

## AMERICAS TECHNOLOGY: SOFTWARE

## Revisiting Moats V: When does a Bounce turn into a Rally?

In the context of the median app software name in our coverage being down 38% YTD, there have been two bounces: first, +14% between Feb 23 and Mar 6; and second, +22% between April 10 and mid May. During these 2-4 week moves higher, we have fielded many questions from investors on: what could drive a durable rating in the Software sector from here? We revisit historical examples of underperformance and a past case study of technological disruption: the rise of mobile phones and its impact on the Consumer Internet sector. Our takeaways from these historical case studies and our recent industry conversations are that the sector is likely to be range bound over at least the next several months, but industry dynamics lend themselves well to idiosyncratic stock picking opportunities, as was evidenced by meaningful stock dispersion in 1Q earnings to date:

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### 1. There are signs of green shoots at incumbent Application Software vendors...

- There is much more awareness amongst management teams that we are operating in a heightened period of competition — this is most evidenced by companies that have made step function changes in leadership and org structure to support faster innovation. Klaviyo brought in co-CEO Chano Fernandez in December 2025 in part so founder-CEO Andrew Balacki could focus on product; Workday announced founder Aneel Bhusri stepping back into the CEO role in February; and Adobe announced its CEO succession plan in March 2026.
- At app leaders, the vision presented on stage and via sales to customers is being fine-tuned (ServiceNow introducing its ITSM Level 1 automation product with 50 pilot customers; Salesforce introducing headless CRM).

### 2. ...but more consistent AI-driven outperformance will take at least another couple quarters and is likely a 2027 event.

- Our industry conversations suggest a degree of sales cycle elongation (1-4% per RepVue [data](#)) at the same time as customers are committing to shorter-duration deals and are negotiating harder on traditional renewal pricing escalators. Even though the 2022-2025 renewals cycles reduced much of the seat-count-based shelfware in contracts, there may still be

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some excess capacity in the system as balancing org structures is a moving target. This pushes the potential for beat and raise quarters to 2H26 and more likely 4Q26. Several companies have commented on shifting seasonality and a more heavy 2H.

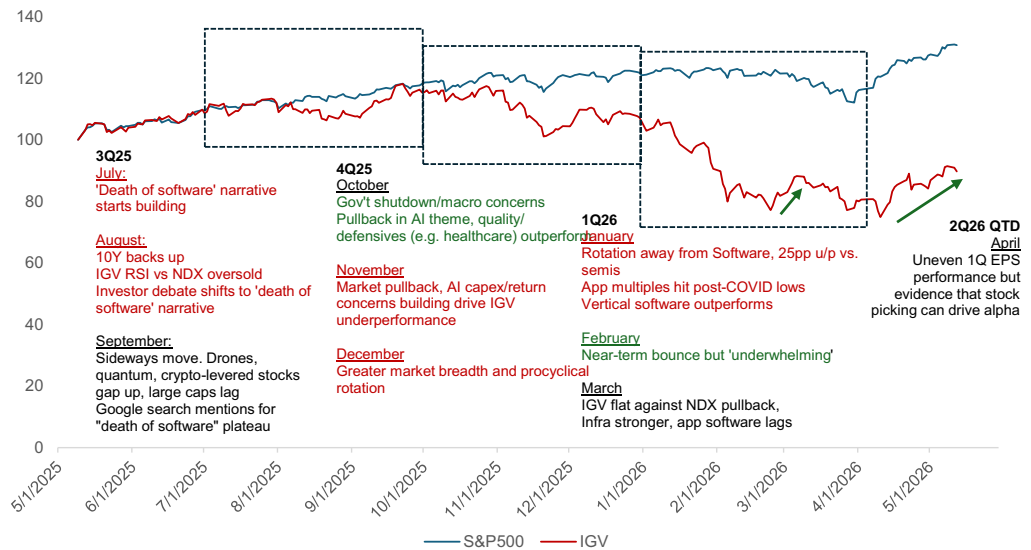
- Even companies that began investing for AI early are messaging 2027 for more tangible signs of monetization. Recall that Salesforce launched Agentforce at Dreamforce September 2024, presented an inflection in NNARR at Agentforce October 2025, but even then noted that it will likely be 12-18 more months before a gradual inflection in revenue.
- Incumbents must directly address their ability to innovate faster via a) efficient adoption of AI tooling internally, and b) a mix shift away from roles that are being automated toward roles that are directly tied to sales capacity or product innovation.

