Off Wall Street

Consulting Group, Inc.

P.O. Box 382107
Cambridge, MA 02238

tel: 617.868.7880
fax: 617.868.4933
internet: research@offwallstreet.com
www.offwallstreet.com

New Rec: ACI Worldwide. (ACIW: $34.86) July 7, 2019

Position: Source of Funds **Potential downside 28%**

$MM	Q2 19e	Q3 19e	Q4 19e	Q1 20e	2019e	2020e
Revs	285.2	332.6	405.5	292.2	1,229.2	1,366.2
Adj. EBITDA	58.2	79.5	185.2	54.0	331.0	388.4
Y/Y Gr	91%	33%	31%	572%	32%	17%
EV/EBITDA	n/a	n/a	n/a	n/a	16.2	13.8
Cnsns Revs	284.7	352.0	477.0	304.3	1,320.0	1,500.0
Cnsns EBITDA	46.3	95.1	216.0	41.3	366.3	429.7

Shares Out: 119M **Market Cap: $4.1B** **FYE: Dec.**

To speak with the analyst on this name, please email research@offwallstreet.com, or call 617 868 7880.

Concept:

1. ACIW forecasts aggressive revenue and transaction growth for itself. It appears that, as a result, and because ACIW is seen as a beneficiary of overall digital transaction growth, the market awards ACIW an aggressive valuation at 12.5X 2020 consensus EBITDA.
2. Nevertheless, ACIW's historical growth rates and backlogs do not seem to support the company's forecasts. Indeed, the company appears to be losing market share of total transactions.
3. The company's problem appears to be that its core business has not been focused on the fastest growing parts of the transaction market. The market perceives the company's product offerings as old fashioned and expensive, and this seems unlikely to change.
4. The recent acquisition of Speedpay, itself a business that has been declining, also does not seem likely to boost the company's organic growth prospects.

Summary: ACI Worldwide, Inc. (ACIW), based in Naples, Florida, traces its origins to Applied Communications, which was founded in 1975. The company's early ventures involved development of systems to handle ATMs (automated teller machines) and development of front ends (user interfaces) for core banking systems. The largest contributors to revenue are retail payments solutions (RPS), which generated 38% of 2018 revenues, and bill payments solutions, which accounted for 27% of 2018 revenues.

On May 9, 2019, ACIW acquired another bill payment platform called Speedpay from Western Union. In 2018, Speedpay generated $350M of revenues compared to $276M for ACIW's own bill payments solutions business. With Speedpay, we estimate that, on an annualized basis, bill payments and RPS constitute 46% and 28%, respectively, or almost three-quarters of ACIW's revenues today.

ACIW claims that its global payments transactions TAM (total available market) was 1.3 trillion transactions in 2018, and says it expects transactions volumes to grow to 2.1T in 2023. It claims that its share of the 1.3T transactions in 2018 was ~20%, and expects it share to grow to 22% in 2023. Therefore, it expects its own executed transactions to grow from 260B in 2018 to 462B in 2023. Historically, price per transaction paid by customers declines as transaction volumes increase. ACIW hopes to mitigate this pricing compression by providing value-added solutions. Based on these assumptions, ACIW hopes to achieve high single-digit organic revenue growth.

ACIW's argument for revenue growth might make more sense if its own sales growth in recent years mirrored the market's transaction growth. However, it appears that the company may have significantly underperformed transaction growth in recent years. While ACIW's own historic data of transactions by customer segment appears to contain inconsistencies, we note that it does indicate that the market grew by 15% from 2017 to 2018. However, ACI's revenues declined by 1% Y/Y from 2017 to 2018, suggesting that the company underperformed the market significantly.

Other industry observers have also estimated transaction volumes over the past several years. For instance, Capgemini and BNP Paribas estimated that noncash transactions totaled 438B in 2015 and 598B in 2018, for CAGR of 11%. North American transaction volumes were estimated to be 153B in 2015 and 180B in 2018, for CAGR of 6%. Again, ACIW's overall and North American revenue growth CAGR of 2% and –2%, respectively, have materially underperformed these estimates of transaction volume growth, implying it has experienced meaningful share loss in the last three years.

We think the main reason for the apparent share loss is that ACIW's business is weighted towards categories that are not growing as rapidly as overall transaction growth. Historical ACI solution area revenue data appears to validate this notion. From 2015 to 2018, the CAGR for ACIW's two largest solution areas, RPS and bill payments, were 4% and 3%, respectively, which are rates well below the market's 11% CAGR for the same period.

Moreover, a look at projections provided by the company itself seems to suggest that share loss should continue. According to ACIW, total transaction volume for its TAM is expected to grow from 1.3T transactions in 2018 to 2.1T in 2023, implying 10% CAGR. Banks and corporate billers are its two largest customer segments. ACIW estimates CAGR for bank and corporate biller transactions to be 9% and 5%, respectively, from 2018 to 2023, which is below the market's CAGR of 10%. ACIW's estimated CAGR for financial intermediaries and merchants, which account for much smaller portions of ACIW's business, are 12% and 9%, respectively.

Thus, we think the company's revenue growth assumptions seem problematic. The more likely probability that ACIW's revenues are unlikely to grow much also appears to be supported by the company's backlog data. 12-month backlog and 5-year backlog have been flat at ~$800M and $4.2B, respectively, over the past three years. In addition, according to industry participants, ACIW's solutions are considered old-fashioned and expensive, a perception that may exacerbate share loss.

ACIW doubled down on the slow-growing bill payments solutions business by acquiring Speedpay. Speedpay revenues were down 4% Y/Y in 2018 and down 7% Y/Y in Q1 19. Industry participants report that expedited payment platforms, such as Speedpay, started growing in popularity 15 years ago, when consumers began to use debit cards to make payments close to the payment due date, but in time to avoid late fees. Convenience fees for Speedpay went higher if consumers made payments closer to the payment due date, and Speedpay benefited from those additional fees.

However, in recent contract renewal negotiations, billers have begun demanding either a higher share of the convenience fees or lower fees to consumers. This seems to be true especially in the case of municipal utilities. For instance, in May 2018, the city of Richmond, VA, replaced Speedpay with competitor KUBRA's EZ-PAY for customers of Richmond Utility and Richmond Gas Works. EZ-PAY charges a convenience fee of $2.25 compared to Speedpay's $3.50 fee. In addition, the emergence of services such as Plastiq, which caters to consumers who make payments by credit cards to accumulate rewards points, appears to have also slowed Speedpay's growth. Thus, the Speedpay acquisition should even further pressure ACIW's revenue growth.

In addition to what seems to be an overly aggressive revenue growth forecast, ACIW also forecasts significant EBITDA margin expansion. EBITDA margin for the legacy ACIW business is expected to be 28%, up from 24%–25% over the past three years, and the company claims that this is expected to result from winding down a heavy investment cycle. This is a puzzling claim because R&D and sales & marketing expenses, as well as capex have been relatively flat in recent years, as we show later.

