Key Takeaways

- **Ratings Outlook:** The outlooks on our ratings of global technology companies remain mostly stable, reflecting the relatively solid underlying operating fundamentals. Our non-stable outlooks have a 2:1 negative bias that reflects operating weakness at certain legacy hardware providers, higher leverage at some sponsor-held companies, and higher leverage resulting from acquisitions.

- **Forecasts:** We expect IT spending to moderate to the level of global GDP growth (3% to 4%) in 2019 based on mid-single digit percent growth in software, which continues to benefit from the ongoing software as a service (SaaS) transition, and a similar rate of growth in services. This growth will be partially offset by a decline in semiconductor sales and flat hardware revenues, despite strong hyperscale data center spending.

- **Assumptions:** After two years of robust growth, we expect semiconductor industry sales to decline in the low-single digit percent area in 2019 as memory market correction is offset by continuing growth in non-memory segments. Memory prices are already declining and should continue to do so through 2019 due to supply expansion despite strong underlying demand. Non-memory should continue to expand, although more slowly, reflecting stable demand from diverse markets.

- **Risks:** If the U.S. follows through with its threat of tariffs on an additional $250 billion of Chinese imports, most technology products coming into the U.S. would see their costs rise, and China would likely retaliate, shaking business confidence and hurting global IT consumption.

- **Industry Trends:** SaaS is driving almost all of the growth in software applications, and we expect healthy double-digit percent revenue growth in 2019. We expect this trend to continue because of the benefits that accrue to both customers (lower upfront cost, easier implementation) and providers (recurring revenues). “Born in the cloud” companies should continue to outperform legacy software providers.
Ratings trends and outlook

Global Technology

Chart 1
Ratings distribution

Chart 2
Ratings distribution by region

Chart 3
Ratings outlooks

Chart 4
Ratings outlooks by region

Chart 5
Ratings outlook net bias

Chart 6
Ratings net outlook bias by region

Source: S&P Global Ratings. Ratings data measured quarterly with last shown quarter ending September 30, 2018
Industry forecasts

Global Technology

Chart 7
Revenue growth (local currency)

Chart 8
EBITDA margin (adjusted)

Chart 9
Debt / EBITDA (median, adjusted)

Chart 10
FFO / Debt (median, adjusted)

Source: S&P Global Ratings. Revenue growth shows local currency growth weighted by prior-year common-currency revenue-share. All other figures are converted into U.S. Dollars using historic exchange rates. Forecasts are converted at the last financial year-end spot rate. FFO—Funds from operations.
Key assumptions

Technology

1. IT spending will decelerate while cloud migration continues
We expect 2019 global IT spending growth to track overall GDP growth. The secular growth story for public cloud should continue over the longer term, benefitting hardware, software, IT services providers, and semiconductor vendors with high exposures to cloud service providers. However, we believe the strength in on-premise IT spending seen over the past 12 months will ebb in 2019 as macroeconomic growth and the boost from U.S. tax reform become less of a tailwind.

2. Semiconductor industry growth will turn negative in 2019
After two years of robust growth, we expect the semiconductor industry to decline in the low single digits in 2019 as correction in the memory market is offset by continuing growth elsewhere. Memory prices are already declining and should continue to do so through 2019 despite strong underlying demand due to supply expansion. Non-memory should continue to expand, albeit at a slower pace, as demand drivers are diverse and growing. Overall, we expect the industry to exhibit reduced volatility in the future due to the broader applications for semiconductors as well as recent industry consolidation that we believe has prompted companies to become more rational and disciplined in their capital spending.

3. SaaS continues to drive bulk of software industry growth
SaaS is driving almost all of the growth in software applications, and we expect continued double-digit percent revenue gains in 2019 and healthy growth over the next several years. We expect this trend to continue over the next several years because of the benefits that accrue to both customers (lower costs, easier implementations, better scalability, and budgetary flexibility) and providers (faster innovation, larger addressable markets, and recurring revenue). The most successful SaaS companies to date were “born in the cloud” and pursued broad, easier to rip and replace software, versus mission critical applications. Mission critical applications are riskier to switch, and narrower products are less attractive to new entrants. We see, however, that the companies already providing these products have had more time to develop their own SaaS products.