3. **The key to a sustained shift in sentiment will be AI revenue being additive to WholeCo revenue growth.** If the post-disruption profit pool is bigger, it will show up in fundamentals (backlog, billings, gross profit growth). Recall that ServiceNow raised its AI ACV target to \$1.5bn from \$1bn for 2026, but its organic growth cRPO guidance for 2Q suggests ~250bps of deceleration. We believe AI disclosures will only be received positively if investors can see that this revenue pool is additive to WholeCo growth. We look for evidence of pricing power (in turn a function of demonstrably better AI outcomes) as the push for adoption starts converting to monetization, illustrating that the incremental cost of agents can be passed on to the customer. Consistent with Palantir's approach 18-24 months ago, companies are first focused on enabling enterprises and encouraging adoption to deliver value, and monetizing after this. For context, Meta's stock was under pressure from the time of its IPO in May 2012 until October 2013, when mobile ad revenue disclosures began surprising to the upside. If revenue growth is stable to accelerating despite traditional software budgets being flat to down (excluding AI), we think it will be hard to argue that software companies are not benefiting from an uptick in enterprise AI investment.
4. **For the hyperscalers and neoclouds: the key to outperformance will be marrying increases in capex to upward revisions in revenue and potentially gross margin upside.** Our work on the inference cost curve and the adoption curve of agentic in the enterprise suggests that a) we are still very early in the inference compute cycle, and b) hyperscalers are approaching the more attractive part of the cost curve given unit cost downs from silicon, cross sell into PaaS and CPU pull through (at higher gross margin), and incremental pricing power tied to supply/demand tightness. Importantly, Microsoft is a bellwether for Software and a Microsoft turnaround in Copilot/M365 coupled with Azure upward revenue/gross profit revisions could help sentiment on the rest of the sector.
5. **Valuation alone is not a reason to buy the stocks; but valuation coupled with improving fundamentals is.** This leads to idiosyncratic opportunities through the remainder of the year, including **Microsoft** (SOTP suggests 4x EV/EBIT for M365) and **ServiceNow** (trading at ~10x 2030E GAAP EPS of ~\$9.50). On the margin, our

conversations include value-focused investors that are doing work on names that screen well on GAAP earnings - and several companies are directly addressing stock dilution in their commitments to investors. However, this new cohort of Software investors also needs to believe in positive fundamental catalysts to become constructive.

**Exhibit 1: Software stocks have seen ~2 bounces YTD; we think a durable rally may take longer**

Key dynamics driving Software over the last year



Source: FactSet, Goldman Sachs Global Investment Research

**Where are we closer to a fundamental inflection in 2026?**

- Among the infrastructure names, we think **ORCL and NET** are well positioned to benefit from the rising tide of token demand/infrastructure spend, with ORCL likely set up well for its May-quarter report and NET off 20%+ from its highs.
- Among the apps names, we think **MSFT and NOW** are best positioned to harness the agentic layer and see customers move down the funnel of adoption to monetization to business acceleration.

**Stocks that we think are likely to take longer to recover:**

- **INTU** is more likely to be rangebound given risks to the tax business from new competition that may remain an overhang for the next several quarters.
- **WDAY** is in the earlier stages of refocusing its product strategy under its new CEO and integrating M&A into a cohesive platform strategy
- **ADBE** is in a CEO transition period and we believe has to embark upon a heightened period of product innovation (e.g. a strengthened Firefly and Express offering)

Please also see our other "Revisiting Moats" reports:

- Revisiting Moats Part I: [Exploring AI Steel Men Arguments](#)

- Revisiting Moats II: [Datapoints on General Intelligence Tools](#)
- Revisiting Moats III: [Cybersecurity](#)
- Revisiting Moats IV: [Shifting Center of Gravity](#)

*Thanks to Ben Snider and the Portfolio Strategy Team, and Eric Sheridan and the Internet Team, for the context that helped shape this report*

**Exhibit 2: The underperformance in Software this year has been entirely multiple-driven**

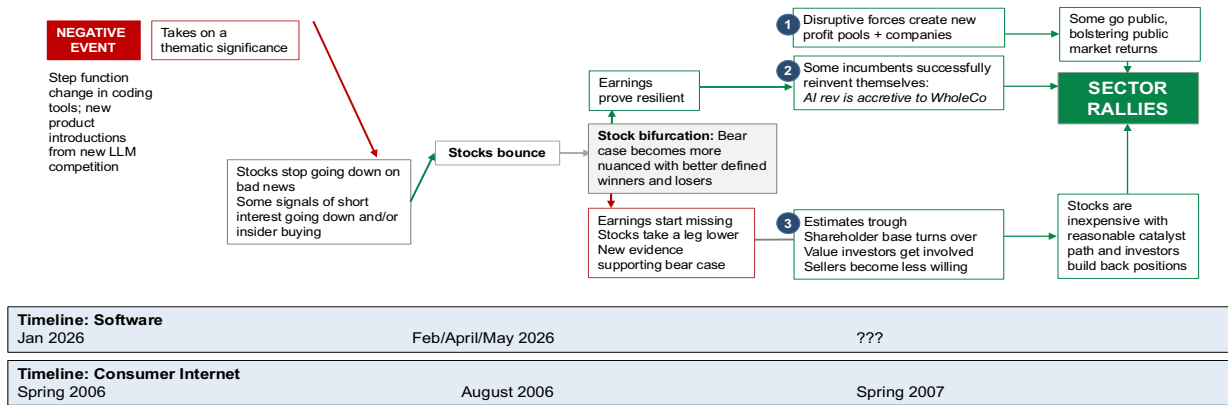
Subsector	Change in EV	EV/FCF (2026) Revision YTD	FCF 2026 Revision YTD	EV/FCF 2027 Revision YTD	FCF 2027 Revision YTD
Apps	-39%	-39%	2%	-39%	1%
Infra	-11%	-19%	8%	-23%	1%
Security	1%	-1%	-1%	-3%	0%
Vertical	-36%	-37%	3%	-37%	1%

