DATE: 9/22/2023
AUTHOR: Generalistisms
COMPANY: Pegasystems Inc. (NASDAQ: PEGA)

RECOMMENDATION

We recommend an investment in the public equity of Pegasystems Inc. ("PEGA"), a US-domiciled mid-cap software company that offers business process management and customer relationship management solutions.

In our base case, ***we underwrite to a 111% return over a 1-year hold***. Returns are driven primarily by 1) faster than expected FCF growth as PEGA exits its software contract transition period, which accelerates both revenue and collections, and 2) modest multiple expansion, which we expect to follow an appellate court decision on its trade secrets verdict. Details below.

RATIONALE

Our investment is predicated on the following:

1. **Business fundamentals are resilient to the economic cycle.**
    a. A-cyclical value proposition. PEGA's business process management/digital process automation ("BPM"/"DPA") products enhance employee productivity and have a payback period of <1 year which makes its solutions attractive through the cycle.
    b. Market leading product. Within BPA, PEGA is regarded as an industry leader, which has been validated by both Gartner and empirical customer satisfaction results.
    c. Growth driven by existing customers. 90%+ of PEGA's growth is driven by existing customers (~112%-115% NRR), which 1) lessens growth downside as existing customer growth is more predictable/sticky vs. new logos, and 2) demonstrates the mission critical nature of PEGA's products to its customers.
2. **Revenue growth and margins/FCF inflecting as business exits software contract transition.** During software transitions, revenue/cash flows will lag underlying contract growth as revenue recognition/collection are done ratably over the life of a contract vs. immediately recognized/collected in term license contracts. While this process is well understood, Pega's software transition has not been smooth. Pega's start, stop, then start again transition has delayed the inevitable re-acceleration of revenue/collections. We believe investors underestimate the degree to which margins/FCF are going to inflect over the next 2-3 years due to the underperformance over the last year, when investors were originally anticipating the company to realize the SaaS transition benefits.

    We'd also note that expectations are still anchored to management's initial 2023 FCF guidance of $180m, despite generating $150m in 1H. This is likely due to management refusing to update guidance. However, while they didn't provide a new # for consensus/investors to hug, the COO/CFO Kenneth Stillwell did say the following:

"I certainly don't think that $150 million or $180 million or whatever number we have is something where we'll just stop and say, "Oh, we've achieved that. We're good for the year." We're going to try to generate as much cash flow as we can. […]

So I would say we're not updating or adjusting guidance, but I would say we're very pleased with where we are. And we think it bodes well for the future of increasing cash flow for Pega"

3. **Severely depressed valuation due to litigation overhang that will narrow in 2024.** In May 2022, Appian (NASDAQ: APPN), Pega's primary BPM competitor, won a $2b trade secrets judgment against Pega (vs. PEGA $5.4b market cap pre-verdict). The stock was down 21% the day (-$1.2b market cap lost), embedding nearly 80% of the full verdict into the stock. While hard to estimate, we believe 1) $1b is currently priced in, and 2) the company has not received appropriate credit for its margin expansion due to investor aversion to the company while the litigation outcome is still uncertain. As a result, PEGA is currently trading at 2.1x next year's revenue vs. 7.4x for software peers.

Table of Contents

RECOMMENDATION **1**

RATIONALE **1**

COMPANY SUMMARY **4**

Company Description 4

Verticals 4

Customers / Value Proposition 5

TRADE SECRETS CASE OVERVIEW **6**

What Happened? 6

What's Priced in the Stock? 8

What Happens Now? 9

Key Takeaways 9

SAAS CONTRACT TRANSITION **10**

PEGA Revenue Types 10

Financial Impacts of a SaaS Contract Transition 11

Status of Pega's Transition 13

EXPECTED RETURNS **16**

Case Summaries 16

Key Assumptions 17

Peer Multiples 18

COMPANY SUMMARY

Company Description

Pegasystems develops and sells enterprise software to Fortune 1,000 companies. The company went public in 1996 and was historically focused on Business Process Management/Digital Process Automation but has expanded its offerings to include customer relationship management ("CRM") software. The two solutions consist of the same technology but are configured for different workflows. Increasingly the two verticals are overlapping, making it difficult to identify where one starts and the other stops.

Verticals

- Business Process Management/Digital Process Automation (~50% of revenue). BPM is software that automates and links processes and workflows across departments within an organization. It takes over tasks that previously required human involvement. In response to a changing environment, PEGA has evolved its "BPM" offering into more of a Digital Process Automation, "DPA" product. This means that in addition to automating tasks, the company is digitizing workflows, which allows for a more agile and efficient work environment. PEGA has a "low code" offering (essentially a dashboard) which allows non-technical users to create automated workflows and layer on AI tools to automate/enhance business processes without any technical background in programming.

  BPM represents ~50% of the revenue. This service is marketed as a method to help customers cut costs. The Pega Platform, PEGA's BPM/DPA platform, reduces development costs by 75% with an ROI of 321% (amounts quoted by the company).

  PEGA's businesses can be described with in-vogue flashy words like "automation," "artificial intelligence," and "digitization." Below we describe specific examples of what PEGA does to illustrate what the flashy words mean.
    - Google utilizes PEGA's DPA for network capacity planning and ordering within its Deploy Operations Department. PEGA helps determine who should do what work and in what priority in the data centers and helps secure facility access for equipment and workers, automating the necessary requests.
    - Cisco uses PEGA's DPA to automate critical operations such as order processing and order fulfillment. This has led to full automation of 93% of cases, eliminating 2 million hours of wait time annually.