IT spending will decelerate while cloud migration continues
With macroeconomic growth less of a tailwind, we expect IT spending to grow in line with global GDP in 2019. This is a deceleration from our expectation for a mid-single digit percentage growth for 2018, which benefitted from a global synchronized growth environment in 2017 and early 2018 as well as tailwinds from U.S. tax reforms during the year. We believe the secular cloud adoption trend and customers’ evolving spending priorities will be a harsh reality for IT hardware vendors that will undoubtedly lead to challenging growth prospects and margin pressure down the road. We also anticipate more mergers and acquisitions (M&A) or restructuring among IT hardware vendors as they pursue inorganic growth to add cloud, digital capabilities, or software functionalities in order to diversify and reduce their exposure to areas that face tough challenges due to increasing workload migration to the cloud.

Of an estimated $2.6 trillion in worldwide IT expenditures in 2019, we think that about $195 billion will be spent on the public cloud. This compares to an estimated $160 billion in spending on the public cloud out of about $2.5 trillion in worldwide IT expenditures in
2018. We expect that the growth in cloud outlays will significantly outpace growth in overall global IT spending for years to come. According to IT market research company International Data Corp. (IDC), worldwide public cloud service revenue will increase by a 21.9% compound annual growth rate (CAGR) between 2016 and 2021.

Cloud service providers have become increasingly influential consumers of hardware and software, causing pricing pressure and forcing vendors to change their business strategies. For example, many software companies have had to transition their product offerings to software-as-a-service (SaaS) from a license sales model to meet changing customer preferences, putting those who are slow to adapt at a competitive disadvantage. The impact on IT hardware vendors is even greater, in our view. While we expect a long tail of IT infrastructure spending in traditional enterprise data centers, we also believe that enterprise customers will increasingly allocate less of their budget to on-premise data center infrastructure in favor of migrating workloads to cloud infrastructure, applications and services, digital transformation, security software, big data analytics, artificial intelligence, and machine learning.

We expect overall growth in the IT hardware industry to be flat to slightly positive over the next 12 months, moderating from low-single-digit percent growth in 2018. We believe recent performance is due more to a favorable economy and pent-up demand from underinvestment than a pivot to sustained spending. It is our belief that the secular trend of workload migration to the cloud from traditional data centers, which hurt sales of legacy IT hardware solutions, is still in the early innings. As such, we are cautious on the IT hardware landscape over the next few years and expect to see intensified competition that adds to operational risks and heightens M&A activity.

**Server**

Server growth has been stellar in the first half of 2018, up by about 40% on a year-over-year basis, resulting mainly from strong demand from hyperscalers, rising average selling prices (ASPs) from higher DRAM prices and richer configurations, and enterprises investing in new infrastructure as they move their workloads to the private cloud. Understandably, we do not believe this high growth rate is sustainable in the long term, or even in the second half of 2018. Starting in late 2018 we expect hyperscalers to absorb their large server purchases and further optimize utilization, enterprise customers to moderate their spending for servers and further consolidate their data center capacities, and DRAM prices to decline. All those factors will contribute to our expectation for somewhat lower server market revenue growth in the mid-single-digit percent area in 2019, following a strong performance in 2018.

**PC**

The call for significant unit declines in the PC market year after year have not played out in 2018, thanks to demand from developed markets that kept PC unit shipments at only a marginal decline. The commercial PC market was stronger than we expected, bolstered by improved macro conditions, healthy enterprise Windows 10 deployments, and good demand for gaming notebooks. For 2019, we expect a 1% to 2% decline in PC shipments, in line with the IDC forecast. Our forecast is based on the ongoing strength in the commercial market from the Windows 10 refresh cycle, which we expect to continue, although the potential Intel CPU shortage could have some impact, as we believe competitors, i.e. AMD, will seek to fill the void. The three largest PC vendors—HP Inc., Dell Technologies Inc. and Lenovo—have steadily gained share from ODMs and we expect that trend to continue.
HDD