Source: FactSet

## Fundamentals vs. Narratives: What’s the way out?

### Exhibit 3: We see three primary paths to a durable rally in Software: estimates troughing for new “value” stocks; reinvention for incumbents; and new entrants - all of these are likely 4Q26/2027 events

Key milestones in Software YTD and over the next several quarters



Source: Goldman Sachs Global Investment Research

### Anatomy of the Software Sell-off

- **The bar is high for a clean beat and raise.** The median software company that has reported 1Q EPS has beat by 2.6% and guided 0.3% above the Street, but traded down 4%. The challenges (as we outline above) include weaker seasonality in 1Q, idiosyncratic disruptions tied to the Middle East, ongoing leadership transitions, and M&A obfuscating organic growth. Stocks that have worked are clearly benefiting from the AI product cycle, which is still in its early innings: e.g. DDOG +31% (guided 2Q revenue 8% above the Street) and DOCN +40% (raised 2027 from >30% to >50% revenue growth).
- **Positioning data and investor conversations reinforce this dynamic.** Both hedge funds and mutual funds have been actively de-risking software exposure, contributing to higher volatility and rising intra-sector correlations. The unwind has not been uniform—factor-driven and thematic tilts (e.g., long cybersecurity vs. short application software) have amplified moves—but the net effect has been consistent selling pressure, particularly from hedge funds.
- **Correlation breakdown:** Correlations among the application software stocks spiked in January and February alongside the selloff, similar to patterns observed during the tariff-driven volatility in April 2025. Unlike that episode, however, broader market volatility has remained subdued. We view this as an example of an industry-level “correlation breakdown,” where heightened macro and structural concerns (e.g., disintermediation risk and questions around terminal value) elevate systematic risk relative to company-specific fundamentals, reducing the impact of positive estimate revisions.
- **Positioning data underscores the scale of the move.** Per GS Prime Brokerage ([link](#)), hedge fund selling of software in January was roughly 3x the prior notional record (Z-score of -5). By February 6, software accounted for <3% of hedge fund net exposure, down from ~7% at the start of the year and well below the ~15–20%

historical range. While positioning data is only available through 4Q, exposure was already light at that point ([link](#)). Mutual funds—already underweight—have been reducing software exposure since early 2024, and hedge funds have been rotating away for several quarters. Notably, semiconductors now represent a larger share of hedge fund long portfolios than software.

**Exhibit 4: Software companies beat 1Q revenue by a median of ~70bps and guided 30bps above for 2Q; but the median stock was down 420bps, often on questions on organic vs. inorganic contributions, smaller beats relative to history, and/or management commentary on AI mix**

Ticker	Revenue Beat/Miss for the quarter	Operating Margin Beat/Miss for the quarter	Stock Performance following release	Next Quarter Revenue Guidance	Current Year Revenue Guidance
	%	%	%	%	% change
AKAM	0.1%	(25)bps	26.6%	(1.0%)	0.4%
AVPT	1.0%	20bps	10.5%	(2.2%)	(0.2%)
CHKP	(0.6%)	(22)bps	(19.6%)	(4.1%)	(2.6%)
CMRC	4.3%	266bps	23.6%	(1.6%)	0.2%
CRWV	5.7%	(13)bps	(11.4%)	(4.0%)	1.2%
DDOG	4.8%	86bps	31.3%	7.9%	5.2%
DOCN	3.3%	596bps	40.4%	4.8%	3.9%
DT	2.1%	70bps	(11.4%)	0.2%	0.7%
EVCM	0.2%	(37)bps	1.5%	(1.5%)	(0.1%)
FTNT	6.7%	436bps	20.0%	3.5%	2.7%
HUBS	2.0%	99bps	(19.0%)	(0.2%)	0.2%
KVYO	2.7%	151bps	(32.2%)	0.5%	0.8%
MSFT	1.8%	75bps	(3.9%)	(0.1%)	0.2%
NET	3.0%	(4)bps	(23.6%)	0.3%	0.7%
NOW	0.7%	29bps	(17.7%)	1.5%	1.1%
PLTR	5.9%	360bps	(6.9%)	7.3%	5.1%
SHOP	2.5%	131bps	(15.6%)	1.2%	0.8%
TYL	0.8%	36bps	(4.2%)	1.1%	1.1%
ZETA	7.0%	2bps	1.0%	1.1%	1.5%
<b>Mean</b>	<b>2.8%</b>	<b>119bps</b>	<b>(0.6%)</b>	<b>0.8%</b>	<b>1.2%</b>
<b>Median</b>	<b>2.5%</b>	<b>70bps</b>	<b>(4.2%)</b>	<b>0.3%</b>	<b>0.8%</b>

*Beat is greater than 1% difference*

*Guidance raise is greater than 1% increase at the midpoint*

Source: FactSet, Data compiled by Goldman Sachs Global Investment Research

**Taken together, the empirical data aligns closely with what we heard from investors during this period: selling has been sharp, consistent, and disproportionately driven by hedge funds—despite earnings revisions that have continued to trend positively.**

**What happens next? Every Sector selloff has idiosyncratic drivers; nonetheless, the historical data indicates that mean reversion to the positive is possible. The path of**