- Customer Relationship Management (~50% of revenue). PEGA's unique low-code, omni-channel technology allows for businesses to manage back-office operations, front office sales, marketing, and customer service from a single platform. Pega calls this "end-to-end automation."

  PEGA's CRM is growing at a 30%+ rate. This offering is marketed to improve customer engagement/customer outcomes to improve customer satisfaction and increase revenues. A few examples include:
    - PEGA allows Ford to positively tailor its messaging to customers and to improve client engagement. Ford uses PEGA to help measure how well messages are received by

customers, track successful engagement rates by channels, and find how to most effectively engage with each type of customer to improve revenues.
    - By using PEGA, Cisco was able to reduce the need for agent involvement in 88% of its orders, re-allocating 60% of its back-office staff to more front-office oriented customer engagement positions.

Customers / Value Proposition

- Strong Value Proposition. PEGA's products are differentiated by its ability to unify the software experience for customers; PEGA can synchronize disparate systems, even connecting to other leading platforms (such as Salesforce.com). This provides Fortune 1000 clients the unique ability to integrate customer information across systems. The ROI on a PEGA product is <1 year which is a big selling point for customers and is why the company performed well during the past 2 recessions (27% CAGR from '07-'09 & 12% in 2020) (note: the typical payback period for large enterprise software is many years).

  PEGA's technology includes an advanced artificial intelligence ("AI") engine that conducts predictive analysis in real time. This real-time analysis helps simplify complex processes for critical CRM applications. Such technology would be difficult for competitors to replicate due to the current infrastructure barriers competitors have in place (e.g., apparently most companies like Salesforce.com use batch data processes vs. Pega's continuous analysis, which means the response times are slower) — competitors would need to build this technology from the ground-up, which PEGA has been doing over the course of 35 years.

- Retention Rate. PEGA has gross/net retention of 95%+/112%-115%. These retention rates are consistent with the high scores from Gartner, Forrester, and Ovum and prove that not only is Pega hard to rip out, its products are value enhancing as customers consistently increase spend.

- Market-Leading Products**:**
    - PEGA has maintained its best-in-class position in BPM software, according to the most respected industry analysts, including Gartner and Forrester.
    - Despite launching its CRM offerings more recently, it's considered a market leader according to Gartner's Magic Quadrant for CRM & BPM.

  Gartner is an industry consulting firm that ranks vendors on their ability to execute and completeness vision. Within its ranking system the "The Magic Quadrant" is reserved for "Leaders" which have the highest Completeness of Vision and Ability to Executive scores. As per Gartner, a "Leader":

  > *"Has the market share, credibility, and marketing & sales capabilities needed to drive the acceptance of new technologies. These vendors demonstrate a clear understanding of market needs, they are innovators and thought leaders, and they have well-articulated plans that customers and prospects can use when designing their infrastructures and strategies. In addition, they have a presence in the five major geographical regions, consistent financial performance, and broad platform support."*

What stands out to us in the tables below is that Gartner indicates that PEGA has a superior product vs. products from numerous companies that have 8-180x larger market caps than PEGA (including Microsoft, Oracle, SAP, ServiceNow, and IBM).

<u>Gartner Ratings for CRM (Left) & Intelligent Business Process Management</u>

Source: Gartner (Left: May 2021; Right: December 2018)

- <u>Customers</u>**:** PEGA's customers are typically global 1,000 organizations and large governmental agencies.

  According to the CFO, PEGA's best customers are large companies that sell commoditized products within the $50-$1,000 price range. The PEGA products allow the company to better anticipate customer needs to make an incremental sale. An example is Sprint (telecom company). Prior to using PEGA, Sprint's churn rate was double the churn of main competitors, and customer care agents used their own judgments to pick the best approach to retain customers. Agents would ultimately end up only making "save offers" 10% of the time. In only 90 days, Sprint implemented Pega Marketing for Communications to over 1,000 agents, using its AI solution to identify customers at risk of churn and to create 1-to-1 personalized experiences for its customers which reduced churn by 14%.

<u>TRADE SECRETS CASE OVERVIEW</u>

What Happened?

In May 2022, Appian (NASDAQ: APPN), Pega's primary BPM competitor, won a $2b trade secrets judgment against Pega. Below is an overview of the case.

- <u>Pega receives product demos of Appian's software.</u> During routine competitive due diligence, Pega hired Youyong Zou, who had access to Appian as an employee of an Appian licensor, to provide product demos. Zou provided ~200 hours of demos and was paid $23,608 for their services.

- Pega uses the information gained from Zou in sales training and marketing materials. Pega used the knowledge gained from Zou to train its sales staff on the competitive advantages of Pega over Appian and updated marketing materials (which prior to Zou already discussed Appian deficiencies).
- Appian hires Pega's head of competitive intelligence who tells Appian about Zou.
- Appian sues Pega. Appian claims that Zou disclosed "trade secrets"
- Appian awarded $2b verdict. Verdict is ~1/3 of Pega's revenue from 2013-2021.

Below is a list of the issues with both the case, as well as the trial court's process:

- There is a lack of trade secrets. Zou had no access to the back end of Appian's software nor any idea how it was made. Zou only showed Pega how Appian's products worked for the customer and their limitations. To be sure, Zou had the same level of access to Appian's products as any other Appian customer and had no non-disclosure obligation (consistent with other customers as well).

  This was akin to a Pepsi employee hiring someone to go buy a Coke and tell them how it tastes. There was nothing *secret* about what Zou disclosed. If Appian is unable to prove Zou disclosed actual trade secrets, the case could be thrown out.
- There is no causal link between Pega's conduct and Appian's economic damages. The jury was instructed that upon Appian proving Pega misappropriated a single trade secret, Pega would need to prove that its revenue *wasn't* stolen instead of Appian proving how the trade secret resulted in stolen revenue/profits. The shift of burden was an unprecedented departure from normal standards and is the key processual error that led to the outlier verdict.