We expect hard-disk-drive (HDD) shipments to decline in the high-single-digit percent area in 2019 following a mid-single-digit percent decline in 2018. Solid state drive (SSD) prices started falling in the second half of 2018 and the trend should continue in 2019, driving higher SSD attach rates in PCs and making SSDs more affordable to use in servers. We believe the secular trend of lower SSD prices will continue to reduce the prospects for HDD unit sales, with SSD displacing HDDs in PCs and servers. It would be imperative for HDD vendors (i.e. Western Digital and Seagate) to continue with their innovations, such as improving HDD compression techniques, while also preserving profitability by seeking operating efficiencies to combat lower unit sales and pricing pressure.

External Storage

We expect that external storage systems revenue will be essentially flat in 2019 following unexpectedly resilient growth in the first half of 2018, when revenues rose, year over year, in the mid-teens percent area. Demand for all-flash arrays has been solid and we believe there is room for further growth as all-flash arrays replace traditional HDD-only external storage systems. The viability of the hybrid cloud environment, where a significant proportion of workload in both enterprise data centers and cloud environment will reside, is paramount to the sustainability of the external storage systems market. We are seeing that large cloud providers prefer to leverage their scale to custom build and procure storage infrastructure instead of purchasing it from major vendors such as Dell-EMC and NetApp. Meanwhile, we expect enterprise customers, who have traditionally been major purchasers of external storage systems and have growing storage needs, will leverage technology to optimize their storage capacity.

Smartphone

We expect the smartphone market to be relatively flat in 2019. The market remains mostly saturated in developed countries, and China is experiencing noticeable slowdown in demand, but continuous improvements in overall phone functions and general performance should incentivize consumers to continue replacing their older models, although at a slower pace than in the past. We also expect ASPs to increase gradually, as phone manufacturers continue to pack more memory, better cameras, and longer battery life into larger screens. Apple’s new iPhone XS Max, for example, has a starting price of $1,099.

Networking equipment

We expect the networking equipment market to be flat to modestly positive in 2019, reflecting the continued buildout of the cloud and the demand for faster speed on the switching side. Service providers will continue to invest in 100G/400G routing capacity to meet higher bandwidth demand, but we are cautious of uneven carrier spending patterns. Beyond 2019, 5G rollout should provide a slow but consistent tailwind.

Telecom equipment

The decline in the mobile telecommunications equipment market is slowing down, and we think the market could stabilize in 2019 before growing again (after a high single-digit percentage decline in 2017 and a low single-digit percentage decline in 2018). The relative improvement in 2019 will result from additional investments in 4G (although 4G networks already reach about 60% of the world’s population) and gradual deployments of 5G. However, we think 5G investments will take time and their magnitude is uncertain. According to market research group Dell’Oro, 5G base-station shipments will not overtake those for 4G until 2022. Depending on when spectrum and smartphones are available, we expect the first 5G use cases will relate to enhanced mobile broadband
before potentially including IoT applications for autonomous driving, smart cities, remote medical procedures and virtual reality.

**Printers**

We expect that sales of printers in 2019 will be flat to modestly lower amid market saturation and the ongoing shift to digitization of content and documentation. That, in our view, will lower the longer-term prospects of printer installations. Nonetheless, we expect the shipment in high-end MFP (multi-functional printers) with enhanced cloud services to grow, as the major global companies launch new products in 2019. This should offset the volume decline in single-function printers. Nevertheless, we expect to see pressure on the industry’s profitability that forces companies to pursue cost reductions and business restructuring.

**IT services**

We expect to see 4% to 5% growth in worldwide IT services in 2019, with the evolution of cloud migration and digital transformation continuing to boost demand. While we anticipate that the demand for business process outsourcing and traditional systems and software implementation will decline, services to help move workloads into the cloud, along with the integration of new digital platforms with existing data and infrastructure, should enable IT service providers to see mid-single-digit percent growth next year. Enterprise customers appear increasingly ready to transform their business models as they seek new revenue-generating ideas, and we see them allocating more of their IT budgets to digital transformation and cloud migration, a trend that is likely to continue over the next few years. As such, we believe that the growth in IT services is highly correlated with global GDP growth.