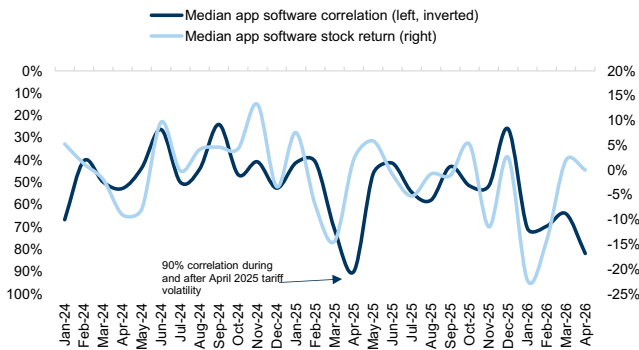
fundamentals matters, but sometimes estimates hold in and it takes time to disprove the negative. While we are not arguing that underperformance on its own should drive outperformance for the software group, we do note that valuations have compressed, and 1Q earnings illustrates that there is potential for outsized alpha (+/- 20% moves) in a short period of time. The data shows that the severe downshift in software sentiment does not make the sector unownable.

We leveraged quarterly price and estimate data for 154 sectors tracked by FactSet going back to 2002, to see what lessons can be gleaned from sector sell-offs:

- 1. Sectors that lag have tended to mean-revert.** Since 2Q01, the sector with the worst returns of the 154 in the dataset has returned positive 65% of the time in the subsequent three years, with median returns of 9pp/30pp in the subsequent one/three years. (See [Exhibit 9](#)).
- 2. Recoveries from cyclical sell-offs do have higher returns than recoveries from secular sell-offs, but sectors that sell off on secular fears have also bounced back.** We hypothesized that the outperformance for the laggards might be driven by sectors that sold off into a recession and then outperformed off the bottom of the cycle. This is only partially true. Of the 42 instances of a sector selling off due to secular concerns, the sector returned positive 52% of the time over the three subsequent years vs. 59% for cyclically-driven sell-offs. After cyclical sell-offs, the bottom sector returned a median 45% over three years, while secular sell-offs have been followed by a median 16% three year return.
- 3. Secular losers tend to repeat:** Electronics/Appliance Stores (7 appearances), Specialty Telecom (5), Coal (6), and Contract Drilling (5) all represent industries in structural decline due to technological disruption, e-commerce displacement, and the energy transition.
- 4. The path of fundamentals (directionally, sometimes) matters.** There is a modest positive correlation (RSQ=0.30) between the change in growth rate for the subsector and the subsequent three-year returns of the sector.

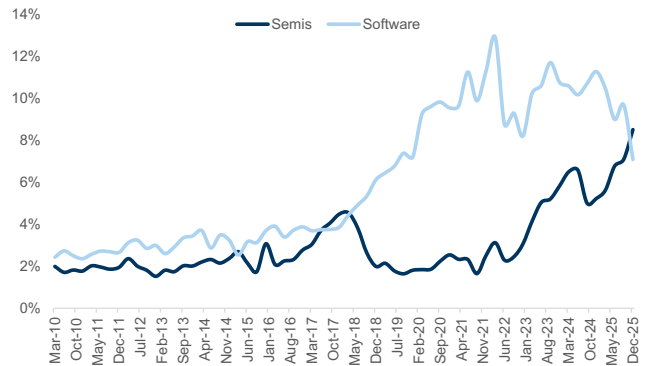
A Note on Methodology: We classified each selloff as cyclical (driven by demand, supply, interest rates) or secular (technological change, regulation, consumer/customer behavior changes). Where both labels could apply, we used our judgment. For example Electronics Stores were the worst-returning sector in 4Q10-1Q11 in the midst of the GFC, and SSS remained negative through this period, implying cyclical underperformance. But commentary from the time was more reflective of competition from Amazon and the rise of online retail. As an example, see Points 2-3 [here](#).

**Exhibit 5: Correlations between software stocks decreased in Feb-March, following a spike in January**  
 Monthly change in correlation among 11 application software stocks vs. monthly change in the FactSet US Packaged Software Index



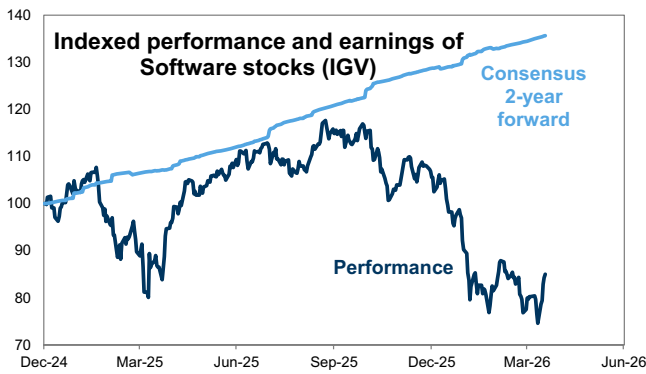
Source: FactSet

**Exhibit 6: Hedge funds have reduced exposure to Software in their long portfolios**  
 Weight in HF long US portfolio (%)