ACIW hopes to grow its merchant solutions business, which competes against Adyen and Square. The merchant solutions business provides global connectivity to card associations, payment card networks, acquirers, third-party networks and alternative payment providers. It also supports mobile POS, loyalty programs, fraud detection and refunds risk management. ACIW's merchant solutions revenues grew 32% Y/Y in 2018, albeit from a small base. However, Y/Y revenue growth in 2018 for Adyen and Square, whose merchant solutions businesses are larger than that of ACIW, was even higher at 60%. Operating expenses for Adyen and Square have been increasing by 40%–50% Y/Y, primary for product development. It seems unlikely that ACIW would be competitive with these rapidly growing competitors while cutting spending. Thus, ACIW's margin outlook may be too optimistic.

We forecast revenue of $1.229B (including $217M of Speedpay revenues) versus expectations of $1.320B and adjusted EBITDA of $331M versus expectations of $366M in 2019. In 2020, we forecast revenue and adjusted EBITDA of $1.366B and $388M versus expectations of $1.5B and $430M, respectively. ACIW shares trade at an EV/EBITDA valuation of 12.5X consensus 2020 EBITDA. Our fair value estimate is $25, 10.6X our estimated 2020 EBITDA, in line with comparables. We discuss our methodology in the valuation section.

Free cash flow in 2018 was $140M. ACIW thinks it can generate free cash flow of $195M in 2019 (excluding the Speedpay acquisition expense). Even at its forecasted amount, FCF yield is just 5%.

Share Borrow Information:

Total Supply	Short Interest	Available to Borrow	Date:
51.6M	5.4M	46.5M	07.01.2019

OWS Estimates/Prime Brokers

Background:

In 1975, Dave Willadsen, Dennis Gates, and James Cody founded Applied Communications Inc. (ACI) in Omaha, Nebraska to develop software for Tandem Computers' NonStop server computers, used by banks and stock exchanges. ACI's initial projects involved developing solutions to handle ATMs and other banking systems that required high uptimes.

In 1982, ACIW released its first official product, BASE24, short for "Baseline Software for 24 hour-per-day system operations". Over the next few years, the product began handling service transactions from POS terminals and branch systems. The company also began developing solutions for functions such as settlement and fraud detection.

Due to its success, hardware suppliers such as HP, Sun Microsystems, IBM, and Stratus began supporting ACI's software. This in turn led to an increase in wire transfers, wholesale banking payments, and automated clearing house (ACH) transactions. ACI grew significantly, and, by 1986, it had 131 clients in 14 countries, as well as sales offices and partners worldwide.

In 1995, ACI went public on the NASDAQ under the name Transaction Systems Architects (TSA). In the early 2000s, it began supporting card and merchant management, retailer solutions, and online banking. In 2007, the company's corporate name was changed from TSA to ACI Worldwide.

Today, ACIW classifies its business into six 'solution areas': Retail Payments, Real-time Payments, Merchant Payments, Payments Intelligence, Digital Channels and Bill Payments. These solution areas, which we describe in greater detail later, serve four customer segments: banks, financial intermediaries (payment processors, networks & merchant acquirers), merchants, and corporate (billers).

Customers deploy ACI's software through either a traditional term software license arrangement where the software is installed and operated on the customer premises (ACI On Premise) or through an on-demand arrangement where the solution is maintained and delivered through the cloud via ACIW's global data centers (ACI On Demand, or AOD). Solutions delivered through AOD cloud are available in either a single-tenant environment, known as a software as a service (SaaS) offering, or in a multi-tenant environment, known as a platform as a service (PaaS) offering. Pricing and payment terms depend on the solutions chosen by customers and customers' transaction volumes. Generally, customers commit to a minimum contract of five years, or three years in the case of certain acquired SaaS and PaaS contracts.

Table 1a shows revenue by solution area from 2015 to 2018, while Table 1b shows the percentage contribution by solution area. The company did not report revenue by solution area prior to 2015. Note that RPS (sold to banks, deployed primarily on premise) and payment solutions (sold to corporate billers, deployed on demand) accounted for 65% of total revenues.

Table 1a: ACIW revenue by deployment type and solution area

(Amounts in $000)	2015	2016	2017	2018
On premise bill payments		-	-	-
On premise digital channels		49,617	47,973	35,231
On premise merchant payments		29,311	26,430	30,153
On premise payments intelligence		24,665	33,203	42,647
On premise real-time payments		70,289	70,087	92,068
On premise retail payments		417,370	420,897	376,656
Total on-premise		591,252	598,590	576,755
On demand bill payments		255,540	271,421	275,526
On demand digital channels		59,597	46,063	40,342
On demand merchant payments		35,315	50,523	59,789
On demand payments intelligence		42,984	47,123	46,497
On demand real-time payments		705	2,785	2,193
On demand retail payments		4,892	7,686	8,678
Total on-demand		399,033	425,601	433,025
Bill payments	241,949	255,540	271,421	275,526
Digital channels	125,095	109,214	94,036	75,573
Merchant payments	49,064	64,626	76,953	89,942
Payments intelligence	66,386	67,649	80,326	89,144
Real-time payments	51,882	70,994	72,872	94,261
Retail payments	416,998	422,262	428,583	385,334
Total revenues	951,374	990,285	1,024,191	1,009,780
Y/Y On premise digital channels			-3%	-27%
Y/Y On premise merchant payments			-10%	14%

Y/Y On premise payments intelligence		35%	28%
Y/Y On premise real-time payments		0%	31%
Y/Y On premise retail payments		1%	-11%
Y/Y Total on-premise		1%	-4%
Y/Y On demand bill payments		6%	2%
Y/Y On demand digital channels		-23%	-12%
Y/Y On demand merchant payments		43%	18%
Y/Y On demand payments intelligence		10%	-1%
Y/Y On demand real-time payments		295%	-21%
Y/Y On demand retail payments		57%	13%
Y/Y Total on-demand		7%	2%
Y/Y bill payments	6%	6%	2%
Y/Y digital channels	-13%	-14%	-20%
Y/Y merchant payments	32%	19%	17%
Y/Y payments intelligence	2%	19%	11%
Y/Y real-time payments	37%	3%	29%
Y/Y retail payments	1%	1%	-10%
Y/Y Total	4%	3%	-1%

Source: Company reports

Table 1b: ACIW revenue by solution area: 2015–2018

	2015	2016	2017	2018
Bill payments	25%	26%	27%	27%
Digital channels	13%	11%	9%	7%
Merchant payments	5%	7%	8%	9%
Payments intelligence	7%	7%	8%	9%
Real-time payments	5%	7%	7%	9%
Retail payments	44%	43%	42%	38%
Total revenues	100%	100%	100%	100%

Source: Company reports

Table 1c shows ACIW's recurring revenues, which the company defines as the sum of SaaS, PaaS and maintenance revenues. Note that the company's recurring revenues in 2018 were lower than recurring revenues in 2015 (–2% CAGR).