**Semiconductor industry growth will turn negative in 2019**

The semiconductor industry has grown even faster than the global economy in the past few years. But that fast pace is slowing, and we anticipate the overall industry will see revenue decline in 2019.

Sales climbed 22% in 2017 to over $400 billion, and the industry is poised to grow another 16% in 2018 to over $470 billion, according to World Semiconductor Trade Statistics (WSTS). This would represent an industry expansion of nearly $140 billion in just two years. The memory segment has led the way, accounting for over 60% of this growth. But almost every major product category, from analog to logic, has also grown. The main reason for the strong growth in memory in past two years has been the increasing demand from smartphone manufacturers, and the growth of enterprise and cloud data centers. Demand for both DRAM and NAND have been robust, with the latter taking share from hard disk drives, resulting in rising ASP. However, the growth hasn’t been isolated to just memory. Analog, discretes, and sensors have all grown above their historical averages because the industry is no longer dependent on PC-driven cycles but sells into the growing markets such as automotive and industrial, for example. In 2017, the non-memory semiconductor market grew 12% and we expect that it will grow by another 8% by the end of 2018.

But with the memory segment entering a period of price erosion, we now forecast a moderate overall industry decline in 2019, reflecting mid-single-digit percent growth in the non-memory segment, but a low double-digit percent decline in the memory segment. Memory prices have already entered a period of correction, with NAND ASP already declining and DRAM starting to decline. We continue to see favorable end-market demand for memory over the coming year, as consumption needs shift to smartphones, data centers, and IoT applications, and away from PCs. We also expect increased DRAM consumption, although ASPs will decline due to increasing bit supply. Likewise, we
expect NAND ASP erosion to continue through 2019 as yields improve after industry’s migration to 3D NAND.

In non-memory, we continue to see a healthy demand for auto-related semiconductors used for driver assistance systems, entertainment, and of course, in electric vehicles. Industrial users, from manufacturers to the healthcare industry, also continue to incorporate greater silicon content in devices they use, providing a boost for many semiconductor companies. We expect relatively flat unit sales for both PCs and smartphones, but increasing semiconductor content in each will drive overall revenue growth, and the communications market should grow modestly in 2019. In all, we expect the non-memory segment to grow near the rate of global GDP growth, in the mid-single-digit percent area, down from the high-single-digit percent likely in 2018. That slowdown reflects near term concerns about slowing auto and industrial growth, signs of excess inventory in the industry, and potential China-related trade friction.

We expect the industry's growth will generally track that of global GDP in the long term, such that strong growths years such as 2017 and 2018 are offset by periods of revenue declines. That said, we posit that the overall industry will likely experience reduced volatility in future years, 2019 memory decline expectation notwithstanding, due to broadening end markets that now include more stable industries such as automotive, industrial, and communications, as well as additional growth drivers such as internet of things (IoT) and machine learning. Moreover, on the supply side, industry consolidation over the past decade has reduced the number of competitors in the market. The top 10 semiconductor companies now account for 60% of total industry revenues versus 50% 10 years ago. Fewer suppliers, as well as the growing influence of foundries, has also meant better capital spending discipline. Memory companies that are reducing or delaying capital spending in the face of price erosion indicates to us that they have become more rational and focused on profitability versus market share.

We are also keenly aware of China’s aggressive investments to expand its own semiconductor ecosystem, and the country’s escalating trade rhetoric with the U.S. China’s investments in memory, especially NAND, have the potential to disrupt the industry dynamics over the longer term. However, we don’t expect this to affect our view of the overall market for next two to three years.

**SaaS continues to drive bulk of software industry growth**

The SaaS delivery model is driving the majority of total software application revenue growth, and we expect that trend to continue over the next several years. IDC expects the global application software market will have grown at a compound annual growth rate of 6.7% between 2013 and the end of 2018, with SaaS applications having grown 23%, and traditional models having grown just 2%. Put another way, SaaS's share of the application software market will have risen to 34% in 2018 from 17% in 2013. We expect these trends to persist over the next several years, although SaaS growth is likely to fall to less than 20% annually in the next several years.

