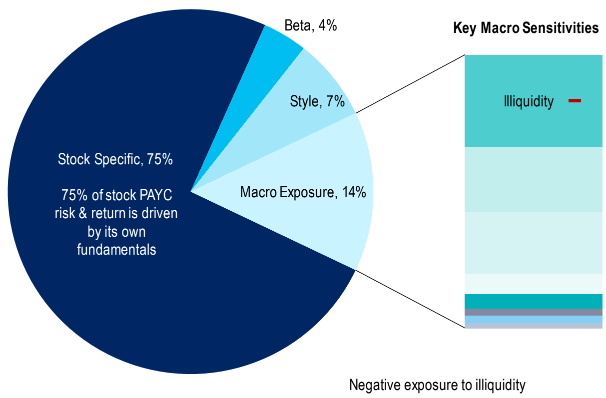
Figure 35. PAYC Model Balance Sheet

Balance Sheet	2015	2016	2017	2018	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E
Cash and Cash Equivalents	50.7	60.2	46.1	45.7	162.2	350.2	605.1	941.6	1,360.5	1,889.0
Restricted cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accounts receivable	2.4	1.3	1.6	3.4	4.4	5.0	6.2	7.5	9.0	10.4
Prepaid expenses	3.5	4.5	5.0	7.7	9.6	11.9	14.8	17.8	21.2	24.5
Inventory	1.1	0.7	1.0	0.8	0.8	1.0	1.2	1.5	1.8	2.1
Income tax receivable	6.7	0.7	7.0	4.0	10.6	10.6	10.6	10.6	10.6	10.6
Deferred contract costs	0.0	0.0	0.0	35.3	45.2	56.5	70.2	85.1	101.4	117.6
Other	0.0	0.0	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Assets ex Client Funds	**64.4**	**67.3**	**87.1**	**96.8**	**232.8**	**435.2**	**708.1**	**1,064.2**	**1,504.5**	**2,054.1**
Funds held for clients	696.7	858.2	1,089.2	967.8	1,136.3	1,328.4	1,539.4	1,768.0	2,003.0	2,207.4
Total Current Assets	**761.1**	**925.6**	**1,176.3**	**1,064.6**	**1,369.1**	**1,763.7**	**2,247.5**	**2,832.1**	**3,507.5**	**4,261.5**
Property and Equipment, net	58.9	96.8	147.7	177.0	208.8	229.1	254.2	277.7	302.0	308.7
Long-term deferred contract costs	0.0	0.0	0.0	225.5	290.7	363.1	451.4	546.8	651.5	755.6
Restricted Cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9
Intangibles, net	3.5	1.9	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Derivative asset	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Assets	1.3	2.4	173.3	2.2	30.7	30.7	30.7	30.7	30.7	30.7
Total Long-term Assets	**115.5**	**153.0**	**373.9**	**457.3**	**582.1**	**674.8**	**788.2**	**907.1**	**1,036.1**	**1,146.9**
Total Assets	**876.7**	**1,078.6**	**1,550.1**	**1,521.9**	**1,951.2**	**2,438.4**	**3,035.7**	**3,739.3**	**4,543.5**	**5,408.4**
Accounts Payable	4.9	3.7	6.5	6.3	9.0	10.4	13.4	15.9	19.0	21.9
Income tax payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued commissions and bonuses	8.7	8.0	9.6	10.7	16.6	18.7	23.2	28.0	33.3	38.5
Accrued payroll and vacation	2.9	4.8	7.0	10.7	16.7	18.9	23.4	28.2	33.5	38.7
Deferred revenue	3.7	5.2	7.0	9.0	11.7	14.6	18.1	22.0	26.2	30.3
Current portion of long-term debt	0.9	1.1	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Accrued expenses and other current liabilitie	9.7	17.8	20.0	22.4	34.8	39.4	48.8	59.0	70.0	80.9
Current liabilities ex client fund obligatio	**30.8**	**40.7**	**51.0**	**60.9**	**90.5**	**103.8**	**128.7**	**154.8**	**183.8**	**212.1**
Client funds obligation	696.7	858.2	1,089.2	967.8	1,136.3	1,328.4	1,539.4	1,768.0	2,003.0	2,207.4
Total Current Liabilities	**727.5**	**898.9**	**1,140.2**	**1,028.7**	**1,226.9**	**1,432.2**	**1,668.1**	**1,922.8**	**2,186.8**	**2,419.5**
Deferred income tax liabilities, net	0.6	0.0	0.6	70.2	79.6	79.6	79.6	79.6	79.6	79.6
Long-term deferred revenue	25.3	34.5	44.6	55.7	71.4	88.8	109.8	132.3	156.8	180.9
Net long-term debt, less current portion	25.0	28.7	34.4	32.6	31.7	31.7	31.7	31.7	31.7	31.7
Other long-term liabilities	0.0	0.0	49.1	0.0	18.9	18.9	18.9	18.9	18.9	18.9
Total Long-term Liabilities	**50.9**	**63.2**	**128.7**	**158.5**	**201.6**	**219.0**	**240.0**	**262.5**	**287.0**	**311.1**
Total Liabilities	**778.5**	**962.1**	**1,268.9**	**1,187.2**	**1,428.5**	**1,651.2**	**1,908.1**	**2,185.3**	**2,473.8**	**2,730.6**
Noncontrolling interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Convertible preferred stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stockholder Equity	98.2	116.5	281.2	334.8	522.7	787.2	1,127.6	1,554.0	2,069.8	2,677.8
Total Equity	**98.2**	**116.5**	**281.2**	**334.8**	**522.7**	**787.2**	**1,127.6**	**1,554.0**	**2,069.8**	**2,677.8**
Check	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Citi Research

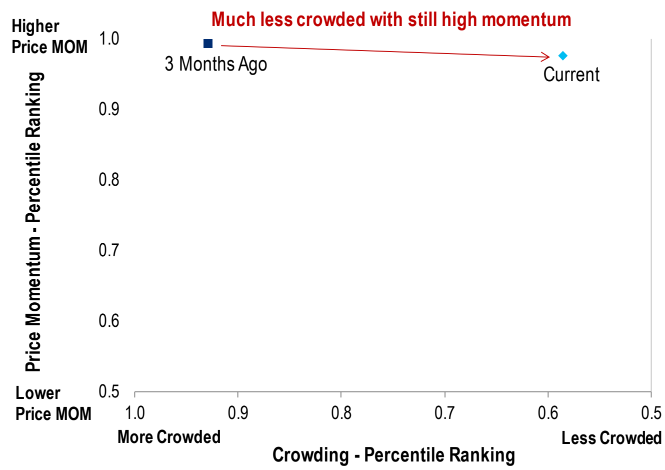
Quant Dashboard

Figure 36. PAYC Risk Decomposition



Source: Citi Research

Figure 37. PAYC Crowding Analysis



Source: Citi Research

PAYC is not considered to be crowded as it's just above the median among stocks in the Russell 3000, currently sitting at the 59th percentile. However, over the past three months the crowding score has decreased from the 93rd percentile, mostly attributable to a lower relative valuation and a lower loading to the most crowded quant factor (Low Beta).

(See Measuring the Crowded Trade in the US: Crowding Exacerbated Market Rotation)

Over the past three months, price momentum in PAYC has stayed flat and remains near the upper end of the broad US stock universe (Figure 64). Our quant research shows that stocks which have outperformed most in the past 12 months tend to outperform again in the near term, hence high Price Momentum is often an attractive attribute for quant investors.

Further risk decomposition (Figure 63) reveals that PAYC is mildly influenced by macro factors, with illiquidity as its main macro exposure. Overall, three-fourths of the risk is idiosyncratic.

(See What Works in Equity Markets: What US RAM model can tell us about Macro and Equity Market)

Bull/Bear: Paycom Software Inc (PAYC.N)

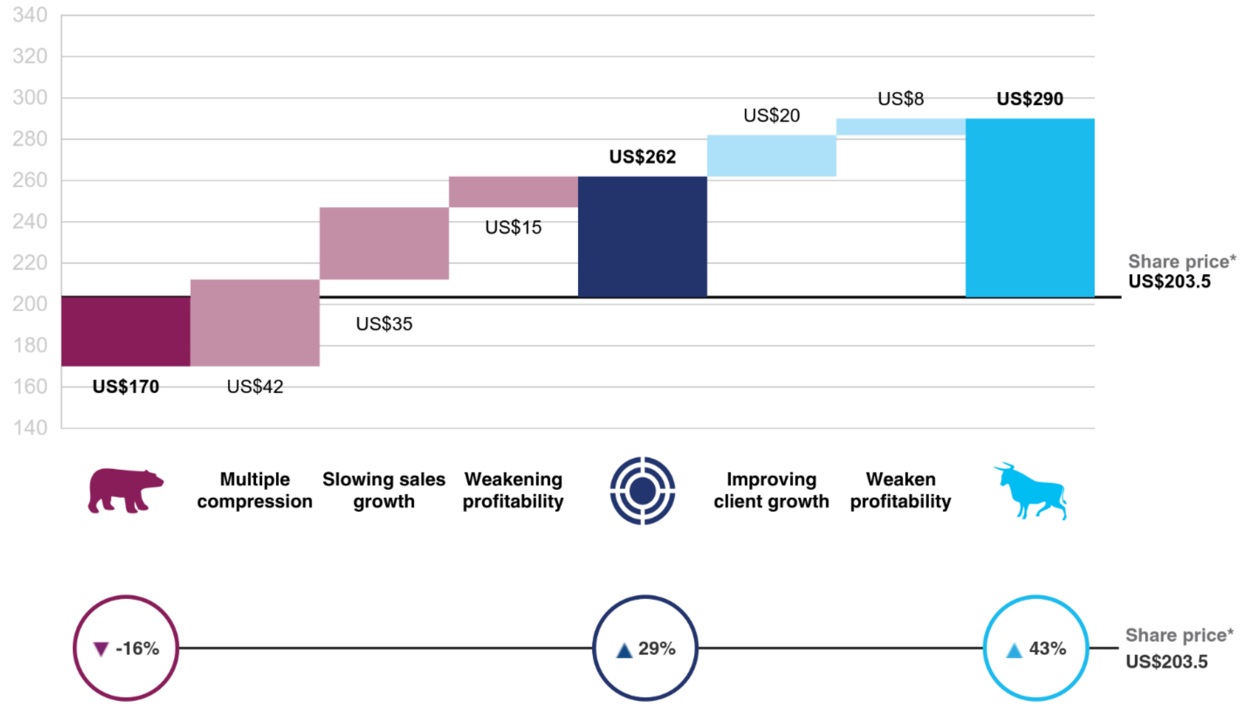
Bull/Bear: Paycom Software Inc (PAYC)

US$262 target price

29% expected share price return

Buy rating

59pp Bull/Bear Spread



Source: Citi Research

***Share price as of 24 Oct 2019 16:00**

US$290
- **Stronger client growth**
- **Improving profitability**

US$262
- **Our base case model**

US$170
- **Multiple compression**
- **Slowing client growth**
- **Weakening profitability**

Company Focus

Ceridian (CDAY)

Dayforce Momentum & Major Int'l Opportunity; Buy

- Rating Change
- Target Price Change
- Estimate Change

Buy	
from Neutral/High Risk	
Price (24 Oct 19 16:00)	US$45.12
Target price	US$58.00
from US$52.00	
Market Cap	US$6,482M
Expected share price return	28.5%
Expected dividend yield	0.0%
Expected total return	28.5%

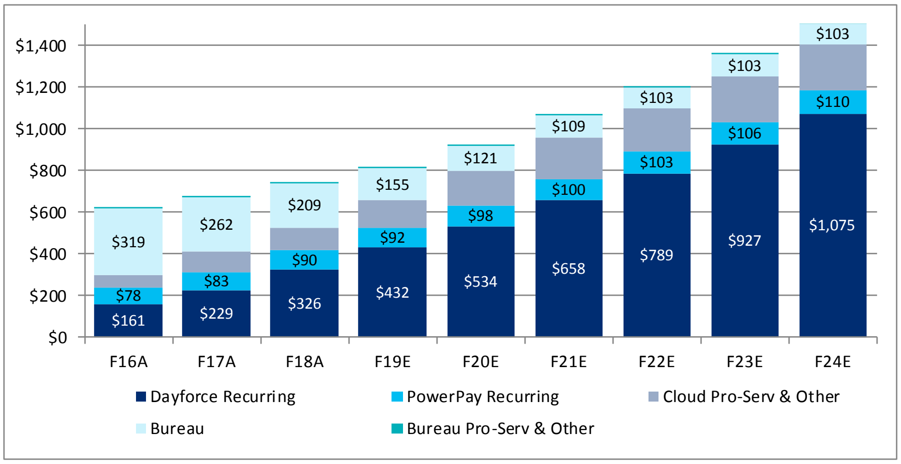
- We are assuming coverage of **CDAY** from Walter Pritchard, upgrading to Buy, and increasing our target price to $58 from $52.
- CDAY is hybrid HCM Saas / Bureau payroll company which has been successfully shifting towards a full SaaS platform over the past seven years. It's core product, Dayforce, was built for the cloud and to scale globally. The merger of Ceridian and Dayforce in 2012, the company has scaled its SaaS platform to ~4k clients.
- We are Buy rated, as outlined earlier in this report, we are fundamentally favorable on market conditions in HCM in the US over the next few years. Further, CDAY is benefiting from accelerating growth driven by larger business wins. Revenue growth in 2020 & 2021 is expected to be between 20-25% each year for Dayforce.
- After slowing in 2019, CDAY's cloud payroll solution for small business in Canada, PowerPlay, could see better trends in 2020+ as new modules become available. During our meetings with management they stressed the potential to improve here and we think little of this is factored into consensus estimates.
- International expansion is in early days, but the market is just as big as the US ($20B), offering massive potential over a 3-5 year window. Generally, regions like Europe and Asia Pacific are a few years behind, or more, the US in terms of adoption, and we think this is particularly true for medium to large size businesses. CDAY has little exposure today outside of North America, but is ramping up in the UK, Ireland, Australia and New Zealand, and more meaningful contributions could come as early in 2021.
- **3Q19 Preview:** Generally our estimates for the quarter are above the street for total sales ($196.7mm vs. 196.5mm) and EBITDA ($42.5 vs. $42.4mm). Looking back over the past year suggests a revenue beat is likely needed for the stock to outperform (>$197mm)
- **Valuation:** We value CDAY shares at $58 based on 35x 2024 FCF multiple as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth).

EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons	VA Cons
2018A	0.05A	-0.29A	0.08A	0.04A	-0.07A	-0.33A	-0.06A
2019E	**0.14A**	**0.12A**	**0.08E**	**0.12E**	**0.46E**	**0.49E**	**0.45E**
Previous	0.14A	0.12A	0.07E	0.10E	0.43E	na	na
2020E	**0.19E**	**0.20E**	**0.15E**	**0.17E**	**0.70E**	**0.69E**	**0.64E**
Previous	0.18E	0.19E	0.14E	0.15E	0.66E	na	na
2021E	**0.26E**	**0.29E**	**0.24E**	**0.26E**	**1.05E**	**0.94E**	**0.84E**
Previous	0.24E	0.28E	0.22E	0.22E	0.97E	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus. VA Cons: Visible Alpha Consensus. Click here for Visible Alpha consensus data

Ceridian (CDAY) is a hybrid HCM Saas / Bureau payroll company which has been successfully shifting towards a full SaaS platform over the past seven years. Revenues in 2019 are expected to be $814mm, growing 10% Y/Y (+25% cloud, -27% legacy). In 2007, Ceridian was taken private by Thomas H. Lee Partners and Cannane Holdings, Inc. in a deal valued at approximately $5.3B. At the time, Ceridian's business primarily consisted of legacy payroll, tax, and benefit services. Since 2007, Ceridian has retooled the business and took a major step to into the cloud HCM market by acquiring Toronto based Dayforce in 2012. Following the acquisition, Dayforce founder, David Ossip, was named CEO. CDAY IPO'ed in 2018. Thomas H. Lee Partners and Cannane Holdings, Inc. remain large shareholders, cumulatively holding about 36% of the company.

Figure 38. CDAY Revenue Mix Shift to Dayforce

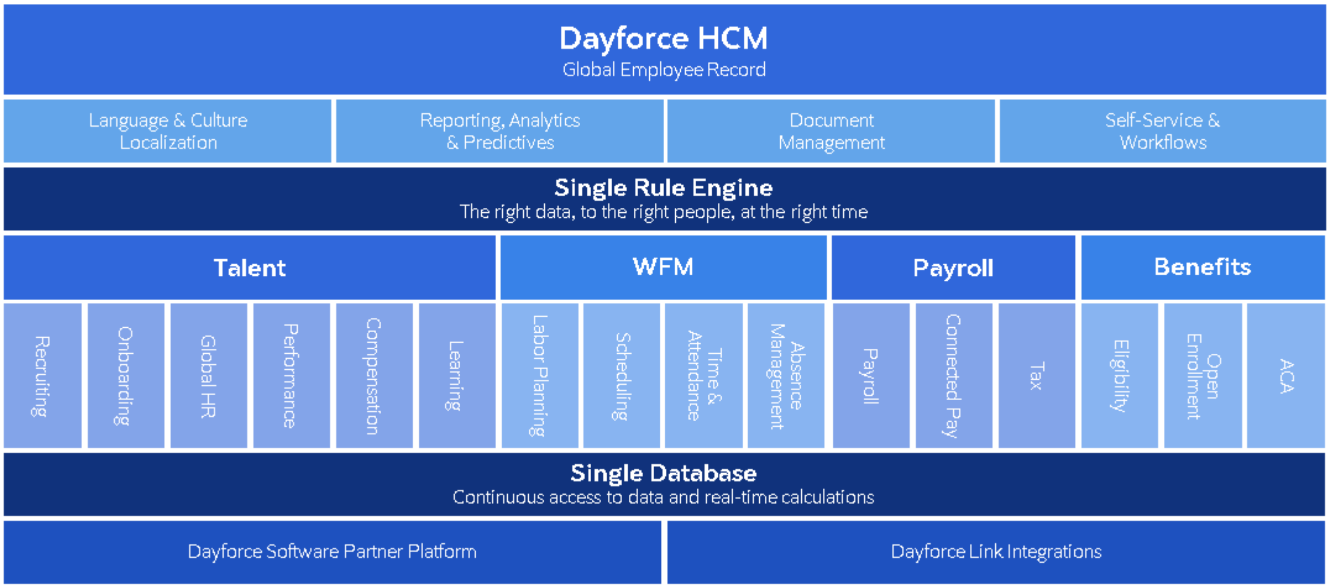


Source: Citi Research

Dayforce Has Momentum

CDAY has largely successfully navigated its hybrid position as a cloud HCM provider to medium and large business with its Dayforce application. Dayforce's differentiation lies in the tight integration of payroll with time-tracking as well as the broader HCM suite. This is especially relevant for paying hourly employees. Focused on five industry verticals – manufacturing, healthcare, retail/hospitality, financial services and government, Dayforce is now live with ~4k clients. In the US payroll market we think Dayforce has about 2.5% market share, which we think will more than double by 2022.

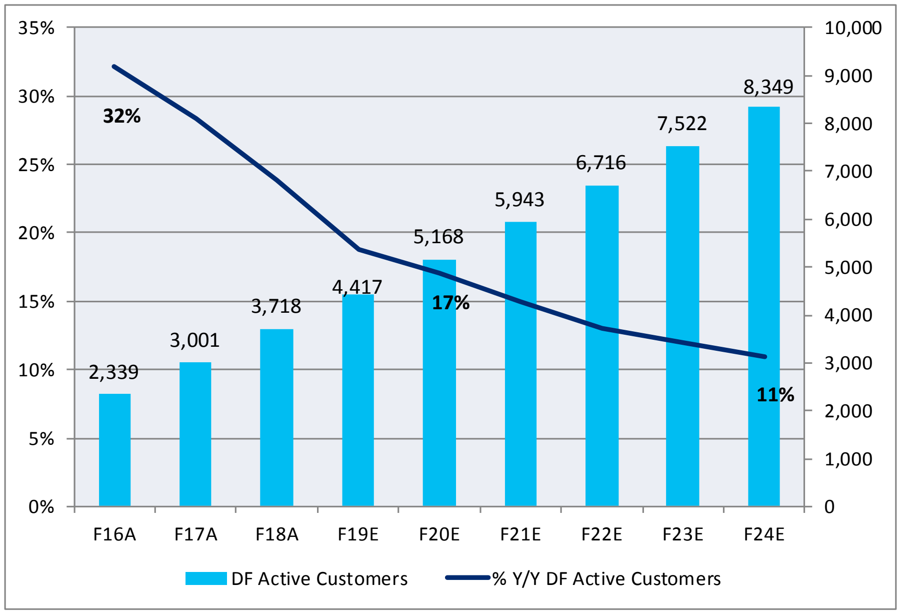
Figure 39. Dayforce HCM Platform Modules



Source: Company Reports

Dayforce has seen solid client adoption trends and double-digit growth should continue through the modeling period. Recent wins have trended towards larger customers, a net positive for revenue momentum. On average, Dayforce customers are 8x the size of PCTY's and 4x PAYC's with ~800 employees, fostering greater complexity and needs. This also requires a longer-term install process – could be 6 months for an average sized customer to 12 months for a large complex organization, compared to a few weeks for a typical PAYC or PCTY installation. The longer sales cycle is something to watch if macro uncertainty picks up, but when we met with the company in September they had not noticed any change in the sales landscape. We assume client growth remains in the double digits through-out the modeling period, although moderating towards 11% by 2024. Some of this growth is likely to come outside of the US, especially into the mid-2020s.

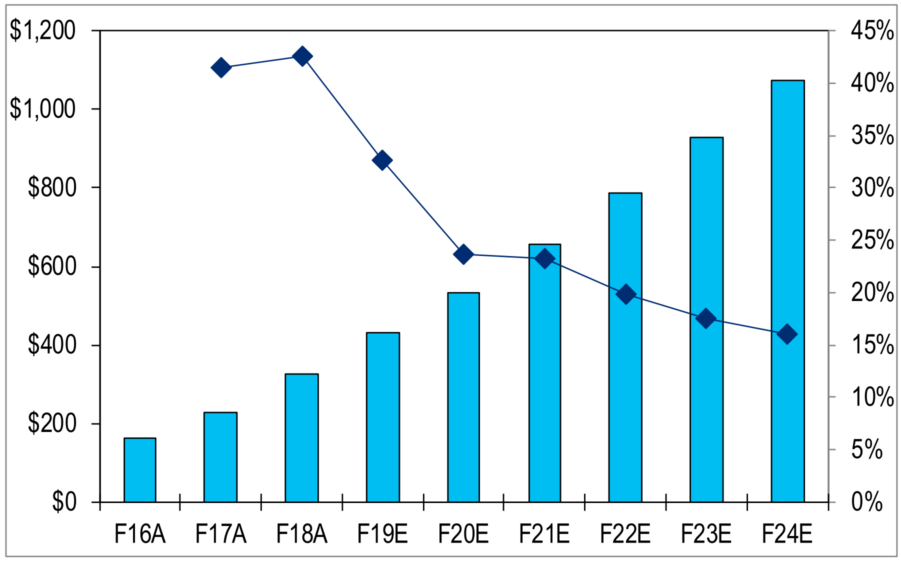
Figure 40. Dayforce Client Modeling Assumptions



Source: Citi Research, Company Reports

In addition to winning clients, Dayforce continues to have significant runway to "land and expand", particularly those customers who have been using Dayforce for 3 or more years. Time on the platform matters – the first year is lower margin, focused on customer success, year 2 margin improves as support needs fade and by year 3 customers are more likely to look for additional features. This "up-selling" window can be long, as on average companies only change their payroll/HCM platform once years 8-10 years. As of 2Q19 ~65% of customers have been on Dayforce for more than two years, and less than a quarter has been on more than 3. On average, ~20% of revenue growth per month during the past 4-6 quarters has come from selling more to current customers. As an example, some larger customers start with core payroll/workforce management and then add modules such as recruiting over time. In 2015, on average, Dayforce customers with ~1k employees paid ~$15 PEPM, while today that number is closer to $25 PEPM as CDAY launches new modules, with another $2-6 PEPM worth of features under development today. This expansion revenue should help keep Dayforce revenue growth elevated well into the 2020s.

Figure 41. Dayforce Revenue and growth



Source: Citi Research

PowerPlay, International, and Government Upside Risks

Our sense is that predominate investor focus, and rightly so, is on the performance of Dayforce. But we think there three key opportunities for the company which could drive upside risk in the estimates: 1) Reaccelerating growth in PowerPlay through new module introduction and deeper penetration; 2) Growing new business outside of North America; and 3) An expanding public sector opportunity.

While government is already one of five industry verticals for CDAY, success in the highly visible Canada public payroll project would give CDAY major creditability to expand further up-market, both public and private. Recently, the company reiterated the opportunity in Canada following its selection (with SAP and Workday) to potentially replace the Canadian government's Phoenix payroll system, which today pays ~300k Canadian government employees. Initial work, if CDAY is selected, could come soon (~$25mm opportunity over the next 12 months, potentially more beyond). Even if ultimately the opportunity amounts to very small PEPM ($3/month would be ~$11mm annually, just as an example), it could be meaningful as a case study for moving upmarket. CDAY's average Dayforce customer is just 800 clients and typically SAP and Workday have different client bases. Just like the international opportunity, more meaningful revenue may be a few years away – but we do expect periodic updates along the way which could serve as proof-points.

International expansion is in early days, but the market is just as big as the US ($20B), offering massive potential over a 3-5 year window. CDAY revenues outside of US and Canada quite low. Dayforce was built from day one with international expansion in mind. The company launched a native payroll application in the UK last year and since then has added Ireland and Australia, and is about to launch in New Zealand. Recently the company acquired RITEQ in Australia, which will bring several hundred customers, over time, to Dayforce and give the company an "on the ground team" with local knowledge and for implementation. Our sense is that the company will add 1-2 countries per year to build some momentum and international experience, so this is an opportunity measured in the years, not quarters. The rest of the world is behind the US in adopting public cloud HCM SaaS.

After slowing in 2019, CDAY's cloud payroll solution for small business in Canada, PowerPlay, could see better trends in 2020+ as new modules become available. In addition to flagship Dayforce, the company has its PowerPay Canadian cloud payroll business. Revenues for this business were ~$91mm in 2018 and could hit ~$93mm this year. This product is unique to Canada, more mature in its lifecycle, and has higher share of its target (1-100 employees) compared to Dayforce. Revenue growth has recently slowed, partially due to FX, and is likely to remain in the low single digits for the remainder of the year. Our sense is that consensus estimates likely do not factor in much in terms of recovery. During our recent meeting with the company, management reiterated its comments about having plans to boost PowerPlay revenue growth back to the high single digits through new module launches. Today the product is focused on payroll, time and attendance. Our base is growth assumption is 4% CAGR over the next three years so a reacceleration towards ~8% growth could add $3-4mm of sales and $1-2mm of EBITDA to our model annually. This is partially supportive as we believe PowerPay has high margins relative to Dayforce.

Finally CDAY has a legacy "bureau" payroll business with revenues close to $150mm this year, down from $319mm in 2016, and that is being managed for margin. The company stopped marketing its bureau services to new customers in 2012 in the U.S. and 2015 in Canada. CDAY is focused on direct conversion of its bureau customers into cloud (Dayforce or PowerPay). Within the bureau business, there is also a portion that is handling customer tax and other regulatory services that has trended roughly flat and is close to $50mm of revenue that the company does not think will go way. Our model assumes that conversions of legacy customers to Dayforce will represent mid-teens percentage pf Dayforce sales growth over the next few years before stabilizing in the ~$100mm revenue range.

Previewing 3Q19 Results

CDAY is anticipated to report 3Q results in the coming weeks. Below we provide key metrics for fiscal 3Q19 compared to our model, consensus and guidance. Generally our estimates for the quarter are above the street for total sales ($196.7mm vs. 196.5mm) and EBITDA ($42.5 vs. $42.4mm).