  The erroneous instruction had another important impact: it did not distinguish revenue earned by products in direct competition with Appian vs. products that Appian did not offer. Over the 2013-2021 period, Pega only earned ~$500m in revenue from products that it competed against Appian with vs. the $6b the jury evaluated as stolen or not. We believe this $500m direct competition number is a more reasonable ceiling for later judgments.
- Pega was unable to exhibit to the jury its products' existing functionality before it hired Zou. Given the burden was on Pega to prove it didn't steal Appian's revenue, the fact that Pega was not allowed to show how its products evolved over the relevant period or whether it already had the features Appian claims it stole (which we believe would have proved exculpatory) beyond saying "we promise we already had that!" was particularly egregious and will be corrected in future trials.
- Judgment is an extreme outlier. As a result of the burden shifting, the jury awarded an extreme outlier of a verdict. The verdict is the largest ever awarded both in nominal terms (2x next largest) as well as relative to the size of the involved companies (~24% of combined market cap of PEGA/APPN vs. second biggest of 5%, which itself is an outlier vs. ~<1% previous judgments).

Given the above issues in the case/verdict, we expect the judgement to be lowered on appeal, which is typical of trade secrets cases.

What's Priced in the Stock?

Below we attempt to estimate what is currently priced into the stock. Note that while these estimates are calculated using imperfect methodology and assumptions, we believe it is instructive in understanding how the market is pricing outcomes.

- Initial market reaction. We start by calculating what was priced in on day 1 post-verdict. We estimate this by 1) taking the 1-day stock return for both PEGA and APPN, 2) calculating their relative returns to the software index (IGV), 3) applying these excess returns to their starting market caps pre-verdict, and 4) taking the average of these two "implied change in market cap from present value of litigation". Note we implicitly attribute all the out- and under-performance (expressed as $ market cap added) to the verdict.

Day 1 Market Pricing of Verdict

		PEGA	APPN
	May 9th Stock Price	$ 65.69	$ 43.02
	May 10th Stock Price	52.06	59.62
	1-Day Return	(20.7)%	38.6%
	- IGV 1-Day Return	1.3%	1.3%
	1-Day Out/(Under)performance	(22.1)%	37.3%
	* May 9th Market Cap ($b)	5.39	3.11
	Implied Change in MC from PV of Litigation	$(1.19)	$ 1.16
A	**Average "Priced In" Litigation PV ($b)**	**$1.17**	
	FV Assuming 4 Years to Payment and a 10% Discount Rate ($b)	**$1.72**	

- Day 1, the market priced in a ~$1.72b liability (***~80% of headline $2b verdict***).

- How what's priced in has evolved. It's been over a year since the verdict was handed down. What is priced in now? We employ 2 approaches to create a plausible range: 1) we mimic the methodology used to calculate the 1-day pricing, and 2) we calculate the relative return of APPN and PEGA (ignoring the index returns) and use this to calculate change in PV. Both approaches are below.

APPROACH 1: Relative Returns to Index

		PEGA	APPN
	May 10th Stock Price	$ 52.06	$ 59.62
	Current Stock Price	42.66	43.52
	Post-Verdict Return	(18.1)%	(27.0)%
	- IGV Post-Verdict Return	25.3%	25.3%
	Post-Verdict Out/(Under)performance	(43.3)%	(52.3)%
	* May 10th Market Cap ($b)	4.27	4.31
	Implied Change in MC from PV of Litigation	$(1.85)	$(2.25)
B	Average Implied Change in "Priced In" Litigation PV ($b)	($0.20)	
A + B	**Current PV of "Priced In" Litigation PV ($b)**	**$0.97**	
	FV Assuming 2.6 Years to Payment and a 10% Discount Rate ($b)	**$1.25**	

APPROACH 2: Relative Returns to Each Other

	PEGA Post-Verdict Return	(18.1)%
	- APPN Post-Verdict Return	(27.0)%
	PEGA Outperformance	8.9%
	* May 10th PEGA Market Cap ($b)	4.27
C	Implied Change in MC from PV of Litigation	$ 0.38
A - C	**Current PV of "Priced In" Litigation PV ($b)**	**$0.79**
	FV Assuming 2.6 Years to Payment and a 10% Discount Rate ($b)	**$1.02**

- The two approaches yield a range of $1b-$1.25b (***~56% of headline verdict at midpoint***)

Litigation Liability Currently Priced in to Stock

	Low	High
Litigation PV Priced In ($b)	$0.79	$0.97
Litigation FV Priced In ($b)	$1.02	$1.25

We understand that given ~1.5 years have passed, using the companies' relative returns, which assumes that all the relative return to either the index or each other was driven by changes in litigation liability pricing and not fundamentals, is less than optimal. Note that over the past 1.5 years there have been material differences in how fundamentals have developed for the two companies (e.g., PEGA 2025 consensus sales -30% / FCF margins +12% vs. APPN 2025 consensus sales +10% / FCF Margins -3%).

What Happens Now?

- The case is on appeal. Oral arguments are expected to complete sometime between the 2H of 2023 and the 1H of 2024, with a decision within a few months after. Thus, we expect incremental information / greater clarity of liability in ~1H 2024, Q3 2024 latest.

- Depending on the outcome of the current appeal, there could be further appeals. It is too early to know the potential timeline.