SaaS providers will continue to see higher revenues because they offer a number of benefits to both software users and developers. Customers often find a lower total cost of ownership, as the SaaS provider can more efficiently manage technology hardware and maintenance. They also find lower upfront costs and less complex implementations, making it easier for new customers to purchase. And all customers can more easily scale applications across their enterprises, get quicker access to the latest updates, and have more predictable software expenditures as they shift software spending from capital expenditure budgets to operating expense budgets. Software providers, for their part, can bring product innovations to market faster, gain recurring and predictable revenue, and get more small and mid-sized business customers because of the lower upfront costs.

Salesforce.com, Workday, and ServiceNow have been the most successful companies at leveraging the SaaS delivery model to take share from incumbent on-premises providers.
The two key characteristics of these companies we see are that they were “born in the cloud” and that they pursued broad, but not mission-critical, applications.

Being cloud-first, they avoided the innovator’s dilemma—the incentives to maintain existing businesses that impede large incumbents from bringing disruptive technologies to market. They simply had no legacy business to worry about disrupting. They pushed ahead with SaaS delivery when the market was too small to be meaningful for the incumbents, and customers eventually adopted their products on a larger scale as they better understood the value proposition. They also pursued very broad applications used by every large enterprise: Salesforce.com in customer relationship management, Workday in human capital management, and ServiceNow in IT service management. But while these applications are important, they aren’t mission-critical, thereby lowering one of the barriers to adoption by customers. As a result, these companies have taken market share from the likes of Oracle and SAP.

We have not seen as much success from challengers competing in applications that are narrow or mission critical. For example, we think that customers have been slower to choose SaaS enterprise resource planning (ERP) or database solutions because the greater transition risk creates a barrier to adoption. We don’t think this barrier is likely to last forever, but it gives an incumbent like Oracle more time to develop its own cloud strategy for these products. Indeed, Oracle acquired NetSuite in 2017, a provider of SaaS ERP solutions for small and mid-sized businesses, and the deal has accelerated Oracle’s effort to transition its own ERP products to SaaS for large enterprises. Similarly, Microsoft’s dominance in office productivity software gave it the space to develop Office 365, putting it among the leaders in SaaS application software, second only to Salesforce.com according to IDC. Companies with narrower, niche products have also been at less risk from SaaS disruptors because the markets for these products may be too small to attract the venture capital necessary to fund their initial development. Companies like Infor, Inc., which specialize in products tailored to niche segments, have slowly but surely SaaS-enabled their legacy products and can now offer customers their own SaaS products.
Key risks and opportunities

Technology

1. Trade tension is the biggest risk to favorable IT spending environment

Escalating trade tensions between the U.S. and China pose the biggest risk to our favorable IT spending environment. If the U.S. follows through with its threat to impose tariffs on another $250 billion or more in goods from its largest trading partner, most technology products imported from China would be affected. In this scenario, we would expect the Chinese to retaliate with non-tariff actions, such as boycotting American goods or limiting U.S. business investment and operations in China. We believe that would shake business and consumer confidence worldwide and hurt overall IT consumption.

2. Credit quality continues to decline at sponsor-led companies

Investor tolerance for extremely high financial leverage has led to the median leverage at new sponsor-led transactions rising to over 9x. About two-thirds of these new deals are now rated 'B-', much higher percentage than in previous years. In addition, we are also seeing low quality, highly adjusted EBITDA calculations from management, and which often give companies credit for unrealized performance improvements.

3. Technology should fare better in case of a sharp economic downturn in 2019

We believe that most IT companies are relatively well positioned to withstand the next recession, whenever it occurs, although declining business confidence could delay technology investments under such a scenario. Sponsor-held companies would be most affected, as technology LBOs generally carry higher leverage than other corporates. Hardware companies would also be at risk because customers could defer new capital investments. Meanwhile, memory semiconductor companies would likely face even greater pricing pressure given their commodity-like products. Investment grade issuers, however, should mostly fare well, although those that made large debt-financed acquisitions could see their ratings pressured if expected synergies or debt repayments are delayed during a downturn.