Table 1c: ACIW recurring revenues

(Amounts in $000)	2015	2016	2017	2018
Recurring revenue	687,952	644,765	647,643	652,170

Source: Company reports

Banks use RPS primarily as on-premise solution. RPS provides a full range of functionality to support electronic payment transactions, such as debit and credit at ATM and point of sale (POS), payments for customers using branch and telephone banking, and mobile and internet banking. Competitors include Fidelity National information Services (FIS), Fiserv, Finastra, Computer Sciences Corporation (CSC), NCR, First Data Corporation (FDC) and Total System Services (TSYS).

Bill payments solutions, which are deployed on demand (SaaS), are targeted to corporate customers such as utilities, insurance companies (P&C insurance), consumer finance companies (auto finance, mortgage servicers), government agencies (taxes, service fees), healthcare (hospital systems, physician networks) and higher education (colleges). They include electronic bill presentment and payment (EBPP), real-time integration of EBPP with the corporate customer's ERP system, interchange (card network) management, refunds, and consolidation of payments from other channels such as customer bank and walk-in payments, etc. Competitors include Fiserv, FIS, Jack Henry, TouchNet, Kubra Customer Intercation management, Forte Payment Systems, Worldpay, Higher One and Nelnet.

ACIW hopes to grow the merchants payment business, which represents 9% of revenues currently. Merchant solutions provide global connectivity to card associations, payment card networks, acquirers, third-party networks and alternative payment providers. They also support mobile POS, loyalty programs, fraud detection and refunds risk management. Competitors include NCR, Ingenico, Adyen, Verifone, Worldpay and Square.

Digital channels offer banks cash management capabilities to meet the needs of small businesses and large corporations (corporate banking). Banks can use ACIW digital tools to manage daily collections, disbursements, information reporting and other corporate cash management services. Competitors include NCR, Bottomline Technologies, Q2 Software, Jack Henry, FIS, First Data Corporation, Fiserv, and Finastra.

ACIW's Payments Intelligence solutions employs analytics to provide fraud prevention and detection capabilities to banks, financial intermediaries and merchant customers. Principal competitors in this solution area are NICE LTD, Fair Isaac, NCR, BAE Systems, FIS, Fiserv, SAS Institute, Accertify (American Express), and Cybersource (Visa), as well as dozens of smaller companies focused on niches of this segment such as anti-money laundering.

ACIW's Real-time Payment Solutions support both low and high value real-time payment processing for banks and financial intermediaries globally, ensuring multi-bank, multi-currency and 24x7 payment processing capabilities, as well as complete and ongoing regulatory compliance. Competitors here are generally the same competitors that the company encounters in RPS, and include Fidelity National information Services (FIS), Fiserv, Finastra, Computer Sciences Corporation (CSC), NCR, First Data Corporation (FDC) and Total System Services (TSYS).

Table 2a shows revenue by geography from 2015-2018, and Table 2b shows the contribution percentages. No country, other than the US, generates more than 10% of ACIW's revenues. Note that the EMEA region generated 34% of ACIW's revenues in 2018. It appears that 86% of EMEA revenues are generated from on-premise deployment of ACIW's bank products.

Table 2a: ACIW revenue by deployment type and geography

(Amounts in $000)	2015	2016	2017	2018
On premise US		164,058	175,682	131,382
On premise rest of Americas		110,463	72,802	61,969
On premise EMEA		217,576	270,388	296,157
On premise APAC		99,155	79,718	87,247
Total on premise	589,006	591,252	598,590	576,755
On demand US		347,957	365,553	369,097
On demand rest of Americas		6,255	9,429	9,577
On demand EMEA		43,584	47,872	48,889
On demand APAC		1,237	2,747	5,462
Total on demand	362,368	399,033	425,601	433,025
US revenues	533,410	512,015	541,235	500,479
Rest of Americas revenues	82,548	116,718	82,231	71,546
EMEA revenues	250,568	261,160	318,260	345,046
APAC revenues	84,848	100,392	82,465	92,709
Total revenues	951,374	990,285	1,024,191	1,009,780
Y/Y On premise US			7%	-25%
Y/Y On premise rest of Americas			-34%	-15%
Y/Y On premise EMEA			24%	10%
Y/Y On premise APAC			-20%	9%
Y/Y Total on premise		0%	1%	-4%
Y/Y On demand US			5%	1%
Y/Y On demand rest of Americas			51%	2%
Y/Y On demand EMEA			10%	2%
Y/Y On demand APAC			122%	99%
Y/Y Total On demand		10%	7%	2%
Y/Y US revenues		-4%	6%	-8%
Y/Y Rest of Americas revenues		41%	-30%	-13%
Y/Y EMEA revenues		4%	22%	8%
Y/Y APAC revenues		18%	-18%	12%
Y/Y Total revenues		4%	3%	-1%

Source: Company reports

Table 2b: ACIW revenue by geography: 2015–2018

	2015	2016	2017	2018
US revenues	56%	52%	53%	50%
Rest of Americas revenues	9%	12%	8%	7%
EMEA revenues	26%	26%	31%	34%
APAC revenues	9%	10%	8%	9%
Total revenues	100%	100%	100%	100%

Source: Company reports

On May 9, 2019, ACIW bought the Speedpay bill payment business from Western Union (WU) for $750M in cash, paying 2.1X TTM sales and 8.3X TTM EBITDA. As can be seen from WU's disclosures regarding Speedpay (Table 3), the business has been declining for several quarters.

Table 3: Y/Y change in Speedpay revenues

(Amounts in $M)	2016	2017	2018	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19
Speedpay revenues	320.0	368.3	351.9	95.0	87.4	85.3	84.2	88.2
Y/Y change		15%	-4%	4%	-5%	-7%	-9%	-7%

Source: WU filings

Table 4 shows Speedpay EBIT trends. Note that there is no allocation of WU's corporate overhead to Speedpay in these EBIT figures. The data in Table 4 suggest that Speedpay profitability appears to be declining, along with revenue.

Table 4: Speedpay operating profitability

(Amounts in $000)	2018	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19
Speedpay revenues	351,900	95,000	87,400	85,300	84,200	88,200
Speedpay direct opex	251,100	66,100	61,600	62,000	61,400	67,600
Speedpay direct EBIT	100,800	28,900	25,800	23,300	22,800	20,600
Speedpay direct EBIT margin	28.6%	30.4%	29.5%	27.3%	27.1%	23.4%

Source: WU filings

Discussion:

1. The "street" expects ACIW to grow revenues 10% Y/Y on an organic basis in 2019 and in 2020. This forecast appears to mirror the long-term projection ACIW gave at its 2018 Analyst Day in November, and implies share gain in transaction volume, along with minimal price decline.