Key Takeaways

- Market Still Doesn't Get it. Despite the problems with the case outlined in "What Happened" above, the consistent track record of trade secrets cases being reduced from initial rulings upon appeal, and the undisputed outlier status of this ruling relative to history, the market is still pricing a $1b+ liability to PEGA (which would still retain sole outlier status). We believe the eventual outcome is likely to be below $1b. However, to avoid reliance on a favorable litigation outcome, we take the $1b as a conservative base case number in our underwriting.

- Longs likely avoiding taking litigation risk. We believe longs will avoid the company until there is greater clarity on the litigation. This is our best explanation of why PEGA has yet to reap any benefits for its execution on profitability in a market where profitability has replaced growth as the primary concern for investors. Our expectation is that ***once there is clarity on the litigation***

liability, longs will reassess PEGA on its fundamental merits and value it based on the significant FCF it generates.

<u>SAAS CONTRACT TRANSITION</u>

PEGA's contracts are undergoing a transition from being one-time "non-recurring" sale to being ongoing "recurring" sale (e.g., sale of a 1-year cloud-based license that is renewed annually). The transition is important as it distorts underlying revenue growth and profitability during the transition period. Below we describe: A) the different types of revenue contracts, B) where PEGA is with its transition efforts, and C) the financial impacts.

PEGA Revenue Types

- Non-recurring revenue:
    - <u>Perpetual License (1% 2022 Revenue)</u>: These are contracts where customers make a one-time payment and then own that version of the software forever. The customer continues to pay annual maintenance fees to PEGA to keep the software up to date. These contracts are mostly for BPM products.
    - <u>Consulting (18%)</u>: Consulting revenues are earned by PEGA for implementing new licensing arrangements/providing customer support.

- Recurring-ish Revenue:
    - <u>Term License (28%)</u>: PEGA's customers enter a 3- to 4-year software license. The software is hosted on the customer's cloud/on customer's premises. All the revenue associated with a multi-year contract is recognized at signing, which means the multi-year revenue value for new contracts is pulled forward. When a term contract is signed, a multi-year maintenance contract is also signed.

- Recurring Revenue:
    - <u>Maintenance (24%)</u>: When customers enter perpetual and term software licenses, they typically also enter annual maintenance contracts. Maintenance consists of software upgrades, trouble shooting, making changes to the software, etc. Maintenance revenue is recognized ratably over the maintenance period.
    - <u>PEGA Cloud (29%)</u>: This is the traditional SaaS based revenue stream. While customers sign 3- to 4-year contracts, PEGA recognizes revenue over the period of the service. The software sits on PEGA's own cloud and comprises primarily CRM revenue.

Financial Impacts of SaaS Contract Transition

- <u>Less Perpetual/Term License and More Recurring Revenue Temporarily Distorts Financial Results</u>. The contract value of perpetual/term licenses tends to have an outsized impact on revenue, margins/earnings and FCF in the period it's recognized as you are pulling forward multiple periods of revenue/CF. When a company decides to curtail the sale of these large one-time or multi-period contracts and ramp up annual SaaS contracts, revenue, margins, earnings and FCF will degrade during the period of transition as revenue that would once be recognized and collected is now spread out over a long period.

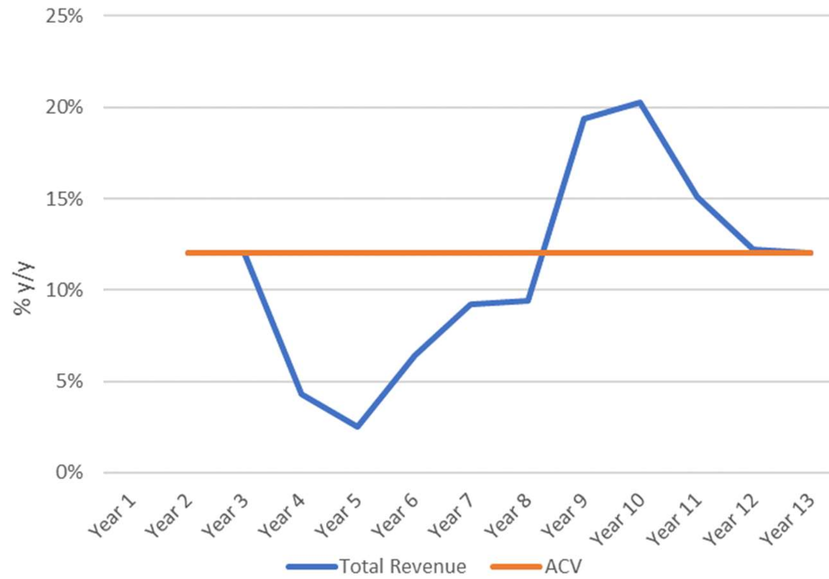
- Annual Contract Value ("ACV") is a key measure. As part of the transition to a recurring revenue model, PEGA discloses an "Annual Contract Value" ("ACV"). ACV represents the annualization of revenue earned across all contract types and is meant to show growth on a comparable basis. For example, if a customer signed a $100m 4-year Term license, the ACV would be $25m. If instead a customer signed a $30m/year PEGA Cloud contract, the ACV would increase by $30m.

  Because the contract transition period creates revenue and earnings noise, while ACV is smoothed, ACV is used as a proxy for underlying growth rates. Eventually the revenue growth rate and the ACV growth rate will converge as the company exits the SaaS contract transition.

  To illustrate what a smooth software transition would look like when moving from pure Term License sales to a mix of Term License and SaaS, we provide graphs below that show how revenue growth would diverge/converge from/with ACV growth over time. This relies on a set of assumptions which we also provide below.