Trade tension is the biggest risk to favorable IT spending environment

U.S.-China trade tension appears to have worsened since September, when the U.S. Trade Representative (USTR) imposed a second round of tariffs on an additional $200 billion worth of Chinese imports at an initial rate of 10%, and rising to 25% next year. Those tariffs follow a 25% tariff on $50 billion worth of products implemented in July and August. The technology products included in the first two rounds of tariffs include hard disk drives, some semiconductor products, networking equipment, and consumer electronics products. Relative to other sectors such as automotive and agricultural products, the damage to technology has been benign so far because major technology goods such as smartphones, personal computers, servers, and CPUs, were spared in the first two rounds of tariffs.

Because of security or tariff concerns, Asian EMS companies have assembled some products destined for the U.S. outside of China, such as some networking equipments that are now being assembled in Mexico and Taiwan. Asian EMS and hardware companies could also utilize their capacity in other regions, including Southeast Asia, to make U.S.-bound products without significant additional costs.

Technology companies are already on high alert for more tariffs to come. Tariffs add to a company's costs and have to be absorbed by the company itself, its supply chain partners, or passed along to end customers. Some companies, such as Micron
Technology, have said that tariffs on their memory products would hurt profitability. Cisco Systems has said that the impact from tariffs would be fairly significant. It has decided on raising prices to help offset some of the tariff burden. However, U.S. suppliers are reluctant to raise prices on products that have commodity-like features, such as semiconductor memory where competition comes from vendors such as South Korea’s Samsung Electronics and SK Hynix. To the extent possible, however, technology companies would prefer to move manufacturing or final assembly destined for the U.S. out of China to areas where they have excess capacity. Seagate, for instance, has already moved some of its hard disk drive assembly to Thailand.

The U.S. administration and the USTR have asserted that China has long pressured foreign companies to share valuable intellectual property for the right to operate in China. They also believe that imposing tariffs on Chinese imports can pressure China to change its unfair trade practices against foreign companies and help narrow the U.S. trade deficit with China. So far, China has yet to relent. Instead, it has vowed to retaliate with more tariffs on U.S. imports, increasing the likelihood that the White House will impose additional tariffs on another $250 billion of Chinese goods. If that happens, we think it’s unlikely that the major technology products excluded in earlier rounds of tariffs would be spared.

We believe this outcome would have an outsized impact on consumer electronics and semiconductor products such as CPUs and GPUs. The majority of global semiconductor manufacturing and assembly is based in China. It would be unrealistic, disruptive to the supply chain, and cost-prohibitive for these large operations to relocate outside of China. We are also concerned that a trade war could cause China to undertake non-tariff retaliation with a consumer boycott or limitations on the operations of U.S. companies there. This would affect the tech companies whose revenue is heavily linked to the Chinese market – for example, about 20% of Apple’s $255 billion in revenues in the 12 months ended September 2018 was generated from China.

Another concern is that the Chinese economy could take a bigger hit from a full-blown trade war than the U.S., hurting Chinese technology hardware companies that focus on the domestic market for smartphone, TV and other IT hardware. These are areas that have already seen slower growth because of increasing market saturation. Such a slowdown, together with the high capital expenditures that we anticipate in areas such as semiconductor and display panels, could strain the debt leverage of China’s technology hardware sector. Other Asia-Pacific region technology companies with high exposure to the Chinese market could also experience additional revenue risk, though the cash flow impact would likely be mostly manageable. And while Chinese internet companies could be hurt by a slowing domestic economy (and increased regulation), the government’s stimulus, aimed at boosting domestic consumption, could ease the pressure.