Probably as a result of these rosy projections, and because they want to find ways to participate in the relatively fast-growing transactions market, investors value ACIW at 3.6X consensus 2020 sales (EV/sales) and 12.5X consensus 2020 EBITDA (EV/EBITDA).

Table 5 shows the assumptions that appear to underlie this optimism. As we discuss below, we think these assumptions are likely to be off the mark. Therefore, the projected revenue growth seems also unlikely to materialize.

Table 5: Implied sources of ACIW revenue growth

	2018	2023	CAGR
Transactions (B)	1,300	2,100	10%
ACIW share	20.0%	22.0%	
ACIW transactions (B)	260	462	
Revenue ($B)	1.010	1.617	10%
Actual/implied ACIW revenue per transaction (cents)	0.39	0.35	

Source: Company reports, OWS estimates

2. While the market for total payment transaction volume has indeed grown at ~10% CAGR in the past few years, ACIW's own business has grown far more slowly.

In Table 6a, we show ACIW's own estimates of the transactions market in 2017 and 2018. These data appear to have inconsistencies, which we discuss in a later section. Regardless, according to ACIW, the market grew 15% Y/Y from 2017 to 2018. In contrast, ACIW's revenue declined by 1% Y/Y from 2017 to 2018.

Table 6b: Analysis of transaction market growth and ACIW revenue growth from 2017 to 2018

	2017	2018	Y/Y change
Corporates (Billion transactions)	6	8	33%
Merchants (Billion transactions)	174	137	-21%
Intermediaries (Billion transactions)	638	598	-6%
Banks (Billion transactions)	313	560	79%
Total (Billion transactions)	1,131	1,303	15%
ACIW revenues ($M)	1,024	1,010	-1%

Source: Company reports

In Table 6b, we show the growth in total payment transaction volume and North American transaction volume from 2015–2018, as estimated by Capgemini and BNP Paribas. While global noncash transaction volumes have grown at a CAGR of 11% from 2015–2018, ACIW's revenues have grown at a CAGR of just 2% in the same timeframe.

In North America, which accounts for 57% of ACIW's revenues, ACIW's revenue CAGR from 2015–2018 was actually negative (–2%), significantly underperforming North American noncash transactions, which grew at a 6% CAGR.

Table 6b: Historical analysis of transaction market growth and ACIW revenue growth

	2015	2016	2017	2018	CAGR
Global noncash payment transactions (B)	438.4	482.6	535.6	597.6	11%
North America noncash payment transactions (B)	152.5	161.1	170.2	180.0	6%
Total ACIW revenues ($000)	951,374	990,285	1,024,191	1,009,780	2%
ACIW North America revenues ($000)	615,958	628,733	623,466	572,025	-2%

Sources: Capgemini, BNP Paribas, Company reports

3. ACIW's historical underperformance appears to be due to its lack of exposure to the fast-growing segments of the payments transactions market. Even more importantly, ACIW's own projections suggest that this disadvantage should continue. Thus, it does not seem reasonable to expect that ACIW's growth rate would accelerate to match overall transaction volume growth rates.

Table 7, below, shows ACIW's historical revenue by solution area. Note that ACIW's business is most levered to corporates (bill payments) and banks (retail payments).

Table 7: ACIW revenue by solution area

(Amounts in $B)	2015	2016	2017	2018	CAGR
Bill payments	241,949	255,540	271,421	275,526	4%
Digital channels	125,095	109,214	94,036	75,573	-15%
Merchant payments	49,064	64,626	76,953	89,942	22%
Payments intelligence	66,386	67,649	80,326	89,144	10%
Real-time payments	51,882	70,994	72,872	94,261	22%
Retail payments	416,998	422,262	428,583	385,334	-3%
Total revenues	951,374	990,285	1,024,191	1,009,780	2%
Y/Y bill payments		6%	6%	2%	
Y/Y digital channels		-13%	-14%	-20%	
Y/Y merchant payments		32%	19%	17%	
Y/Y payments intelligence		2%	19%	11%	
Y/Y real-time payments		37%	3%	29%	
Y/Y retail payments		1%	1%	-10%	
Y/Y Total revenues		4%	3%	-1%	
Bill payments	25%	26%	27%	27%	
Digital channels	13%	11%	9%	7%	
Merchant payments	5%	7%	8%	9%	
Payments intelligence	7%	7%	8%	9%	
Real-time payments	5%	7%	7%	9%	
Retail payments	44%	43%	42%	38%	
Total revenues	100%	100%	100%	100%	

Source: Company reports

Table 8 shows ACIW's projections for growth by customer segment from 2018–2023. Note that bill payment transactions (27% of legacy ACIW revenues) are expected to grow at a 5% CAGR, well below the expected market CAGR of 10%, and well above its recent 4% growth. Retail payments transactions (38% of legacy ACIW revenues) are expected to grow at a CAGR of 9%, a bit under the expected market CAGR, but well above recent negative growth of -3%. Thus, even by the company's own assumptions, it should grow slower than the market's anticipated 10% growth rate. Compared to recent actual performance, ACIW's projections are hard to understand.

Table 8: Projection of customer segment growth from 2018–2023

(Transactions in B)	2018	2023	CAGR
Corporates	8	10	5%
Merchants	137	210	9%
Intermediaries	598	1,050	12%
Banks	560	865	9%
Total	1,303	2,135	10%

Source: Company reports

4. It also appears that many of the company's figures regarding transaction growth and revenue calculation have been inconsistent or even incorrect. These issues raise questions about either management's understanding of the market or its credibility, or both.

In Table 8, we showed the company's estimate of the transaction market and those of its customer segments. This presentation was prepared for ACIW's 2018 Analyst Day held in November 2018. Just a year earlier, at its November 2017 Analyst Day, ACIW presented a different estimate of its market and projected growth 5 years out (2022). We show both estimates, the 5-year out projections and the estimated CAGR in both instances in Tables 9a–9d. ACIW did not make any acquisitions between the two Analyst Day meetings that would have changed the markets in which it participated.

Table 9a: Comparison of ACIW's market estimates in November 2017 and November 2018

(Amounts in billions)	2017	2018
Corporates	6	8
Merchants	174	137
Intermediaries	638	598
Banks	313	560
Total	1,131	1,303
Corporate % of total transactions	0.5%	0.6%
Merchants % of total transactions	15%	11%
Intermediaries % of total transactions	56%	46%
Banks % of total transactions	28%	43%
	100%	100%

Source: Company reports

Table 9b: Comparison of ACIW's 5-year out market estimates in Nov. 2017 and Nov. 2018

(Amounts in billions)	2022	2023
Corporates	8	10
Merchants	290	210
Intermediaries	825	1,050
Banks	500	865
Total	1,623	2,135
Corporate % of total transactions	0.5%	0.5%
Merchants % of total transactions	18%	10%
Intermediaries % of total transactions	51%	49%
Banks % of total transactions	31%	41%
	100%	100%

Source: Company reports

Table 9c: ACIW's estimated CAGR for customer segments in November 2017

Transactions (B)	2017	2022	CAGR
Corporates	6	8	6%
Merchants	174	290	11%
Intermediaries	638	825	5%
Banks	313	500	10%
Total	1,131	1,623	7%

Source: Company reports

Table 9d: ACIW's estimated CAGR for customer segments in November 2018

Transactions (B)	2018	2023	CAGR
Corporates	8	10	5%
Merchants	137	210	9%
Intermediaries	598	1,050	12%
Banks	560	865	9%
Total	1,303	2,135	10%

Source: Company reports

Note that the estimated number of current-year transactions rose meaningfully for banks in 2018, but dropped for merchants and intermediaries. Moreover, in 2018, the 5-year out numbers rose meaningfully for intermediaries and banks, but dropped for merchants. There was no explanation for the change in these numbers.