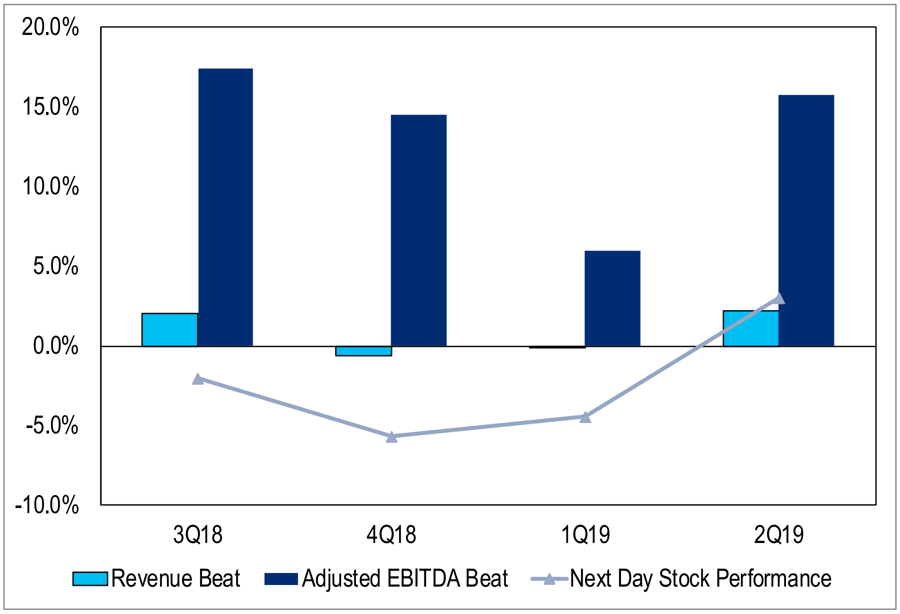
Figure 42. CDAY FY3Q19 Preview Cheat Sheet

	FY3Q19 Results Preview						Variance	
	Estimates		Actual		Guidance		Citi vs. Cons	
	Citi	Consensus	FY3Q18	Low	Mid	High	$	%/bps
Total Revenue	**196.7**	**196.5**	**178.1**	**195.0**	**196.0**	**197.0**	**0.1**	**0.1%**
% growth y-o-y	10.4%	10.3%		9.5%	10.1%	10.6%		
Recurring	163.9	163.8	131.7				0.1	0.0%
% growth y-o-y	24.4%	24.4%						
Other	32.8	32.7	46.4				0.1	0.2%
% growth y-o-y	-29.3%	-29.5%						
Adjusted EBITDA	**42.5**	**42.4**	**36.4**	**41.0**	**42.0**	**43.0**	**0.1**	**0.2%**
% margin	21.6%	21.6%		21.0%	21.4%	21.8%		4 bps
EPS	$0.08	$0.09	$0.08				(0.0)	-10.6%
FCF (cash from ops less capex)	12.4	21.8	7.2				(9.4)	-43.1%

Source: Citi Research, Company Reports

Tactically, over the past four quarters CDAY has beat its revenue guidance by ~1% and EBITDA closer to ~13% as shown in the chart below. Despite the relatively large and consistent EBITDA beats, revenue beats appear to be the better way towards share price out performance.

Figure 43. CDAY Revenue / EBITDA Beat vs. Guidance and Stock Performance



Source: Citi Research, Company Reports, FactSet

Turning towards the 2020 guidance full year, below we provide a cheat sheet for analyzing updated guidance. Our sense is that any beat in 3Q will be rolled over into the full year, but we do not expect that otherwise the company will lift guidance.

Figure 44. CDAY Fiscal 2019 Citi vs. Guidance / Consensus

	FY2019 Positioning						Variance	
	Estimates		Actual	Guidance			Citi vs. Cons	
	Citi	Consensus	FY18	Low	Mid	High	$	%/bps
Total Revenue	**812.8**	**813.8**	**740.7**	**810.0**	**812.5**	**815.0**	**(1.1)**	**-0.1%**
% growth y-o-y	9.7%	9.9%		9.4%	9.7%	10.0%		
Recurring Subscription	656.2	680.6	528.8				(24.4)	-3.6%
% growth y-o-y	24.1%	28.7%						
Other	156.6	133.2	211.9				23.3	17.5%
% growth y-o-y	-26.1%	-37.1%						
Adjusted EBITDA	**186.7**	**185.8**	**160.6**	**182.0**	**184.5**	**187.0**	**0.9**	**0.5%**
% margin	23.0%	22.8%	21.7%	22.5%	22.7%	22.9%		14 bps
EPS	$0.46	$0.49	($0.07)				(0.0)	-5.9%
FCF (cash from ops less capex)	60.3	64.9	(30.7)				(4.5)	-7.0%

Source: Citi Research, Company Reports, FactSet

Risks

Potential Upside Risks to our Target Price:

Industry Consolidation – HCM and payroll applications in totality are relatively fragment, although some particular niches are more consolidated. M&A, which historically some companies / investors in the space have pushed for in the past, would like be supportive for CDAY>

CAC Declines – As DF scales the business, we think there is be opportunities to leverage the business model. Our base case is that operating margins peak in the 30% range, but upside to margins is possible.

Potential Downside Risks to our Target Price include:

Weaker Performance in the Bureau Business – Revenues in CDAY's legacy Bureau payroll business have been dropping at a ~25% pace as the company manages the business for end of the life. CDAY has executed fairly well in transitioning clients from the legacy platform to Dayforce, but greater churn away from CDAY is a downside risk.

Multiple Compression – CDAY currently trades near 8x NTM consensus revenues and slower topline growth could pressure this multiple. In our view, CDAY trades more like a pure play SaaS name, despite its hybrid position with legacy bureau business, which we think make the stock particularly sensitive to changes in the trajectory of the SaaS business.

Decelerating Cloud Growth – CDAY has executed well in growing the Dayforce business so far, but any slowdown would hurt both topline growth and the ramp in profitability of the business, as customer value is related to length of time on the platform.

Valuation

We value CDAY shares at $58. Consistent with the rest of the group, we value the shares based on a FCF multiple, which for CDAY we use 2024, as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth). As shown below, we value the shares at 35x FCF, discounting back, to achieve our 12-month target price. Regarding sensitivities, a 100 bps change in the WACC drives $2-3/share of valuation differential, while a 1x change in the FCF multiple is ~$2/share of value. After deleveraging for some time, and now within the target range, our working assumption is that the company will build cash on the balance sheet.

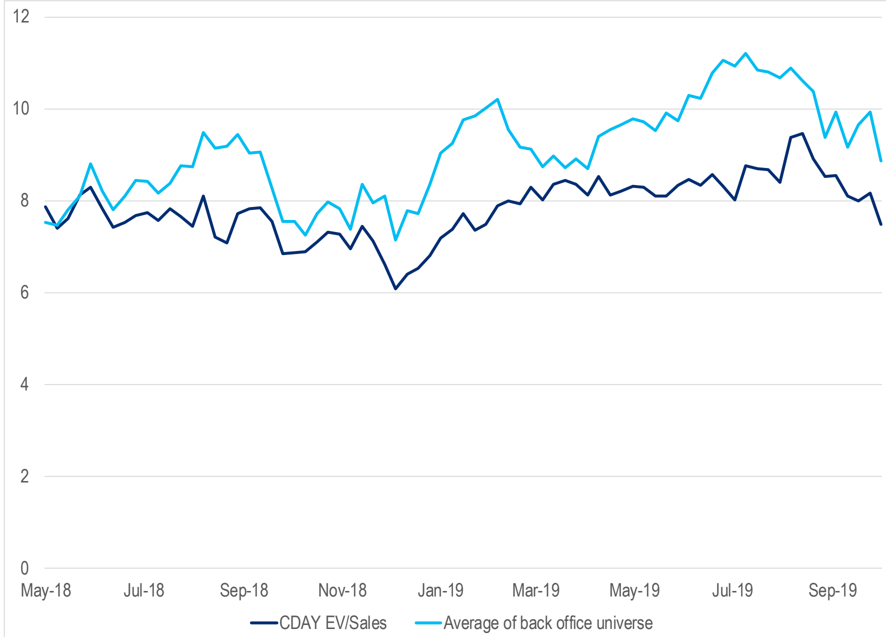
Figure 45. CDAY Price Target Calculation

Price Target Calculation	
FY Valuation	F24E
F24E FCFF	$380
% F24E Cloud Rev Growth	12%
FCFF Multiple	35x
Implied Future Enterprise Value	**$13,313**
Discount Rate (WACC)	9.2%
Discount Period (Years)	4.1
Implied Enterprise Value (1-YR Forward)	**$9,281**
Add: Cash & Cash Equivalents (FY23)	$1,001
Less: Total Debt (FY23)	($637)
Implied Equity Value (1-YR Forward)	**$9,645**
Diluted Shares Outstanding (FY23E)	168
Implied Equity Value per Share (1-YR Forward)	**$58**

Source: Citi Research

Since its IPO last May, CDAY has traded between 6-10x EV/Sales with an average near 7.8x. Currently towards the low end of that range, we think this represents a relatively attractive entry point for the shares from a valuation perspective. We do think that some multiple expansion could emerge over time if CDAY continues to be successful in the higher end of its market, or proves out another leg of growth (federal governments or international, as examples).

Figure 46. CDAY vs. Peers EV / Sales (FY2) Since IPO



Source: Citi Research, FactSet

Below we provide highlights from our financial model. Key assumptions of our model include: 1) Double-digit growth in cloud (i.e. Dayforce) will continue through 2021 the company continues to win new clients and, on average, we expect growth to continue to come from larger businesses; 2) Bureau revenues decline steadily over the next few years and stabilize near $100mm – the declines include transfers to Dayforce and clients that churn away; 3) The profit profile of the company improves steadily over time towards “best in class”, which we think is EBITDA margins in the mid to high 30% range.

Figure 47. CDAY Model Income Statement

INCOME STATEMENT	F15A	F16A	F17A	F18A	F19E	F20E	F21E	F22E	F23E	F24E
Revenue										
Cloud	$225	$298	$410	$529	$656	$800	$959	$1,097	$1,253	$1,405
Bureau	$387	$326	$266	$212	$157	$122	$110	$104	$104	$104
Total Revenue	**$612**	**$624**	**$676**	**$741**	**$813**	**$922**	**$1,068**	**$1,201**	**$1,357**	**$1,510**
% Y/Y Cloud	24%	32%	38%	**29%**	**24%**	**22%**	**20%**	**14%**	**14%**	**12%**
% Y/Y Bureau	-14%	-16%	-18%	-20%	-26%	-22%	-10%	-5%	0%	0%
% Y/Y Total	-3%	2%	8%	10%	10%	13%	16%	12%	13%	11%
NG COGS										
Cost of Cloud Recurring	$75	$94	$123	$138	$151	$177	$205	$232	$258	$288
Cost of Bureau Recurring	$122	$87	$71	$58	$53	$41	$37	$35	$35	$35
Cost of Pro-Serv & Other	$114	$136	$133	$130	$143	$180	$210	$214	$226	$225
COGS D&A	$28	$31	$31	$34	$37	$37	$37	$36	$41	$45
Gross Profit	$273	$276	$318	$379	$429	$487	$579	$684	$796	$917
Cloud GM's	59%	61%	60%	67%	71%	72%	73%	74%	75%	76%
Bureau GM's	68%	73%	73%	72%	66%	66%	66%	66%	66%	66%
Pro-Serv GM's	-117%	-110%	-30%	-13%	-7%	-6%	-5%	-4%	-3%	-2%
Gross Profit Margins	**45%**	**44%**	**47%**	**51%**	**53%**	**53%**	**54%**	**57%**	**59%**	**61%**
YoY Δ in Cloud GM's	-3%	2%	0%	6%	4%	1%	1%	1%	1%	1%
YoY Δ Bureau GM's	3%	5%	0%	-1%	-6%	0%	0%	0%	0%	0%
YoY Δ Pro-Serv GM's	41%	8%	79%	18%	6%	1%	2%	1%	1%	1%
NG OpEx										
S&M	$100	$110	$119	$117	$134	$148	$168	$190	$214	$239
R&D	$46	$45	$42	$58	$61	$64	$69	$75	$81	$88
G&A	$81	$85	$79	$100	$99	$107	$113	$121	$126	$131
Total NG OpEx	$226	$240	$240	$275	$294	$319	$351	$387	$422	$457
% S&M of Revenue	16%	18%	18%	16%	17%	16%	16%	16%	16%	16%
EBIT (non-GAAP)	**$48**	**$36**	**$77.5**	**$105**	**$135**	**$168**	**$228**	**$298**	**$375**	**$460**
Operating Margin	7.8%	5.7%	11.5%	14.1%	17%	**18.2%**	**21.3%**	**24.8%**	**27.6%**	**30.5%**
OPM Expansion (BPS)	(7)	(212)	577	266	251	160	307	346	284	286
Y/Y Δ EBIT	($2)	($12)	$42	$27	$31	$33	$60	$70	$77	$85
Other expenses (income), net	$28	$13	$7	-$2	$3.1	$0.0	$0.0	$0.0	$0.0	$0.0
Interest Expense, net	$88	$87	$87	$83.2	$42.0	$40.0	$38.0	$37.0	$37.0	$37.0
avg. interest paid on debt	7.6%	7.6%	7.7%	11.1%	6.3%	*6.1%*	*5.8%*	*5.7%*	*5.8%*	*5.9%*
Pre-Tax Income (loss) non-GAAP	($68)	($65)	($17)	$24	$90	$128	$190	$261	$338	$423
Income tax expense (benefit)	$6	$13	($50)	$8	$21	$19	$21	$31	$41	$51
% tax rate	NM	NM	NM	*NM*	23%	15%	11%	12%	12%	12%
Income (loss) from core ops.	($74)	($77)	$33	$16	$69	$109	$168	$229	$297	$372
Income (loss) from discontinued ops.	($15.8)	$17	($0.7)	-$25.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Other (to bridge NG EBIT to Net Income from continuing ops)										
NG Net Income	**($90)**	**($61)**	**$32**	**($10)**	**$69**	**$109**	**$168**	**$229**	**$297**	**$372**
Basic Shares (incl. IPO & Priv. Placement)	64.92	64.99	65	139	143	149	154	157	158	160
Options, RSUs, Greenshoe, etc…				7	7	8	8	8	8	8
Fully diluted shares	65	65	65	139	151.9	154	160	164	166	168
% Q/Q shares					9.5%	1.64%	3.51%	2.40%	1.39%	1.00%
NG EPS Est. (from continuing ops)	**($1.38)**	**($0.94)**	**$0.49**	**($0.07)**	**$0.46**	**$0.70**	**$1.05**	**$1.40**	**$1.79**	**$2.22**
HCM Adjusted EBITDA	**99.7**	**88.9**	**131.4**	**160.6**	**186.7**	**222.1**	**280.8**	**349.6**	**429.9**	**521.4**
					23%	24%	26%	29%	32%	35%

Source: Citi Research

Below we provide our cash flow and balance sheets. The most notable feature here is that CDAY has a done well in deleveraging and is now within its comfort zone at ~2.5x net debt / EBITDA. As such we anticipate a majority of excess cash will build on the balance sheet or be used to fund growth. Additionally, we'd note improving free cash margins as the business scales and our model assumes these approach ~23% by 2024 compared to negative margins in 2018.

Figure 48. CDAY Model Balance Sheet

BALANCE SHEET (historicals include Lifeforce)	F15A	F16A	F17A	F18A	F19E	F20E	F21E	F22E	F23E	F24E
Assets										
Cash and cash equivalents	$63	131	99	218	311	386	534	735	1,001	1,342
Trade and other receivables, net	$72	78	83	70	74	86	101	115	132	148
Prepaid expenses	$31	32	38	40	37	36	37	37	37	37
Other current assets	$1	1	5	2	2	2	2	2	2	2
Assets of discontinued operations	$120	0	0	0	0	0	0	0	0	0
Total current assets	$288	242	225	330	423	509	673	889	1,171	1,528
Customer trust funds	$4,333	3,703	4,100	2,604	4,012	5,470	5,870	6,270	6,670	7,070
Total current assets	$4,621	3,945	4,325	2,934	4,435	5,980	6,543	7,159	7,842	8,599
Property, plant, and equipment, net	$88	87	104	104	112	121	133	147	163	180
Goodwill	$2,009	2,058	2,087	1,927	1,961	1,961	1,961	1,961	1,961	1,961
Other intangible assets, net	$264	233	212	188	167	167	167	167	167	167
Other assets	$4	3	4	2	2	2	2	2	2	2
Total assets	**$6,985**	**6,326**	**6,732**	**5,154**	**6,677**	**8,231**	**8,807**	**9,436**	**10,135**	**10,909**
Liabilities & Equity										
Current portion of long-term debt	$7	2	0	7	7	7	7	7	7	7
Short-term Lease Liability					14					
Accounts payable	$49	46	49	42	63	68	86	91	99	104
Accrued interest	$21	21	16	0	0	0	0	0	0	0
Deferred revenue	$15	13	17	17	20	25	30	30	30	30
Employee compensation and benefits	$89	78	70	55	72	76	80	80	80	80
Other accrued expenses	$26	26	16	24	18	13	14	14	14	14
Liabilities of discontinued operations	$61	1	0	0	0	0	0	0	0	0
Total current liabilities before customer trust funds obligations	$267	187	167	144	194	189	217	222	230	235
Customer trust funds obligations	$4,312	3,692	4,106	2,620	4,012	5,470	5,870	6,270	6,670	7,070
Total current liabilities	$4,579	3,879	4,273	2,764	4,205	5,659	6,087	6,492	6,900	7,305
Long-term debt, less current portion	$1,143	1,140	1,120	664	657	651	644	637	630	623
Long-term Lease Liabilities					35					
Employee benefit plans	$210	182	152	153	120	93	80	80	80	80
Other liabilities	$110	119	57	42	38	34	30	30	30	30
Total liabilities	**$6,043**	**5,320**	**5,602**	**3,622**	**5,055**	**6,436**	**6,841**	**7,239**	**7,640**	**8,038**
Stockholders' Equity	$942	967	1,092	1,532	1,622	1,795	1,966	2,197	2,495	2,871
Noncontrolling interest	$0	39	38	0	0	0	0	0	0	0
Total equity	$942	1,006	1,131	1,532	1,622	1,795	1,966	2,197	2,495	2,871
Total liabilities and equity	**$6,985**	**6,326**	**6,732**	**5,154**	**6,677**	**8,231**	**8,807**	**9,436**	**10,135**	**10,909**
Check	—	0	0	0	0	0	0	0	0	0

Source: Citi Research, Company Reports

Figure 49. CDAY Model CF Statement

CASH FLOW STATEMENT (historicals include Lifeforce)	F15A	F16A	F17A	F18A	F19E	F20E	F21E	F22E	F23E	F24E
Net income (loss)	(105)	(93)	(9)	(64)	39	87	147	211	276	348
(Income) loss from discontinued operations	16	(17)	1	26	0	0	0	0	0	0
Deferred income tax expense (benefit)	(8)	7	(65)	(17)	(5)	0	0	0	0	0
Depreciation and amortization	56	57	58	57	61	60	59	57	61	68
Asset Impairment	$23	10	0	0	0	0	0	0	0	0
Amortization of debt issuance costs and debt discount	3	4	4	2	1	1	1	1	1	1
Loss on debt extinguishment	-	0	0	26	0	0	0	0	0	0
Net periodic pension and post retirement cost	$9	3	2	3	4	3	3	3	3	3
Share-based compensation	13	15	17	23	24	22	21	18	21	24
Other	1	6	(3)	0	1	0	0	0	0	0
Changes in assets and liabilities	(41)	(61)	**(44)**	**(42)**	**(13)**	**(25)**	**(15)**	**(15)**	**(15)**	**(15)**
OCF - continued operations	($32)	(67)	(40)	14	111	148	216	275	347	429
OCF - discontinued ops	$14	(8)	(1)	(1)						
Operating Cash Flow	**($18)**	**(76)**	**(41)**	**13**	**111**	**148**	**216**	**275**	**347**	**429**
% Y/Y growth	-3%	(0)	(0)	(1)	8	0	0	0	0	0
Cash Flows from Investing Activities										
Net change in customer funds	$352	656	(356)	1,419	(16)	(1,459)	(400)	(400)	(400)	(400)
Expenditures for property, plant, and equipment	($9)	(8)	(18)	(11)	(16)	(19)	(21)	(23)	(25)	(27)
Expenditures for software and technology	($25)	(26)	(33)	(32)	(35)	(37)	(40)	(44)	(49)	(54)
Acquisitions, net of cash acquired	$0	1	0	0	(10)	0	0	0	0	0
Net proceeds from divestitures	$0	102	(1)	0	0	0	0	0	0	0
Net cash provided by (used in) investing activities - continuing operat	$317	725	(407)	1,376	(77)	(1,514)	(461)	(467)	(474)	(481)
Net cash provided by (used in) investing activities - discontinued oper	$7	38	0	0	0	0	0	0	0	0
Net cash provided by (used in) investing activities	$324	763	(407)	1,376	(77)	(1,514)	(461)	(467)	(474)	(481)
Cash Flows from Financing Activities										
(Decrease) increase in customer trust funds obligations	($352)	(656)	356	(1,419)	1,260	1,459	400	400	400	400
Repurchase of stock	$0	0	(2)	0	0	0	0	0	0	0
Proceeds from issuance of stock	$0	75	78	641	44	0	0	0	0	0
Repayment of long-term debt obligations	($7)	(12)	(26)	(1,134)	(7)	(7)	(7)	(7)	(7)	(7)
Proceeds from issuance of debt	$0	0	0	680	0	0	0	0	0	0
Payment of debt issuance costs	$0	0	0	(23)	0	0	0	0	0	0
Net cash provided by (used in) financing activities - continuing operat	($359)	(593)	407	(1,256)	1,297	1,452	393	393	393	393
Net cash provided by (used in) financing activities - discontinued oper	($10)	(38)	0	0	0	0	0	0	0	0
Net cash provided by (used in) financing activities	($368)	(631)	407	(1,256)	1,297	1,452	393	393	393	393
Effect of exchange rate changes in cash	($10)	1	9	(10)	7	0	0	0	0	0
Net increase (decrease) in cash	($73)	58	(32)	123	1,338	86	148	201	266	341

Source: Citi Research, Company Reports

Bull/Bear: Ceridian (CDAY.N)

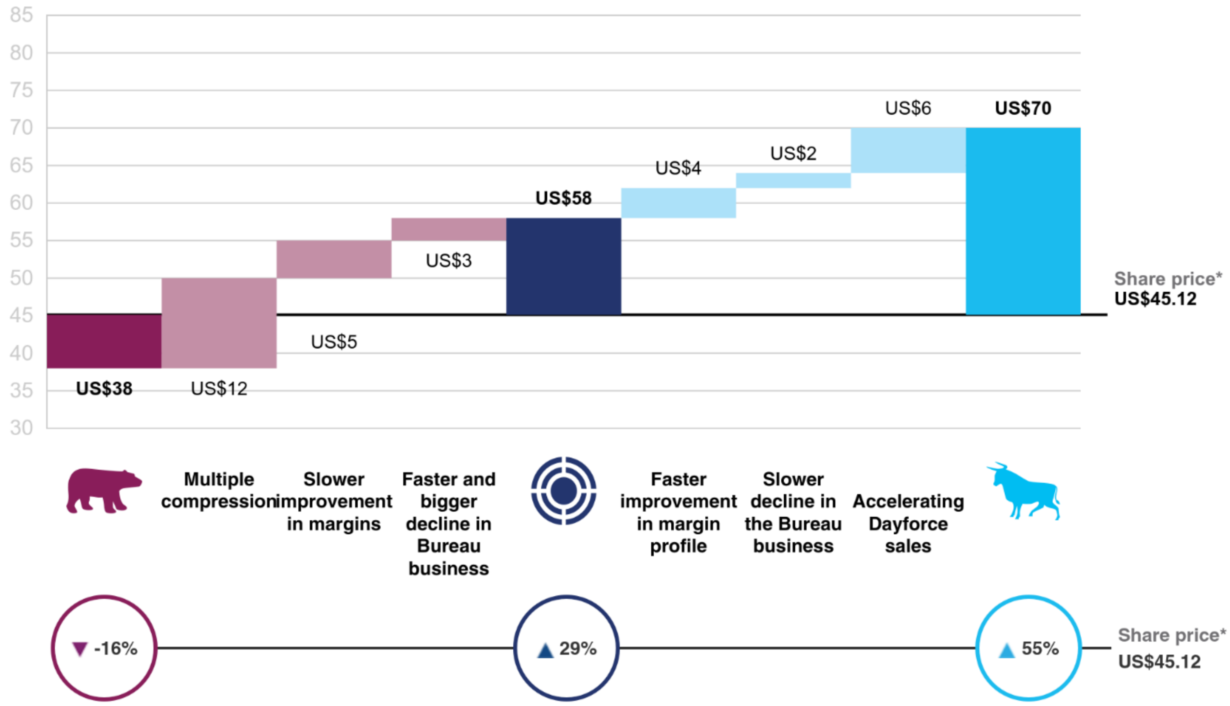
Bull/Bear: Ceridian (CDAY)

US$58 target price

29% expected share price return

Buy rating

71pp Bull/Bear Spread



Source: Citi Research

***Share price as of 24 Oct 2019 16:00**

US$70

- **Bureau business declines less rapidly**
- **Customer growth accelerates**
- **Operating costs (G&A & S&M) decline quicker than expected**

US$58

- **Base estimates driving model and thesis**

US$38

- **Bureau business declines more rapidly**
- **Multiple compression**
- **Operating costs (G&A & S&M) remain higher than expected**

Company Focus

Anaplan Inc (PLAN)

"Plan"-ing for Brisk Expansion, but Will Macro Cooperate?

- Initiation of Coverage

Neutral/High Risk	
Price (24 Oct 19 16:00)	US$47.99
Target price	US$49.00
Market Cap	US$6,326M
Expected share price return	2.1%
Expected dividend yield	0.0%
Expected total return	2.1%

- **We are initiating coverage of Anaplan (PLAN) with a Neutral / High Risk rating and a $49 target price.**
- PLAN is a leading SaaS player in what it describes the "connected planning" space. The company's software solutions allow for real-time planning, targeting large businesses and enterprises, with the most widespread use cases being sales planning, sales operations and FP&A.
- **We rate PLAN Neutral.** The company has a strong offering in in several product areas and we expect use cases and potential customers to scale over time, especially as the eco-system around PLAN develops further. However, within our coverage our sense is that PLAN could be seen as less "mission critical" for organizations if the macro slows in 2020, and with the shares trading at ~12.5x CY20 EV/Sales, there is little margin for error.
- **PLAN has executed well on "land and expand".** Our meetings with management indicate a high degree of confidence is sustaining the ~120% expansion rate. PLAN's CEO Frank Calderoni is a long-time corporate CFO (Red Hat, Cisco), which we think helps sell a tool which the most popular use case is in the finance department.
- **PLAN has a strong product in its core use cases, but the scope is still relatively narrow as the business scales.** The company's clear strengths are in sales planning & operations and FP&A, all of which are highly regarded by outside experts. PLAN sees opportunities in supply chain and workforce planning (and likely other use cases over time), but today they are smaller use cases. Sustaining current growth rates will require a greater number of use cases and a deeper partner ecosystem. PLAN has made strides here with a few of the big SIs, but clearly more work needs to be done.
- **Valuation:** We value PLAN shares at $49 based on 37x 2026 FCF multiple as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth.

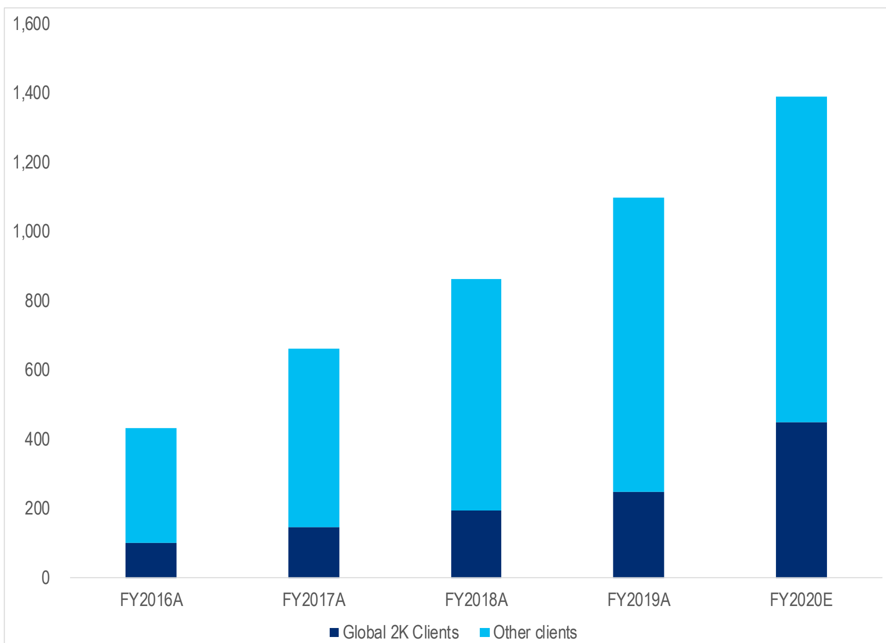
EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons
2019A	-0.25A	-0.18A	-0.18A	-0.13A	-0.74A	-0.73A
2020E	**-0.16A**	**-0.12A**	**-0.12E**	**-0.08E**	**-0.48E**	**-0.52E**
Previous	na	na	na	na	na	na
2021E	**-0.13E**	**-0.12E**	**-0.10E**	**-0.07E**	**-0.41E**	**-0.45E**
Previous	na	na	na	na	na	na
2022E	**-0.06E**	**-0.04E**	**-0.03E**	**0.00E**	**-0.13E**	**-0.18E**
Previous	na	na	na	na	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus.