One other region of the world where the state of IT companies could be in an unusual amount of flux is Europe, with the approach of Brexit. We don’t believe Brexit, however, will present major threats for technology companies beyond potential damage to the British economy and the difficulty IT companies there may face in accessing qualified staff in some specific areas. Moreover, the magnitude of the Brexit impact on technology companies will depend on their specific business lines, the geographic source of their revenue, and the type of clients they serve. We do not assume a hard Brexit at this stage, which could have a bigger impact because of liquidity or regulatory changes. However, even in a hard Brexit, we don’t generally expect a significant impact on technology companies.

Moreover, we expect the impact of Brexit on large multinational technology companies will be limited given the small exposures they have to the UK. These large companies include equipment vendors (like Ericsson and Nokia), semiconductor companies (like NXP, STMicro and Infineon), and software provider SAP. As an example, Ericsson and Infineon derive each less than 3% of their revenues in the UK. Similarly, we do not expect
any disruption to the R&D or supply chains of hardware companies, because such activities have limited exposure to the UK.

Credit quality continues to decline at sponsor-led companies

Increasingly rich valuation multiples and investor tolerance for high levels of financial leverage have continued to drive a deterioration in credit quality in financial sponsor-led transactions. We have seen median leverage levels for new transactions increase to over 9x in 2018, up from the 7x levels seen in recent years, and we have issued ‘B-’ ratings to two-thirds of new private issuers in the past year, up from about 50% in 2017 and about 40% in 2016. We see no signs that investor willingness to lend to these extremely highly-leveraged companies is waning. Nearly half of new deals we have seen in 2018 feature companies borrowing more than 10 times EBITDA—examples include Powerschool (Superion Holdings), Barracuda Networks, and Central Square (Supermoose NewCo). While we don’t see a near-term maturity wall in technology leveraged loans, high levels of debt leave very little room for error in an economic downturn, and extremely high interest burdens may limit the ability to invest in new technologies or make bolt-on acquisitions.

Some companies have also presented financials with aggressively adjusted EBITDA calculations that give advance credit for restructuring activities, expected margin expansion, and changes in deferred revenue. In a typical deal, we see these adjustments covering about a quarter of EBITDA, although in some deals—including Blackhawk Networks and Verifone Systems—nearly half of all reported EBITDA has been so adjusted. If increasing leverage is supported by poor quality EBITDA, the real impact of a market downturn could be exacerbated as firms become unable to realize performance improvements and cost savings.

Technology should fare better in case of a sharp economic downturn in 2019

With U.S. corporate leverage and total outstanding corporate debt near all-time highs, a sharp, unexpected downturn in the global economy would have the potential to negatively impact the credit quality of some technology issuers, although we expect tech to generally fare better than other corporate sectors, and investment-grade tech companies to be especially resilient. Unlike commodity-driven industries, where declining demand or overproduction can pressure pricing, the technology industry is generally fueled by IT transitions and innovations that help improve customer productivity. This, in our view, makes tech less susceptible to large revenue and profit swings in a recession. However, there are some technology areas, such as hardware and certain sub-segments within semiconductors that can display commodity-like characteristics, especially if the product is not differentiated. Furthermore, declining consumer and business confidence in a downturn could reduce or delay the technology investments which may drive future growth but incur upfront costs, such as the move to the cloud or investments in artificial intelligence.

The most significant credit impact of a sharp downturn would be felt among speculative-grade companies, and specifically those in the ‘B’ ratings category where most sponsor-owned companies reside. Technology LBOs tend to carry higher leverage than that of corporates due to the high purchase multiples paid by the sponsors. Multiples have recently tended to be greater than 10x, and depending on perceived growth, sometimes exceed 15x. However, most of these technology LBOs are software and services companies where significant portions of revenues are contractually recurring and customer relationships are sticky. Nevertheless, for these issuers, deleveraging is predicated on continued revenue and margin expansion, which might not happen in a recession. A company with leverage near 8x could easily see it rise to 9x or even 10x with only a moderate fall in revenue. Even if leverage was manageable because of recurring revenues in the business model, a downturn coinciding with refinancing could push borrowing costs higher, turning the company’s cash flow negative and consequently pressuring its rating.
We believe that hardware-centric companies are also likely to be hurt in a sharp economic downturn. These issuers, across both investment and speculative-grade, rely on customers' capital spending for their revenues and generally have relatively high fixed costs. In a period of weakening demand, these customers may defer new capital investments except for maintenance. Issuers such as Dell and HP Enterprise could see lower demand for PCs and servers. Lower profitability would raise leverage and induce more refinancings, even at higher borrowing costs, rather than debt repayments, and potentially reduce spending on future investments which may not pay immediate dividends. Networking equipment companies such as Cisco Systems and Juniper Networks could also see meaningful revenue declines given the unpredictable spending of service providers. Electronics manufacturing services (EMS) companies, such as Flex and Jabil, and distributors such as Avnet and Arrow, would also see falling revenues and profits from lower demand, but they would likely improve near term cash flow because their working capital is countercyclical.