Senior management also appears to have miscalculated the company's price per transaction. The company claims that it has high teens to low-twenties percentage share of the 1.3T transaction market. Thus, according to management, ACIW itself executes 260B transactions annually. At the May 21, 2019 Analyst Briefing, the company's Chief Marketing Officer said:

> "I also want to point your attention because we're going to spend a few minutes on this later to the number of transactions processed annually through ACI's software, 260 billion. Just using round numbers, at about $0.05 per transaction times 260 billion you get to $1.3 billion in revenue."

However, 260B*$0.05 is $13B, not $1.3B. The company 2018 revenue was $1B. Thus, price per transaction appears to be $1B/260B, or 0.39 cents, not 5 cents, as the executive claimed above. It is concerning that management would make such a mistake on a fundamental point.

The company indicated that it monetizes transactions by customer segment according to the rates shown in Table 10. At least for the corporates, ACIW's quoted figures appear to be high. Utility companies suggested to us that the price per transaction they paid was closer to 10 cents, well below the 20 cents to a dollar cited below by ACIW. Again, it is puzzling that ACIW's price per transaction numbers are substantially higher than what other participants report.

Table 10: ACIW price per transaction by customer segment

Customer segment	Price per transaction
Corporates	$0.20-$1.00
Merchants	$0.01-$0.07
Intermediaries	<$0.01-$1.00
Banks	<$0.01

Source: Company reports

5. ACIW claims that it can grow new bookings (defined as new accounts and existing client upgrades but not renewals) in the high single digits over the next 5 years. This appears to be an optimistic projection.

ACIW's projected new bookings growth would represent a substantial increase from ACIW's historical growth in new bookings. As Table 11 shows, new bookings grew 0.6% from 2015 to 2018 and were down 79% Y/Y in Q1 19.

Table 11: ACIW historical bookings

(Amounts in $M)	2015	2016	2017	2018	Q1 19
New accounts/applications	267.6	251.3	241.6	392.6	29.6
Add-on biz (including capacity upgrades & services)	485.2	480.3	377.1	364.8	40.2
New bookings	752.8	731.7	618.7	757.5	69.8
Term extensions	486.9	561.9	474.1	504.5	41.9
Total bookings	1,239.7	1,293.6	1,092.9	1,262.0	111.7
Y/Y New accounts/applications		-6%	-4%	62%	-79%
Y/Y Add-on biz		-1%	-21%	-3%	-45%
Y/Y New bookings		-3%	-15%	22%	-68%
Y/Y Term extensions		15%	-16%	6%	-18%
Y/Y Total bookings		4%	-16%	15%	-58%

Source: Company reports

Table 12 shows ACIW's 12-month and 60-month backlogs reported in the past several quarters. Note that 12-month backlog has been down in this timeframe and 60-month backlog has essentially been flat.

Table 12: ACIW 12-month and 60-month backlog figures

(Amounts in $M)	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19
12-month backlog	883	825	824	837	827	811	813
60-month backlog							
On premise		1,700	1,874	1,830	1,775	1,875	1,861
On demand		2,404	2,513	2,472	2,401	2,299	2,290
Total		4,104	4,387	4,302	4,176	4,174	4,151

Source: Company reports

What would cause new bookings to accelerate? As we showed earlier, ACIW's business is heavily weighted towards slower growing segments. Banking industry participants told us that, while ACIW's position in the very large banks is likely safe for now, because it has written customized software for them, that business is likely to decline slowly over time due to bank consolidation. For instance, it appears that appears that ACIW lost sales (which it claims is temporary) in Q4 18 due to the planned merger of BB&T Corporation and SunTrust.

Banking industry participants also told us that ACIW is losing share in corporate banking (the digital channels solution area) to Q2 Software. We note that sales in this solution area have declined at a 15% CAGR from 2015 to 2018 (Table 7). According to these participants, ACIW's software is perceived to be old-fashioned and expensive.

In the merchant solutions area, industry participants noted that Square and Adyen have better integrated solutions than ACIW, which has patched together software from multiple acquisition such as PAY.ON (payments gateway) and ReD (Retail Decisions, fraud management software).

Therefore, the notion that new bookings growth should accelerate over the next five years seems far-fetched.

6. ACIW has doubled down on the corporate bill payment business by acquiring Speedpay. However, it appears that Speedpay has been losing share to competitors that are charging lower convenience fees. If Speedpay's share loss continues, ACIW's objective for ~10% revenue growth becomes harder to attain.

As shown in Table 3 in the Background section, Speedpay's revenues have declined Y/Y for four straight quarters. Loss of share to competitors offering lower convenience fees appears to be one of the reasons. For instance, the city of Richmond (Virginia) changed its credit card Bill Pay vendor for Richmond Utility and Richmond Gas Works from Speedpay to KUBRA EZ–PAY on May 1, 2018.

One of the key factors cited by the city was the lower convenience fee ($2.25 per transaction) that KUBRA charged customers, compared to the $3.50 per transaction charged by Speedpay. Orlando Utilities Commission made a similar change from Speedpay to KUBRA, lowering the convenience fee per transaction from $5.75 to $3.75. On November 2, 2017, Clayton County Water Authority in Georgia chose Invoice Cloud to replace Speedpay as its payment processor based on best customer experience, lowest convenience fee and lowest transition costs. https://www.claytoncountyga.gov/Home/ShowDocument?id=1002

Utilities representatives told us that, over the past several years, they had seen an increase in the number of customers who paid their utility by credit card. It appears that many customers did so to accrue rewards points, which benefited expedited payments services such as Speedpay. Now, according to them, many customers are switching to bill pay services such as Plastiq, which allows consumers to use a credit card for virtually any expense, even ones like rent or key supplies that normally require a check, so that they can earn credit card rewards. Plastiq charges 2.5% of the bill payment amount, which results in fees lower than that of Speedpay unless the bill exceeds $140 (assuming the average Speedpay fee, which appears to be around $3.50). This may an additional source of market share loss for Speedpay.