Source: FactSet, Goldman Sachs Global Investment Research

**Exhibit 7: The result is the software group has underperformed despite rising earnings estimates**



Source: Data compiled by Goldman Sachs Global Investment Research

**Exhibit 8: Software was the 2nd-lowest returning sector in 1Q26**

	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24	4Q24	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26
<b>Lowest Returning Sector</b>	Regional Banks	Office Equipment/Supplies	Discount Stores	Integrated Oil	Motor Vehicles	Drugstore Chains	Discount Stores	Hospital/Nursing Management	Motor Vehicles	Managed Health Care	Textiles	Pharmaceuticals: Generic	Pharmaceuticals: Generic	Coal
<b>Price Performance</b>	-18%	-17%	-30%	-12%	-25%	-23%	-33%	-25%	-33%	-27%	-18%	-23%	-27%	-14%
<b>2nd Lowest Performing Sector</b>	Drugstore Chains	Oil Refining/Marketing	Alternative Power Generation	Contract Drilling	Specialty Telecommunications	Discount Stores	Apparel/Footwear	Drugstore Chains	Electronic Production Equipment	Beverages: Alcoholic	Food Retail	Other Consumer Specialties	Ⓢ Packaged Software	Discount Stores
<b>Price Performance</b>	-17%	-13%	-26%	-9%	-19%	-20%	-28%	-25%	-29%	-15%	-14%	-20%	-23%	-14%
<b>3rd Lowest Performing Sector</b>	Managed Health Care	Precious Metals	Airlines	Publishing: Books/Magazines	Savings Banks	Automotive Aftermarket	Computer Processing Hardware	Precious Metals	Computer Peripherals	Contract Drilling	Pharmaceuticals: Generic	Chemicals: Agricultural	Casinos/Gaming	Pulp and Paper
<b>Price Performance</b>	-12%	-13%	-24%	-6%	-18%	-19%	-15%	-24%	-24%	-15%	-13%	-19%	-23%	-13%

Source: FactSet, Goldman Sachs Global Investment Research

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**Exhibit 9: Historically (2001-Present), underperformance or a sector has tended to result in mean reversion in subsequent periods**

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**Exhibit 10: This performance is loosely correlated to estimate revisions**

## Exhibit 12: Every Sector Selloff has its own idiosyncratic drivers; nonetheless, history can surface useful case studies on the fact pattern that could drive normalization for Software over a 1 to 3 year time frame

Historical examples of sector selloffs driven by secular concerns

Time Period	Subsector	Sector Return	T+1 Year Returns	T+3 Year Returns	Time Period	Subsector	Sector Return	T+1 Year Returns	T+3 Year Returns
2H2002-1H2003	Hospital/Nursing Management	-32%	▲ 18%	▲ 33%	2015	Coal	-25%	▼ -63%	▼ -18%
3Q2003 2H2004-1H2005	Specialty Telecommunications	-65%	▼ -89%	▼ -95%	1Q2016	Pharmaceuticals	-22%	▬ -2%	▬ 7%
4Q2003	Airlines	-9%	▬ -9%	▲ 16%	3Q2016	Catalogs/Specialty Distribution	-17%	▲ 20%	▼ -39%
1Q2004	Textiles	-19%	▲ 43%	▲ 36%	4Q2016	Advertising/Marketing Services	-11%	▬ -7%	▬ 8%
4Q2004	Insurance Brokers/Services	-14%	▲ 10%	▲ 13%	1Q2017	Department Stores	-16%	▲ 33%	▼ -57%
4Q2005	Alternative Power Generation	-48%	▲ 67%	▲ 16%	2Q2018 2Q2019	Catalogs/Specialty Distribution	-14%	▼ -36%	▼ -53%
3Q2006	Movies/Entertainment	-38%	▬ -5%	▼ -32%	2H2019	Coal	-27%	▼ -61%	▲ 80%
2006	Electronics/Appliance Stores	-9%	▬ -5%	▼ -23%	2Q2020	Publishing Books/Magazines	-8%	▲ 145%	▲ 77%
2Q2007	Department Stores	-9%	▼ -48%	▼ -50%	4Q2020 2H2021	Electronics/Appliance Stores	-13%	▼ -62%	▼ -39%
4Q2008	Broadcasting	-69%	▲ 154%	▲ 301%	2Q2023	Office Equipment/Supplies	-17%	▲ 74%	▲ 69%
3Q2009	Financial Publishing/Services	-3%	▲ 21%	▲ 71%	2Q2024	Drugstore Chains	-23%	▲ 20%	
4Q2010-1Q2011 2H2012	Electronics/Appliance Stores	-14%	▼ -30%	▲ 20%	4Q2024	Hospital/Nursing Management	-25%	▲ 45%	
3Q2011-1H2012	Internet Retail	-17%	▼ -16%	▬ -5%	2Q2025	Managed Health Care	-27%	▼ -15%	
1Q2012	Coal	-10%	▼ -16%	▼ -50%	3Q2025	Textiles	-18%		
1Q2013	Telecommunications Equipment	-10%	▲ 24%	▲ 55%	4Q2025	Pharmaceuticals: Generic	-23%		
3Q2013 1Q2014	Department stores	-8%	▲ 29%	▬ -5%	1Q2026	Packaged Software	-17%		

Sector performance is calculated as returns in the first quarter of sell-off; subsequent performance is calculated relative to that first sell-off