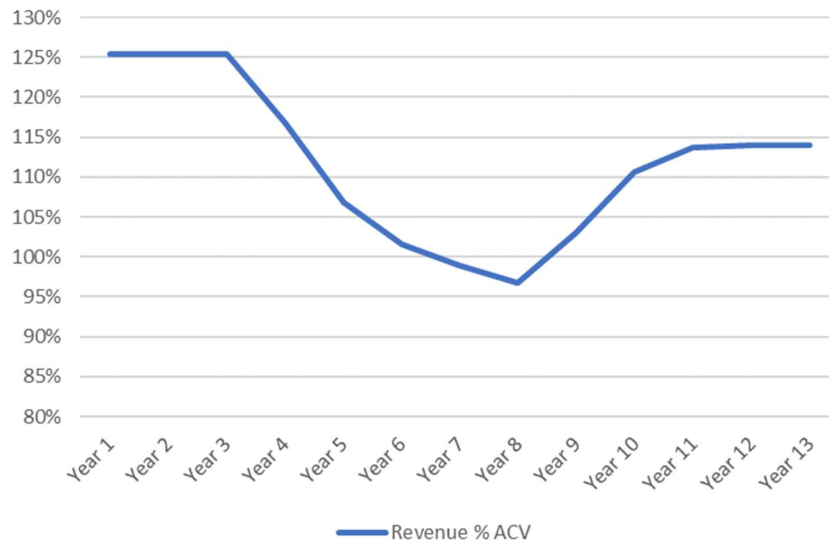
- Simulated "Smooth" Transition Assumptions:
  - Annual ACV Growth: 12%
    - This is the underlying growth of the business ex. revenue recognition timing noise
  - Average Contract Duration: 3 Years
    - This is both the length of the Term License contracts (# years of revenue recognized up front) as well as the duration of the new SaaS contracts
  - Year Transition Starts: Year 4
  - Steady State SaaS % Bookings: 65%
    - We assume that only 65% of customers will purchase SaaS contracts to account for customers who continue to want the product on-prem
  - Time to Steady State Bookings %: 5 Years
    - We assume that the hypothetical company doesn't immediately start converting 65% of new bookings to SaaS, but rather ramps to that steady state % in a straight line over a period of 5 years

ACV Growth vs. Revenue Growth



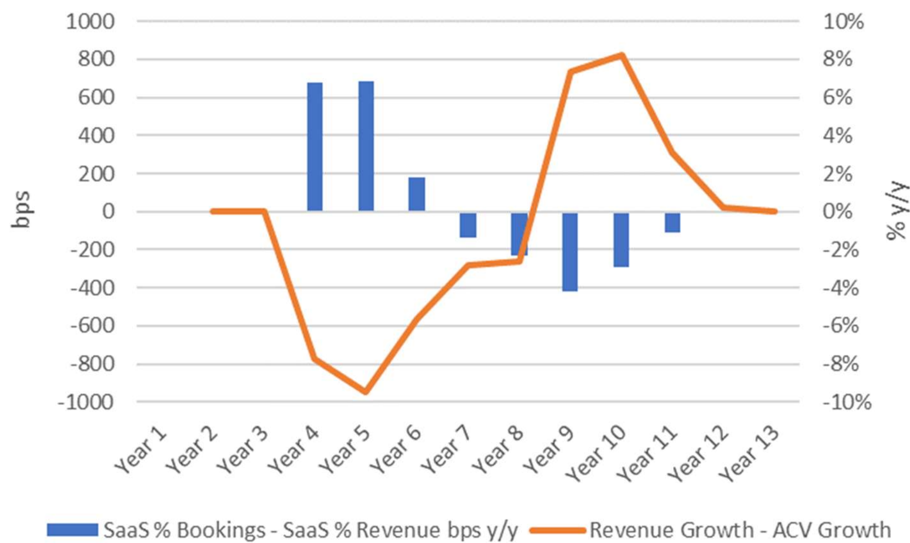
A key feature of the revenue reacceleration is the recovery of revenue as a % of ACV which is generally 100%+ depending on mix of SaaS vs. Term License or Perpetual License. We show how this would evolve over time below.

Revenue % ACV



Lastly, it's important to understand what denotes the beginning and end of a SaaS transition, and when various components inflect to normalization. First, revenue growth only decouples from ACV growth when the % of bookings that are SaaS are different than the % of revenue that is SaaS. Below we show how that relationship evolved over time for our hypothetical company in transition.

Change in Difference b/w SaaS % Bookings and SaaS % Revenue vs. Revenue Growth – ACV Growth



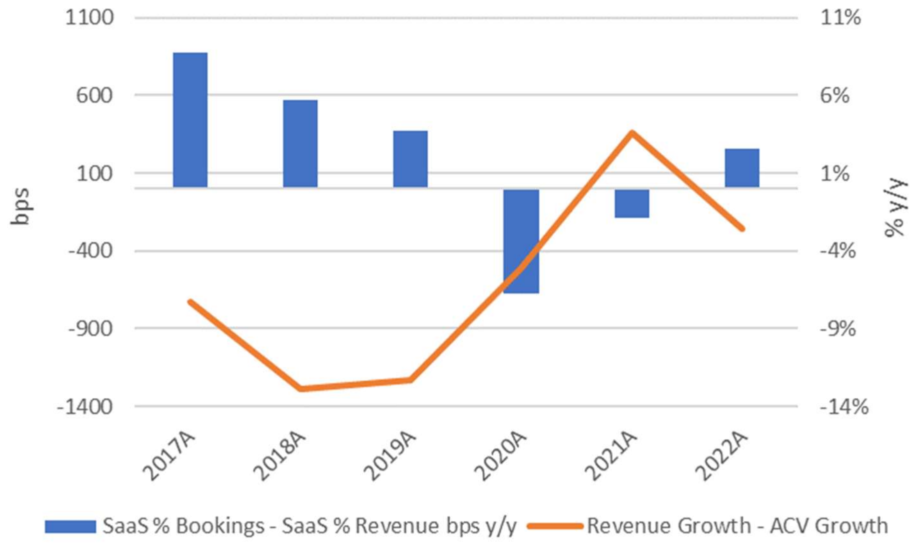
While the title is a bit wordy, the point is clear: during the period where the difference between SaaS as a % of bookings and SaaS as a % of revenue is expanding, revenue growth will be distorted below underlying ACV growth. Once the gap between SaaS as a % of bookings and SaaS as a % of revenue begins to slow/reverse, revenue growth will accelerate beyond underlying ACV growth as revenue catches up to ACV.