We are initiating coverage of Anaplan (PLAN) with a Neutral/High Risk rating and a $49 target price. PLAN is a leading SaaS player in what it describes as the "connected planning" space. The company's software solutions allow for real-time planning and analysis, with the most widespread use cases being sales planning, sales operations, and FP&A. Targeting, but not solely relying on, the largest 2k global companies (Global 2K), the company currently has ~1,250 clients (~400 G2K). PLAN is built as an enterprise solution using an in-memory modeling engine which typically connects disparate databases within an organization and allows user to perform real-time analysis. Founded in 2008 in the UK, the company IPO'ed in October 2018.

The company has executed well on "land and expand". PLAN's sales strategy involves getting a foothold inside a client and using success there as a springboard to other use cases. The company has executed well on this. First on getting new clients in the door, growth has consistently been in the 25-30% range over the past ~2 years. Sales are incentivized to target potential clients with enough scale to drive towards >$250k ARR, and these clients account for about 20-25% of clients today. Second, PLAN continues to see solid net dollar expansion rate, which has consistently been over 120%. We'd note that PLAN's CEO Frank Calderoni is a long-time corporate CFO (Red Hat, Cisco), which we think helps sell a tool which the most popular use case is in the finance department.

Figure 50. PLAN Client Growth



Source: Citi Research, Company Reports

Large addressable market today, but ultimately could scale bigger. Today, performance management software applications are a ~$19B global market growing at ~6% according to IDC. This includes a variety of software applications – some within the scope of PLAN's use cases today – and others which we anticipate that company will address in the future. This figure excludes manual processes, which are a major opportunity to PLAN's software to improve. PLAN believes globally there are 72mm workers involved in some manner of planning. Our model assumes that by 2025 PLAN has ~4-5% share in this market.

PLAN has a strong product in its core use cases, but the scope is still relatively narrow as the business scales. The company's clear strengths are in sales planning & operations and FP&A, all of which are highly regarded by outside experts. PLAN sees opportunities in supply chain and workforce planning (and likely other use cases over time), but today they are smaller use cases. PLAN's land a expand strategy clearly focuses on getting clients started on these core use cases and over time expanding out. Our meeting with management following 2Q20 results suggested that they have high confidence in this expansion rate into CY2020, but sustaining this pace of expansion will require a greater number of use cases and a deeper partner ecosystem. PLAN has made strides here with a few of the big SIs, but clearly more work needs to be done. Other areas of focus based on our conservations with customers are likely visualizations (PLAN launched a new UI this summer which could help here) and training/model building.

Competition Needs Close Monitoring. Large global enterprises, about a third of PLAN's clients today, typically use a best of breed strategy and for PLAN's core use cases we think they are increasingly in the conversation. Yet competition appears significant. Both of PLAN's core use cases today have relatively high levels of competition with many vendors running the gamut from small, point solution providers to major players like SAP, ORCL and WDAY. For now, WDAY (Adaptive Insights) is most focused on FP&A, but at its recent analyst event there was ample discussion that WDAY may consider expansions into other verticals which over time will likely make its way back to Adaptive.

Of the company's in this report, we think PLAN is relatively more at risk from a macro slowdown. While not our base case, we think is more at risk if company's pause investment in the near-term, reflecting the software's relatively narrow set of use cases and partner ecosystem which is not yet at critical mass. PLAN's real-time planning engine allows for companies to embark on projects which have otherwise been difficult using other tools (i.e. ERP based systems or spreadsheets), but relative to others like COUP (can reliably point to quick cost savings) or HCM providers (managing talent is front and center of executive teams), PLAN's current offerings seems less "mission critical". This could certainly change as the number of use cases grows.

Risks

Potential Upside Risks to our Target Price:

Accelerating "Expand" – Core to PLAN's sales strategy is "land and expand" and the company has been successful in expanding at a ~20% pace (~120% net expansion rate). As the company obtains larger companies, the ability to expand could be faster/larger, fueling faster growth.

Quicker Financial Normalization – PLAN is still in building mode and we expect FCF to remain generally negative for the coming year, and operating income may not turn positive on a sustained basis for longer. While the market's focus is predominately on growth, faster shifts to profitability would still be viewed positively.

Potential Downside Risks to our Target Price include:

Multiple Compression – PLAN currently trades near 12x NTM consensus revenues and slower topline growth could pressure this multiple. We'd note that WDAY purchased Adaptive Insights for $1.55B in 2018 when the company had ~$114mm of revenues and was growing 33%. This implies a ~13.5x EV / TTM Sales multiple, or an estimated10.2x EV / NTM sales multiple at the company's growth rate at the time. We think this transaction could offer some downside support to PLAN shares under a scenario of significant further multiple compression.

Decelerating Growth – We assume that the company can continue to grow the topline >30% for the next few fiscal years, driven by new client wins, steady net dollar expansion rates, a bulking up of use cases and a larger partner ecosystem. Hiccups on any of these measures could slow growth and could negatively impact the share price.

Valuation

We value PLAN based on FCF, similar to the most of the rest of the group which is scaling business. We believe that by approximately FY26 PLAN will be approaching normalized profit metrics, so we use that period for a target price calculation. Our valuation is based on 37x FCF, discounting back at 9%. We rate PLAN High Risk given its short trading history.

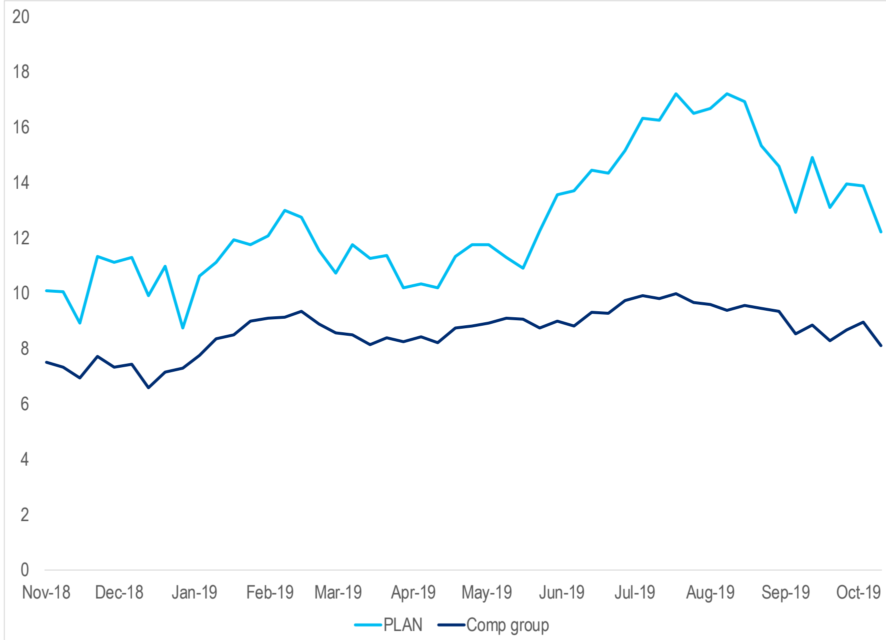
Figure 51. PLAN Target Price Valuation

Price Target Calculation		
Valuation Year: FY2026		**Notes**
FCF	242.8	
x FCF Multiple	37	
= Implied Future Enteprise Value	**8,982.8**	
Discount Rate (WACC)	9.0%	
Discount Period (Years)	5.3	
Implied Enteprise Value (1-yr fwd)	**5,689.2**	
+ Cash (2025)	953.5	
-Total debt (2025)	0.0	
- Minority Interest	0.0	
= Implied Future Equity Value	**6,642.8**	
Diluated Shares Outstanding (1-yr fwd)	135.8	
Implied Equity Value per Share	**49.0**	

Source: Citi Research

Since the company's IPO PLAN has traded between 10-17x forward sales, with an average near 12.5x. As shown below, PLAN's valuation has pulled back towards its trading range after surging over the summer. On that basis, shares look less rich, although the premium compared to the comp group remains substantial.

Figure 52. PLAN EV / Sales (FY2) vs. Comp Group



Source: Citi Research, FactSet

Below we provide some details regarding our financial market. Our assumptions are the company turns FCF positive on a consistent basis by early FY22, supported by ongoing scaling efforts by the company. Operating income breakeven is assumed by late FY22/early 2023. We think gross margins hit a steady state towards 80% by FY26, while R&D and G&A as a percentage of sales also approaches "normalized" levels by that time, although we could be conservative in our pace of improvement here.

Figure 53. PLAN Model Income Statement

PLAN Model Summary	FY2019				FY2020E				FY2018A	FY2019A	FY2020E	FY2021E	FY2022E	FY2023E
million USD; Non-GAAP	1Q	2Q	3Q	4Q	1Q	2Q	3QE	4QE						
	04/30/18	07/31/18	10/31/18	01/31/19	04/30/19	07/31/19	10/31/19	01/31/20						
Revenue	**51.6**	**57.8**	**62.0**	**69.3**	**75.8**	**84.5**	**86.2**	**94.9**	**168.3**	**240.6**	**341.4**	**448.4**	**581.8**	**732.7**
% growth y-o-y	40.3%	40.8%	40.3%	49.4%	47.1%	46.2%	38.9%	37.0%	39.7%	42.9%	41.9%	31.3%	29.7%	25.9%
Recurring	44.9	49.6	54.4	59.7	65.1	73.6	76.2	84.5	143.5	208.6	299.4	398.4	522.0	662.9
% growth y-o-y	52.1%	44.8%	42.3%	43.8%	44.9%	48.3%	40.2%	41.5%	57.0%	45.3%	43.5%	33.1%	31.0%	27.0%
Implemenation & Other	6.6	8.2	7.6	9.6	10.7	10.9	9.9	10.4	24.8	32.0	42.0	50.0	59.9	69.8
% growth y-o-y	-8.2%	20.8%	28.0%	98.3%	62.1%	33.3%	29.8%	9.2%	-14.7%	29.2%	31.2%	18.9%	19.7%	16.5%
Cost of Revenue	**13.9**	**15.8**	**16.8**	**19.2**	**20.6**	**21.3**	**21.9**	**23.2**	**51.3**	**65.7**	**87.0**	**107.9**	**132.8**	**161.4**
% growth y-o-y	31.3%	19.2%	11.4%	54.9%	47.8%	34.9%	30.7%	20.7%	31.5%	28.0%	32.4%	24.0%	23.0%	21.5%
% of revenue	27.0%	27.3%	27.0%	27.8%	27.2%	25.2%	25.4%	24.4%	30.5%	27.3%	25.5%	24.1%	22.8%	22.0%
Gross Profit	**37.6**	**42.0**	**45.3**	**50.0**	**55.2**	**63.2**	**64.3**	**71.7**	**117.0**	**174.9**	**254.4**	**340.5**	**449.0**	**571.3**
% growth y-o-y	43.9%	51.1%	55.3%	47.5%	46.8%	50.4%	42.0%	43.3%	43.6%	49.5%	45.4%	33.8%	31.9%	27.2%
% margin	73.0%	72.7%	73.0%	72.2%	72.8%	74.8%	74.6%	75.6%	69.5%	72.7%	74.5%	75.9%	77.2%	78.0%
Sales and Marketing	38.4	37.4	41.7	42.4	49.0	55.8	54.4	54.0	96.9	159.8	213.2	268.0	312.9	364.7
% growth y-o-y	85.7%	88.5%	79.1%	27.7%	27.6%	49.2%	30.6%	27.5%	36.3%	64.8%	33.4%	25.7%	16.7%	16.6%
% of revenue	74.4%	64.7%	67.2%	61.2%	64.6%	66.0%	63.1%	56.9%	57.6%	66.4%	62.4%	59.8%	53.8%	49.8%
Research and Development	11.4	11.9	10.6	11.2	13.2	13.9	14.2	15.0	30.2	45.2	56.4	74.1	96.0	117.2
% growth y-o-y	82.8%	38.0%	43.4%	42.4%	15.7%	17.4%	33.5%	33.7%	29.8%	49.7%	24.8%	31.4%	29.6%	22.1%
% of revenue	22.2%	20.5%	17.2%	16.2%	17.4%	16.5%	16.5%	15.8%	17.9%	18.8%	16.5%	16.5%	16.5%	16.0%
General and Administrative	11.1	9.7	11.3	12.3	13.1	14.5	12.6	13.0	27.0	44.4	53.3	61.9	64.0	76.9
% growth y-o-y	122.7%	62.8%	66.8%	32.6%	18.3%	50.2%	11.9%	5.6%	35.0%	64.5%	20.1%	16.2%	3.4%	20.2%
% of revenue	21.6%	16.7%	18.2%	17.8%	17.3%	17.2%	14.6%	13.7%	16.0%	18.4%	15.6%	13.8%	11.0%	10.5%
Total Operating Expenses	**60.9**	**59.0**	**63.6**	**65.9**	**75.3**	**84.3**	**81.2**	**82.0**	**154.1**	**249.3**	**322.8**	**404.0**	**472.9**	**558.8**
% growth y-o-y	90.9%	71.4%	69.8%	30.9%	23.7%	42.9%	27.8%	24.4%	34.8%	61.8%	29.5%	25.1%	17.0%	18.2%
% of revenue	118.2%	102.0%	102.5%	95.2%	99.3%	99.7%	94.3%	86.4%	91.5%	103.6%	94.6%	90.1%	81.3%	76.3%
Operating Income	**(23.3)**	**(17.0)**	**(18.3)**	**(15.9)**	**(20.1)**	**(21.1)**	**(16.9)**	**(10.3)**	**(37.1)**	**(74.4)**	**(68.4)**	**(63.5)**	**(23.9)**	**12.5**
% growth y-o-y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% margin	-45.2%	-29.3%	-29.5%	-22.9%	-26.5%	-24.9%	-19.7%	-10.8%	-22.0%	-30.9%	-20.0%	-14.2%	-4.1%	1.7%
Net Income	**(24.2)**	**(18.1)**	**(19.2)**	**(15.7)**	**(20.2)**	**(16.1)**	**(15.1)**	**(10.8)**	**(38.7)**	**(77.2)**	**(62.2)**	**(56.3)**	**(18.7)**	**15.9**
% growth y-o-y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% margin	-46.9%	-31.2%	-31.0%	-22.7%	-26.6%	-19.0%	-17.5%	-11.4%	-23.0%	-32.1%	-18.2%	-12.6%	-3.2%	2.2%
EPS - Basic	($1.12)	($0.80)	($0.42)	($0.13)	($0.16)	($0.12)	($0.12)	($0.08)	($1.62)	($1.48)	($0.48)	($0.41)	($0.13)	$0.11
% growth y-o-y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPS - Diluted	**($0.25)**	**($0.18)**	**($0.18)**	**($0.13)**	**($0.16)**	**($0.12)**	**($0.12)**	**($0.08)**	**($0.72)**	**($0.74)**	**($0.48)**	**($0.41)**	**($0.13)**	**$0.11**
% growth y-o-y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FCF (Cash from Ops - Capex)	**(14.6)**	**(13.6)**	**(15.3)**	**(17.5)**	**(2.8)**	**4.4**	**(8.7)**	**7.3**		**(61.0)**	**0.3**	**28.9**	**79.8**	**125.2**
% growth y-o-y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% margin	-28.2%	-23.4%	-24.7%	-25.3%	-3.7%	5.2%	-10.0%	7.7%	0.0%	-25.3%	0.1%	6.5%	13.7%	17.1%

Source: Citi Research

Figure 54. PLAN Model Cash Flow Statement

Cash Flow Statement	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F
Net Income	**(31.6)**	**(131.0)**	**(141.5)**	**(147.2)**	**(131.0)**	**(118.7)**	**(107.9)**	**(99.5)**	**(88.2)**
Depreciation and Amortization	4.2	12.9	19.2	21.4	23.0	24.6	26.2	27.8	31.4
Amortization of debt discount and issuance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stock-based compensation	5.2	52.8	76.3	95.7	118.3	141.6	166.6	189.6	209.9
Deferred income taxes, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred commission	4.1	11.7	16.1	15.5	19.3	21.9	25.6	26.8	27.7
Other	0.1	0.6	4.1	0.0	0.0	0.0	0.0	0.0	0.0
Net change in working capital	9.8	7.1	32.7	58.9	73.1	78.6	85.4	94.5	99.8
Accounts receivable	(7.2)	(28.5)	(39.3)	(41.2)	(51.3)	(62.1)	(78.8)	(77.2)	(77.2)
Prepaid expenses	(5.5)	(1.4)	(4.9)	(4.3)	(5.2)	(5.9)	(6.8)	(7.0)	(7.1)
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other assets	(8.5)	(32.1)	(0.3)	0.0	0.0	0.0	0.0	0.0	0.0
Deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accounts payable	7.5	15.5	24.5	2.0	2.4	2.7	3.1	3.2	3.3
Income taxes, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued expenses	0.0	0.0	(2.2)	16.8	20.6	23.1	26.7	27.5	27.9
Accrued other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred revenue	23.3	52.6	77.2	70.1	87.4	98.8	115.6	121.1	125.2
Accrued expenses, LT Deferred Comp, and other c	0.2	1.1	(22.1)	15.5	19.3	21.9	25.6	26.8	27.7
Net Cash Flow from Operations	**(8.1)**	**(45.9)**	**6.9**	**44.3**	**102.7**	**148.0**	**195.9**	**239.2**	**280.6**
Property and equipment	(3.2)	(15.1)	(6.7)	(15.4)	(22.9)	(22.8)	(31.7)	(38.4)	(37.8)
Cash paid for acquisition, net of cash acquired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of short-term investments from funds hel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from maturities of short-term investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net change in funds held for clients	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capitalized software costs	(3.1)	(7.4)	(5.1)	0.0	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Investing Activities	**(6.3)**	**(22.5)**	**(11.7)**	**(15.4)**	**(22.9)**	**(22.8)**	**(31.7)**	**(38.4)**	**(37.8)**
Payments on long-term debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repurchases of common stock	0.0	301.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from stock options	2.1	6.2	14.7	0.0	0.0	0.0	0.0	0.0	0.0
Withholding taxes paid related to net share settlem	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net change in client funds obligation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends									
Others	60.3	(28.1)	18.9	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Financing Activities	**62.4**	**279.9**	**33.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
FX	0.7	(1.7)	(1.0)	0.0	0.0	0.0	0.0	0.0	0.0
Change in Client Funds									
Net Change in Cash	48.6	209.8	27.8	28.9	79.8	125.2	164.2	200.8	242.8
Starting Cash	0.0	48.6	326.9	354.6	383.6	463.4	588.6	752.8	953.5
Ending Cash	48.6	326.9	354.6	383.6	463.4	588.6	752.8	953.5	1,196.3

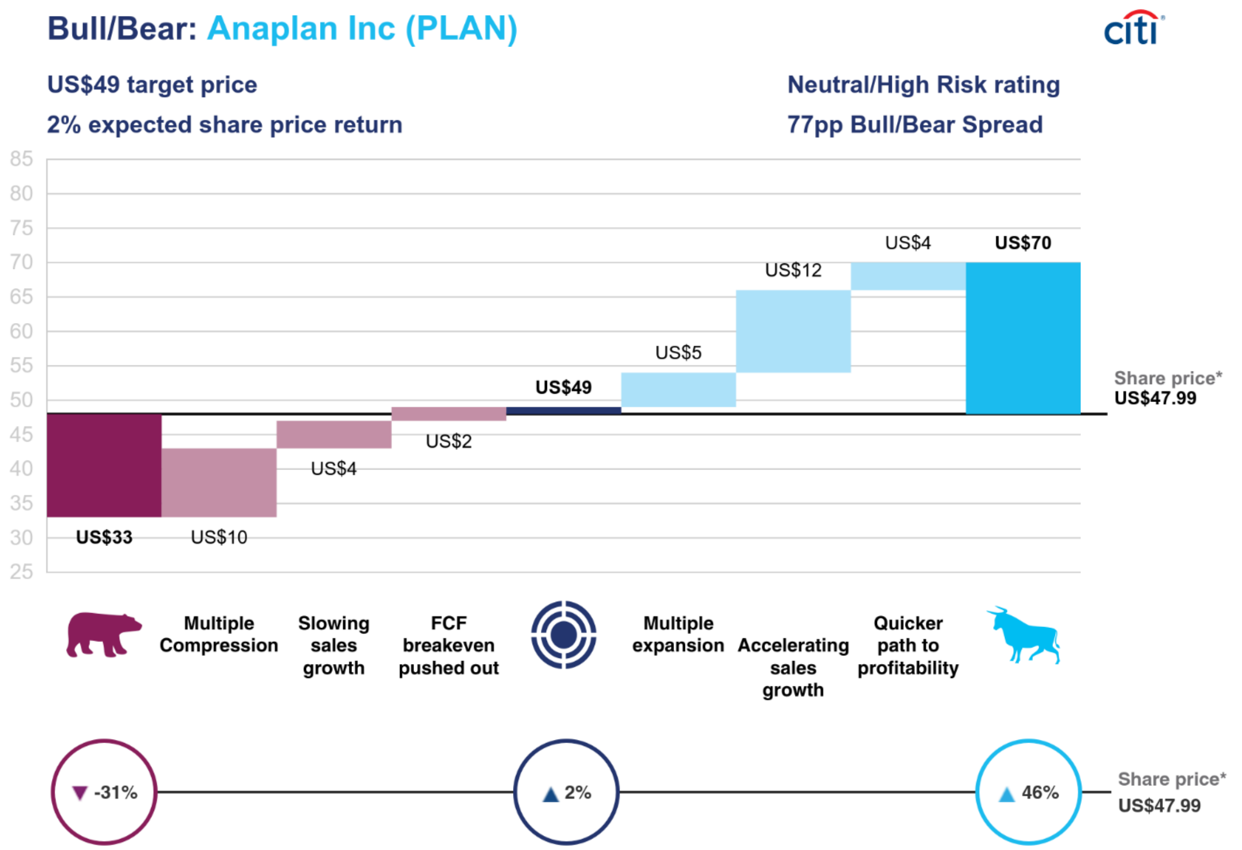
Source: Citi Research

Figure 55. PLAN Model Balance Sheet

Balance Sheet	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F
Cash and Cash Equivalents	326.9	354.6	383.6	463.4	588.6	752.8	953.5	1,196.3
Accounts receivable	92.6	131.4	172.6	223.9	285.9	364.7	441.9	519.2
Prepaid expenses	13.4	18.2	22.4	27.7	33.6	40.3	47.3	54.4
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred commission (Current)	15.8	22.5	29.6	38.4	48.4	60.0	72.2	84.8
Deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Assets	**448.7**	**526.7**	**608.2**	**753.3**	**956.5**	**1,217.9**	**1,515.0**	**1,854.8**
Property and Equipment, net	43.3	39.7	33.6	33.5	31.7	37.2	47.8	54.3
Long-term deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restricted Cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intangibles, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred commissions	35.1	49.5	65.0	84.4	106.2	131.8	158.6	186.4
Derivative asset	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Assets	1.7	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Total Long-term Assets	**80.1**	**129.8**	**139.3**	**158.5**	**178.6**	**209.7**	**247.1**	**281.3**
Total Assets	**528.8**	**656.5**	**747.4**	**911.9**	**1,135.0**	**1,427.5**	**1,762.1**	**2,136.0**
Accounts Payable	6.2	8.4	10.4	12.8	15.5	18.6	21.9	25.2
Income tax payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued Expenses	52.6	71.4	88.1	108.7	131.9	158.6	186.1	213.9
	0.0	0.0	0.0	0.0	0.0			0.0
Deferred revenue	149.6	221.9	291.5	378.2	476.2	590.9	711.1	835.4
Current portion of long-term debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other current liabilities	0.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Current liabilities	**208.4**	**309.7**	**398.0**	**507.7**	**631.6**	**776.1**	**927.0**	**1,082.4**
Deferred income tax liabilities, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term deferred revenue	1.2	1.7	2.2	2.9	3.7	4.5	5.5	6.4
Net long-term debt, less current portion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other long-term liabilities	11.7	42.6	42.6	42.6	42.6	42.6	42.6	42.6
Total Long-term Liabilities	**12.9**	**44.3**	**44.8**	**45.5**	**46.2**	**47.1**	**48.0**	**49.0**
Total Liabilities	**221.3**	**353.9**	**442.8**	**553.2**	**677.8**	**823.2**	**975.1**	**1,131.4**
Noncontrolling interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Convertible preferred stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stockholder Equity	307.5	302.6	304.6	358.7	457.2	604.3	787.1	1,004.6
Total Equity	**307.5**	**302.6**	**304.6**	**358.7**	**457.2**	**604.3**	**787.1**	**1,004.6**
Check	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Citi Research

Bull/Bear: Anaplan Inc (PLAN.N)



Source: Citi Research

*Share price as of 24 Oct 2019 16:00

US$70

- Multiple expansion back towards near-term range
- Quicker addition of new clients and positive momentum in expansion rate
- FCF and Operating margin turn positive sooner than expected

US$49

- Our base case model

US$33

- Further multiple compression towards historical transaction level
- Slowing sales growth
- Weaker FCF trends

Company Focus

Coupa Software Inc (COUP)

Strong Product and Positioning but Look for Better Entry Points

- Initiation of Coverage

Neutral	
Price (24 Oct 19 16:00)	US$131.63
Target price	US$141.00
Market Cap	US$8,272M
Expected share price return	7.1%
Expected dividend yield	0.0%
Expected total return	7.1%

- **We are coverage of Coupa (COUP) with the Neutral rating and $141 target price.**
- Coupa is an integrated SaaS business spending management platform. Starting with procurement and building out a variety of functions and use cases over the past few years, COUP offers an alternative to applications historically tied to major ERP systems.
- **We are Neutral on COUP.** We like the business opportunity for COUP, particularly some of the features of the platform which provide immediate cost savings opportunities for clients (like shifting more spending away from expenses and into procurement). Yet with the shares trading >17x next fiscal year sales, we think there could be better entry points.
- **COUP has a solid product offering, particularly in P2P.** The core – procurement, invoicing, expensing and payments – is the backbone for COUP. COUP's procure-to-pay and accounts payable tools are strong offerings, consistently ranking highly across a variety of third-party assessments. Coupa Pay, which the company announced a variety of major enhancements recently, is an opportunity over the coming years as more than 50% of businesses still pay their suppliers manually, and 40% of payments are still on paper.
- **On balance, we see COUP as a potential "net neutral" should macroeconomic conditions weaken in the next 12-24 months** – but we think the valuation today leaves little room for error. One of the core benefits of COUP is the ability to cut costs quickly following its install, with some (but not all) examples including: moving more spending away from expenses and to procurement; prioritizing invoices with pre-pay discounts; benchmarking and analytics tools to highlight expenses "outside of the norm", and Coupa community bulk-buying discounts.
- **Valuation**: We value COUP shares at $141, based on a 38x FCF multiple on FY26, discounted back at a 10.5%. Our model assumes that by FY26 COUP will be close to many of its long-term financial targets.

EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons
2019A	-0.01A	0.05A	0.08A	0.05A	0.18A	0.18A
2020E	**0.03A**	**0.07A**	**0.06E**	**0.01E**	**0.18E**	**0.16E**
Previous	na	na	na	na	na	na
2021E	**0.06E**	**0.07E**	**0.11E**	**0.11E**	**0.35E**	**0.38E**
Previous	na	na	na	na	na	na
2022E	**0.16E**	**0.20E**	**0.19E**	**0.19E**	**0.73E**	**0.78E**
Previous	na	na	na	na	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus.

We are launching coverage of Coupa (COUP) with a Neutral rating and a $141 target price. COUP offers a set of integrated SaaS applications which help businesses monitor and optimize spending across a variety of use cases in ways which previously were typically managed with point-based solutions. Since 2011, the company has seen >$1 trillion of cumulative spending on its platform, up nearly 60% over the prior year. Founded in 2006 by former executives from ORCL, the company went public in 2016. In FY19 the company had revenues of $260mm and ~900 clients. The company sees its total potential market at ~$56B, which is calculated using current per user fees and scaling up to the ~100k global companies which COUP believes would be target candidates.

COUP has a solid product offering, particularly in P2P. We divide the product offerings into three buckets – COUP's core transactional engine; supporting modules; and community driven features, like business networks, Coupa Advantage & community intelligence. The core – procurement, invoicing, expensing and payments – is the backbone for COUP and directly competes with some applications from large ERP providers, such as SAP's Ariba and Concur applications. Indeed, SAP is the ERP system clients most often integrate with. The integration between COUP modules lets managers track spending in real time and provides a "consumer-like" employee experience. COUP's procure-to-pay and accounts payable tools are strong offerings, consistently ranking highly across a variety of third-party assessments. Coupa Pay, which the company announced a variety of major enhancements recently, is an opportunity over the coming years as more than 50% of businesses still pay their suppliers manually, and 40% of payments are still on paper. Our channel checks suggest that COUP's expense application is less strong than P2P or invoicing.