Memory-focused issuers such as Samsung Electronics, SK Hynix, Micron, and Western Digital, would also be among the more exposed tech companies in a recession. These issuers largely compete in commodity-like DRAM and NAND markets where reduced demand, either through slowing data center buildouts or declining smartphone sales, could significantly affect pricing and profitability. The memory industry has already entered a period of correction after a strong two year run, and supply has caught up to demand. An economic downturn could have a significant impact on profitability given high fixed costs and the massive capital expenditures required to maintain technology leadership. However, memory-focused issuers generally carry conservative balance sheets and our ratings incorporate an expectation for some volatility through cycles. Finally, suppliers to the semiconductor industry, such as Applied Materials, Lam Research, KLA-Tencor, ASML, Tokyo Electronics, as well as subcomponent providers such as MKS and Coherent, could also see a meaningful drop in demand after the expansion of the last two years.

Highly rated issuers are less likely to be hurt during an economic downturn. These issuers have strong competitive positions and should weather a downturn, even a sharp one, with modest impact to the credit profile. Their balance sheets and leverage profiles are relatively strong compared to similarly rated non-technology companies. Some of our largest issuers have already been reducing their balance sheets through aggressive share repurchases since the passage of the U.S. tax reform, although there has generally been little change in key credit metrics thus far. At the same time, investment grade issuers who are now digesting sizeable acquisitions could see their ratings pressured if expected synergies or debt repayments are delayed during a downturn. We have placed negative outlooks on some of these issuers, which indicates a 1-in-3 chance of a downgrade if their credit profile is not restored to an appropriate level after an acquisition.
Related Research

- Cloud Disruption: The On-Premise Spending Surge Will Fade And Let The Cloud Gather A Growing Share of Global IT Spending (Sept. 7, 2018)
- Cloud Disruption: Hardware Vendors Are Swimming Against The Tide Of A Shifting Customer Base (Sep. 7, 2018)
- Cloud Disruption: Digitalization Boosts Innovative IT Services Providers And Leaves Others Behind (Sep. 7, 2018)
- Cloud Disruption: Cloud Adoption And Digital Transformation Are Positives For The Data Center Industry (Sept. 7, 2018)
- Semiconductor M&A: Longer-Term Secular Trends Will Fuel More Consolidation (Jul. 20, 2018)
- U.S. Corporate Cash Hit $2.1 Trillion in 2017 But Tax Reform May Usher In The Era Of The Great Unwinding (Jun. 28, 2018)
- Global Trade At A Crossroads: How The U.S.-China Spat May Hurt The Tech Sector (Apr. 25, 2018)
- Credit FAQ - Our Views On Dell Technologies' Evaluation Of Strategic Options (Mar. 13, 2018)
- Credit FAQ - Repatriation, Dell and Other Key Issues Affecting the Technology Industry (Jan. 10, 2018)

This report does not constitute a rating action.
Cash, debt, and returns

Global Technology

Chart 11
Cash flow and primary uses

Chart 12
Return on capital employed

Chart 13
Fixed versus variable rate exposure

Chart 14
Long term debt term structure

Chart 15
Cash and equivalents / Total assets

Chart 16
Total debt / Total assets

Source: S&P Global Market Intelligence, S&P Global Ratings calculations