Status of PEGA's Transition

- Pega's SaaS transition has not been smooth. Pega initially expected to finish its SaaS transition in 2022. Heading into 2021 Pega had been recording SaaS of 50% of bookings for several years. If bookings % had held steady, Pega would have hit its 2022 target for realizing the revenue acceleration/margin expansion. However, in 2021, SaaS as a % of bookings began to increase, moving from 50% in 2020 to 60%+ in 2022. This has temporarily re-depressed revenue.

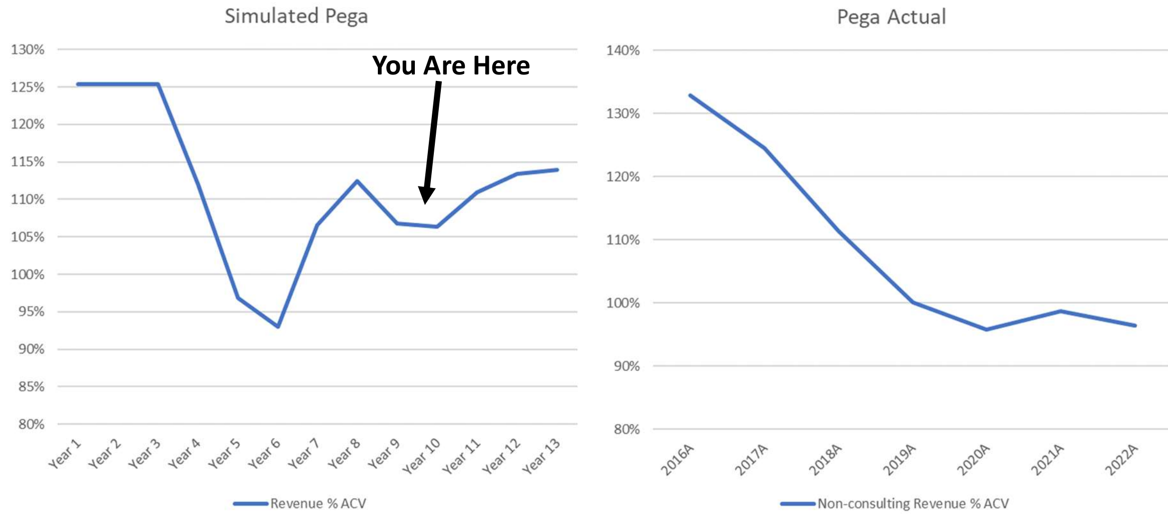
  We have adjusted our model to include a stall at 50% of bookings, then a growth to 65% (where Pega's SaaS bookings % are at in 1H 2023). Below we show 1) the same graph we just showed but with Pega's actual values from 2017 to 2022, and 2) the hypothetical company going through transition but adjusted to simulate Pega's SaaS % bookings path to model how this should play out for Pega going forward.

Pega's Actual Values



Simulated Path

Below we also provide a side by side of Pega's software revenue % ACV from 2016 to 2022 vs. the simulated Pega.



- As revenue % ACV recovers to a normalized level due to the stabilization of SaaS % bookings at ~65%, we expect revenue to inflect upward to at least ~110% of ACV by 2025. In our base case, this would result in revenue growing at a 15% CAGR through 2025 (vs. consensus at 8%) off 11% ACV growth. For consensus revenue to be correct, ACV growth would need to average 4% from 2022 to 2025. As a result of the above analysis, ***we believe that either A) the sell side is simply not modelling the software transition exit correctly (more likely) or B) is far too pessimistic on growth (less likely).***