Source: Data compiled by Goldman Sachs Global Investment Research

## Case Study: Consumer Internet during the early Mobile Era (2007-2014)

**The period following the release of the iPhone in 2007 and mobile ad revenue gaining critical mass in 2012-13 catalyzed debate about the future state of internet applications, both technologically and economically. In analyzing this period, we see lessons for Software today, when a multi-year innovation cycle is driving investor concern about monetization, disruption of existing profit pools, and terminal value.**

The Internet Sector entered 2007 after underperformance in 2006, including a 20pp correction from January 2006-August 2006, amidst fears of a Dotcom 2.0 event ([link](#)). Investors were concerned about high valuations, how to monetize digital ads, and intensifying competition in favored VC categories like blogging/social networks. By the end of the year, the industry settled on free services supported by digital ads as the most viable business model, and Internet stocks recovered. The emerging GFC and another technological change, this time release of the iPhone, drove another wall of worry. Internet stocks were -4%/-40% in 2007/2008 as advertising budgets fell, and although digital advertising proved somewhat more resilient (down just -3%), a new concern emerged: the Mobile Monetization Gap. Industry analysts noted the mismatch between growth in mobile phone usage, and monetization via ads: mobile internet CPMs by 2012 were still \$0.75 vs. \$3.50 on average for desktop, and Pandora, Tencent, and Zynga were reporting ARPU that was 5x lower for mobile. The launch of the iPad in 2010 drove more fears of disruption ([link](#)) not just to competing products, but also to established ecosystems (app stores, online retail, the Microsoft ecosystem). Facebook underperformed post-IPO in May 2012, as investors questioned whether a desktop-based ad model could transition to mobile-first engagement ([link](#)).

**Ultimately, companies (including many incumbents) were able to adapt to the new technology, which drove more opportunities for value creation and monetization, not fewer. Although desktop ad revenue growth slowed, overall mobile ad spend continued growing and accelerated into the 2014-2016 period (see [Exhibit 13](#)). Though the technological revolution (AI vs. mobile) and business model context (consumer internet vs. SaaS) are different, we see echoes of the same debates in software. We think ultimately, AI will be additive to the software TAM.**

### The Lessons

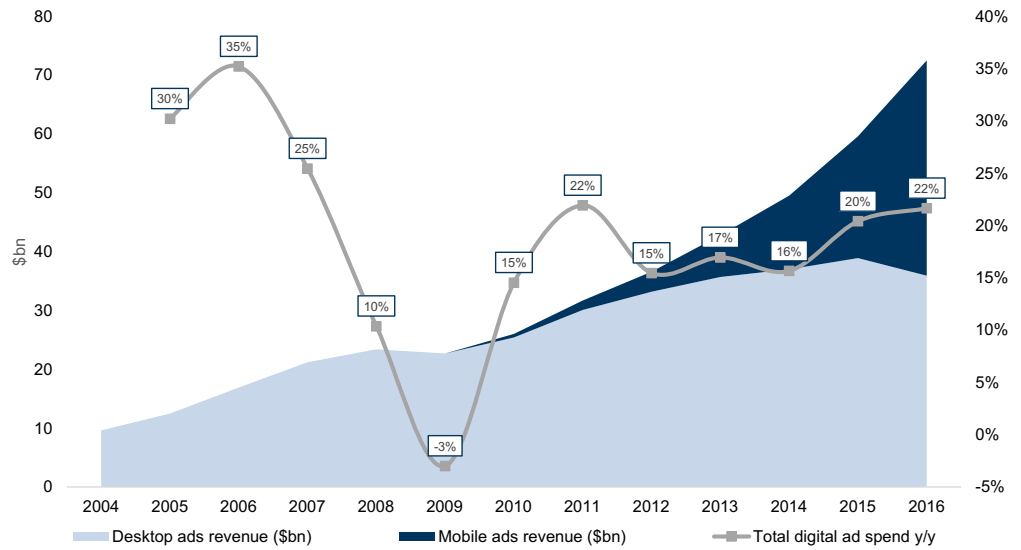
Out of this period we find a number of lessons for companies today, and for investors:

- 1. Significant value creation can accompany technological change:** In 2006, the top 10 internet companies combined had ~\$270bn in market cap. In 2016, the top 10 had nearly \$1.5trn combined (See [Exhibit 15](#)).
- 2. There are losers and winners among incumbents:** Google, Amazon, Netflix, Expedia, Meta, and Booking were able to transition their business models and adapt to the new mobile paradigm. eBay, Yahoo, and Pandora were less successful at adapting to the mobile era, as evidenced by market capitalization and durability of revenue growth through the period.
- 3. There is room for multiple winners in a large TAM:** Internet companies arguably benefit from network effects even more so than software companies. But even in

Internet, the winner did not necessarily take all. Booking outperformed Expedia from 2006-2016 and became the market leader, but Expedia still returned +519% from 12/29/06-12/30/16 vs the S&P500 +94%, and revenue nearly quadrupled. Three social media networks (Facebook, LinkedIn, Twitter) were among the top ten internet companies in 2016 by market cap even though Facebook was the clear market leader.