Figure 56. COUP Core and Secondary Modules

Coupa Core		Supporting Modules	
Procurement	Provides a "consumer-like" shopping experience for employees, including real-time tracking and inventory levels; streamlines requisitions and PO processes	**Strategic Sourcing**	Connects suppliers and buyers beyond traditional indirect buying; sourcing applications to include direct raw materials; faciliates bidding and review process for clients; includes optimization parameters beyond price
Invoicing	Highly configurable approval / rules / work flows which allow customers to prioritize invoices to payment terms and support full electronification of invoices	**Contract Management**	Module to support contracting with a variety of features which help automate workflow
Expensing	Module which provides for employee reimbursements, including features like mobile, GPS monitoring and credit card integration	**Contingent Workforce**	Tools for managing temporary workforce
Payments	"Coupa Pay" lets clients optimize B2B payment processing; interation with other COUP applications; improves documentation and compliance	**Supplier Management**	Risk management tool for suppliers, including partner evalutions and other publicly available data sources
		Analytics	Providers managers reports and dashboards to monitor and analyze spending metrics

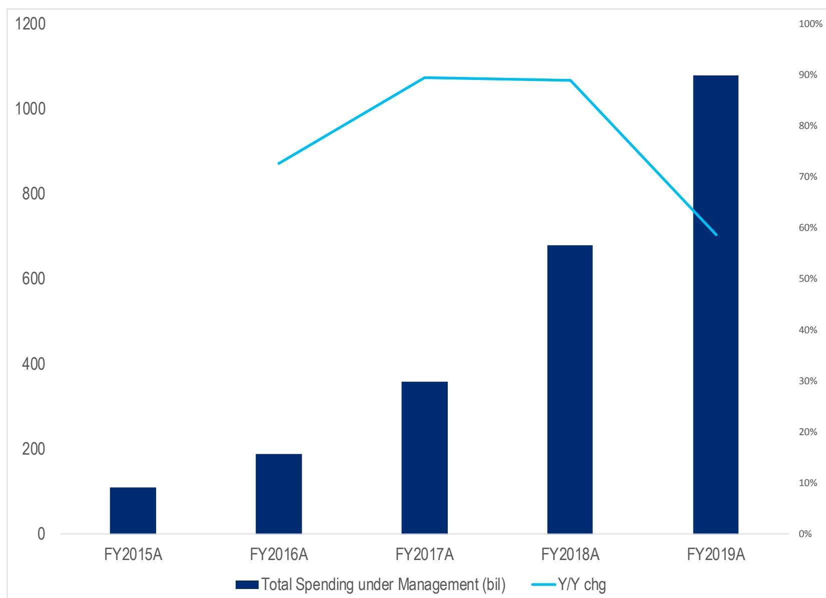
Source: Citi Research, Company Reports

Supporting modules include features which better manage suppliers, contracts and workforce, and we anticipate additional features will be added here over time – both through internal development and potentially acquisitions. In particular the contract management tool is a major opportunity for the company with an above average per user cost relative to company average, supported by its acquisition of Exari earlier this year. We anticipate that over the coming years COUP will offer more supporting modules. While not a "land and expand" story, the company's net dollar expansion rate is around ~110% today and in our conversations with management suggest that this could move towards ~120% over time. But this is a secondary focus – getting new clients in the door is the primary objective today. Our model assumes clients increase towards 1,300 this year from 988 last year.

The other key features of COUP's value proposition are based on its community: 1) Open Business Network, which facilities electronic supplier and customer interactions; 2) Coupa Advantage – a bulk-buying program which allows COUP customers to benefit from pre-negotiated discounts from select suppliers – a features which we think could be supportive to COUP's efforts to expand with mid-market customers; and 3) Community Intelligence – COUP analyzes transactions on its network and then provides recommendations to optimize or reduce spending for clients.

This last feature ties into one of the key benefits for COUP – analyzing aggregate transaction trends. COUP retention is 95%+, with most of the volatility driven by potential customers getting acquired or signed deals which never went live. By monitoring transaction volume through the platform, COUP can troubleshoot issues, i.e. customer transaction volume never picked up post-COUP launch, or major changes in transaction volume trends (customers not using the platform). This lets the company potentially address challenges before contract renewal time. Thus looking at trends in spending under management for COUP may help glean changes in the underlying usage, although it's important to note that COUP does not earn revenue based on transactions dollars.

Figure 57. COUP Cumulative Spending Under Management



Source: Citi Research, Company Reports

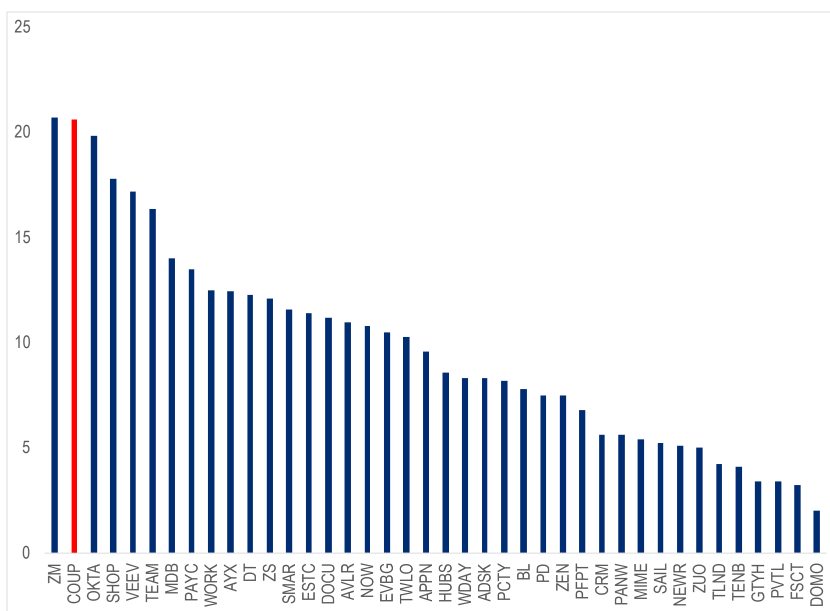
From a platform perspective, COUP faces challengers on all sides, but is holding its own. As noted above, the most notable competitors to COUP are the ERP providers which COUP is building its application on top of – including SAP (Ariba – supply chain management, Fieldglass – contingent workforce; Concur – travel, expensing and invoicing) and Oracle (Supply chain management, procurement, contracting, etc). COUP also competes against point solutions for a variety of its modules, and we expect some of large back office focused software companies to eventually offer solutions in this market. That said, for large enterprises we see a "best of breed" buying strategy, which could insulate COUP in the near-term. Notably, we think COUP is focused on broadening its base of revenue, which today is ~35% from procurement (from >50% in FY16) and ~15% from invoicing. COUP charges platform fee based on the number of employees in the organization and then on a per module per user basis

On balance, we see COUP as a potential "net neutral" should macroeconomic conditions weaken in the next 12-24 months – but we think the valuation today leaves little room for error. Unlike some of the other applications in this report, which have very short sales cycles (measured in the weeks for PCTY and PAYC, for example), which is not that case for COUP and any fundamental slowdown in IT spending intentions could impact the company. Conversely, one of the core benefits of COUP is the ability to cut costs quickly following its install, with some (but not all) examples including: moving more spending away from expenses and to procurement; prioritizing invoices with pre-pay discounts; benchmarking and analytics tools to highlight expenses "outside of the norm", and Coupa community bulk-buying discounts. On balance, we are less concerned specifically to COUP regarding a macro deceleration, but as we discuss below in the valuation section, with the shares trading at 17x forward sales (+5 turns Y/Y) there is no room for error.

Valuation

By nearly any metric, COUP trades at the high-end of the high-growth software universe, as show below, based on EV / calendar 2020 sales estimates or other metrics like EV to revenue growth. COUP has consistently beat its quarterly revenue guidance by ~10%, on average, over the past four quarter. Yet, even baking in similar upside in calendar 2020 revenues, the shares still trade well above the group. Tactically, even with the company's solid product portfolio and good visibility on revenues (RPO +46% Y/Y in FY2Q20), we think the market will provide a better entry point to the shares, and multiples closer to mid-teens could get us to sharpen our pencils again.

Figure 58. EV / Calendar 2020 Sales



Source: Citi Research; FactSet estimates October 21 2020

We value COUP shares at $141, based on a 38x FCF multiple on FY26, discounted back at a 10.5%. Our model assume that by FY26 COUP will be close to many of its long-term financial targets. Our modelling suggests that bulls believe that the company will hits its long-term targets at least one year before our model. Given that the company's near-term targets are a year or two away, and given the potential for some macro pressure over the coming 5 years, we think some level of conservativism is warrant here.

Figure 59. COUP Valuation Methodology

Price Target Calculation		
Valuation Year: FY2026		**Notes**
FCF	390.2	
x FCF Multiple	38	
= Implied Future Enteprise Value	**14,748.1**	
Discount Rate (WACC)	10.5%	
Discount Period (Years)	5.3	
Implied Enteprise Value (1-yr fwd)	**8,687.9**	
+ Cash (2025)	1,628.4	
-Total debt (2025)	724.8	
- Minority Interest	0.0	
= Implied Future Equity Value	**9,591.5**	
Diluated Shares Outstanding (1-yr fwd)	68.0	
Implied Equity Value per Share	**141.0**	

Source: Citi Research

Risks

Potential Upside Risks to our Target Price:

Bigger Initial Contracts – COUP does not “land and expand”, although over time there is some opportunity here to grow revenues as contracts renew. Given the focus on client additions, we think there is more risk that COUP lands bigger initial contracts, which could be additive to our estimates.

Coupa Pay – The company introduced a business to business payment processing application earlier this year. Our base case model assumes little contribution from this in the near-term, but accelerated scaling here result in upside to our estimates.

Potential Downside Risks to our Target Price:

Multiple Compression – COUP trades at 17x EV / forward sales, by far the most expensive in our group today. While fundamentals of the business are favorable, any trajectory change leaves the shares particularly vulnerable to multiple compression. Since COUP’s IPO until October 2019 COUP has traded at an average of 10.8x forward sales.

Competition Picks up – Historically, COUP has seen success as a replacement for ERP applications, but large-cap players, including some not traditionally tied to supply chain, are looking to expand in the space. COUP historically has had 95%+ retention, but greater competition could impact this trend.

Financial Model

Below we provide some details from our financial model. Generally speaking, our estimates for FY20 and FY21 are close to consensus. Fundamentally, our model assumes that COUP approaches it mid-term financial targets by approximately FY22 and that is approaches its long-term targets by FY2026.

Figure 60. COUP Model Income Statement

COUP Model Summary million USD; Non-GAAP	FY2019				FY2020E										
	1QA	2QA	3Q	4Q	1Q	2Q	3QE	4QE	FY2017A	FY2018A	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E
	03/31/18	06/30/18	09/30/18	12/31/18	03/31/19	06/30/19	09/30/19	12/31/19							
Revenue	**56.4**	**61.7**	**67.5**	**74.9**	**81.3**	**95.1**	**96.3**	**99.8**	**133.8**	**186.8**	**260.4**	**372.6**	**477.7**	**626.5**	**803.1**
% growth y-o-y	37.0%	38.4%	42.5%	39.4%	44.3%	54.3%	42.7%	33.3%	59.9%	39.6%	39.4%	43.1%	28.2%	31.2%	28.2%
Recurring	50.0	55.4	60.6	67.5	73.0	83.5	86.7	89.8	117.8	164.9	233.4	333.0	430.9	568.8	733.7
% growth y-o-y	40.1%	39.3%	41.5%	44.8%	46.0%	50.8%	43.2%	33.0%	55.7%	40.0%	41.6%	42.6%	29.4%	32.0%	29.0%
Implemenation & Other	6.4	6.3	6.9	7.4	8.4	11.7	9.5	10.0	16.0	21.9	26.9	39.6	46.8	57.8	69.3
% growth y-o-y	16.7%	31.1%	51.7%	3.8%	31.3%	85.7%	38.4%	35.7%	99.6%	37.1%	22.9%	47.0%	18.2%	23.4%	20.0%
Cost of Revenue	**15.6**	**15.6**	**18.0**	**20.6**	**22.3**	**26.0**	**27.6**	**28.4**	**43.8**	**52.3**	**69.9**	**104.3**	**124.3**	**158.0**	**196.2**
% growth y-o-y	28.7%	21.1%	39.0%	44.2%	43.4%	66.2%	53.1%	37.7%	NA	19.3%	33.6%	49.3%	19.2%	27.1%	24.2%
% of revenue	27.6%	25.4%	26.7%	27.5%	27.4%	27.3%	28.7%	28.4%	32.8%	28.0%	26.8%	28.0%	26.0%	25.2%	24.4%
Gross Profit	**40.8**	**46.0**	**49.4**	**54.3**	**59.0**	**69.2**	**68.7**	**71.4**	**89.9**	**134.5**	**190.5**	**268.3**	**353.4**	**468.5**	**606.9**
% growth y-o-y	40.4%	45.5%	43.8%	37.6%	44.7%	50.3%	38.9%	31.6%	NA	49.5%	41.7%	40.8%	31.7%	32.6%	29.5%
% margin	72.4%	74.6%	73.3%	72.5%	72.6%	72.7%	71.3%	71.6%	67.2%	72.0%	73.2%	72.0%	74.0%	74.8%	75.6%
Sales and Marketing	21.4	22.5	21.3	23.9	27.8	32.1	31.2	33.7	65.4	79.6	89.0	124.8	166.1	213.0	268.8
% growth y-o-y	12.2%	5.6%	6.4%	24.2%	29.7%	42.9%	46.7%	41.0%	NA	21.7%	11.8%	40.1%	33.1%	28.2%	26.2%
% of revenue	38.0%	36.4%	31.5%	31.9%	34.1%	33.8%	32.4%	33.8%	48.9%	42.6%	34.2%	33.5%	34.8%	34.0%	33.5%
Research and Development	10.7	10.5	13.0	15.6	17.0	18.3	19.0	20.8	28.5	37.6	49.8	75.1	93.2	111.2	140.5
% growth y-o-y	32.9%	15.3%	38.5%	40.7%	59.2%	74.9%	45.8%	33.1%	NA	32.0%	32.3%	50.8%	24.1%	19.3%	26.4%
% of revenue	18.9%	17.0%	19.3%	20.9%	20.9%	19.2%	19.7%	20.8%	21.3%	20.1%	19.1%	20.1%	19.5%	17.7%	17.5%
General and Administrative	8.4	9.1	9.4	12.4	12.1	13.9	13.5	16.5	20.9	29.1	39.2	56.0	62.7	68.9	88.3
% growth y-o-y	28.1%	29.1%	28.1%	51.0%	43.7%	53.7%	44.3%	33.1%	NA	39.4%	34.8%	42.8%	11.8%	10.0%	28.2%
% of revenue	14.9%	14.7%	13.9%	16.6%	14.9%	14.6%	14.0%	16.5%	15.6%	15.6%	15.1%	15.0%	13.1%	11.0%	11.0%
Total Operating Expenses	**40.5**	**42.0**	**43.7**	**51.9**	**56.8**	**64.3**	**63.7**	**71.0**	**114.8**	**146.3**	**178.0**	**255.9**	**321.9**	**393.1**	**497.7**
% growth y-o-y	20.2%	12.3%	18.9%	34.6%	40.4%	53.2%	45.9%	36.7%		27.4%	21.7%	43.7%	25.8%	22.1%	26.6%
% of revenue	71.8%	68.1%	64.7%	69.3%	69.9%	67.6%	66.2%	71.1%	85.8%	78.3%	68.4%	68.7%	67.4%	62.7%	62.0%
Operating Income	**0.3**	**4.0**	**5.8**	**2.4**	**2.2**	**4.8**	**5.0**	**0.4**	**-24.9**	**-11.8**	**12.5**	**12.4**	**31.5**	**75.4**	**109.1**
% growth y-o-y	NA	NA	NA	166.6%	591.2%	19.7%	-13.9%	-81.8%	NA	NA	NA	-0.5%	153.7%	139.6%	44.7%
% margin	0.6%	6.5%	8.5%	3.1%	2.7%	5.1%	5.2%	0.4%	-18.6%	-6.3%	4.8%	3.3%	6.6%	12.0%	13.6%
Net Income	**-0.5**	**3.3**	**5.5**	**3.4**	**2.1**	**5.3**	**4.5**	**1.1**	**-27.1**	**-11.4**	**11.6**	**13.0**	**26.6**	**59.6**	**84.9**
% growth y-o-y	NA	NA	NA	146.1%	NA	61.0%	-18.0%	-68.0%	NA	NA	NA	12.1%	105.1%	123.8%	42.5%
% margin	-1.0%	5.3%	8.1%	4.5%	2.6%	5.6%	4.6%	1.1%	-20.2%	-6.1%	4.4%	3.5%	5.6%	9.5%	10.6%
EPS - Basic	($0.01)	$0.06	$0.09	$0.06	$0.03	$0.09	$0.07	$0.02	($1.36)	($0.21)	$0.20	$0.21	$0.39	$0.81	$1.08
% growth y-o-y	NA	NA	NA	125.8%	NA	47.8%	-25.9%	-70.9%	NA	NA	NA	2.3%	89.0%	108.6%	33.4%
EPS - Diluted	**($0.01)**	**$0.05**	**$0.08**	**$0.05**	**$0.03**	**$0.07**	**$0.06**	**$0.01**	**($1.36)**	**($0.21)**	**$0.18**	**$0.18**	**$0.35**	**$0.73**	**$0.98**
% growth y-o-y	NA	NA	NA	130.6%	NA	50.3%	-22.3%	-70.9%	NA	NA	NA	1.0%	90.6%	110.1%	34.2%

Source: Citi Research, Company Reports

Below we provider on cash flow and balance sheets. We'd note that COUP has pursued acquisitions in the past including spending >$200mm so far in FY2020. While we build cash on the balance sheet, we would not be surprised if the company utilized cash to fund acquisitions going forward.

Figure 61. COUP Model Cash Flow Statement

Cash Flow Statement	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Net Income	**(37.6)**	**(43.8)**	**(55.5)**	**(63.9)**	**(43.6)**	**(27.9)**	**(21.2)**	**10.7**	**62.0**	**112.7**
Depreciation and Amortization	4.6	7.6	10.4	25.9	29.2	30.0	30.8	31.6	32.4	33.2
Amortization of debt discount and issuance	0.0	0.0	11.6	11.7	0.0	0.0	0.0	0.0	0.0	0.0
Stock-based compensation	9.5	29.7	52.9	76.8	93.7	116.6	141.4	165.8	186.3	205.1
Deferred income taxes, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred commission	(3.1)	(0.7)	(3.6)	(3.1)	(3.2)	(4.2)	(5.0)	(5.6)	(5.6)	(6.0)
Other	5.0	4.5	4.5	(4.1)	(4.0)	0.0	0.0	0.0	0.0	0.0
Net change in working capital	(2.4)	21.8	13.5	(5.7)	33.5	54.3	74.3	82.9	85.5	94.3
Accounts receivable	(20.0)	(10.7)	(28.5)	(43.6)	(41.8)	(59.1)	(59.1)	(61.2)	(55.9)	(55.5)
Prepaid expenses	(4.6)	(0.4)	0.4	(3.3)	(1.9)	(4.7)	(5.2)	(4.8)	(4.0)	(3.8)
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other assets	(1.1)	(0.6)	(3.4)	(0.8)	0.0	0.0	0.0	0.0	0.0	0.0
Deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accounts payable	0.2	(4.0)	3.2	0.8	1.0	2.5	2.8	2.5	2.1	2.0
Income taxes, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued expenses	0.0	0.0	0.0	6.9	7.8	18.9	21.1	19.4	16.4	15.2
Accrued other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred revenue	25.9	36.1	45.8	54.9	68.3	96.7	114.7	126.9	127.0	136.5
Accrued expenses, LT Deferred Comp, and other c	(2.7)	1.5	(3.9)	(20.6)	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Flow from Operations	**(21.0)**	**19.8**	**37.4**	**43.7**	**105.5**	**168.8**	**220.3**	**285.4**	**360.7**	**439.3**
Property and equipment	(4.5)	(4.5)	(7.5)	(12.6)	(16.7)	(21.9)	(28.1)	(34.9)	(41.8)	(49.1)
Cash paid for acquisition, net of cash acquired	(6.8)	(46.1)	(143.9)	(210.5)	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of short-term investments	0.0	0.0	(302.9)	(259.0)	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from maturities of short-term investments	0.0	0.0	124.1	244.1	0.0	0.0	0.0	0.0	0.0	0.0
Net change in funds held for clients	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capitalized software costs										
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Investing Activities	**(11.2)**	**(50.5)**	**(330.2)**	**(237.9)**	**(16.7)**	**(21.9)**	**(28.1)**	**(34.9)**	**(41.8)**	**(49.1)**
Long-term debt	0.0	0.0	0.0	786.6	0.0	0.0	0.0	0.0	0.0	0.0
Repurchases of common stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from stock options	4.3	12.5	13.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from issuance of common stock for empl	137.3	29.1	8.8	5.4	0.0	0.0	0.0	0.0	0.0	0.0
Withholding taxes paid related to net share settlem	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net change in client funds obligation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	200.4	(0.6)	(118.7)	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Financing Activities	**141.6**	**241.9**	**21.1**	**684.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
FX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Change in Cash	109.4	211.2	(271.7)	489.9	88.8	146.8	192.2	250.4	319.0	390.2
Starting Cash	92.3	201.7	412.9	141.3	631.2	720.0	866.9	1,059.0	1,309.5	1,628.4
Restricted cash	0.0	0.0	0.1	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0
Ending Cash	201.7	412.9	141.3	631.2	720.0	866.9	1,059.0	1,309.5	1,628.4	2,018.6

Source: Citi Research, Company Reports

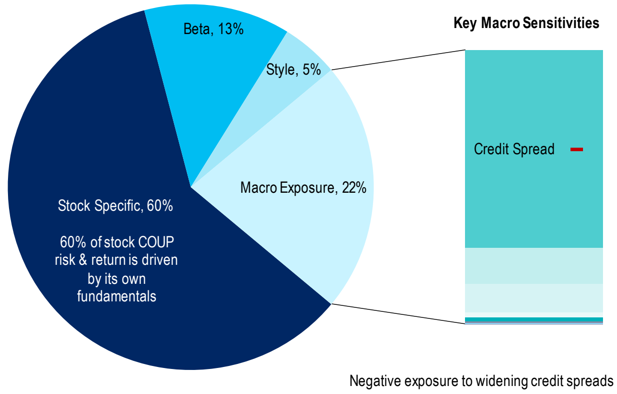
Figure 62. COUP Model Balance Sheet

Balance Sheet	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Cash and Cash Equivalents	201.7	412.9	141.3	631.2	720.0	866.8	1,059.0	1,309.4	1,628.4	2,018.6
Marketable Securities	0.0	0.0	180.2	194.3	194.3	194.3	194.3	194.3	194.3	194.3
Accounts receivable	47.6	61.4	95.3	148.0	189.8	248.9	308.0	369.2	425.1	480.7
Prepaid expenses	9.2	11.0	10.3	15.4	17.3	22.0	27.2	32.0	36.1	39.8
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred commission (Current)	3.1	3.8	7.3	10.4	13.6	17.8	22.9	28.4	34.0	40.0
Deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Assets	**261.6**	**489.0**	**434.4**	**999.2**	**1,135.0**	**1,349.8**	**1,611.4**	1,933.4	2,317.9	2,773.4
Property and Equipment, net	4.6	5.2	10.5	14.1	16.2	23.2	35.9	55.0	80.6	113.1
Long-term deferred contract costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restricted Cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill	6.3	44.4	209.6	372.3	372.3	372.3	372.3	372.3	372.3	372.3
Intangibles, net	5.8	20.0	55.9	96.1	81.5	66.5	51.1	35.3	19.1	2.5
Deferred commissions	2.9	3.9	18.9	26.9	35.1	46.1	59.0	73.4	87.8	103.2
Derivative asset	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Assets incl Operating Lease	2.6	10.0	10.8	46.6	50.6	50.6	50.6	50.6	50.6	50.6
Total Long-term Assets	**22.3**	**83.5**	**305.7**	**556.0**	**555.7**	**558.6**	**568.9**	586.6	610.3	641.7
Total Assets	**283.9**	**572.5**	**740.1**	**1,555.2**	**1,690.7**	**1,908.5**	**2,180.3**	**2,520.0**	**2,928.2**	**3,415.1**
Accounts Payable	1.2	1.3	5.5	8.2	9.2	11.7	14.4	17.0	19.1	21.1
Income tax payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued Expenses	17.5	26.6	41.8	62.1	70.0	88.8	110.0	129.4	145.8	160.9
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred revenue	89.9	125.7	180.0	238.4	305.7	401.0	514.0	638.9	764.0	898.3
Current portion of long-term debt	0.0	0.0	174.6	180.7	180.7	180.7	180.7	180.7	180.7	180.7
Other current liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current liabilities	**108.5**	**153.7**	**401.9**	**489.4**	**565.6**	**682.2**	**819.1**	**966.0**	**1,109.5**	**1,261.1**
Deferred income tax liabilities, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term deferred revenue	1.0	2.3	2.6	3.7	4.8	6.3	8.0	10.0	11.9	14.0
Net long-term debt, less current portion	0.0	163.0	0.0	544.1	544.1	544.1	544.1	544.1	544.1	544.1
Other long-term liabilities	0.5	12.9	22.3	48.6	56.9	67.8	80.8	95.2	109.5	125.0
Total Long-term Liabilities	**1.4**	**178.2**	**24.9**	**596.5**	**605.8**	**618.2**	**633.0**	**649.3**	**665.6**	**683.1**
Total Liabilities	**110.0**	**331.9**	**426.8**	**1,085.9**	**1,171.4**	**1,300.4**	**1,452.0**	**1,615.3**	**1,775.1**	**1,944.2**
Noncontrolling interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Convertible preferred stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stockholder Equity	173.9	240.5	313.3	469.3	519.3	608.1	728.3	904.8	1,153.1	1,470.9
Total Equity	**173.9**	**240.5**	**313.3**	**469.3**	**519.3**	**608.1**	**728.3**	**904.8**	**1,153.1**	**1,470.9**
Check	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Citi Research

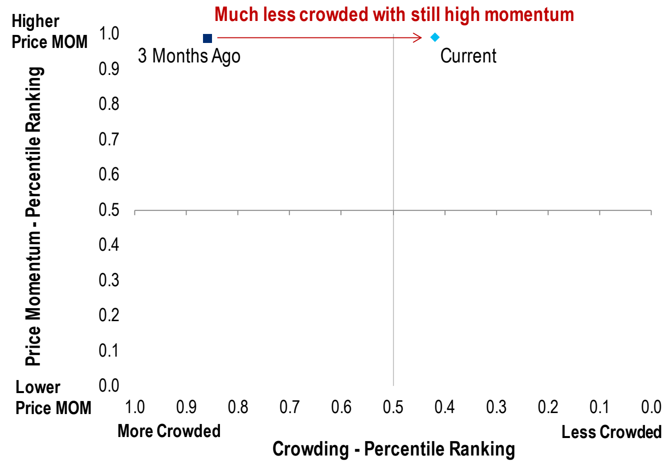
Quant Dashboard

Figure 63. COUP Risk Decomposition



Source: Citi Research

Figure 64. COUP Crowding Analysis



Source: Citi Research

COUP is not considered crowded as it's currently at the 42nd percentile among stocks in the Russell 3000. However, this has declined from the 86th percentile over the past three months. Its lower loading to the most crowded quant factor (Low Beta) is primarily responsible for the crowding score decrease.

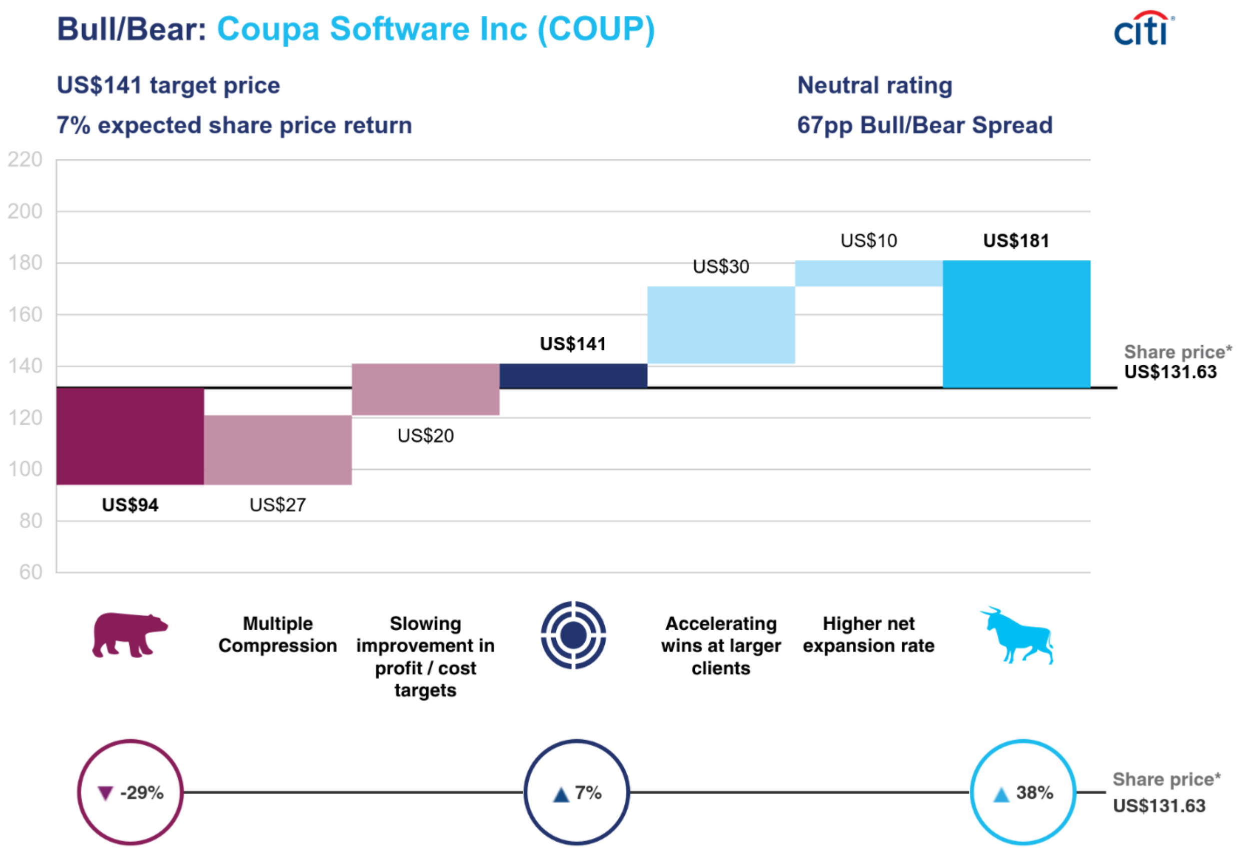
(See Measuring the Crowded Trade in the US: Crowding Exacerbated Market Rotation)

Over the past three months, price momentum in COUP has remained high and is near the upper bound of the broad US stock universe (Figure 64). Our quant research shows that stocks which have outperformed most in the past 12 months tend to outperform again in the near term, hence high Price Momentum is often an attractive attribute for quant investors.