7. ACIW says that ACIW on-demand (AOD) EBITDA margins should expand in coming quarters because the company is past the heavy investment phase for this segment. However, this argument is hard to accept, as the company's AOD opex does not appear to have materially changed Y/Y for the past three years and in Q1 19 (the periods for which we can calculate AOD opex), so we see little evidence of the 'heavy' investing phase. We show this in Table 13.

Table 13: Calculation of ACIW's on-demand opex

(Amounts in $000)	2016	2017	2018	Q1 18	Q1 19
On demand revenues	399,033	425,601	433,025	104,280	109,848
Y/Y change		7%	2%		5%
On demand EBITDA	(2,624)	(1,832)	12,015	(4,233)	(262)
On-demand D&A	29,385	34,171	31,541	7,736	7,562
On-demand EBIT	(32,009)	(36,003)	(19,526)	(11,969)	(7,824)
On-demand opex	431,042	461,604	452,551	116,249	117,672
Y/Y change		7%	-2%		1%

Source: Company reports, OWS estimates

Importantly, competitors in the merchant solutions segment, which ACIW hopes to grow are investing far more than ACIW, and they are increasing their investments. For instance, Square, a competitor to ACIW in the merchant solutions business, has grown far more rapidly. Square details its operating expenses (Table 14).

Table 14: Components of and growth in Square's operating expenses

	2017	2018	Q1 18	Q1 19
Adjusted net revenue	983,963	1,587,641	306,820	489,050
Y/Y adjusted net revenue		61%		59%
Product development costs	321,888	497,479	105,095	153,559
S&M	253,170	411,151	77,266	133,713
G&A	250,553	339,245	75,501	101,598
Product development (PD) costs % of adjusted revenues	32.7%	31.3%	34.3%	31.4%
S&M costs % of adjusted revenues	25.7%	25.9%	25.2%	27.3%
G&A % of adjusted revenues	25.5%	21.4%	24.6%	20.8%
Core opex (PD, S&M, G&A)	825,611	1,247,875	257,862	388,870
Y/Y change		51%		51%

Source: Square filings

We can see that Square's investments increased substantially Y/Y in 2018 and in Q1 19 (up 51% Y/Y in both periods), due to spending on product development and sales & marketing. We think ACIW is unlikely to be competitive if it slows its investing in these areas.

8. Recent results.

ACI reported Q1 19 results on May 9, 2019. Revenue of $205.9M missed consensus of $213.0M and was down 2% Y/Y. The company attributed the shortfall to 'the timing and size of renewal and capacity events in Q1 2019 compared to Q1 2018'. In other words, some customers did not renew or had fewer transactions than expected. EBITDA of $8.1M was well short of the $23.2M expectation.

New bookings were down 68% Y/Y to $69.8M. 12-month and 60-month backlogs were also down 1% Y/Y and down 5% Y/Y, respectively, to $813M and $4.151B. Both on-premise (–1%) and on-demand (–9%) 5-year backlogs were down Y/Y.

DSO at Q1 19 end was 116 days, down 4 days Y/Y. Book value at Q1 19 end was $8.89 and tangible book was negative (–$0.34).

At Q1 19 end, net debt was $490M. After the end of the quarter, ACIW acquired Speedpay for $750M in cash. Thus, we estimate net debt today to be ~$1.24B.

9. Free cash flow.

Table 15 shows ACIW's cash flow generation over the past four years. We show both free cash flow (FCF) and sustainable cash flow, which we define as net income + D&A – capex. FCF and SCF have been relatively flat from 2015 to 2018, mirroring the performance of revenues and EBITDA, and have averaged $102M and $125M, respectively, over this timeframe.

Table 15: ACIW cash flow: 2015–2018

(Amounts in $000)	2015	2016	2017	2018
Net income	85,436	129,535	5,135	68,921
Depreciation	21,656	22,584	24,871	23,805
Amortization	75,775	80,870	77,353	73,545
Amortization deferred debt issuance costs	6,244	5,567	4,286	4,637
SBC	18,380	43,613	13,683	20,360
Gain on sale of CFS assets	-	(151,463)	-	-
Other items	(19,497)	(30,876)	20,869	(7,336)
CFFO	187,994	99,830	146,197	183,932
Capex	(27,283)	(40,812)	(25,717)	(18,265)
Purchases of software & distribution rights	(21,662)	(22,268)	(28,697)	(25,628)
FCF	139,049	36,750	91,783	140,039
SCF	140,166	175,476	57,231	127,015
Adjusted EBITDA	259,543	237,197	261,947	250,921
Acquisitions	(179,367)	232	-	-
Proceeds from sale of CFS	-	199,481	-	-

Source: Company reports

10. Financial assumptions.

a. Revenue.

In Table 1, we showed Y/Y change in revenue by solution area for the period 2015–2018. In Table 16, we show the same data for the most recent quarterly periods for which data are available.

Table 16: ACIW revenues by solution area and Y/Y changes

(Amounts in $000)	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19
On premise bill payments	-	-	-	-	-
On premise digital channels	11,363	8,917	7,499	7,452	8,725
On premise merchant payments	5,010	5,250	6,216	13,677	5,022
On premise payments intelligence	10,420	8,032	7,259	16,936	7,037
On premise real-time payments	13,641	15,741	23,704	38,982	14,715
On premise retail payments	64,596	83,455	96,328	132,277	60,508
Total on-premise	105,030	121,395	141,006	209,324	96,007
On demand bill payments	66,168	74,371	64,134	70,853	68,967
On demand digital channels	10,644	10,310	9,327	10,061	9,788
On demand merchant payments	12,371	14,000	18,052	15,366	19,339
On demand payments intelligence	11,798	11,658	11,068	11,973	8,981
On demand real-time payments	450	484	540	719	618
On demand retail payments	2,849	2,777	1,398	1,654	2,155
Total on-demand	104,280	113,600	104,519	110,626	109,848
Y/Y On premise digital channels	-9%	-13%	-44%	-37%	-23%
Y/Y On premise merchant payments	-21%	-29%	-3%	119%	0%
Y/Y On premise payments intelligence	102%	18%	-33%	64%	-32%
Y/Y On premise real-time payments	1%	59%	102%	12%	8%
Y/Y On premise retail payments	-32%	-10%	15%	-12%	-6%
Y/Y Total on-premise	-20%	-5%	12%	-2%	-9%
Y/Y On demand bill payments	1%	1%	3%	1%	4%
Y/Y On demand digital channels	1%	-12%	-19%	-18%	-8%
Y/Y On demand merchant payments	9%	17%	45%	4%	56%
Y/Y On demand payments intelligence	14%	-4%	-1%	-11%	-24%
Y/Y On demand real-time payments	131%	-72%	4%	96%	37%
Y/Y On demand retail payments	46%	27%	-17%	-11%	-24%
Y/Y Total on-demand	5%	0%	5%	-2%	5%

Source: Company reports

We assume that bill payment revenues grow at 3% Y/Y for the remainder of 2019 and in 2020. ACIW expects recently acquired Speedpay to contribute $215M–$220M in 2019. Therefore, we assume that Speedpay contributes $217M to ACIW in 2019, which translates to $217M of revenue for the acquisition period of 237 days (May 9 to December 31), or $918k per day. Since Speedpay revenues are not seasonal, we assume that Speedpay's contribution to revenues in Q1 20 and the stub period in Q2 20 (April 1, 2020 to May 8, 2020, a total of 129 days since 2020 is a leap year) will be 918k*129 or $118M.