EXPECTED RETURNS

Case Summaries

		Projections			Market Implied
	Actual	Bear	Base	Bull	Consensus
Period End 12/31/2025	**FY2022**	**FY2025**	**FY2025**	**FY2025**	**FY2025**
Entry Price	$ 42.0	$ 42.0	$ 42.0	$ 42.0	$ 42.0
Revenue	$ 1,318	$ 1,724	$ 2,018	$ 2,186	$ 1,672
2022-2025 CAGR		*9.4%*	*15.3%*	*18.4%*	*8.3%*
vs. ACV 2022-2025 CAGR		*5.0%*	*10.7%*	*13.7%*	
Non-Consulting Revenue % ACV	*96.4%*	*110.0%*	*110.0%*	*110.0%*	
Operating Income	$(88)	$ 200	$ 395	$ 632	$ 347
Operating Margin	*(6.7)%*	*11.6%*	*19.6%*	*28.9%*	*20.8%*
2024 Op Income Margin + y/y ACV Growth (Rule of 40)	5.8%	16.6%	29.6%	42.9%	32.7%
Free Cash Flow	$(13)	$ 301	$ 469	$ 675	$ 297
FCF Margin	*(1.0)%*	*17.4%*	*23.3%*	*30.9%*	*17.8%*
FCF/Net Income	*3.8%*	*186.9%*	*143.9%*	*127.6%*	*117.4%*
FCF/EBITDA	*19.0%*	*129.9%*	*109.9%*	*101.5%*	*90.0%*
* Exit P/FCF		14.0 x	18.0 x	20.0 x	18.0 x
Target Market Cap (pre-litigation)		$ 4,210	$ 8,449	$ 13,501	$ 5,346
- Litigation Amount		$(1,500)	$(1,000)	$(500)	$(1,000)
Target Market Cap	**$ 3,609**	**$ 2,710**	**$ 7,449**	**$ 13,001**	**$ 4,346**
/ Diluted Shares (YE 2024)		84	84	84	84
Target Price		**$ 32.3**	**$ 88.7**	**$ 154.7**	**$ 51.7**
% Upside/(Downside)		(23.2)%	111.0%	268.3%	23.1%
Target Market Cap		$ 2,710	$ 7,449	$ 13,001	$ 4,346
+ 2024 Net Debt		$(185)	$(306)	$(480)	$(430)
Target Enterprise Value	**$ 3,882**	**$ 2,526**	**$ 7,143**	**$ 12,520**	**$ 3,916**
Pre-Litigation Liability Exit Multiples					
Implied EV/Revenue (1Y)		2.3 x	4.0 x	6.0 x	2.9 x
Implied EV/EBITDA (1Y)		17.4 x	19.1 x	19.6 x	14.9 x
Implied P/E (1Y)		26.2 x	25.9 x	25.5 x	21.1 x
Post-Litigation Liability Exit Multiples					
Implied EV/Revenue (1Y)	2.6 x	1.5 x	3.5 x	5.7 x	2.3 x
Implied EV/EBITDA (1Y)	15.5 x	10.9 x	16.7 x	18.8 x	11.9 x
Implied P/E (1Y)	19.7 x	16.8 x	22.8 x	24.6 x	17.2 x

Case Sensitivity to Litigation Liability

		Fundamental Case		
		Bear	Base	Bull
Final Verdict	$(500)	5.1%	125.2%	268.3%
	$(1,000)	(9.1)%	111.0%	254.1%
	$(2,000)	(37.4)%	82.7%	225.8%

Key Assumptions

- <u>2022-2025 ACV Growth</u>
  - <u>Bear:</u> 5%
    - Company underperforms on growth as recession causes sustained consolidation of application software spend
  - <u>Base:</u> 10.7%
    - Company ACV growth holds steady near the lower bound of its NRR range of 12%-15%
  - <u>Bull:</u> 13.7%
    - Company ACV growth achieves the top end of its historical NRR range of 12%-15%
- <u>2025 Revenue % ACV:</u> 110%
  - Consistent across all cases, we expect revenue as a % of ACV to ramp to 110%+ as SaaS bookings remains stable at 65%
- <u>Operating Margin</u>
  - <u>Bear:</u> 11.6%
    - Company is not able to realize operating leverage as revenue grows slower than expected, and company is less able to control cost structure as it continues to invest in failing growth initiatives
  - <u>Base:</u> 19.6%
    - Company realizes significant operating leverage from revenue acceleration
  - <u>Bull:</u> 28.9%
    - Company realizes operating leverage from revenue acceleration as well as slower opex growth as company grows back into previous cost structure given re-focus on existing clients
- <u>Exit P/FCF</u>
  - <u>Bear:</u> 14x
    - We assume an in line multiple discount to current levels as the pessimistic ACV outlook is realized (despite revenue growth outperforming consensus)
  - <u>Base:</u> 18x
    - We assume a ~29% discount to the peer group average of ~23x given Pega will never be 100% recurring revenue business
  - <u>Bull:</u> 20x
    - We assume a slightly smaller discount given the slightly faster growth and wider FCF margins vs. peers
- <u>Litigation Amount</u>
  - <u>Bear:</u> Assume liability is only lowered to $1,500, ~$500m more than what market is currently pricing.
  - <u>Base:</u> Assume market implied liability is correct/does not move.
  - <u>Bull:</u> Assume liability is lowered to the hypothetical “direct competition sales” ceiling. Also is equal to insurance Appian took out on eventual award (at a ~10% fee)