Further risk decomposition (Figure 63) reveals that COUP is moderately exposed to macro factors, with the primary macro exposure being widening credit spreads. Overall, more than half of the risk is idiosyncratic.

(See What Works in Equity Markets: What US RAM model can tell us about Macro and Equity Market)

Bull/Bear: Coupa Software Inc (COUP.O)



Source: Citi Research

*Share price as of 24 Oct 2019 16:00

US$181

- Accelerating large/enterprise client growth
- Net expansion rate moves towards ~120% over time
- Quicker attainment of long-term financial/profit targets

US$141

- Steady pace of client wins into 2021
- Mid-term financial targets mostly hit in the next 18 months

US$94

- Slower attainment of financial targets
- Increased competition as ERP and other back-office focused solution providers make investments in business spend management
- Multiple compression

Company Focus

OpenText (OTEX)

Road Map Clear; On the Hunt for Acquisitions; Assume at Neutral

- **Target Price Change**
- **Estimate Change**

Neutral	
Price (24 Oct 19 16:00)	US$39.88
Target price	US$43.00
from US$38.00	
Market Cap	US$10,768M
Expected share price return	7.8%
Expected dividend yield	1.8%
Expected total return	9.6%

- We are assuming coverage of OpenText Corp (OTEX) from Walter Pritchard, maintaining a Neutral rating but increasing our target price to $43 from $38.
- OTEX is a leader in Enterprise Information Management with key products in content management (create, manage, share, import, and retain documents and data) and business networks (a platform for secure integrated supply chain information management).
- **We are Neutral, but with positive risk/reward bias.** OTEX is generally well positioned in its core markets, but we think it may take some time for some of the more "growth focused" aspects of OTEX's strategy (such as evidence of share gains in G10K clients) to be reflected in the share price.
- Evidence of acceleration in cloud growth or profitability would be supportive for a higher multiple, but we think this is more of a FY2021+ story.
- OTEX is seen as a "defensive" play and software investor sentiment in "value" is low (Alert: Chinks in the software armor? Or just another sentiment scare? - Evolved views of how investors are looking at the sector).
- M&A could "flip the switch" as historically some of the periods of notable outperformance for the shares have been on the heels of acquisitions, which could be a catalyst.
- With a strong balance sheet and macro uncertainty elevated we are biased more positive than negative on the shares over the next 12 months.
- **For Fiscal 1Q20 Preview:** We are generally below consensus. Sales: $701.3mm vs. $705mm consensus. Adj EBITDA $256.6mm vs. $259.4mm. EPS $0.63 vs. $0.63
- **Valuation:** We value OTEX based on 14x FY2021 EPS of $3.03 resulting a target price of $43. This multiple is slightly higher than the long-term average, which reflects our view of uplift from a stronger balance sheet, M&A optionality, and a slowly increasing share of revenues from the cloud

EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons	VA Cons
2019A	0.60A	0.80A	0.64A	0.72A	2.76A	2.76A	2.76A
2020E	**0.63E**	**0.81E**	**0.66E**	**0.74E**	**2.84E**	**2.87E**	**2.83E**
Previous	0.60E	0.80E	0.67E	0.76E	2.83E	na	na
2021E	**0.64E**	**0.89E**	**0.70E**	**0.80E**	**3.03E**	**3.03E**	**3.03E**
Previous	0.66E	0.88E	0.74E	0.82E	3.10E	na	na
2022E	**0.69E**	**0.84E**	**0.75E**	**0.84E**	**3.12E**	**3.13E**	**3.59E**
Previous	na	na	na	na	na	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus. VA Cons: Visible Alpha Consensus. Click here for Visible Alpha consensus data

We are assuming coverage of OpenText Corp (**OTEX**) from Walter Pritchard, maintaining a Neutral rating but increasing our target price to $43 from $38. OTEX is a leader in Enterprise Information Management, helping ~74k clients more efficiently use both structured and unstructured data across its lifecycle with key products in content management, business networks, and business-to-business middle office solutions. OTEX is a more defensive play in software as its key products are typically not core markets for deep-pocketed software competition, and growing slowly (low single digits). Historically, the company has been viewed as an adept consolidator of technologies and an allocator of capital. The company generates ~$600mm of excess cash per year to deploy, predominately through M&A; over the past five years the company has spent ~$4.8B across 13 acquisitions. Recently, management framed an updated strategy, fine-tuning its emphasis on growth. All the levers in focus (expanding global sales force, a pick-up in M&A, re-investing any "upside" in margin back in the business), may take some time to come to fruition and tactically there could be better entry points for the shares. The critical launch of Cloud Editions is coming in calendar 2Q20, and could also be a potential catalyst given the perception that OTEX is lagging peers in launching cloud applications. Our $43 target price is based on 14x FY21 EPS of $3.03, modestly higher than the long-term average forward P/E multiple reflecting a strong balance sheet and faster growth in cloud, while our bull/bear case scenarios point to share prices of $50 and $36, respectively.

Looking Toward M&A to the Drive the "Total Growth" Equation – At its recent analyst day the company stressed that adding global sales resources was the "straightest path" to growth, but we think the "chunkiest" path management has is M&A. Normal progression of OTEX's most recent deals: Liaison (closed Dec 18) and Catalyst (closed Jan 2019), should start to contribute more in FY20 given the typical cadence of OTEX integration (although at a level which is consistent with the outlook for total company organic growth in the low single digits). Recent comments from CEO Barrenechea that: 1) Acquisition pipeline activity has increased; 2) Valuations are not overly demanding; and comments from CFO Ranganathan that 3) The OTEX balance sheet is strong with leverage at ~1.5x the lowest since 2016, all lead us to believe that not only will OTEX step-up in acquisition activity over the next 12-18 months, but it could look at larger transactions (average deal size over the past five years is ~$300-$400mm at an ~2x revenue multiple). The OTEX team is attempting a difficult balance by simultaneously becoming more predictable with M&A (so that investors will "give more credit" to OTEX's topline growth outlook), but hold true to their roots of sustaining strong returns (high teens ROIC). Key target areas for M&A include tuck-ins in content management or business networks, or targets which bring geographic or account expansions which can bolster cross-selling.

"Fit for Growth"…but Tactically Sets-up Better into FY21 – While pivot may be too strong a term, OTEX management has fine-tuned its strategic roadmap for the next few years, focused on boosting organic growth, re-engaging its acquisition pipeline (where OTEX's "self-reported" activity has picked up), and driving ~150 bps of margin upside (predominately in its cloud business, where the company sees margins lifting from high 50% range to mid-60% as the business scales). The path management is targeting is clear, and now focus is on execution. In our view, most of the core pillars of OTEX's updated financial roadmap will take some time to come to fruition. For organic growth, the company is boosting hiring of account execs outside of the US to cover more of the global 10k largest companies (only 20% penetrated today with a goal to double coverage by 2022 between self-funded expansion and partners), and it could take a few quarters before investments start to move the needle. Organic and recurring revenue growth in FY20 are expected to be ~3% and ~5%, respectively. Similarly, past pricing actions are expected to be tailwind entering FY21. Regarding margins, the company sounds confident that it can hit (or even exceed) the top end of its 38-40% EBITDA margin aspiration, although the opportunity to create additional equity value from improving already “best in the class” profitability seems modest to us. More important will be evidence that incremental dollars re-invested back in the business once OTEX “maxes out” margins are actually lifting topline growth. Success on all these measures could lead to favorable momentum for the business into the next fiscal year and tactically there may be better entry points into the shares to play these catalysts which could take 12-18+ months to play out.

Positioning for Hybrid Cloud/On-Prem World – From a product standpoint, OTEX is very strong in its core markets of content management of business networks (information sharing for digital supply chains), and is investing in its solutions for security, analytics, and other vertical applications. OTEX is shifting more to the cloud and developing more native SaaS applications. Strategically we think the company expects that some of its customers will not transition to the cloud soon, and some of our channel checks have supported this hypothesis. License revenue (~15% of the company) is likely to be flat this year, while cloud revenue is expected to increase at a high single digit percentage (~33% of sales). In 2Q20 OTEX will launch Cloud Editions, the cloud-first relaunch of OTEX’s flagship service which will update OTEX’s offering for content services, business networks, Magellan (OTEX’s AI/ML analytics suite), EnCase (security), and OTEX’s Core applications (these are native SaaS applications). Built on OTEX’s next-gen OT2 platform (SaaS), initial milestones of the launch may provide some insight into the longer-term positioning of the company. OTEX has a very strong relationship with SAP and recently expanded partnership with Google for Google Cloud to be the preferred vendor for public cloud deployments.

Stock View: Neutral, but Positive Risk/Reward Bias – OTEX is generally well positioned in its core markets, but we think it may take some time for some of the more “growth focused” aspects of OTEX’s strategy (such as evidence of share gains in G10K clients) to be more reflected in the share price. Evidence of acceleration in cloud growth or profitability would be supportive for a higher multiple, but we think this is more of a FY2021+ story. M&A could “flip the switch” as historically some of the periods of notable outperformance for the shares have been on the heels of acquisitions, which could be a catalyst. With a strong balance sheet and macro uncertainty elevated we are biased more positive than negative on the shares over the next 12 months.

Fiscal 1Q20 Preview

OTEX will report 1Q20 results after the market close on October 31. Our revenue and profit estimates for the quarter are below consensus. Our forecast is for ~$701mm of revenue, ~$243mm of Cloud revenue (~17% Y/Y), adjusted EBITDA of ~$257mm and an EBITDA margin of 36.6% (down ~140bps Q/Q).

Figure 65. OTEX 1Q20 Preview Cheat Sheet

	FY1Q20 Estimates Citi	FY1Q20 Estimates Consensus	Actual FY1Q19	Actual FY4Q19	Quarterly Factor Notes	Variance Citi vs. Cons $	Variance Citi vs. Cons %/bps
Total Revenue	**701.3**	**705.0**	**667.2**	**747.2**	**FX headwind ~$12mm**	**(3.7)**	**-0.5%**
% growth y-o-y	5.1%	5.7%					
License	78.4	79.0	76.9	119.7		(0.6)	-0.8%
% growth y-o-y	*2.0%*	*2.7%*					
Cloud Services & Subs	242.5	244.0	208.1	241.9			
% growth y-o-y	*16.5%*	*17.3%*					
Customer Support	311.9	314.0	311.6	315.2			
% growth y-o-y	*0.1%*	*0.8%*					
Pro Services	68.5	70.0	70.6	70.4			
% growth y-o-y	*-3.0%*	*-0.9%*					
Adjusted EBITDA	**256.6**	**259.4**	**246.3**	**283.8**	**Down 100-150bps Q/Q**	**(2.8)**	**-1.1%**
% margin	36.6%	36.8%	36.9%	38.0%			-21 bps
EPS	$0.63	$0.63	$0.60	$0.72		0.0	0.3%
% growth y-o-y	5.5%	5.1%					
FCF (OCF-Capex)	149.3	138.2	176.6	244.6		11.1	8.0%
% growth y-o-y	-15.5%	-21.8%					

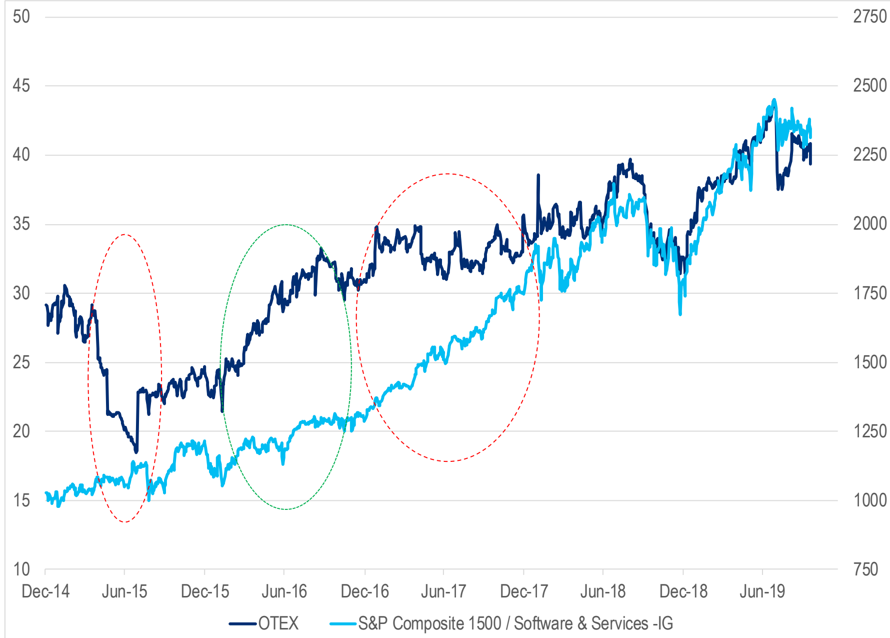
Source: Citi Research, Company Reports, FactSet

Management has been quite visible over the past few months, including its analyst day in early September. We see key themes for the report and call including: 1) Any update on M&A, which was a strong focus at the company's analyst day; 2) Macro trends, as the company has been transparent about some of customer uncertainty they have seen over the past couple of quarters, and that does not appear to be abating in our view; 3) Tracking on the company's outlook for high-single digit growth in the Cloud business for FY20. Commentary on margin trends are also likely to be important, given management's past comments about potential upside (or re-investing upside back in the business). Long-term, the math to 40%+EBITDA margins seems a few year away barring a rapid acceleration in gross margins in 2021+.

When Do OTEX Shares Out/Underperform

Over the past four years there have been four instances which OTEX shares have meaningfully over / under-performed the broader software group over an extended period. A quick detour towards history is helpful for thinking about how the shares could trade under a number of scenarios.

Figure 66. OTEX Share Price (Left axis) vs. S&P Software & Services



Source: Citi Research, FactSet

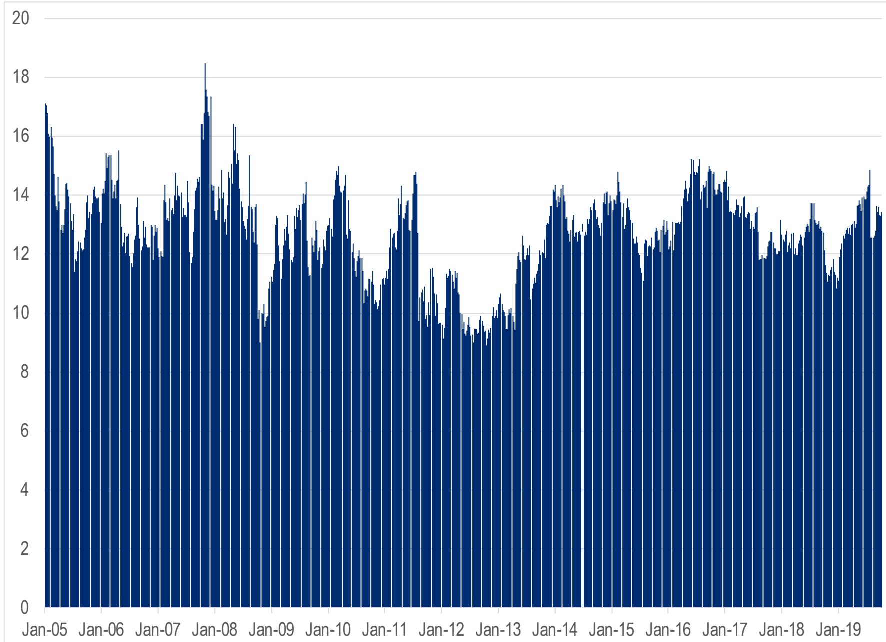
Since 2015 clearest period of outperformance for OTEX shares was in 2016 as the company embarked an acquisition spree, announcing the purchase of CCM assets from HP (Customer Experience Management), ANXeBusiness Corp (Business Network), Recommind (Discovery), and Documentum (Content Management). From January 1 2016 to the end of September 2016, OTEX share price grew 28%, 2x the return for the broader software sector. Across these four transaction OTEX spent nearly $2.2B to acquire ~$800mm of revenues (prior to purchase accounting adjustments). Not only did this one year period account for ~46% of all M&A activity over the five-year look-back period, we think the 1Q16 market sell-off likely put OTEX in a strong position as it closed the first wave of these deals, supporting overall returns. In our view, the highest probability of driving equity value creation for OTEX over the next 12-18 months is a repeat of these circumstances, and with a strong balance sheet today management should have dry powder to deploy.

On the flip side, there have been two periods of meaningful under-performance for OTEX shares – mid-2015 and mid-2017. For the former, the company reported two back-to-back quarters, reflecting FX headwinds, a tough selling environment (Europe), and few one-time items. In 2017, the company was again hurt by FX and some volatility around the Documentum integration and restructuring. In both cases the shares were put “into the penalty box” for about two quarters.

Valuation

We value OTEX based on forward P/E. We think this methodology is appropriate given the maturity of the company’s business model and its 20+ years as a public company. As shown below, over the past ~15 years OTEX forward P/E has ranged from the mid-teens to roughly 10x.

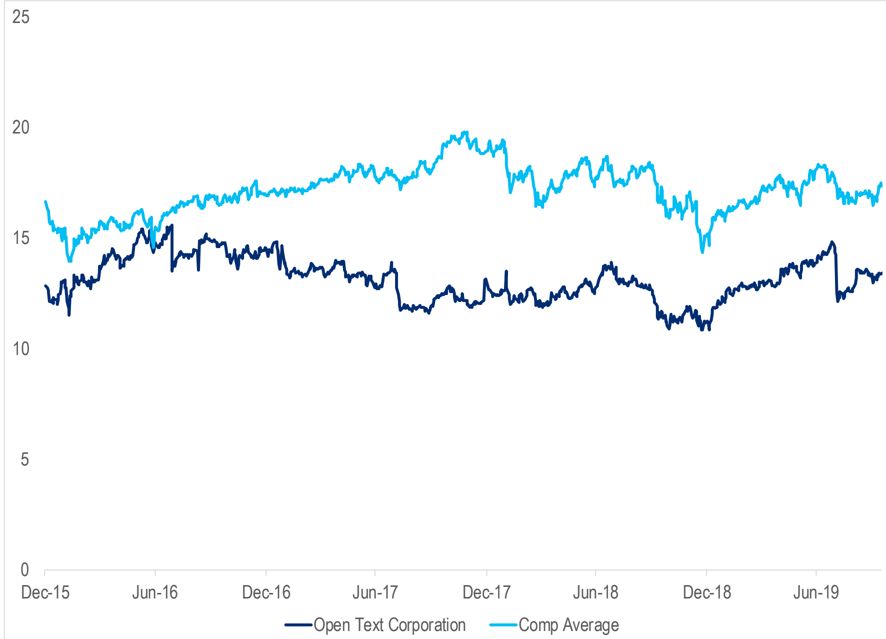
Figure 67. OTEX Long-term Forward P/E Valuation Multiple



Source: Citi Research, FactSet

Interestingly, OTEX's valuation multiple held up relatively well at the start of the financial crisis (the big dip in the chart above didn't take place until late 2008, nearly a year into the financial crisis), while revenue growth slowed in calendar 2008, 2009 and 2010, it was a relatively modest deceleration from the mid-teens to the high single digits. While OTEX's business has undoubtedly changed during the subsequent decade, the core focus on content and information management has not. The relative stability of the multiple and modest deceleration revenue growth suggest to us that in a period of future macro volatility OTEX shares should hold up better than the group average.

Figure 68. Forward P/E Valuation Multiples



Source: Citi Research, FactSet.

Over the past few years, OTEX has traded between 12x and 15x forward P/E, with an average near 13.2x. As shown above, relative to the comp group, OTEX has traded at a roughly 4x discount on a forward P/E basis during this period, a spread which has been relatively consistent this year, but narrower than the peak spread of 6-7x seen during 2H17 when OTEX shares massively underperformed the group (see: Figure 66). Comps in this group include: Constellation Software, J2 Global, Adobe, Citrix, IBM, Microsoft, Oracle and SAP.

We value OTEX based on 14x FY2021 EPS of $3.03. This multiple is slightly higher than the long-term average, which reflects our view of uplift from a stronger balance sheet, M&A optionality, and a slowly increasing share of revenues from cloud (management targeting ~33% of revenues in FY20 vs. 31.6% in FY19), supportive of the company's scaling efforts. To sensitize our valuation, a 1x change in the P/E ratio results in ~$3 of share price difference, while a 10% change in EPS is ~$4 per share of value.

Risks

Potential Upside Risks to our Target Price:

Future M&A – If OTEX is able to acquire quality assets at reasonable valuations, there is upside risk to our valuation / rating. As OTEX has grown, larger transactions may be needed to "move the needle", inheriting increasing the risk.

Improving Organic Growth – More consumption of cloud deployment will result in higher quality revenue (as more recurring). Our model assumes relatively low organic growth as this shift occurs, and sustained acceleration could result in multiple re-rating.

Potential Downside Risks to our Target Price:

Impact of license vs. cloud – OTEX is making a push into the cloud, which accounts for about a third of revenues. The gross margin profile of cloud is significantly lower – high-50% vs. high-90% range for license. As OTEX revenues shift more towards cloud there is risk that OTEX is unable to offset the dilutive impact through greater efficiency/margin.

Cost Improvements Slow – Management has managed expenses well over the past few years, reducing S&M from ~20% of sales to ~18%, and G&A from ~8.5% to ~7%. Our model assumes some further improvement here, especially in G&A over the coming years, but this could be challenging to sustain in a tight market for talent.

Sizing the M&A Opportunity

OTEX has been a serial acquirer of assets. Over the past five years it has deployed $4.8B on acquisitions at an average multiple of 2.1x, returning on average high teens ROIC. Below we highlight the recent transaction history, noting that Liaison is the business to watch into fiscal 2020. Liaison is an integration software which facilitates app-to-app connections. When OTEX purchased the company they had ~10k standard integrations across ERP, HCM, and supply chain applications. The company was the #3 player in this space, behind leader Mulesoft (Salesforce).

Figure 69. OTEX Selected Acquisitions

Acquisition	Purchase Price (mm)	Acquired Revenues (mm)	Date (announced)	Date (closing)	Associated Line(s) of Business
Actuate	330	100	December 4, 2014	January 16, 2015	Analytics
Daegis	14	20	October 8, 2015	November 23, 2015	Specialty Technologies
ANXeBusiness Corp	100	30	April 27, 2016	May 1, 2016	Opentext Business Network
Recommind	163	75	June 2, 2016	July 20, 2016	Discovery
HP CCM	315	118	June 20, 2016	August 1, 2016	Customer Experience Management
Documentum, ECD	1,620	599	September 12, 2016	January 23, 2017	Enterprise Content Management
Covisint	103	70	June 5, 2017	July 26th, 2017	Business Network
Guidance Software	240	100	July 26, 2017	September, 2017	Enterprice Content Management
Hightail	20	ND	February 14, 2018	February 14, 2018	Enterprice Content Management
Liaison	310	100	October 31, 2018	December 17, 2018	Business Network
Catalyst	75	45	January 31, 2019	January 31, 2019	Discovery

Source: Citi Research, Company Reports

OTEX today has significant M&A capacity, potentially the most since 2016. Below we provider two indicative scenarios of acquisition "firepower". First on the left, we show that OTEX has >$1B available in 2020 just by deploying excess cash on the balance sheet and cash generated from operations (less capex and dividend). At a ~2x average multiple this could fund one relatively large acquisition or several medium sized acquisitions (like Liaison or Actuate). On the right, we show the capacity for OTEX to attempt something transformational in M&A – using all excess cash, all the cash flow expected to be generated in 2020, and lifting leverage from 1.5x today to 3.0x post the transaction. In this scenario, assuming OTEX acquires a relatively low amount of EBITDA (consistent with paying relatively low multiples), we think the potential total firepower for acquisitions could surpass $2.5B, which would allow the company to do something major of the likes of Documentum. Note that all estimates here come before any purchasing accounting treatment.

Figure 70. OTEX M&A "Firepower" Scenarios

Self Funded		Notes	Self Funded + Max Leverage		Notes
Cash	941	FY4Q19	Gross Debt	2,615	4Q19
Required Cash	(500)	Citi estimate	Required Cash	(500)	Citi estimate
Total Cash to Deploy on M&A	**441**		PF Net Debt	2,115	Assumes all excess cash and cash flow used for M&A
Cash Flows	**2020F**		**EBITDA**	**2020F**	
Cash from Operations	891	Citi estimate	OTEX EBITDA	1,130	2020 Citi estimate
Capex	(66)	Citi estimate	Incremental EBITDA from M&A	60	
Dividend	(198)	Citi estimate	**PF EBITDA**	**1,190**	
Total	**627**		Net Leverage Ceiling	3.0	Peak from FY17
Total "Self Funded" in 2020	**1,068**	Excludes new debt	Calculated "Max" Net Debt	3,571	Leverage celing x PF EBITDA
			Incremental Total Debt Capacity	1,456	
			Total M&A "Firepower"	**2,524**	**Incremental Debt + total Self Funded**
Indicitive Target Financials			**Indicitive Target Financials**		
Acquisition Multiple (EV/sales)	2.1	Long-term OTEX avg paid	Acquisition Multiple (EV/sales)	2.1	Long-term OTEX avg paid
Acquired Sales	509		Acquired Sales	1,202	
			EBITDA Margin	5%	Citi Estimate
			Acquired EBITDA	60	

Source: Citi Research, Company Reports

OTEX has a track record of lifting company's they acquire towards company average margins within 12-18 months. So depending on how aggressive the company gets on M&A, there could be an opportunity to add $100mm or more of EBITDA by 2021/22 through acquisitions. We anticipate that any major acquisition will be additive to OTEX's Content Service or Business Network suite, or provide market access to an underserved vertical or country.

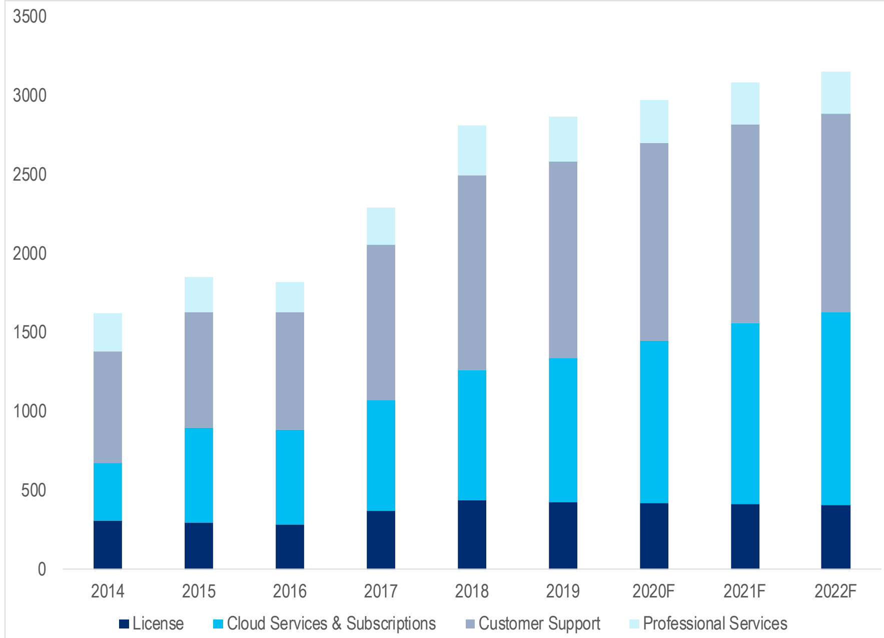
Financial Model Review

Below we provide some highlights from our financial model. Starting this revenues, OTEX reports in four categories:

- **License** – "Traditional" software licenses are included in this bucket
- **Cloud Services and Support** – A variety of products/types flow through this line item, including OTEX's SaaS offerings, hosted services, and managed services. This segment accounts for majority of OTEX's topline growth
- **Customer Support** – This are revenues tied to customer success, from first-year support when a client first purchases an OTEX product to ongoing revenues so customers can access OTEX tech support, knowledge base, and general troubleshooting.
- **Professional Services** – Consulting and training revenue.