We assume that on-premise RPS and on-demand RPS decline 5% Y/Y in the remainder of 2019 and in 2020, due the continuing consolidation in the banking sector. We assume that on-premise merchant payments and on-premise payments intelligence also decline 5% Y/Y in the remainder of 2019 and in 2020, continuing recent trends. On-premise and on-demand digital channels are losing share to SaaS competitors such as Q2 Software. Thus, we project on-premise digital channels to decline 8% Y/Y in the remainder of 2019 and 5% Y/Y in 2020. We assume that on-demand digital channels would decline 5% Y/Y in the remainder of 2019 and in 2020. We forecast on-premise real-time payments solutions to grow 10% Y/Y for the remainder of 2019 and in 2020.

We project on-demand merchant payments, which grew 28% Y/Y in 2018 to grow 25% Y/Y in 2019 and 20% Y/Y in 2020. We expect on-demand payment intelligence solutions to grow 5% Y/Y in 2019 and in 2020. We forecast on-demand real-time payments solutions to grow 30% Y/Y in the remainder of 2019 and in 2020.

b. EBITDA margins.

ACIW reports EBITDA by deployment type, and does not report EBITDA by solution area. Table 17 shows ACIW's EBITDA margins by deployment type from 2016-2018.

Table 17: ACIW EBITDA by deployment type

(Amounts in $000)	2016	2017	2018
On premise revenues	591,252	598,590	576,755
On demand revenues	399,033	425,601	433,025
Total revenues	990,285	1,024,191	1,009,780
On premise EBITDA	312,188	347,094	323,902
On demand EBITDA	(2,624)	(1,832)	12,015
Total Segment EBITDA	309,564	345,262	335,917
On premise EBITDA margin	52.8%	58.0%	56.2%
On demand EBITDA margin	-0.7%	-0.4%	2.8%

Source: Company reports

Note that on-premise EBITDA margins have been stable around 55%. We assume flat EBITDA margin for the remainder of 2017 and 2018.

On the other hand, on-demand margins have been negligible. ACIW claims that it has been investing heavily on opex on the on-demand side. It says that with the infrastructure now in place, on-demand revenue growth should lead to healthy EBITDA margin expansion.

As we discussed earlier, we think this is a flawed argument. We think ACIW has to keep investing to keep up with competitors, or it would likely lose more revenue share. Thus, we think growth in EBITDA margins in the legacy AOD business is likely to be less than ACIW's expectations.

However, the addition of Speedpay, which has about 25% EBITDA margins, should help boost on-demand margins. We forecast 17.0% EBITDA margin for ACIW's on-demand segment (including Speedpay) for the remainder of 2019 and 19.1% in 2020.

Corporate and unallocated expenses were $144.7M and $92.3M, respectively, in 2017 and 2018. We assume $105.7M and $110M, respectively, of corporate and unallocated expenses in 2019 and 2020. Our higher projections for these expenses relative to 2018 are because of the acquisition of Speedpay.

11. Valuation & risks.

Table 18 shows our 2019 and 2020 revenue and EBITDA projections for ACIW, based on the foregoing assumptions, along with the corresponding "street" estimates. The "street" appears to assume that ACIW will grow revenue of its legacy business 10% Y/Y in 2019 and in 2020. It also forecasts margin expansion of 370 basis points Y/Y in the legacy ACIW business in 2019. The "street" expects further EBITDA margin expansion of 10 basis points Y/Y in 2020. As discussed earlier, we expect legacy ACIW revenue to be flat Y/Y in 2019 and in 2020. We also forecast lower EBITDA margins for the company because we think it needs to invest in product development and sales & marketing to be competitive with the likes of Adyen and Square.

Table 18: Comparison of OWS and "street" estimates for ACIW

	OWS estimates	"Street" estimates
2019 revenue ($M)	1,229.2	1,320.0
2019 EBITDA ($M)	331.0	366.3
2020 revenue ($M)	1,366.2	1,500.0
2020 EBITDA($M)	388.4	429.7

Source: OWS estimates, Bloomberg

ACIW shares trade today at 12.5X 2020 consensus EBITDA. We think a legacy software provider like ORCL is a good comparable for the company. ORCL trades at an EV/EBITDA valuation of 10.6X based on FY 21 consensus EBITDA. ORCL's FY 21 ends in May 2021, roughly two years out.

If we were to apply ORCL's multiple to our ACIW's 2020 EBITDA estimate of $388.4M and subtract the $1.24B in net debt, we obtain a value of $24.27 for the shares. Our initial fair value estimate is $25.

We note that another legacy software provider, CA (the former Computer Associates), was acquired in July 2018 at an EV/EBITDA valuation of 10.8X 2019 estimated EBITDA. At 10.8X OWS 2020 EBITDA, ACIW's share valuation would be $24.93. CA was sold pursuant to an auction in which both potential strategic acquirers (Broadcom, which ultimately bought CA) as well as potential financial acquirers (two private equity firms) were involved.

The primary risk to our thesis is that ACIW is acquired. However, most of potential strategic acquirers are already competitors who have payments software platforms. If the acquisition of CA is any guide, it is unlikely that private equity firms would be interested at the current valuation.

12. Financial projections.

a. Quarterly projections.

	Q1 19	Q2 19e	Q3 19e	Q4 19e	Q1 20e	Q2 20e	Q3 20e	Q4 20e
Bill paymnts	68,967	125,602	150,058	156,979	154,036	164,370	154,560	161,688
Digital chnls	18,513	17,374	15,985	16,637	17,587	16,505	15,185	15,805
Mrch. pymts	24,361	22,488	28,470	32,201	27,978	25,738	32,688	35,392
Pymts intel.	16,018	19,871	18,517	28,661	16,115	20,102	18,754	28,485
Realtm pmt	15,333	17,944	26,776	43,815	16,990	19,865	29,594	48,383
Retail pmnts	62,663	81,920	92,840	127,234	59,530	77,824	88,198	120,873
Total revs	205,855	285,200	332,646	405,527	292,236	324,404	338,979	410,627
AOP revs	96,007	116,795	137,511	204,705	93,414	113,552	134,547	200,902
AOD revs	109,848	168,405	195,135	200,822	198,822	210,852	204,432	209,725
OPEBITDA	28,268	58,397	68,756	153,529	46,707	56,776	67,273	150,676
ODEBITDA	(262)	16,840	29,270	50,205	29,823	31,628	36,798	58,723
SegEBITDA	28,006	75,238	98,026	203,734	76,530	88,404	104,071	209,399
Corp. exp.	24,662	26,000	27,500	27,500	27,500	27,500	27,500	27,500
Trans. exp.	4,700	9,000	9,000	9,000	5,000	5,000	5,000	5,000
AdjEBITDA	8,044	58,238	79,526	185,234	54,030	65,904	81,571	186,899