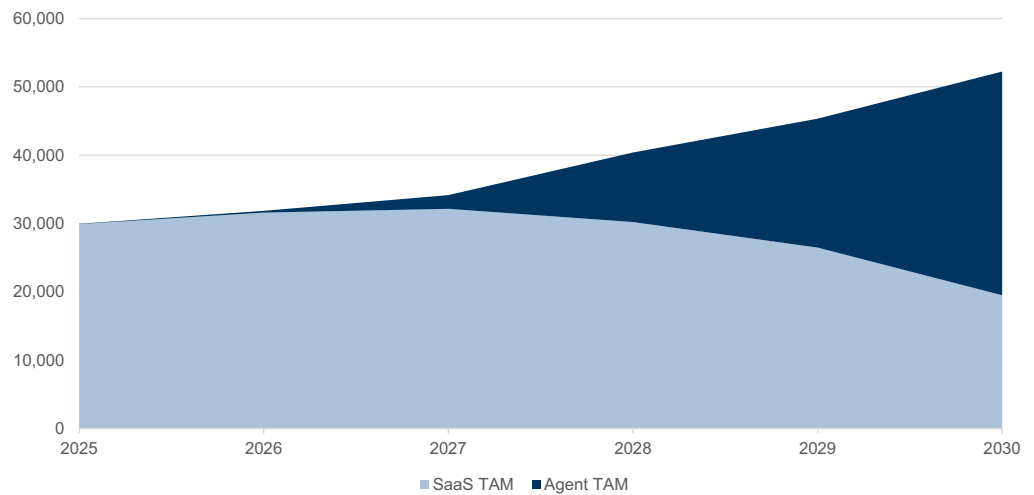
- 4. M&A can be transformative.** Google buying YouTube + Android, and Facebook buying Instagram + WhatsApp are two of the most famous examples from this era, but virtually all the internet companies pursued M&A during this period. Other strategic acquisitions from this period include Google buying AdMob, Amazon [buying Zappos](#), Expedia [buying Trivago/Orbitz/HomeAway/Travelocity](#), and Booking [buying KAYAK](#). These helped speed up innovation, distribution, and product assortment. There were less successful acquisitions too, like Yahoo [buying Tumblr](#); Uber [buying Otto](#); all of these were eventually scaled back or shut down. As it relates to the software industry, we [continue to expect](#) the pace of Software M&A to remain elevated this year and, as it relates to the public companies, think value can be generated by acquiring the best technologies from innovators in the private markets.
- 5. Newcomers are not necessarily technologically ahead or inherently positioned to displace incumbents:** Facebook went public in 2012 but did not have mobile revenues. Zynga was a later IPO, but faced significant competition as app stores developed. Pandora was mobile-first, but the business model proved unsustainable amid rising competition. Groupon was able to adapt to the mobile form factor, but customer acquisition costs were too high which made the unit economics challenging.
- 6. Improving the product and driving adoption (offense) is a better long-term strategy than pushing monetization (defense):** Netflix divided its existing mail DVD and nascent streaming businesses in two and raised price on consumers (defense), which resulted in pushback from consumers. The Netflix founder later acknowledged this as a strategic misstep, as it led to material subscriber loss and was one of the reasons why the stock declined 75% from highs. Google made the Android operating system free to boost adoption (offense).
- 7. Technological evolution proved very difficult to predict.** The companies themselves experimented with different ways to reach the consumer (new partnerships, moving from hardware to applications and vice-versa, new lines of business). Leaps forward in technology catalyzed significant debate about the end state of technology: When tablets emerged, some thought web-based content would gain steam ([link](#)), but today smartphones remained dominant and mobile users spend ~90% of time in apps.

**Exhibit 13: Mobile ad revenue did ultimately cannibalize desktop revenue - but overall digital ad growth accelerated as mobile gathered steam in 2015-16**



Source: IAB/PwC Internet Ad Revenue Report

**Exhibit 14: Similarly, we expect to see a shift in the profit pool to agents that ultimately keeps the overall software TAM growing; the key will be Software companies illustrating that new agentic-driven revenue can more than offset any pressure in seat count or pricing compression on the pre-2026 tech stack**



Source: Goldman Sachs Global Investment Research

**The Incumbent Publics:**

**Innovation & Transformation Case Studies:**

- **Google (2004 IPO)** had a dominant position in desktop search advertising with its AdWords business going into this period. The smaller screens of mobile devices offered less space for ads, and user search behavior was different - more immediate

and location-based. The risk was that the profit pool would fragment as the market changed. Instead of merely adapting their existing desktop website for the mobile form factor, Google did three major things: 1) Acquired and built a foundational layer of the new ecosystem (Android); 2) partnered with device manufacturers like Apple and mobile carriers like Sprint/T-Mobile to make Google Search the default ([link](#)); 3) optimized its core products (search, YouTube, Maps, Gmail, Chrome) for mobile and launched a new voice assistant.