At a high level, License revenue has been losing share to the cloud, but at a relatively slow pace. In 2014 license revenue was 19% of the business and we expect that to drop to 13% by 2022. This gradual shift is core to OTEX's strategy to allow customers to deploy solutions in a way which they prefer. Further, license revenues are far more profitable (~97% margin) vs. cloud (~58% margin, moving towards the low-60% over time) The company believes that long-term customers may still favor licenses vs. cloud subscription since license terms are move favorable if you own a license for more than 42 months. OTEX continues to see a hybrid world of cloud and on-premise, but we think this license business drops low single digits, on average, over the forecast period.

Figure 71. OTEX Revenue Mix ($ mm)



Source: Citi Research, Company Reports

We anticipate Cloud revenues growing from ~32% of sales to nearly 39% of sales by 2022, implying ~10% CAGR growth through 2022. Our working assumption is that cloud business will accelerate in fiscal 2021/22, given momentum in cloud growth broadly, and the launch of new SaaS applications for OTEX specifically. Our 2021 revenue outlook of $3.09B is slightly ahead of consensus due to this dynamic. We assume a ~95% renewal rate for OTEX's Cloud business.

For Customer Support, we assume very modest growth over the forecast period with grow less than 1% per year, on average. Finally, we anticipate Professional services revenue will decline at about a 2% rate over the next few years.

Turning to margins, the biggest opportunity (and challenge) for OTEX is navigating the transition from license to subscription. License revenue has gross margins near ~97% while cloud margins are ~58%. Management has made the case that as they scale the cloud business, margins should surpass 60% and cloud eventually approach the mid-60% range. Cloud gross margins in 2020 was anticipated to be relatively flat Y/Y, and we think this margin improvement potential is more of a 2021 story following the launch of Cloud Editions. Our working assumption is that margins for License, Customer Support and Professional Services are roughly stable over the forecast horizon, while gross margins for Cloud improve from ~58% to ~62% by 2022.

OTEX is already a very profitable company with EBITDA margins north of 38%. We anticipating stable spending patterns for sales & marketing, R&D and G&A over the next few years. Thus the improvement in cloud margins results in about 80bps of EBITDA margin expansion to just above 39% by 2022. We think OTEX could work to lever some of these expenses, mostly G&A.

Pulling it all together, below we provide our model income statement. Our FY19 EPS estimate of $2.86 is slightly below consensus, while our estimates are close to consensus.

Figure 72. OTEX Model Income Statement

Income Statement	F15A	F16A	F17A	F18A	F19A	F20E	F21E	F22E
License	294	284	369	438	428	424	415	407
Cloud Services & Subscriptions	605	601	705	829	908	1,027	1,146	1,220
Customer support	732	746	981	1,233	1,248	1,251	1,256	1,262
Pro Serv / Other	221	193	235	316	285	276	271	265
Total revenue	**1,852**	**1,824**	**2,291**	**2,815**	**2,869**	**2,978**	**3,089**	**3,155**
% Y/Y	14.0%	-1.5%	25.6%	22.9%	1.9%	3.8%	3.7%	2.1%
% Y/Y CC	19.2%	2.8%	27.0%	19.7%	3.7%	4.1%	3.7%	2.1%
COGS								
Total cost of revenues	(514)	(496)	(628)	(761)	(743)	(784)	(811)	(818)
Gross profit	**1,338**	**1,328**	**1,663**	**2,054**	**2,125**	**2,194**	**2,277**	**2,337**
Gross margin %	72.2%	72.8%	72.6%	73.0%	74.1%	73.7%	73.7%	74.1%
GAAP expenses								
Operating Expenses								
Research and development	(194)	(191)	(275)	**(317.8)**	**(316.8)**	(329.6)	(339.8)	(347.1)
Y/Y (%)	11.2%	-1.4%	43.6%	15.8%	-0.3%	4.0%	3.1%	2.1%
% of revenue	10.5%	10.5%	12.0%	**11.3%**	**11.0%**	11.1%	11.0%	11.0%
Sales and Marketing	(365)	(332)	(435)	**(520.2)**	**(510.2)**	(528.0)	(546.0)	(559.8)
% of revenue	19.7%	18.2%	19.0%	**18.5%**	**17.8%**	**17.7%**	**17.7%**	**17.7%**
Y/Y change	7.7%	-8.9%	31.0%	19.5%	-1.9%	3.5%	3.4%	2.5%
Fixed Marketing and sales	(179)	(150)	(206)	(239)	(223)	(230)	(237)	(244)
Y/Y change	2.0%	-16.5%	37.6%	15.8%	-6.4%	3.1%	3.0%	3.0%
Variable Marketing and sales	(185)	(182)	(229)	(282)	(287)	(298)	(309)	(316)
% of revenue	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
General and administrative	(155.3)	(132.8)	(160.5)	**(197.1)**	**(198.0)**	(205.9)	(193.0)	(197.3)
Y/Y (%)	15.7%	-14.5%	20.9%	22.8%	0.4%	4.0%	-6.3%	2.2%
% of revenue	8.4%	7.3%	7.0%	**7.0%**	**6.9%**	6.9%	6.2%	6.3%
Depreciation	(51)	(55)	(64)	**(87)**	**(98)**	(90)	(85)	(79)
Y/Y (%)	44.5%	7.9%	17.1%	35.2%	12.4%	-7.9%	-5.9%	-7.2%
% of revenue	2.7%	3.0%	2.8%	**3.1%**	**3.4%**	3.0%	2.7%	2.5%
Total operating expenses	(765)	(711)	(935)	(1,122)	(1,123)	(1,154)	(1,163)	(1,183)
Y/Y (%)	12%	-7%	31%	20%	0%	3%	1%	2%
Operating income	**573**	**617**	**728**	**932**	**1,003**	**1,040**	**1,114**	**1,154**
% of revenue	30.9%	33.8%	31.8%	33.1%	34.9%	34.9%	36.1%	36.6%
Y/Y change	14.0%	7.7%	18.1%	28.0%	7.6%	3.8%	7.1%	3.6%
Q/Q change								
Total other income	(54.6)	(76.4)	(119.1)	(137.3)	(136.6)	(140.9)	(140.5)	(140.1)
Pre-tax income	518	540	609	795	866	899	973	1,014
Income taxes	(93)	(108)	(91)	(111)	(121)	(126)	(136)	(142)
Tax rate %	18%	20%	15.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Net income	**425**	**432**	**518**	**684**	**745**	**774**	**837**	**872**
Non-controlling interest	(0.079)	(0.018)	(0.256)	(0.076)	(0.136)	(0.106)	(0.121)	(0.114)
Net income to common shareholders (reported)	425	432	518	684	745	773	837	872
Basic shares outstanding (avg)	244	243	254.0	266	269	271	275	278
Diluted shares outstanding (avg)	246	244	255.9	267	270	273	276	279
Diluted earnings per share	**$1.73**	**$1.77**	**$2.02**	**$2.56**	**$2.76**	**$2.84**	**$3.03**	**$3.12**
Y/Y change	2.5%	2.5%	14.0%	26.6%	7.9%	2.8%	6.9%	2.9%
Seasonality								
Average								
Quarterly share dilution								
GAAP income statement								
Diluted GAAP EPS	1.0	1.2	4.2	0.9	1.1	1.4	1.6	1.7
EBITDA								
Adj. EBITDA	**624**	**672**	**793**	**1,019**	**1,100**	**1,130**	**1,198**	**1,232**
Y/Y Growth	16%	8%	18%	29%	8%	3%	6%	3%
Adj. EBITDA margin				**36.2%**	**38.4%**	**38.0%**	**38.8%**	**39.1%**

Source: Citi Research

Turning to the cash flow statement and balance sheet, the keep here is financial leverage as OTEX uses its balance sheet for M&A firepower. Net leverage has dropped from 1.9x at the end of fiscal 2018 to 1.5x at the end of fiscal 2019 and a cycle peak of ~3x in 2017. While our model builds cash on the balance sheet (hence further lowering leverage in the forecast period), in actuality, we anticipate that it will be used for M&A and another step down in leverage is unlikely to be sustained. Beyond M&A, which is by far the most likely use of excess cash, OTEX will pay out ~20% of trailing cash flows towards it dividend. A meaningful buyback program seems less likely in the near-term.

Figure 73. OTEX Model Cash Flow Statement

Cash Flow Statement	F15A	F16A	F17A	F18A	F19A	F20E	F21E	F22E
Operating Activities								
Consolidated net income	234	284	1,026	242	285	379	441	470
Depreciation and amortization	240	242	346	457	471	413	403	392
Share-based compensation	22	26	31	28	27	29	32	35
Excess tax benefits from share based comp	(2)	(0)	(2)	0	0	0	0	0
Pension expense	5	5	4	4	5	4	4	4
Amortization of debt issuance costs	5	5	5	5	4	4	4	4
Amortization of deferred charges	11	10	6	4	0	0	0	0
Loss on sale and write-down of PPE / Other	1	1	(3)	(5)	(4)	0	0	0
Deferred taxes	(15)	(54)	(872)	90	47	60	70	70
Change in assets and liabilities:								
Accounts receivable, net	43	9	(127)	(23)	76	(10)	(10)	(10)
Prepaid expenses and other current assets	(4)	0	(8)	(7)	(33)	0	0	0
Income taxes	3	6	(2)	(31)	27	0	0	0
Accounts payable and accrued expenses	(23)	(6)	53	(92)	(22)	(30)	(30)	(30)
Deferred Revenue	7	(5)	3	36	(2)	42	(9)	48
Other / Deferred charges & credits	(5)	2	(23)	3	(5)	0	0	0
Cash flow from operations	523.0	525.7	439	710	**876**	**891**	**905**	**984**
Y/Y growth	25.4%	0.5%	-16.4%	62%	23.4%	1.7%	1.6%	8.7%
OCF Normalized for One-Time Items								
Investing activities								
Capex / Purchases of PPE	(77)	(70)	(80)	(105)	(64)	(66)	(68)	(70)
Proceeds from ST Inv	17	11	9	0	0	0	0	0
Acquisition of business, net of cash	(328)	(293)	(2,115)	**(321)**	(384)	(250)	(250)	(250)
Other	(11)	(9)	(6)	(18)	(17)	0	0	0
Cash flow from investing	(398)	(361)	(2,191.0)	(444.4)	(464.5)	(316.3)	(318.3)	(320.2)
Financing activities								
Excess tax benefits from share based comp	2	0	2	0	0	0	0	0
Issuance of common stock under employee stock purc	15	20	622	76	58	58	58	58
Issuance / Repay of debt	270	592	424	50	(10)	(8)	(8)	(8)
Debt issuance costs	(18)	(7)	(9)	(4)	(0)	0	0	0
Repurchases of common stock and restricted stock	(10)	(76)	(9)	0	(27)	0	0	0
Dividends paid	(88)	(99)	(121)	(146)	(169)	(198)	(230)	(268)
Cash flow from financing	170.605	430.164	909.5	(23.7)	(148.4)	(147.7)	(180.1)	(217.8)
Effect of exchange rate changes	(23)	(11)						
Net increase in cash	272	584	(842)	242	263	427	406	446

Source: Citi Research

Figure 74. OTEX Model Balance Sheet

Balance Sheet	F15A	F16A	F17A	F18A	F19A	F20E	F21E	F22E
Cash and cash equivalents	700	1,284	443	683	941	1,368	1,774	2,220
Short term investments	11	12	0	0	0	0	0	0
Accounts Receivable, net of doubtful	284	286	446	488	485	495	505	515
Income taxes recoverable	21	32	33	56	38	49	46	50
Prepaid expenses, other assets	53	59	82	101	97	97	97	97
Other	0	0	0	0	0	0	0	0
Total current assets	1,070	1,672	1,003	1,328	1,561	2,008	2,423	2,883
Long-term Investments	0	0	0	0	0	0	0	0
Property and equipment	160	184	227	264	249	226	209	201
Goodwill	2,162	2,326	3,417	3,580	3,770	3,778	3,789	3,803
Other purchased intangibles, net	679	646	1,473	1,297	1,162	1,081	1,002	923
Deferred tax assets	182	241	1,216	1,123	1,004	944	874	804
Other assets	55	54	94	111	149	149	149	149
Deferred Charges	37	23	42	38	0	0	0	0
Long-term income taxes recoverable	8	9	9	24	38	38	38	38
Total assets	4,353	5,154	7,481	7,765	7,934	8,224	8,484	8,802
Accounts payable and accrued expenses	241	257	342	302	330	300	270	240
Short-term Debt	8	8	183	10	10	10	10	10
Deferred revenue, current	358	374	570	644	642	681	673	718
Income tax payable	17	32	32	38	33	37	37	39
Other	0	0	0	0	0	0	0	0
Current liabilities	624	671	1,127	995	1,015	1,028	990	1,007
Accrued liabilities	35	30	50	53	49	52	52	54
Deferred Credits	13	8	5	3	0	0	0	0
Pension liability	57	62	59	66	75	79	83	87
Long-term Debt	1,549	2,138	2,387	2,611	2,605	2,597	2,589	2,581
Deferred revenue, non-current	28	37	62	69	47	50	49	53
LT income taxes payable	151	149	162	172	202	194	211	214
Other LT Liabilities	66	79	95	80	56	56	56	56
Total liabilities	2,524	3,175	3,947	4,048	4,049	4,056	4,031	4,052
Shareholder's equity	1,829	1,979	3,532	3,716	3,883	4,167	4,452	4,749
Non-controlling interest	1	1	1	1	1	1	1	1
Total liabilities and shareholder's equity	4,353	5,154	7,481	7,765	7,934	8,224	8,484	8,802
check	-	-	-	-	-	-	-	-

Source: Citi Research

Business Background

Open Text is a software company that provides software products and services that assist organizations in finding, utilizing, and sharing business information from any device. Its products includes enterprise content management, business process management, information exchange / business network, customer experience, and discovery / analytics. The company is focused on selling to the largest 10,000 companies globally, and today has penetration with about 40%. The company was founded on June 26, 1991 and is headquartered in Waterloo, Canada.

Content Services

The “heart and soul” of OTEX businesses are its suite of content management solutions where it is the global leader with nearly 25% market share (IBM is the biggest competitor here). These are applications which help users better create, manage, share, import, and retain documents and data. Core the value proposition in these markets is breaking down information silos between the numerous places within an organization where content is stored – such as ERP, CRM, SCM, and HCM systems, to name but a few. Content services for OTEX was born on prem, and many customers still utilize OTEX in that manner. OTEX is strongest in on-prem, but increasingly customers are looking for options, including managed services (private cloud) or public cloud. Across the platform OTEX has ~2k clients using managed services and ~1k using SaaS. OTEX’s pure SaaS offering in this space are improving, and 2020/21 will be critical years to show development of these applications.

Business Networks

The second largest product suite is OTEX Business Network. Globalization has increased supply chain complexity, and now the ongoing digitization of supply chains is centered on managing supply chains efficiently and increasingly fully harnessing the power of the network. A recent IDC report noted that for large manufacturers more than 50% will have shifted from enterprise-centric supply chain applications to a network approach by 2020. OTEX supports its customers by providing a platform for secur integrated supply chain information management. This includes applications such as trading grid (communicate/share document with supply chain partners), orders, invoices, faxes, and supply chain analytics. A vast majority of OTEX customers access the applications via the cloud, with some users still on-prem or in a private cloud. Scale matters for business networks and OTEX believes it has the largest. Further opportunities here include helping companies build out ethical supply chains.

Other Notable Product Suites

– **Customer Experience Management** – Tools to track customer interactions, including web content management, digital asset management, client communication tools, and analytics, among others. ADBE is an important competitor in this fragmented market.

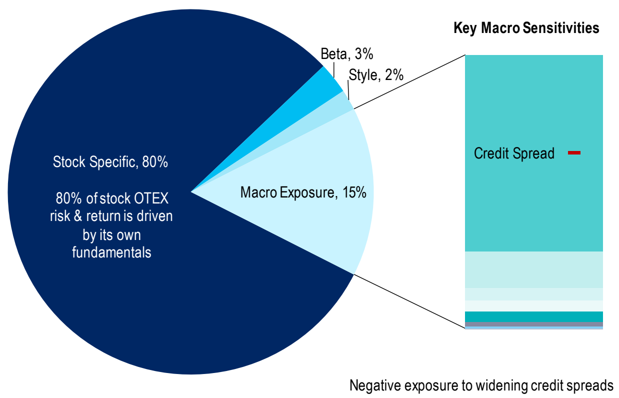
– **eDiscovery** – OTEX provides a variety of solutions for document discovery for litigation, public/private investigations, regulatory requests and compliance. The company has made a few acquisitions in this space over the years, including Recommind and Guidance Software, so it has a number of different offerings.

– **Analytics** – OTEX's AI/analytics solution is called Magellan, which is fully integrated into most of OTEX other product suites, including Content Services and Business Networks.

– **Security** – EnCase, which joined OTEX in 2017 from the Guidance Software purchase, is an endpoint security application used on 40 million endpoints, and by ~75% of the Fortune 100.

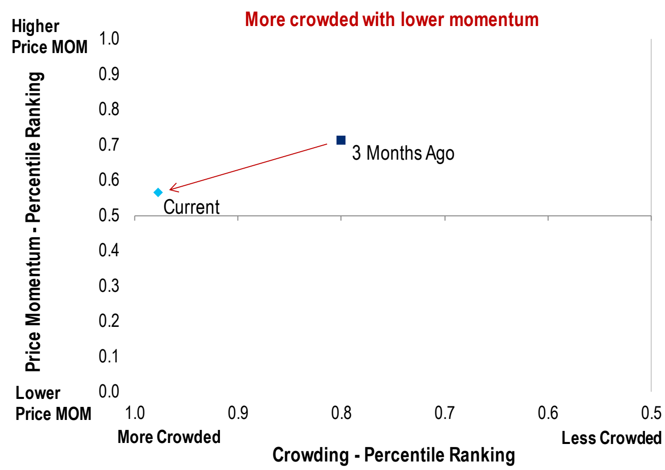
Quant Dashboard

Figure 75. OTEX Risk Decomposition



Source: Citi Research

Figure 76. OTEX Crowding Analysis



Source: Citi Research

OTEX is considered highly crowded as it's currently in the 98th percentile among stocks in the Russell 3000. Over the past three months the crowding score has increased from the 80th percentile, primarily due to a higher relative valuation and a higher loading to the most crowded quant factor (Low Beta).

(See Measuring the Crowded Trade in the US: Crowding Exacerbated Market Rotation)

Over the past three months, price momentum in OTEX has decreased and is now just above the median compared to the broad US stock universe (Figure 64). Our quant research shows that stocks which have outperformed most in the past 12 months tend to outperform again in the near term, hence high Price Momentum is often an attractive attribute for quant investors.

Further risk decomposition (Figure 63) reveals that OTEX is mildly influenced by macro factors, with widening credit spreads constituting the bulk of the macro exposure. The vast majority of the risk is stock-specific.

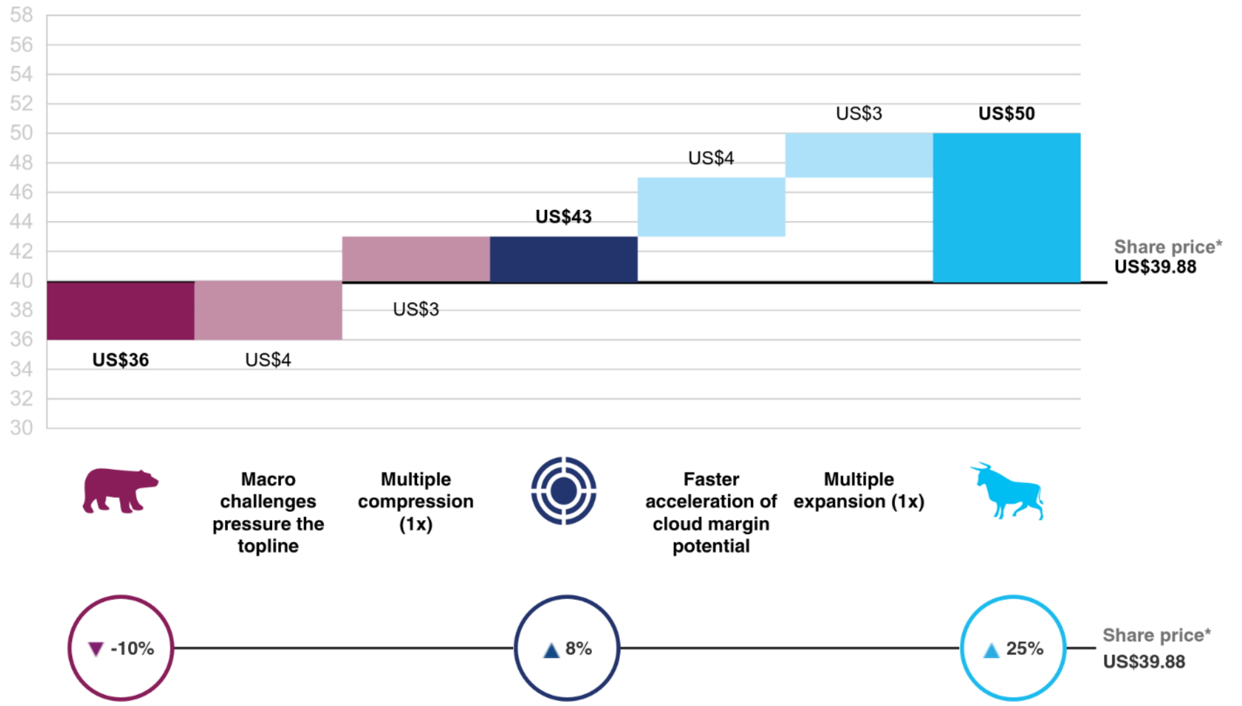
(See What Works in Equity Markets: What US RAM model can tell us about Macro and Equity Market)

Bull/Bear: OpenText (OTEX.O)

Bull/Bear: OpenText (OTEX)

US$43 target price
8% expected share price return

Neutral rating
35pp Bull/Bear Spread



Source: Citi Research

*Share price as of 24 Oct 2019 16:00

US$50

- Quicker expansion of cloud margins towards >60%
- M&A at attractive valuations
- Multiple expansion

US$43

- Low single digit organic growth
- Gradual improvement in cloud margins over the next 3 years
- No major M&A

US$36

- Macro pressure hurts topline growth
- Margins under pressure from challenging mix or higher costs
- Multiple compression

■ Initiation of Coverage

Neutral	
Price (24 Oct 19 16:00)	US$100.28
Target price	US$105.00
Market Cap	US$5,323M
Expected share price return	4.7%
Expected dividend yield	0.0%
Expected total return	4.7%

Company Focus

Paylocity Holding Corp (PCTY)

Solid Down Market Position, but Competition Heating Up; Initiate at Neutral

- We are launching coverage of Paylocity (PCTY) with a Neutral rating and the $105 target price.
- **PCTY is a leading mid-market HCM SaaS play.** The company offers an integrated solution for payroll, core HR, talent, benefits, and workforce management. Target clients are between 20-1000 employees (average ~100) and the company has ~20k clients today (<2% share).
- **We are Neutral.** PCTY has benefited from a move down market and this momentum may continue in the short-term. However, we see a broader set of potential risks compared to some peers, including macro (SMB get hit hard in downturns) and competition in the <50 employee market is building.
- **PCTY continues to benefit from churn off of legacy providers**, which provides some downside support. Despite the risk of competition, we have client growth continuing in the mid-teens over the next two years before slowing. Our base case is that the company grows to ~5% share by 2022.
- **Over time we expect the company to further stress its FCF potential**. FCF margins were ~16% last year, and further improvement is possible. Yet our sense is that investors remain more focused on growth within this segment.
- **1Q20 Preview:** Generally our estimates are close to consensus, although we expect a better mix of revenue. Sales: $124.0mm vs. $124.1mm; Adj EBITDA: $29.0mm vs. $29.2mm.
- **Citi vs. consensus (2020/2021):** Our sales estimates for 2020-2021 are mostly below consensus at $564mm and $676mm, respectively, as our Adj EBITDA estimates of $162.6mm and $197.5mm
- **Valuation:** We value PCTY shares at $105, based on 34x 2024F FCF multiple, discounting back, as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth).

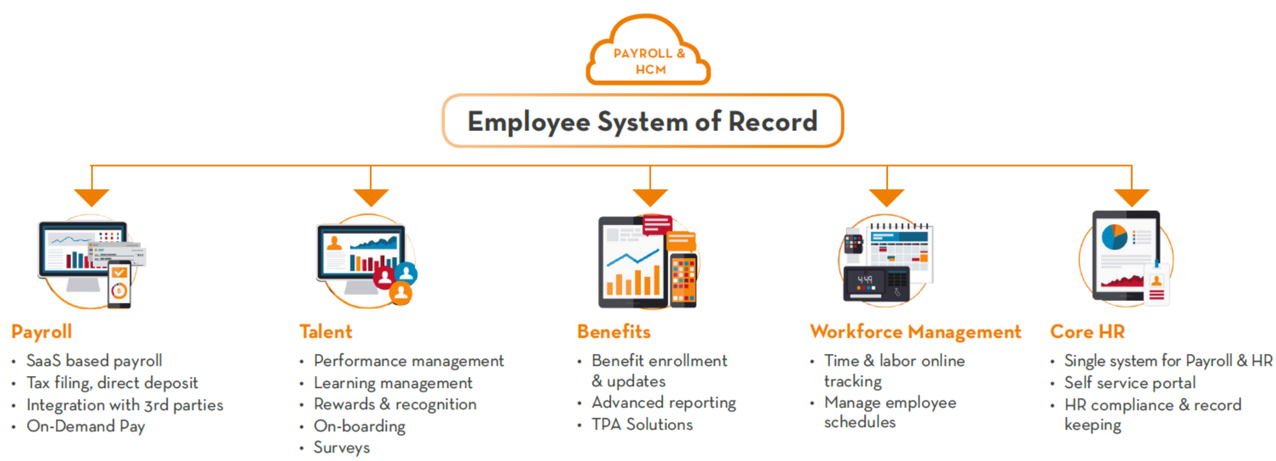
EPS (US$)	Q1	Q2	Q3	Q4	FY	FC Cons
2019A	0.20A	0.23A	0.60A	0.34A	1.38A	1.38A
2020E	**0.26E**	**0.31E**	**0.74E**	**0.33E**	**1.64E**	**1.64E**
Previous	na	na	na	na	na	na
2021E	**0.33E**	**0.39E**	**0.91E**	**0.42E**	**2.04E**	**2.08E**
Previous	na	na	na	na	na	na
2022E	**0.41E**	**0.48E**	**1.09E**	**0.51E**	**2.48E**	**2.46E**
Previous	na	na	na	na	na	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus.

Paylocity is a leading HCM SaaS company focused on companies with 20-1000 employees. PCTY's product suite includes applications which offer core HR, payroll, benefits, talent, and workforce management solutions, both on desktop and mobile apps. The company has a strong and historic focus on small business, with many former executives from legacy payroll provider Paychex. In fiscal 2019 the company had revenues of $468mm, $134mm of adjusted EBITDA and approximately 20k clients. PCTY was founded in 1997 and went public in 2014.

Like peer PAYC, PCTY is single product provider – HCM SaaS, sold to customers with very little to no customization (customers can choose which modules to purchase, although all customers buy payroll). PCTY has expanded over time to include mobile and social features, consistent with the "consumerization" of software in the office, a trend which we expect to continue. PCTY sells to customers through a direct sales focus, although they also get about ~25% of the business through leads from third-parties, such as benefit brokers.