Peer Multiples

Application Software				Valuation			Growth				Margins				
				EV/Sales	EV/EBITDA	P/FCF	Sales % y/y	Sales % y/y	Sales % y/y	EBITDA CAGR	EBITDA	EBITDA	EBITDA	EBITDA	FCF
Company Name	**LTM**	**YTD**	**EV**	**NTM**	**NTM**	**2024E**	**2023**	**2024**	**2025**	**2023-2025**	**2022**	**2023**	**2024**	**2025**	**2025**
SALESFORCE INC	39%	55%	$203,380	5.6x	15.8x	20.1x	11%	11%	12%	12%	28%	35%	35%	35%	28%
AUTODESK INC	10%	11%	$44,210	7.7x	19.9x	26.4x	9%	11%	12%	13%	37%	37%	38%	38%	32%
WORKDAY INC-A	54%	37%	$56,920	7.3x	26.2x	28.7x	18%	17%	18%	23%	26%	27%	29%	30%	27%
VEEVA SYSTEMS-A	25%	28%	$28,830	11.1x	29.4x	33.8x	10%	19%	15%	19%	40%	36%	38%	38%	34%
HUBSPOT INC	78%	68%	$23,300	10.1x	56.6x	66.1x	23%	21%	23%	29%	13%	17%	18%	19%	16%
PTC INC	30%	19%	$18,500	8.0x	20.1x	24.1x	9%	12%	13%	15%	39%	40%	40%	42%	32%
DYNATRACE INC	37%	22%	$12,990	8.8x	33.9x	35.5x	22%	19%	19%	25%	26%	27%	27%	30%	26%
APPIAN CORP-A	2%	34%	$3,190	5.5x	NA	-108.6x	16%	16%	19%	NM	(16%)	(12%)	(5%)	1%	4%
GUIDEWIRE SOFTWA	49%	41%	$6,830	6.9x	77.3x	74.4x	11%	9%	12%	131%	(3%)	3%	9%	14%	15%
BLACKLINE INC	(10%)	(20%)	$3,510	5.6x	29.5x	31.5x	12%	14%	14%	18%	11%	18%	19%	19%	26%
VERINT SYSTEMS	(28%)	(32%)	$2,220	2.4x	8.3x	8.1x	0%	5%	5%	7%	26%	28%	29%	28%	22%
Average	***26%***	***24%***		**7.2x**	**31.7x**	**21.8x**	***13%***	***14%***	***15%***	***29%***	***21%***	***23%***	***25%***	***27%***	***24%***
Median	***30%***	***28%***		**7.3x**	**27.8x**	**28.7x**	***11%***	***14%***	***14%***	***18%***	***26%***	***27%***	***29%***	***30%***	***26%***

Infrastructure Software				EV/Sales	EV/EBITDA	P/FCF	Sales % y/y	Sales % y/y	Sales % y/y	EBITDA CAGR	EBITDA	EBITDA	EBITDA	EBITDA	FCF
Company Name	**LTM**	**YTD**	**EV**	**NTM**	**NTM**	**2024E**	**2023**	**2024**	**2025**	**2023-2025**	**2022**	**2023**	**2024**	**2025**	**2025**
ORACLE CORP	66%	31%	$376,680	6.9x	13.2x	22.5x	7%	8%	10%	12%	47%	49%	51%	52%	26%
SPLUNK INC	74%	67%	$25,960	6.2x	25.5x	22.6x	8%	12%	13%	20%	20%	24%	25%	27%	27%
SERVICENOW INC	44%	44%	$109,570	11.2x	33.7x	33.7x	23%	22%	22%	27%	32%	33%	34%	35%	31%
	61%	***47%***		**8.1x**	**24.1x**	**26.3x**	***13%***	***14%***	***15%***	***19%***	***33%***	***35%***	***37%***	***38%***	***28%***
	66%	***44%***		**6.9x**	**25.5x**	**22.6x**	***8%***	***12%***	***13%***	***20%***	***32%***	***33%***	***34%***	***35%***	***27%***

Summary Stats	LTM	YTD	EV	EV/Sales NTM	EV/EBITDA NTM	P/FCF 2024E	Sales % y/y 2023	Sales % y/y 2024	Sales % y/y 2025	EBITDA CAGR 2023-2025	EBITDA 2022	EBITDA 2023	EBITDA 2024	EBITDA 2025	FCF 2025
Average	34%	29%		7.4x	30.0x	22.8x	13%	14%	15%	27%	23%	26%	28%	29%	25%
Median	38%	33%		7.1x	26.2x	27.5x	11%	13%	14%	19%	26%	27%	29%	30%	27%
Min	(28%)	(32%)		2.4x	8.3x	-108.6x	0%	5%	5%	7%	(16%)	(12%)	(5%)	1%	4%
Max	78%	68%		11.2x	77.3x	74.4x	23%	22%	23%	131%	47%	49%	51%	52%	34%

Pega Assuming Base Case Estimates	LTM	YTD	EV	EV/Sales NTM	EV/EBITDA NTM	P/FCF 2024E	Sales % y/y 2023	Sales % y/y 2024	Sales % y/y 2025	EBITDA CAGR 2023-2025	EBITDA 2022	EBITDA 2023	EBITDA 2024	EBITDA 2025	FCF 2025
PEGASYSTEMS INC	30%	23%	$3,550	2.1x	13.6x	10.0x	12%	17%	17%	96%	(5%)	8%	15%	21%	23%
Multiples ex. $1b Litigation Liability				2.6x	17.5x	12.7x									

	LTM	YTD	EV	EV/Sales NTM	EV/EBITDA NTM	P/FCF 2024E	Sales % y/y 2023	Sales % y/y 2024	Sales % y/y 2025	EBITDA CAGR 2023-2025	EBITDA 2022	EBITDA 2023	EBITDA 2024	EBITDA 2025	FCF 2025
Pega vs. Average	**(4%)**	**(5%)**		**(72%)**	**(55%)**	**(56%)**	**(1%)**	**3%**	**3%**	**70%**		**(18%)**	**(12%)**	**(8%)**	**(1%)**
Pega vs. Median	**(8%)**	**(9%)**		**(71%)**	**(48%)**	**(64%)**	**1%**	**4%**	**4%**	**77%**		**(20%)**	**(13%)**	**(9%)**	**(3%)**
Pega ex. $1b Litigation Overhang vs. Average				**(64%)**	**(42%)**	**(44%)**									
Pega ex. $1b Litigation Overhang vs. Median				**(63%)**	**(33%)**	**(54%)**									

- Off base case numbers (which note are higher than consensus), even after adding back the ~$1b litigation liability we believe is priced into the stock, PEGA still trades at a 44% discount to peers on P/FCF. This is despite our expectation that the company will significantly outperform the industry in earnings/FCF growth over the next few years (2025 EBITDA margins at 21% vs. -5% in 2022).