Y/Y change

	Q1 19	Q2 19e	Q3 19e	Q4 19e	Q1 20e	Q2 20e	Q3 20e	Q4 20e
Bill paymnts	4%	69%	134%	122%	123%	31%	3%	3%
Digital chnls	-16%	-10%	-5%	-5%	-5%	-5%	-5%	-5%
Mrch. pymts	40%	17%	17%	11%	15%	14%	15%	10%
Pymts intel.	-28%	1%	1%	-1%	1%	1%	1%	-1%
Realtm pmt	9%	11%	10%	10%	11%	11%	11%	10%
Retail pmnts	-7%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Total revs	-2%	21%	35%	27%	42%	14%	2%	1%
AOP revs	-9%	-4%	-2%	-2%	-3%	-3%	-2%	-2%
AOD revs	5%	48%	87%	82%	81%	25%	5%	4%
OPEBITDA	-27%	7%	-12%	1%	65%	-3%	-2%	-2%
ODEBITDA	-94%	n/a	795%	207%	n/a	88%	26%	17%
SegEBITDA	-19%	46%	21%	21%	173%	17%	6%	3%
Corp. exp.	23%	21%	22%	-2%	12%	6%	0%	0%
Trans. exp.	9%	1400%	500%	900%	6%	-44%	-44%	-44%
AdjEBITDA	-58%	91%	33%	31%	572%	13%	3%	1%

As % of sales

	Q1 19	Q2 19e	Q3 19e	Q4 19e	Q1 20e	Q2 20e	Q3 20e	Q4 20e
Bill paymnts	34%	44%	45%	39%	53%	51%	46%	39%
Digital chnls	9%	6%	5%	4%	6%	5%	4%	4%
Mrch. pymts	12%	8%	9%	8%	10%	8%	10%	9%
Pymts intel.	8%	7%	6%	7%	6%	6%	6%	7%
Realtm pmt	7%	6%	8%	11%	6%	6%	9%	12%
Retail pmnts	30%	29%	28%	31%	20%	24%	26%	29%
Total revs	100%	100%	100%	100%	100%	100%	100%	100%
AOP revs	47%	41%	41%	50%	32%	35%	40%	49%
AOD revs	53%	59%	59%	50%	68%	65%	60%	51%
OPEBITDA	14%	20%	21%	38%	16%	18%	20%	37%
ODEBITDA	0%	6%	9%	12%	10%	10%	11%	14%
SegEBITDA	14%	26%	29%	50%	26%	27%	31%	51%
Corp. exp.	12%	9%	8%	7%	9%	8%	8%	7%
Trans. exp.	2%	3%	3%	2%	2%	2%	1%	1%
AdjEBITDA	4%	20%	24%	46%	18%	20%	24%	46%

b. Annual projections.

	2016	2017	2018	2019e	2020e
Bill payments	255,540	271,421	275,526	501,606	634,654
Digital channels	109,214	94,036	75,573	68,509	65,084
Merchant payments	64,626	76,953	89,942	107,519	121,796
Payments intelligence	67,649	80,326	89,144	83,068	83,456
Real-time payments	70,994	72,872	94,261	103,869	114,832
Retail payments	422,262	428,583	385,334	364,658	346,425
Total revenues	990,285	1,024,191	1,009,780	1,229,228	1,366,246
On-premise revenues	591,252	598,590	576,755	555,018	542,415
On-demand revenues	399,033	425,601	433,025	674,210	823,831
On-premise EBITDA	312,188	347,094	323,902	308,950	321,433
On-demand EBITDA	(2,624)	(1,832)	12,015	96,054	156,972
Total segment EBITDA	309,564	345,262	335,917	405,004	478,405
Corp. & unalloc. exp.	(58,633)	144,715	92,296	105,662	110,000
Transaction expenses	(131,000)	61,400	7,300	31,700	20,000
Adjusted EBITDA	237,197	261,947	250,921	331,042	388,405

Y/Y change

	2016	2017	2018	2019e	2020e
Bill payments	6%	6%	2%	82%	27%
Digital channels	-13%	-14%	-20%	-9%	-5%
Merchant payments	32%	19%	17%	20%	13%
Payments intelligence	2%	19%	11%	-7%	0%
Real-time payments	37%	3%	29%	10%	11%
Retail payments	1%	1%	-10%	-5%	-5%
Total revenues	4%	3%	-1%	22%	11%
On-premise revenues	n/a	1%	-4%	-4%	-2%
On-demand revenues	n/a	7%	2%	56%	22%
On-premise EBITDA	n/a	11%	-7%	-5%	4%
On-demand EBITDA	n/a	-30%	-756%	699%	63%
Total segment EBITDA	n/a	12%	-3%	21%	18%
Corp. & unalloc. exp.	n/a	-347%	-36%	14%	4%
Transaction expenses	n/a	-147%	-88%	334%	-37%
Adjusted EBITDA	n/a	10%	-4%	32%	17%

As % of sales

	2016	2017	2018	2019e	2020e
Bill payments	26%	27%	27%	41%	46%
Digital channels	11%	9%	7%	6%	5%
Merchant payments	7%	8%	9%	9%	9%
Payments intelligence	7%	8%	9%	7%	6%
Real-time payments	7%	7%	9%	8%	8%
Retail payments	43%	42%	38%	30%	25%
Total revenues	100%	100%	100%	100%	100%
On-premise revenues	60%	58%	57%	45%	40%
On-demand revenues	40%	42%	43%	55%	60%
On-premise EBITDA	32%	34%	32%	25%	24%
On-demand EBITDA	0%	0%	1%	8%	11%
Total segment EBITDA	31%	34%	33%	33%	35%
Corp. & unalloc. exp.	-6%	14%	9%	9%	8%
Transaction expenses	-13%	6%	1%	3%	1%
Adjusted EBITDA	24%	26%	25%	27%	28%

c. Financial metrics.

(Amounts in $M, except per share amounts)

Debt	1,417
Equity	1,033
Tangible book ($)	(0.34)
Market value	4,133
Cash	176
DSO	116
DIO	n/a

	2018	2019e	2020e
EBIT	154	186	228
EBITDA	251	331	388
Free cash flow	140	189	221
Surplus cash flow (NI+D&A-capex)	127	189	221
Capex	44	55	65
EV/EBITDA	21.4	16.2	13.8
EV/(EBITDA-capex)	26.0	19.5	16.6