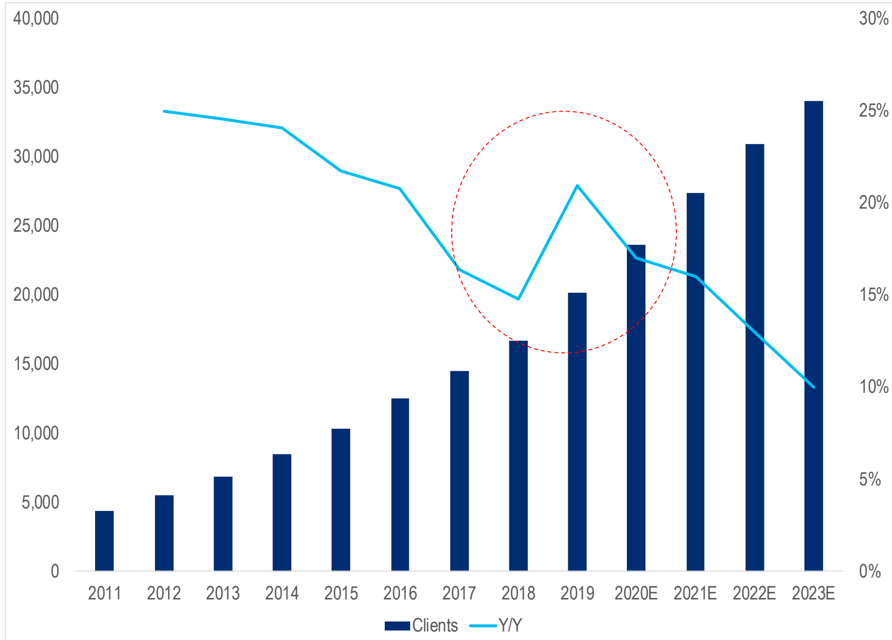
Figure 77. PCTY HCM Modules



Source: Company Reports

One of the big themes of fiscal 2019 was the reacceleration in client growth, reversing several years of deceleration. The company noted particular strength in client growth in companies which have few than 50 employees. As discussed above, we think that this part of the market is quite sensitive to macro risks (more concerned about "keeping the lights on" than digital transformation if the economy slows), and primed for increasing competition over time. Our base case is that client growth resumes its slowing trend over the forecast period. If PCTY bucks this trend, we'd expect the shares to outperform.

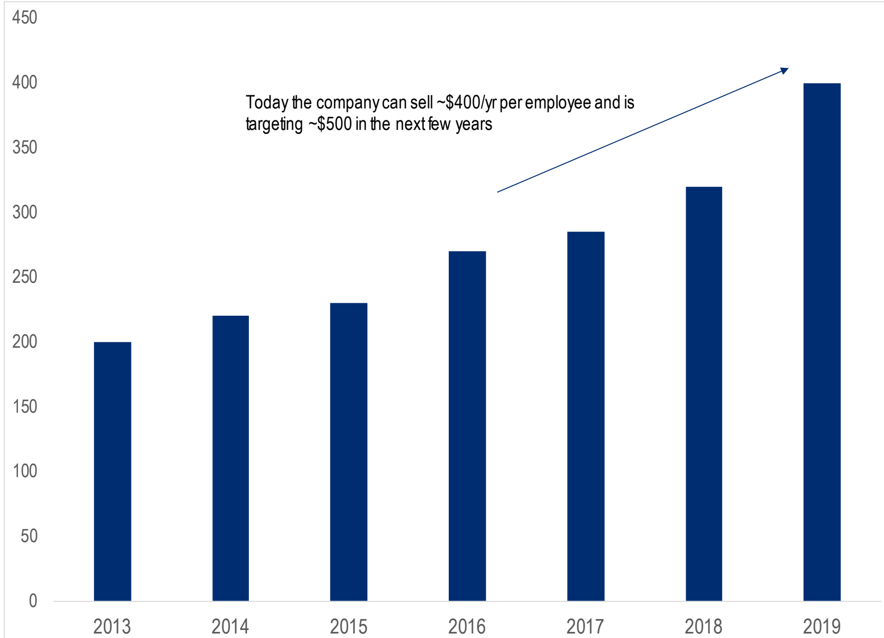
Figure 78. PCTY Clients



Source: Citi Research, Company Reports

PCTY has done a good job adding new features to its product. Over the past six years the company has doubled its product suite, based on potential sales per client employee per year. Exiting fiscal 2019 the company had lifted its potential sales to ~$400 per employee per year, and the company is targeting ~$500 as next target, we think likely within the next couple of years. Exiting 2019 we estimate that PCTYs PEPM was near ~$19, or ~$235 per employee per year. For PCTY, the most popular modules are payroll and core HR, followed by talent modules. Some modules, like time management, are predominately used by clients with many hour employees, just one example why PCTY will never hit 100% penetrations. Yet, while the company is most focused on adding new clients, we do think that if client grow slows more investor focus will turn to PEPM growth to sustain topline growth, particularly given the outsized strength of very small business (<50 employees) for PCTY recently.

Figure 79. PCTY Full Product Suite Cost ($ per employee per year)



Source: Citi Research

Previewing 1Q20 Results

PCTY is anticipated to report October 30. Below we provide key metrics for fiscal 1Q20 compared to our model, consensus and guidance. Generally our estimates are close to or slightly below consensus, although we expect a better mix of revenue (more subscription, less interest income & implementation) vs. the street.

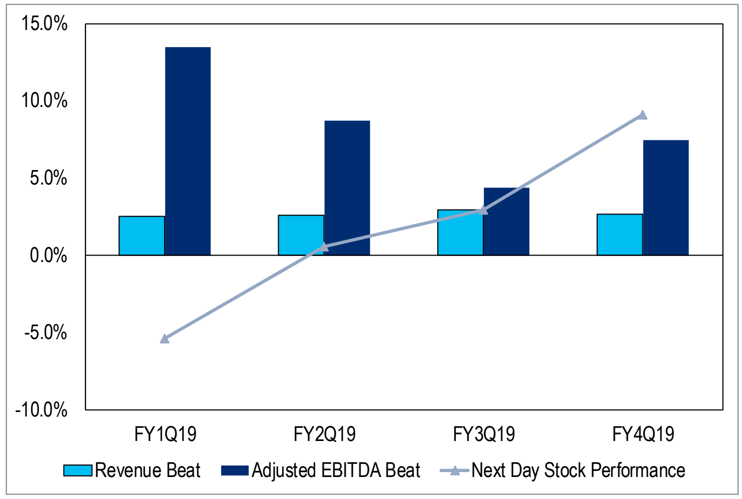
Figure 80. PCTY FY1Q20 Preview Cheat Sheet

	FY1Q20 Results Preview						Variance	
	Estimates		Actual	Guidance			Citi vs. Cons	
	Citi	Consensus	FY1Q19	Low	Mid	High	$	%/bps
Total Revenue	**124.0**	**124.1**	**100.5**	**123.5**	**124.0**	**124.5**	**(0.1)**	**-0.1%**
% growth y-o-y	23.4%	23.5%		22.9%	23.4%	23.9%		
Recurring Subscription	117.3	117.0	95.8				0.3	0.2%
% growth y-o-y	22.5%	22.2%						
Other	6.8	7.1	4.7				(0.4)	-5.3%
% growth y-o-y	42.5%	50.4%						
Adjusted EBITDA	**29.0**	**29.2**	**23.3**	**28.1**	**28.6**	**29.1**	**(0.2)**	**-0.7%**
% margin	23.4%	23.5%		22.8%	23.1%	23.4%		-15 bps
EPS	$0.26	$0.26	$0.20				(0.0)	-2.9%
FCF (cash from ops less capex)	8.1	7.5	4.9				0.7	8.9%

Source: Citi Research, Company Reports

Tactically, over the past four quarters PCTY has beat its revenue guidance by ~2.5% and EBITDA closer to ~8% as shown in the chart below. In particular, the beats in fiscal 2H19 have resulted in the stock outperforming.

Figure 81. PCTY Revenue / EBITDA Beat vs. Guidance and Stock Performance



Source: Citi Research, Company Reports, FactSet

Turning towards the 2020 guidance, history suggests that the company is likely to leave at the current level (~$565mm sales), or modestly adjust in-line with 1Q20 results. Seasonally, 1Q is the smallest of the year (~22% of sales) are we would expect management to more fully review its fiscal 2020 guidance following 2Q results (typically reports in February). Below we provide key metrics for 2020 from our model, compared to consensus and guidance.

Figure 82. PCTY Fiscal 2020 Citi vs. Guidance / Consensus

	FY2020 Positioning						Variance	
	Estimates		Actual	Guidance			Citi vs. Cons	
	Citi	Consensus	FY19	Low	Mid	High	$	%/bps
Total Revenue	**564.3**	**564.7**	**467.6**	**563.5**	**564.5**	**565.5**	**(0.5)**	**-0.1%**
% growth y-o-y	20.7%	20.8%		20.5%	20.7%	20.9%		
Recurring Subscription	529.4	530.6	437.0				(1.2)	-0.2%
% growth y-o-y	21.2%	21.4%						
Other	34.8	34.1	30.7				0.7	2.1%
% growth y-o-y	13.6%	11.3%						
Adjusted EBITDA	**162.6**	**163.4**	**134.0**	**161.5**	**162.5**	**163.5**	**(0.8)**	**-0.5%**
% margin	28.8%	28.9%	28.7%	28.7%	28.8%	28.9%		-12 bps
EPS	$1.64	$1.64	$1.38				0.0	0.0%
FCF (cash from ops less capex)	102.8	97.0	103.8				5.8	5.9%

Source: Citi Research, Company Reports, FactSet

Risks

Potential Upside Risks to our Target Price:

Industry Consolidation – HCM and payroll applications in totality are relatively fragmented, although some particular niches are more consolidated. M&A, which historically some companies / investors in the space have pushed for in the past, would like be supportive for PCTY.

CAC Declines – PCTY could lever G&A more than expected as the business scales.

Potential Downside Risks to our Target Price include:

Decelerating Client Growth – PCTY is growing its client at the high end of the industry range as it has a wide berth in the small and mid-sized business market, but we think the company could be negatively impacted if this slows.

Multiple Compression – As noted above, PCTY is trading towards the high of its historical range, which could result in multiple compression should topline growth slow.

Valuation

We value PCTY shares at $105. Consistent with the rest of the group, we value the shares based on a FCF multiple, which for PCTY we use 2023, as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth). As shown below, we value the shares at 34x FCF, discounting back, to achieve our 12-month target price. Regarding sensitivities, a 100 bps change in the WACC drives $2-3/share of valuation differential, while a 1x change in the FCF multiple is ~$3/share of value. Our working assumption is that the company will build cash on the balance sheet, but the company has repurchased shares in the past and we would not be surprised if the company where to pursue periodic buybacks in the future.

Figure 83. PCTY Price Target Calculation

Price Target Calculation		
Valuation Year: FY2024		**Notes**
FCF	219.7	
x FCF Multiple	34	
= Implied Future Enteprise Value	**7,556.6**	
Discount Rate (WACC)	10.0%	
Discount Period (Years)	3.7	
Implied Enteprise Value (1-yr fwd)	**5,310.9**	
+ Cash (2023)	625.3	
-Total debt (2023)	0.0	
- Minority Interest	0.0	
= Implied Future Equity Value	**5,936.2**	
Diluted Shares Outstanding (1-yr fwd)	56.4	
Implied Equity Value per Share	**105.0**	

Source: Citi Research

Valuation for PCTY has trended between roughly 5-10 NTM sales over the past four years, with the multiple towards the high end of the range today. Over the past year, the EV / NTM multiple has averaged closer to ~9x, so the shares do not have an overly attractive valuation, either from a near or long-term perspective. While we think an upward re-rating in the multiple is possible if the company can accelerate growth, history would suggest that this move would have to be relatively significant to break out of the long-term range.

Figure 84. EV / NTM Sales

Source: Citi Research, FactSet

Below we provide some of the details of our financial model. Foremost is our revenue model, which we show below. We assume recurring fees, subscriptions to PCTY's applications, grows a 20% CAGR through 2021, before decelerating into 2022+ as market saturation becomes more of a risk. Our model assumes that as client growth slows, growth in PEPM provides some partial offset, particularly in 2022+.

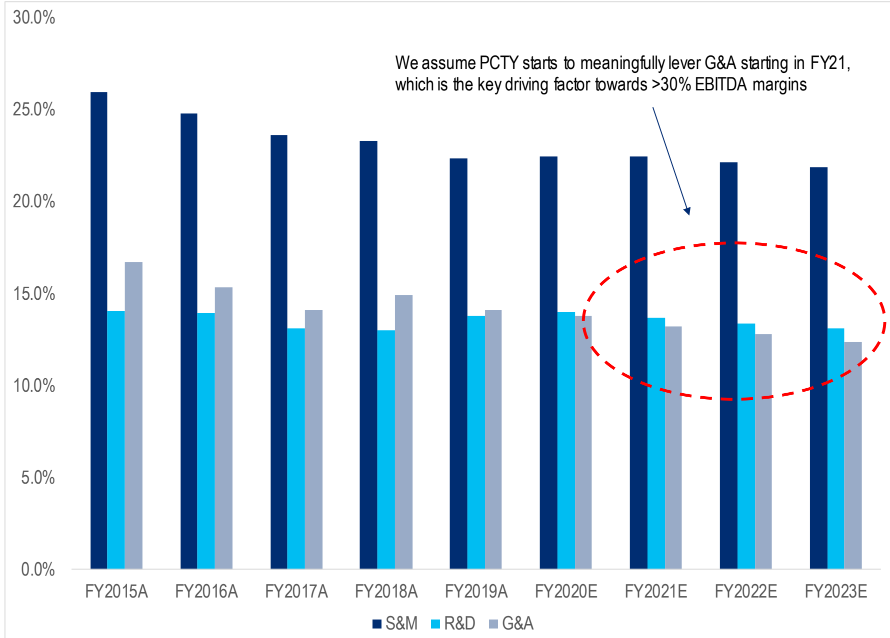
Figure 85. PCTY Revenue Build

	FY2014A	FY2015A	FY2016A	FY2017A	FY2018A	FY2019A	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E
Revenue Build											
Recurring Fees	**100.4**	**142.2**	**217.4**	**284.8**	**354.4**	**437.0**	**529.4**	**637.2**	**749.3**	**862.9**	**964.3**
% growth y-o-y	40.7%	41.7%	52.9%	31.0%	24.4%	23.3%	21.2%	20.3%	17.6%	15.2%	11.8%
% growth q-o-q											
% of total revenue		93.1%	94.2%	94.9%	93.9%	93.4%	93.8%	94.3%	94.7%	95.0%	95.6%
% of FY											
bps diff y-o-y											
Clients	**8,500.0**	**10,350.0**	**12,500.0**	**14,550.0**	**16,700.0**	**20,200.0**	**23,634.0**	**27,179.1**	**30,440.6**	**33,484.7**	**35,493.7**
% growth y-o-y	24.1%	21.8%	20.8%	16.4%	14.8%	21.0%	17.0%	15.0%	12.0%	10.0%	6.0%
# growth q-o-q											
Average employees per client	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Payroll employees (mil)	0.9	1.0	1.3	1.5	1.7	2.0	2.4	2.7	3.0	3.3	3.5
Implied PEPM	9.8	11.4	14.5	16.3	17.7	18.0	18.7	19.5	20.5	21.5	22.6
% growth y-o-y	19.1%	16.3%	26.6%	12.5%	8.4%	1.9%	3.6%	4.7%	5.0%	4.7%	5.4%
Cacluated Annual per Employee Revs	127.9	150.8	190.3	210.6	226.8	236.8	241.6	250.8	260.1	270.0	279.6
% growth y-o-y	16.3%	17.9%	26.2%	10.7%	7.7%	4.4%	2.0%	3.8%	3.7%	3.8%	3.6%
Interest income on funds held for clients		1.9	2.7	3.6	9.1	19.9	22.0	25.4	29.6	33.8	37.4
% growth y-o-y											
% growth q-o-q											
Calculated yield on client funds		0.3%	0.2%	0.4%	0.7%	1.4%	1.3%	1.3%	1.3%	1.3%	1.4%
Total Recurring		**144.1**	**220.1**	**288.4**	**363.5**	**456.8**	**551.4**	**662.6**	**778.9**	**896.7**	**1,001.7**
% growth y-o-y		48.4%	52.8%	31.1%	26.0%	25.7%	20.7%	20.2%	17.6%	15.1%	11.7%
% growth q-o-q											
Implementation and other		8.6	10.6	11.6	14.0	10.8	12.9	13.2	12.2	11.3	7.5
% growth y-o-y		71.4%	22.8%	9.1%	21.1%	-22.9%	19.0%	3.1%	-8.2%	-6.8%	-34.2%
% growth q-o-q											
% of total revenue		6.9%	5.8%	5.1%	6.1%	6.6%	6.2%	5.7%	5.3%	5.0%	4.4%
% of FY revenue (seasonality)											
bps diff y-o-y											
Total		**152.7**	**230.7**	**300.0**	**377.5**	**467.6**	**564.3**	**675.8**	**791.1**	**908.0**	**1,009.2**
% growth y-o-y		48.8%	51.1%	30.0%	25.8%	23.9%	20.7%	19.8%	17.1%	14.8%	11.1%

Source: Citi Research, Company Reports

For costs, our working assumptions are the S&M stays in the ~22-23% of sales range, R&D stays near 13-14% of sales, and that G&A declines towards 10% of sales at the end of the forecast period. Of these assumptions, we have the greater confidence in relative R&D stability, while we have less confidence in the trend of S&M, which could be influenced by competition and customer size. For G&A, the trend from ~15% to ~10% over time is consistent with other software names – this is the biggest lever to pull to get leverage as the business scales.

Figure 86. Operating Costs, % of sales (Non-GAAP)



Source: Citi Research, Company Reports

Bringing it together we provide our simplified model income statement below. We forecast adjusted EBITDA of ~$163mm in 2020 which we see growing towards $282mm in 2023, lifting EBITDA margins toward 31% from 29% today, again predominately due to lower G&A costs.

Figure 87. PCTY Model Income Statement

PCTY Model Summary million USD; Non-GAAP	FY2019A				FY2020E				FY2016A	FY2017A	FY2018A	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E
	1QA	2QA	3Q	4Q	1QE	2QE	3QE	4QE								
	03/31/17	06/30/17	09/30/17	12/31/17	03/31/18	06/30/18	09/30/18	12/31/18								
Revenue	**100.5**	**107.2**	**139.6**	**120.4**	**124.0**	**130.2**	**167.7**	**142.3**	**230.7**	**300.0**	**377.5**	**467.6**	**564.3**	**675.8**	**791.1**	**908.0**
% growth y-o-y	23.3%	24.7%	23.1%	24.6%	23.4%	21.5%	20.2%	18.3%	51.1%	30.0%	25.8%	23.9%	20.7%	19.8%	17.1%	14.8%
Recurring	99.3	104.7	136.2	116.7	122.5	127.3	163.7	137.9	220.1	288.4	363.5	456.8	551.4	662.6	778.9	896.7
% growth y-o-y	25.8%	26.1%	25.4%	25.5%	23.4%	21.5%	20.2%	18.2%	52.8%	31.1%	26.0%	25.7%	20.7%	20.2%	17.6%	15.1%
Implemenation & Other	1.2	2.5	3.4	3.7	1.5	3.0	4.0	4.4	10.6	11.6	14.0	10.8	12.9	13.2	12.2	11.3
% growth y-o-y	55.1%	28.5%	22.6%	21.6%	20.9%	19.7%	18.4%	18.5%	22.8%	9.1%	21.1%	-22.9%	19.0%	3.1%	-8.2%	-6.8%
Cost of Revenue	**30.1**	**32.3**	**34.3**	**34.7**	**37.0**	**39.2**	**41.4**	**41.4**	**89.7**	**110.7**	**130.3**	**131.4**	**159.0**	**190.3**	**221.7**	**253.1**
% growth y-o-y	-0.8%	-0.2%	1.2%	2.8%	22.8%	21.2%	20.9%	19.4%	37.0%	23.5%	17.7%	0.8%	21.0%	19.7%	16.5%	14.2%
% of revenue	30.0%	30.2%	24.5%	28.8%	29.8%	30.1%	24.7%	29.1%	38.9%	36.9%	34.5%	28.1%	28.2%	28.2%	28.0%	27.9%
Gross Profit	**70.4**	**74.9**	**105.3**	**85.7**	**87.0**	**91.0**	**126.3**	**100.9**	**141.0**	**189.3**	**247.2**	**336.2**	**405.3**	**485.5**	**569.4**	**654.9**
% growth y-o-y	37.7%	39.6%	32.3%	36.3%	23.7%	21.6%	19.9%	17.8%	61.7%	34.2%	30.6%	36.0%	20.5%	19.8%	17.3%	15.0%
% margin	70.0%	69.8%	75.5%	71.2%	70.2%	69.9%	75.3%	70.9%	61.1%	63.1%	65.5%	71.9%	71.8%	71.8%	72.0%	72.1%
Sales and Marketing	24.5	24.6	25.8	29.7	30.3	30.0	31.0	35.5	57.3	70.9	88.0	104.5	126.8	151.9	175.4	198.7
% growth y-o-y	27.8%	26.7%	5.8%	18.6%	23.9%	22.1%	20.1%	19.5%	44.3%	23.9%	24.0%	18.8%	21.3%	19.8%	15.5%	13.2%
% of revenue	24.3%	22.9%	18.5%	24.7%	24.4%	23.0%	18.5%	24.9%	24.8%	23.6%	23.3%	22.4%	22.5%	22.5%	22.2%	21.9%
Research and Development	14.7	15.8	16.6	17.5	18.2	19.3	20.5	21.0	32.2	39.4	49.2	64.6	79.0	92.6	106.0	119.0
% growth y-o-y	27.6%	34.5%	34.3%	29.0%	23.5%	22.5%	23.3%	19.9%	49.8%	22.4%	24.9%	31.3%	22.2%	17.2%	14.5%	12.2%
% of revenue	14.7%	14.7%	11.9%	14.6%	14.7%	14.8%	12.2%	14.8%	14.0%	13.1%	13.0%	13.8%	14.0%	13.7%	13.4%	13.1%
General and Administrative	16.6	16.8	17.5	18.4	20.7	20.4	21.0	21.7	38.4	46.5	57.7	69.4	83.8	95.3	107.7	119.1
% growth y-o-y	31.8%	20.9%	18.8%	12.3%	24.4%	21.4%	20.1%	17.6%	41.1%	21.3%	24.0%	20.3%	20.8%	13.7%	13.0%	10.6%
% of revenue	16.6%	15.7%	12.5%	15.3%	16.7%	15.7%	12.5%	15.2%	16.6%	15.5%	15.3%	14.8%	14.9%	14.1%	13.6%	13.1%
Total Operating Expenses	**55.8**	**57.1**	**59.9**	**65.7**	**67.7**	**68.2**	**71.0**	**76.7**	**127.8**	**156.9**	**194.9**	**238.6**	**283.6**	**333.8**	**382.8**	**430.1**
% growth y-o-y	28.9%	26.9%	16.4%	19.3%	21.3%	19.4%	18.5%	16.8%	44.6%	22.7%	24.2%	22.4%	18.9%	17.7%	14.7%	12.3%
% of revenue	55.6%	53.3%	42.9%	54.6%	54.6%	52.4%	42.3%	53.9%	55.4%	52.3%	51.6%	51.0%	50.3%	49.4%	48.4%	47.4%
Operating Income	**15.3**	**17.7**	**46.4**	**21.4**	**19.3**	**22.8**	**55.3**	**24.2**	**16.2**	**36.6**	**53.6**	**100.9**	**121.7**	**151.7**	**186.6**	**224.8**
% growth y-o-y	87.6%	104.0%	61.7%	165.1%	26.1%	28.5%	19.1%	13.2%	3173.5%	126.3%	46.6%	88.1%	20.6%	24.7%	23.0%	20.5%
% margin	15.2%	16.6%	33.3%	17.8%	15.6%	17.5%	33.0%	17.0%	7.0%	12.2%	14.2%	21.6%	21.6%	22.4%	23.6%	24.8%
Net Income	**11.0**	**12.8**	**33.5**	**19.1**	**14.4**	**17.5**	**41.8**	**18.6**	**15.9**	**36.0**	**31.3**	**76.3**	**92.3**	**115.7**	**142.2**	**171.2**
% growth y-o-y	34.3%	42.0%	319.3%	209.7%	30.6%	36.8%	24.9%	-2.6%	3482.4%	127.0%	-13.0%	143.6%	20.8%	25.4%	22.9%	20.4%
% margin	11.0%	11.9%	24.0%	15.8%	11.6%	13.4%	25.0%	13.0%	6.9%	12.0%	8.3%	16.3%	16.4%	17.1%	18.0%	18.9%
EPS - Basic	$0.21	$0.24	$0.64	$0.36	$0.27	$0.33	$0.78	$0.35	$0.31	$0.70	$0.60	$1.45	$1.73	$2.14	$2.60	$3.10
% growth y-o-y	31.9%	41.1%	319.3%	207.8%	29.6%	35.4%	22.8%	-3.7%	3427.3%	124.8%	-14.7%	141.8%	19.5%	24.2%	21.5%	18.9%
EPS - Diluted	**$0.20**	**$0.23**	**$0.60**	**$0.34**	**$0.26**	**$0.31**	**$0.74**	**$0.33**	**$0.31**	**$0.69**	**$0.58**	**$1.38**	**$1.64**	**$2.04**	**$2.48**	**$2.95**
% growth y-o-y	32.2%	41.3%	316.1%	207.8%	29.2%	34.1%	23.0%	-3.9%	3414.2%	124.7%	-16.6%	138.6%	19.1%	24.2%	21.5%	18.9%
Adjusted EBITDA	**23.3**	**26.1**	**54.8**	**29.9**	**29.0**	**31.6**	**64.2**	**37.7**	**28.4**	**56.2**	**81.3**	**134.0**	**162.6**	**197.5**	**238.1**	**281.9**
% growth y-o-y	59.4%	71.2%	53.3%	90.3%	24.5%	21.3%	17.2%	26.3%	244.7%	97.9%	44.7%	64.9%	21.3%	21.5%	20.5%	18.4%
% margin	23.1%	24.3%	39.3%	24.8%	23.4%	24.3%	38.3%	26.5%	12.3%	18.7%	21.5%	28.7%	28.8%	29.2%	30.1%	31.0%

Source: Citi Research

Figure 88. PCTY Balance Sheet

Balance Sheet	FY2015A	FY2016A	FY2017A	FY2018A	FY2019A	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E
Cash and Cash Equivalents	81.3	86.5	103.5	137.2	132.5	217.2	323.5	456.7	625.3	824.9
Investments	0.0	0.0	0.0	0.7	29.3	29.3	29.3	29.3	29.3	29.3
Accounts receivable	1.1	1.7	2.0	3.5	4.4	6.2	9.3	10.8	10.0	11.1
Prepaid expenses	4.4	7.4	14.9	11.2	13.9	15.9	19.0	25.3	28.9	32.0
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income tax receivable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred contract costs	0.0	0.0	0.0	0.0	21.7	26.2	31.3	36.7	42.1	46.8
Other	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Assets ex Client Funds	**87.6**	**95.6**	**120.4**	**152.6**	**201.7**	**294.8**	**412.5**	**558.9**	**735.5**	**944.1**
Funds held for clients	591.2	1,239.6	942.5	1,225.6	1,394.5	1,631.5	1,932.5	2,229.4	2,525.9	2,757.8
Total Current Assets	**678.8**	**1,335.2**	**1,062.8**	**1,378.2**	**1,596.2**	**1,926.3**	**2,345.0**	**2,788.3**	**3,261.4**	**3,701.8**
Property and Equipment, net	16.1	26.8	40.8	62.0	70.1	53.5	38.9	28.4	17.8	6.3
Capitalized Software	7.4	11.4	17.4	21.1	27.5	45.5	63.5	82.5	102.5	122.5
Long-term deferred contract costs	0.0	0.0	0.0	0.0	81.4	98.2	117.7	137.7	158.1	175.7
Restricted Cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill	6.0	6.0	6.0	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Intangibles, net	11.9	10.4	8.9	13.0	10.8	10.8	10.8	10.8	10.8	10.8
Deferred Tax				22.1	6.5	6.5	6.5	6.5	6.5	6.5
Derivative asset	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Assets	0.4	0.8	1.5	1.5	2.0	16.0	16.0	8.0	(0.0)	(8.0)
Total Long-term Assets	**41.8**	**55.5**	**74.6**	**129.4**	**207.8**	**240.1**	**262.8**	**283.5**	**305.2**	**323.3**
Total Assets	**720.5**	**1,390.7**	**1,137.4**	**1,507.6**	**1,803.9**	**2,166.4**	**2,607.8**	**3,071.7**	**3,566.6**	**4,025.1**
Accounts Payable	1.3	1.6	2.0	3.0	4.0	4.3	5.1	5.9	6.8	7.5
Income tax payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued Expenses	16.4	25.0	30.3	42.2	57.6	63.6	78.8	91.8	104.9	116.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current portion of long-term debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other current liabilities	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current liabilities ex client fund obligat	**18.3**	**26.6**	**32.3**	**45.2**	**61.6**	**67.9**	**83.9**	**97.8**	**111.7**	**123.5**
Client funds obligation	591.2	1,239.6	942.5	1,225.6	1,394.5	1,631.5	1,932.5	2,229.4	2,525.9	2,757.8
Total Current Liabilities	**609.5**	**1,266.2**	**974.8**	**1,270.8**	**1,456.0**	**1,699.4**	**2,016.5**	**2,327.2**	**2,637.6**	**2,881.3**
Deferred income tax liabilities, net	0.9	0.2	0.4	0.0	6.9	6.9	6.9	6.9	6.9	6.9
Long-term deferred revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net long-term debt, less current portion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other long-term liabilities	2.6	4.6	14.6	23.9	33.0	33.0	33.0	33.0	33.0	33.0
Total Long-term Liabilities	**3.5**	**4.9**	**15.0**	**23.9**	**39.9**	**39.9**	**39.9**	**39.9**	**39.9**	**39.9**
Total Liabilities	**613.0**	**1,271.1**	**989.8**	**1,294.8**	**1,496.0**	**1,739.3**	**2,056.4**	**2,367.1**	**2,677.5**	**2,921.2**
Noncontrolling interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Convertible preferred stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stockholder Equity	107.6	119.6	147.6	212.8	308.0	427.1	551.5	704.6	889.2	1,103.9
Total Equity	**107.6**	**119.6**	**147.6**	**212.8**	**308.0**	**427.1**	**551.5**	**704.6**	**889.2**	**1,103.9**
Check	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Citi Research, Company Reports