- **Amazon (1997 IPO)** had succeeded in gaining market share of the nascent ecommerce market with Prime and the “1-click” experience, but the vast catalog and complex website were difficult to navigate on early smartphones. Amazon had long been a company “whose strategy is always in motion” ([link](#)) and continued to evolve through this period: 1) expanding into hardware with the launch of the Kindle e-reader (sold at cost) and ecosystem; 2) investing heavily in their mobile app which debuted in 2009 with a barcode scanner for in-store price comparisons launched in 2011 and cross-platform synchronization in 2012; 3) continuing to expand AWS. Investors at the time debated the ultimate value of these investments, which weighed on near-term margins/CROCI and cash flow but ultimately positioned the company to compound cash flow in 2014 and beyond ([link](#)).
- **Facebook (2012 IPO)** began in 2004 as a desktop-based social network. The stock lagged post IPO in 2012, with investors skeptical about the company’s ability to monetize its rapidly growing mobile user base. At the time of IPO, the company did not have “meaningful” mobile advertising revenue despite mobile ads being a >\$3bn market. Management pivoted, declaring Facebook would become a “mobile-first” company. The company did three things: 1) re-engineered its apps, moving from a slower, web-based framework (HTML5) to faster, native code for iOS and Android; 2) quickly rolled out a suite of new, mobile-native ad formats, notably the in-feed sponsored post; and 3) acquired Instagram for \$1bn, which in time gave Facebook a fast-growing platform for mobile. Mobile revenue went from 0% of ad revenue in 2011 to 23% in 4Q12 and 53% in 4Q13. The stock lagged below IPO price for a year before outperforming in 2013-2014.

#### Challenges with Innovation:

- **eBay (1998 IPO)** was the original online marketplace, but the company’s auction-based format and user-generated listings were complex. Translating this to a mobile-friendly format while competing with the simplicity of Amazon was a substantial hurdle. The company grew slower than peers (MSD revenue CAGR by the late 2010s vs. AMZN high 20s) and its market capitalization declined 21% by 2016.
- **Yahoo (1996 IPO)** was the “front page of the internet” in 2006, and remained tethered to a portal strategy that did not translate well to apps. Beginning in 2012 the company attempted a “mobile-first” turnaround under CEO Marissa Mayer, which included dozens of acquisitions (Tumblr, Summly) but it was by then too late to displace Google and Facebook.

#### New Entrants

#### Durable Growth:

- **Uber (2019 IPO)** was founded in 2009 and was definitively mobile-native; it did not have a desktop booking equivalent. The business model (connecting a GPS-located rider with a GPS-located driver) was impossible before the smartphone. Bypassing the desktop era entirely, Uber scaled to a \$60+ bn valuation by 2016 and fundamentally altered the global transportation profit pool by commoditizing ridesharing.

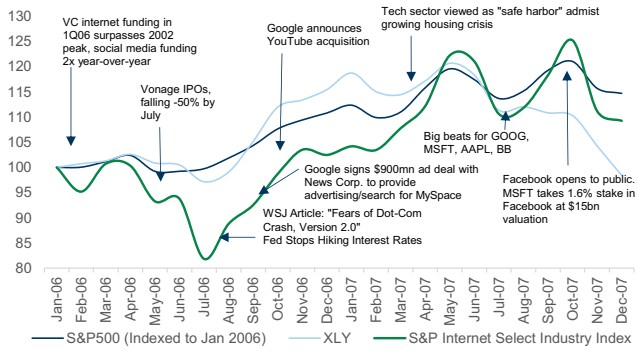
**Product-cycle Driven Growth:**

- **Groupon (2011 IPO)** was founded in 2008 and went public in 2011, and was the “fastest-growing company ever” during the desktop-to-mobile transition, reaching \$500mn in sales faster than any company before it. While it initially relied on daily emails (a desktop-era “push” strategy), it pivoted to a mobile marketplace to capture “pull” demand from users looking for local deals nearby. However, the stock struggled post-IPO as the novelty of daily deals faded and the company faced high customer acquisition costs, leading to a significant loss in market value by 2016.
- **Airbnb (2020 IPO)** was founded in 2008, leveraging mobile to build trust through real-time communication between hosts and guests. While it started as a desktop website, its mobile app became the primary tool for managing the on-the-ground experience. By 2017, Airbnb had reached a \$30 billion private valuation, disrupting the traditional hotel profit pool to build a \$2.6bn business.

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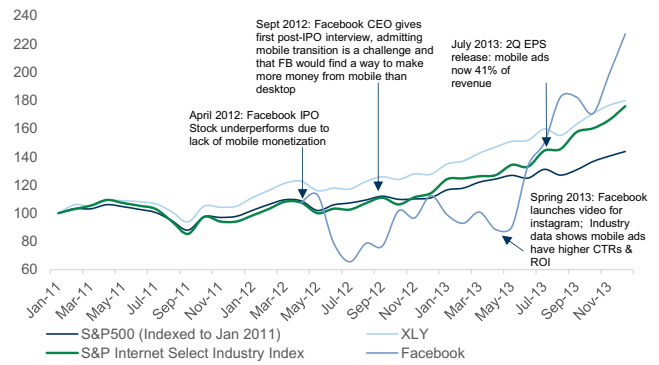
**Exhibit 15: Top 10 internet companies in 2006 and 2016 by market cap**

**Exhibit 16: The internet sector struggled in 2006 amidst fears of a Dot-Com 2.0 bubble and concern about the path to profitability**



Source: FactSet, Goldman Sachs Global Investment Research

**Exhibit 17: Similarly the sector lagged in 2011-12, coinciding with the Facebook IPO which featured concerns about the path to monetizing mobile**



Source: FactSet, Goldman Sachs Global Investment Research

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