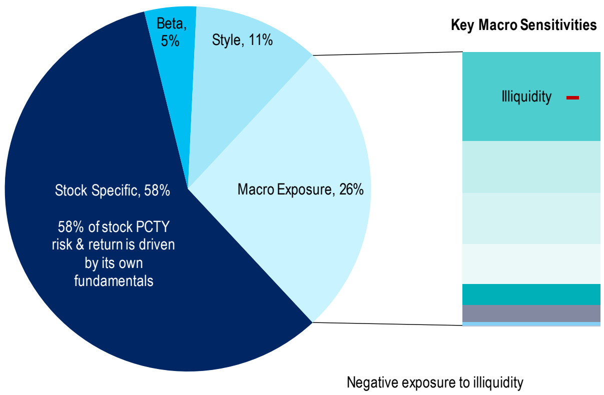
Figure 89. PCTY Statement of Cash Flows

Cash Flow Statement	FY2015A	FY2016A	FY2017A	FY2018A	FY2019A	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E
Net Income	**(14.0)**	**(3.9)**	**6.7**	**38.6**	**53.8**	**70.8**	**66.5**	**85.4**	**106.7**	**128.1**
Depreciation and Amortization	8.6	13.9	21.0	30.2	34.6	38.0	44.0	50.0	56.0	62.0
Amortization of debt discount and issuanc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stock-based compensation	13.2	17.6	26.7	30.4	38.8	48.3	57.9	67.8	77.8	86.6
Deferred income taxes, net	0.1	0.2	0.2	(21.9)	4.1	0.0	0.0	0.0	0.0	0.0
Other	0.3	0.9	0.4	0.1	(1.5)	(14.0)	0.0	8.0	8.0	8.0
Net change in working capital	2.9	4.4	7.0	20.5	(14.8)	(18.9)	(14.7)	(19.4)	(14.6)	(14.6)
Accounts receivable	(0.4)	(0.7)	(0.5)	(1.5)	(1.2)	(1.8)	(3.1)	(1.6)	0.9	(1.1)
Prepaid expenses	(1.8)	(3.3)	(2.1)	(2.1)	0.4	(2.0)	(3.1)	(6.3)	(3.6)	(3.1)
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred contract costs	0.0	0.0	0.0	0.0	(35.0)	(21.3)	(24.6)	(25.4)	(25.8)	(22.3)
Accounts payable	(0.2)	0.1	0.2	0.7	(0.1)	0.3	0.8	0.8	0.8	0.7
Income taxes, net	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued expenses	5.3	8.3	6.5	11.6	13.6	6.0	15.2	13.0	13.0	11.1
Accrued other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued expenses and other current liabili	0.0	0.0	2.8	11.8	7.5	0.0	0.0	0.0	0.0	0.0
Net Cash Flow from Operations	**11.1**	**33.0**	**62.0**	**97.9**	**115.0**	**124.2**	**153.7**	**191.7**	**233.9**	**270.1**
Property and equipment	(9.0)	(16.1)	(21.3)	(21.7)	(11.3)	(21.5)	(29.3)	(39.6)	(45.4)	(50.5)
Cash paid for acquisition, net of cash acqu	(12.0)	(0.5)	0.0	(8.3)	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of short-term investments from f	0.0	0.0	0.0	(196.6)	(250.7)	0.0	0.0	0.0	0.0	0.0
Proceeds from maturities of short-term inv	0.0	0.0	0.0	73.0	246.2	0.0	0.0	0.0	0.0	0.0
Net change in funds held for clients	(174.0)	(648.4)	297.2	(158.4)	0.0	237.1	301.0	296.8	296.5	231.9
Capitalized software costs	(4.2)	(8.4)	(13.6)	(15.6)	(20.1)	(18.0)	(18.0)	(19.0)	(20.0)	(20.0)
Other	0.0	0.0	(2.8)	(11.8)	(7.5)	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Investing Activities	**(199.2)**	**(673.4)**	**259.3**	**(339.4)**	**(43.3)**	**197.6**	**253.7**	**238.3**	**231.1**	**161.4**
Payments on long-term debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repurchases of common stock	18.3	0.0	0.0	0.0	(35.0)	0.0	0.0	0.0	0.0	0.0
Withholding taxes paid related to net share	(3.8)	(5.9)	(10.9)	(10.6)	(24.2)	0.0	0.0	0.0	0.0	0.0
Net change in client funds obligation	174.0	648.4	(297.2)	281.5	168.9	(237.1)	(301.0)	(296.8)	(296.5)	(231.9)
Dividends										
Others	2.0	3.1	3.7	4.3	5.1	0.0	0.0	0.0	0.0	0.0
Net Cash Used in Financing Activities	**190.5**	**645.6**	**(304.3)**	**275.2**	**114.7**	**(237.1)**	**(301.0)**	**(296.8)**	**(296.5)**	**(231.9)**
FX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in Client Funds					(191.1)					
Net Change in Cash	2.4	5.2	17.0	33.7	(4.7)	84.8	106.3	133.2	168.5	199.7

Source: Citi Research, Company Reports

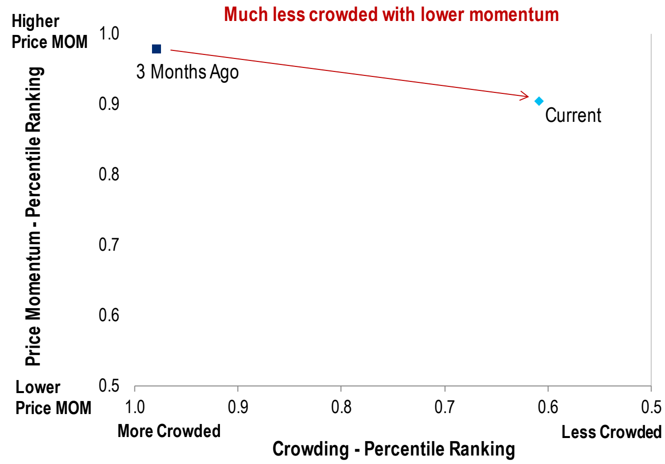
Quant Dashboard

Figure 90. PCTY Risk Decomposition



Source: Citi Research

Figure 91. PCTY Crowding Analysis



Source: Citi Research

PCTY is not considered overly crowded as it's currently in the 61st percentile among stocks in the Russell 3000. This is down from the 98th percentile of crowding scores three months ago, primarily attributable to its lower loading to the most crowded quant factor (Low Beta) and lower relative macro exposure.

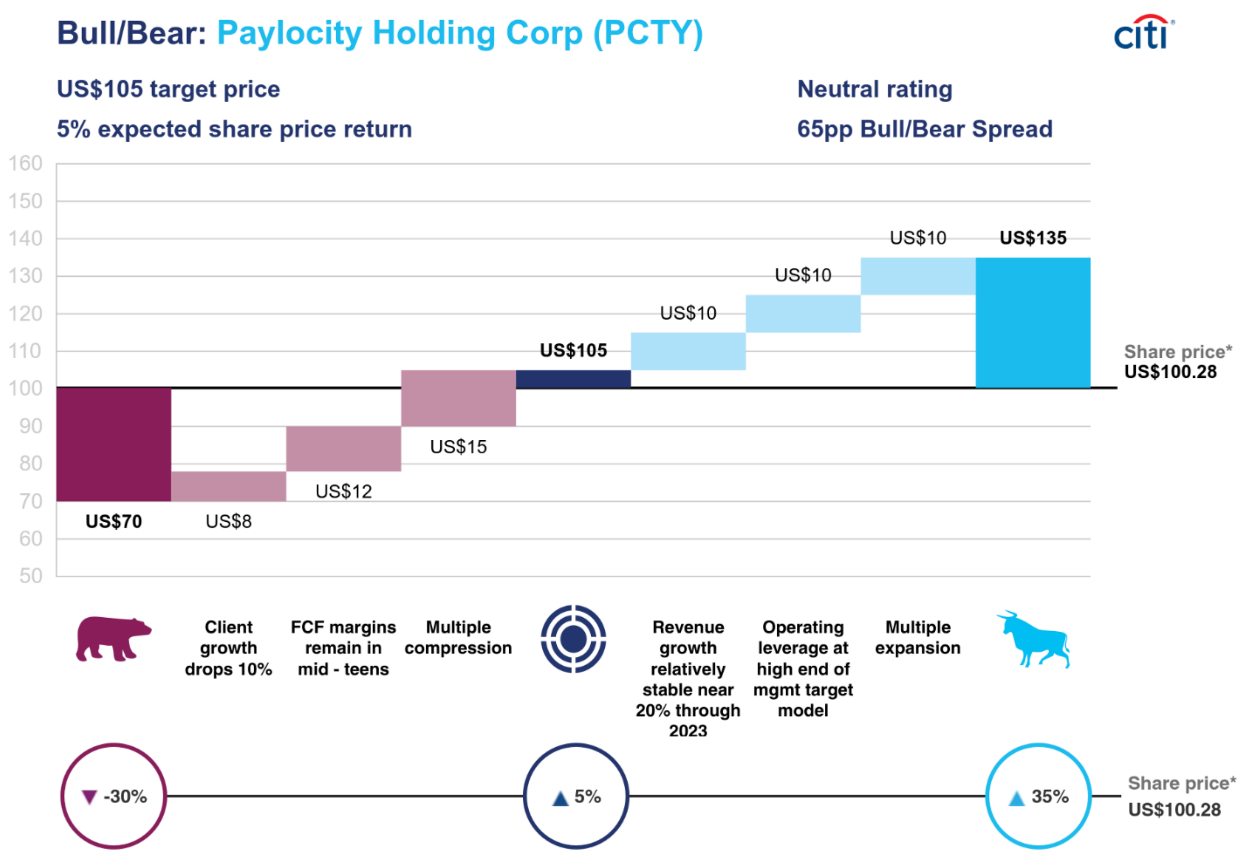
(See Measuring the Crowded Trade in the US: Crowding Exacerbated Market Rotation)

Over the past three months, price momentum in PCTY has decreased slightly but remains on the high end compared to the broad US stock universe (Figure 64). Our quant research shows that stocks which have outperformed most in the past 12 months tend to outperform again in the near term, hence high Price Momentum is often an attractive attribute for quant investors.

Further risk decomposition (Figure 63) reveals that PCTY is moderately influenced by macro factors, with illiquidity being the highest risk. However, more than half of the overall risk is idiosyncratic.

(See What Works in Equity Markets: What US RAM model can tell us about Macro and Equity Market)

Bull/Bear: Paylocity Holding Corp (PCTY.O)



Source: Citi Research

*Share price as of 24 Oct 2019 16:00

US$135

- Mid to high teens client growth sustained longer than expected
- Greater financial leverage as the company scales
- Multiple expansion

US$105

- Modest slowing of client growth towards double digits in the next three years, offset by better PEPM growth as the company deepens relationships with customers
- EBITDA margins improve towards low 30% range over time

US$70

- Quicker than expected drop off in client growth in FY21/22
- Weaker financial leverage and heightened competition
- Multiple compression

Paycom Software Inc

Company description

Paycom (PAYC) is a leading HCM SaaS company focused on companies with 50 to 5,000 employees. PAYC's product suite includes applications which offer core HR, payroll, benefits, talent, and workforce management solutions, both on desktop and mobile apps. The company has a strong and historic focus on small and medium sized businesses, and more recently has lifted its company target range from up to ~2,000 employees to up to ~5,000 (the company has clients above this threshold). PAYC is led by CEO Chad Richison, who founded the company in 1998. PAYC went public in 2014.

Investment strategy

We are Buy rated. Share have come under pressure over the past few months, reflecting both macro (some rotation out of the highest multiple names in software) and some company-specific (i.e. potentially slowing growth in 2020+). We think this is a good buying opportunity for a high quality name as in our view underlying sales trends are holding up than consensus is anticipating. Consensus estimates assume sales growth in 2020 towards 23%, down from 29% in 2018. This seems conservative and in contrast to still sturdy underlying sales trends (improving efficiency from field sales offices, stronger unsolicited in-bound inquiries, and a growing inside sales function). Tactically, PAYC still "expensive", yet we are willing to pay for profits/cash. While the market is focused on growth (which we think will still be ~25% next year), PAYC’s good profitability (FCF margins >20%) should provide support if macro conditions weaken.

Valuation

We value PAYC shares at $262. Consistent with the rest of the group, we value the shares based on a FCF multiple, which for PAYC we use 2024 (same as CDAY/PCTY), as by that time we believe that company will be close to steady profitability (although we still expect double-digit top-line growth). We value the shares at 38x FCF, discounting back, to achieve our 12-month target price.

Risks

Potential Upside Risks to our Target Price:

PEPM Growth Accelerates – Over time there could be opportunities to lift prices for legacy features or boost penetration with new paid applications, lifting PEPM more than we anticipate.

Up-Market Expansion Garners Momentum – PAYC may be able to sustain faster growth for longer if they are successful in selling to larger companies, although we do not think they will expand far beyond their current target range (up to 5k employees).

Potential Downside Risks to our Target Price include:

US Labor Market Conditions – PAYC derives its revenue selling software solutions to small, mid-size, and large companies (50-5000 employees) in the US based on a “per employee per month” (PEPM) model. Slowing growth and/or contraction in PAYC’s client workforce could be negative.

HCM Market Competition – The HCM space is highly competitive and fragmented, particularly for small and mid-sized businesses, including legacy national payroll players, local/regional payroll providers, and software solution providers. Software providers such as PAYC have garnered recent success as companies have looked for more modern solutions, but legacy providers are also investing to upgrading their offering, which could result in greater competition and CAC in the future.

Ceridian

Company description

Ceridian was originally founded in 1992 as an information services company, the result of restructuring by Control Data Corporation. In 2007, Ceridian was taken private by Thomas H. Lee Partners and Cannane Holdings, Inc. in a deal valued at approximately $5.3B. At the time, Ceridian's business primarily consisted of legacy payroll, tax, and benefit services. Since 2007, Ceridian has retooled the business and took a major step to into the cloud HCM market by acquiring Toronto based Dayforce in 2012. Following the acquisition, Dayforce founder, David Ossip, was named CEO of Ceridian. At that same time, Ceridian generally stopped selling their Bureau solutions to U.S. customers. In an effort to focus on growth of the Cloud HCM opportunity, Ceridian divested, merged, or discontinued operations of a handful of non-core assets including Comdata, legacy benefits administration businesses, and LifeWorks.

Investment strategy

We rate Ceridian Buy. CDAY has largely successfully navigated its hybrid position as a cloud HCM provider to medium and large business with its Dayforce application, while concurrently managing its legacy bureau business for margin.

In the near-term, revenue should pick up as Dayforce go-lives at larger clients accelerate, and CDAY should see the biggest improvement in Y/Y in 2020 vs. the peer group.

Longer-term, we see a major opportunity outside of the US and further opportunities to boost penetration with current customers (~20% of recent revenue growth from current customers). CDAY is competing in a process to replace Canada public employee payroll platform (~$25mm opportunity over the next 12 months, potentially more beyond), while CDAY's recent acquisition of RITEQ should boost its momentum in Asia Pacific.

While still early days, we do not think many of these secondary opportunities are priced into the stock, noting in particular that adoption rates for cloud HCM outside of the US are at least several years behind.

Valuation

Our CDAY target price is based on FY24 FCFF – the point when we expect the operating margins converge to their long-term potential – and arrive at a $58 price target by applying a 35x multiple to FY24 FCFF, discounted back at a WACC of 9.2%.

Risks

Upside risks to our target price include:

1) Accelerating cloud revenue growth driven by an acceleration in customer adds, including international 2) Bureau business declines less rapidly than consensus view 3) CAC declines as Ceridian shows leverage in the business model 4) Multiple expansion. 5) Potential industry consolidation.

Downside risks to our target price include:

1) Decelerating cloud revenue growth driven by anemic customer adds and lack of international success 2) Bureau business declines more rapidly than consensus view 3) CAC increases as competition for new logos heats up 4) Multiple contraction.

Anaplan Inc

Company description

PLAN is a leading SaaS player in what it describes as the "connected planning" space. The company's software solutions allow for real-time planning and analysis, with the most widespread use cases being sales planning, sales operations, and FP&A. Founded in 2008 in the UK, the company IPO'ed in October 2018. FY 2019 revenues were $241mm, growing at ~43%.

Investment strategy

We rate PLAN shares Neutral / High Risk. The company has a strong offering in in several product areas. The company's clear strengths are in sales planning & operations and FP&A, all of which are highly regarded by outside experts. PLAN sees opportunities in supply chain and workforce planning (and likely other use cases over time), but today they are smaller use cases. Sustaining current growth rates will require a greater number of use cases and a deeper partner ecosystem. PLAN has made strides here with a few of the big SIs, but clearly more work needs to be done. Given this, within our coverage our sense is that PLAN could be seen as less "mission critical" for organizations if the macro slows in 2020. Our high risk rating reflect the short trading history of the stock.

Valuation

We value PLAN based on FCF, similar to the most of the rest of the group which is scaling business. We believe that by approximately FY26 PLAN will be approaching normalized profit metrics, so we use that period for a target price calculation. Our valuation is based on 37x FCF, discounting back at 9%, which results in a target price of $49.

Risks

We rate PLAN High Risk due to short trading history and our expectation that it will remain FCF negative for the near-term.

Potential Upside Risks to our Target Price:

Accelerating "Expand" – As the company obtains larger companies, the ability to expand could be faster/larger, fueling faster growth.

Quicker Financial Normalization – PLAN is still in building mode and we expect FCF to remain generally negative for the coming year. While growth is the focus, faster shifts to profitability would still be viewed positively.

Potential Downside Risks to our Target Price include:

Multiple Compression – PLAN currently trades above average relative to its historical average and slower revenues and slower topline growth could pressure this multiple.

Decelerating Growth – We assume that the company can continue to grow the topline >30% for the next few fiscal years, driven by new client wins, steady net dollar expansion rates, a bulking up of use cases and a larger partner ecosystem. Hiccups on any of these measures could slow growth and could negatively impact the share price.

Coupa Software Inc

Company description

Coupa is a SaaS application software provider focused on solutions for Business Spend Management - i.e., tools for employees to procure, invoice, expense, pay, sign contracts, manage suppliers and related analytics, among other tools. Founded in 2006 by former executives from ORCL, the company went public in 2016. In FY19 the company had revenues of $260mm and ~900 clients.

Investment strategy

We rate Coupa Neutral, predominately on valuation. COUP has a strong product offering in supply chain management and spending management, and has scaled rapidly over the past few years. However, we think the shares at current levels largely discount improvement in operating costs and profitability expected over the next few years.

Valuation

We value COUP shares at $141. Our valuation methodology is based on 38x FY26 FCF, discounted back at a WACC of ~10.5%. Our model assumes that by FY26 COUP will be at, or near, nearly all of their long-term financial metrics. We believe our valuation multiple is close to high growth software peers.

Risks

Potential Upside Risks to our target price include:

Acceleration in wins, particularly at enterprise clients which are still a smaller share of COUP's overall customer base.

Improvement in the net expansion rate towards ~120% over time, from ~110% recently.

Potential Downside Risks to our target price include:

Multiple compression, as COUP trades toward the high of the range among high-growth software shares

Slower improvement in cost metrics, particularly G&A

OpenText

Company description

OpenText is a software company that provides products and services that assist organizations in finding, utilizing, and sharing business information from any device. Its products and solutions are in the Enterprise Information Management (EIM) market which includes enterprise content management, business process management, information exchange / business network, customer experience, and discovery / analytics. The company was founded on June 26, 1991 and is headquartered in Waterloo, Canada.

Investment strategy

We rate OTEX a Neutral. OTEX is generally well positioned in its core markets, but we think it may take some time for some of the more “growth focused” aspects of OTEX’s strategy (such as evidence of share gains in G10K clients) to be more reflected in the share price. Evidence of acceleration in cloud growth or profitability would be supportive for a higher multiple, but we think this is more of a FY2021+ story, if it comes to fruition. M&A could “flip the switch” as historically some of the periods of notable out performance for the shares have been on the heels of acquisitions, which could be a catalyst. With a strong balance sheet and macro uncertainty elevated we are biased more positive than negative on the shares over the next 12 months.

Valuation

Our valuation is based on 14x (rounded multiple) FY21 EPS, which yields $43. We see a valuation range of 12x -16x, which includes the low and high end of our assigned peer group.

Risks

Potential Upside Risks to our Target Price:

Future M&A – If OTEX is able to acquire quality assets at reasonable valuations, there is upside risk to our valuation / rating.

Improving Organic Growth – Our model assumes relatively low single digit organic growth as OTEX attempts to shift more towards the cloud. Sustained acceleration could result in multiple re-rating.

Potential Downside Risks to our Target Price:

Impact of license vs. cloud – The gross margin profile of cloud is significantly lower – high-50% vs. high-90% range for license. There is risk that OTEX is unable to offset the dilutive impact through greater efficiency/margin.

Cost Improvements Slow – Our model assumes some further improvement here, especially in G&A over the coming years, but this could be challenging to sustain in a tight market for talent.

Paylocity Holding Corp

Company description

Paylocity (PCTY) is a leading HCM SaaS company focused on companies with 20-1000 employees. PCTY's product suite includes applications which offer core HR, payroll, benefits, talent and workforce management solutions. In fiscal 2019 the company had revenues of $468mm, $134mm of adjusted EBITDA and approximately 20k clients. PCTY was founded in 1997 and went public in 2014.

Investment strategy

We rate PCTY shares Neutral. The company has seen outsized strength in adding smaller businesses to its platform. Yet this is the part of the market which we believe is the most at risk from increasing competition over the medium-term, including well-funded start-ups and legacy players making a strong push towards companies with up to 100 employees. While we anticipate top-line growth will remain elevated for the next few years, we think the share price currently reflects quicker improvement in profits and FCF, which keeps us on the sidelines despite our overall positive stance on the sector.

Valuation

Our target price is based on FY24 FCF – the point when we expect the operating margins converge to their long-term potential – and arrive at a $105 price target by applying a 34x multiple to FY24 FCF, discounted back at a WACC of 9.5%.

Risks

Potential positive risks to our target price include: better than expected client growth, better sell-through of new product modules, quicker leveraging of business costs as the company scales.

Potential negative risks to our target price include: Slower improving in FCF trends, smaller than expected financial leverage from sales and R&D costs, greater market competition, higher client churn.

Appendix A-1

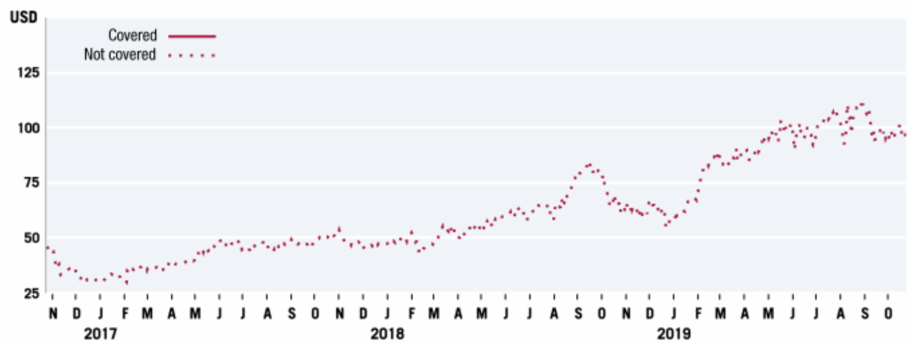
Analyst Certification

The research analysts primarily responsible for the preparation and content of this research report are either (i) designated by "AC" in the author block or (ii) listed in bold alongside content which is attributable to that analyst. If multiple AC analysts are designated in the author block, each analyst is certifying with respect to the entire research report other than (a) content attributable to another AC certifying analyst listed in bold alongside the content and (b) views expressed solely with respect to a specific issuer which are attributable to another AC certifying analyst identified in the price charts or rating history tables for that issuer shown below. Each of these analysts certify, with respect to the sections of the report for which they are responsible: (1) that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc. and its affiliates; and (2) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this report.

IMPORTANT DISCLOSURES

Paylocity Holding Corp (PCTY)

Ratings and Target Price History
Fundamental Research

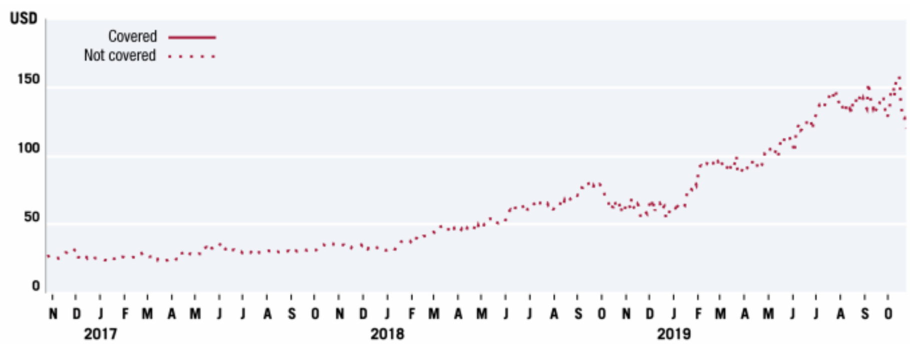


*Indicates Change

Rating/target price changes above reflect Eastern Time

Coupa Software Inc (COUP)

Ratings and Target Price History
Fundamental Research



*Indicates Change

Rating/target price changes above reflect Eastern Time

OpenText (OTEX)

Ratings and Target Price History
Fundamental Research

Analyst: Walter H Pritchard, CFA
Covered since February 16 2017

	Date	Rating	Target Price	Closing Price
1	16-Feb-17 06:48:46	*2	*36.00	33.96
2	09-May-17 02:57:06	2	*35.00	32.86
3	01-Feb-18 02:09:49	2	*36.00	38.60
4	03-Aug-18 06:52:51	2	*40.00	39.27
5	01-Nov-18 02:14:55	2	*35.00	33.97
6	01-Feb-19 00:57:12	2	*38.00	37.24

*Indicates Change

Rating/target price changes above reflect Eastern Time

Paycom Software Inc (PAYC)

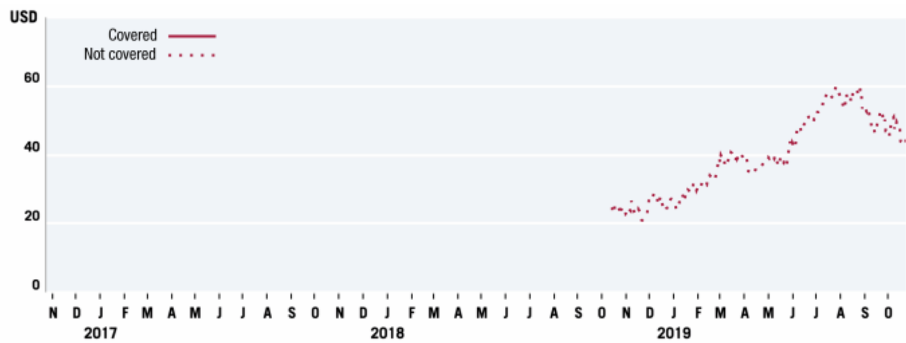
Ratings and Target Price History
Fundamental Research

*Indicates Change

Rating/target price changes above reflect Eastern Time

Anaplan Inc (PLAN)

Ratings and Target Price History
Fundamental Research



*Indicates Change

Rating/target price changes above reflect Eastern Time

Ceridian (CDAY)

Ratings and Target Price History
Fundamental Research

Analyst: Walter H Pritchard, CFA
Covered since May 21 2018

#	Date	Rating	Target Price	Closing Price
1	21-May-18 07:10:29	*2H	*38.00	35.16
2	09-Aug-18 16:43:21	2H	*35.00	33.51
3	07-Feb-19 06:31:09	2H	*46.00	43.44
4	02-May-19 03:23:58	2H	*49.00	49.49
5	30-Jul-19 23:29:56	2H	*52.00	51.74

*Indicates Change

Rating/target price changes above reflect Eastern Time

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Within the previous 12 months, Daniel Jester, Analyst, and/or members of their team have viewed the material operations of Paycom Software Inc and were not reimbursed by the company for expenses associated with the visit.

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	12 Month Rating			*Catalyst Watch*		
Data current as of 30 Sep 2019	**Buy**	**Hold**	**Sell**	**Buy**	**Hold**	**Sell**
Citi Research Global Fundamental Coverage	52%	36%	12%	15%	78%	7%
% of companies in each rating category that are investment banking clients	65%	63%	59%	68%	64%	68%

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