



2018 Equipment Leasing & Finance Industry Horizon Report





Established in 1989, the Equipment Leasing & Finance Foundation is a 501c3 nonprofit organization dedicated to inspiring thoughtful innovation and contributing to the betterment of the equipment leasing and finance industry. The Foundation accomplishes its mission through the development of future-focused studies and reports identifying critical issues that could impact the industry.

Foundation research is independent, predictive, and peer-reviewed by industry experts. It is funded solely through contributions. Contributions to the Foundation are tax-deductible. Support the Foundation by making a 100% tax-deductible gift today at www.LeaseFoundation.org.

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Table of Contents

02 OVERVIEW

- 03 Message from the Chairman
- 04 Executive Summary

06 END-USER SURVEY

- 07 Sizing the Market for Equipment Finance
- 15 Planning Ahead: The Next 12 Months

18 INDUSTRY

- 19 Industry Growth
- 28 Credit Conditions

32 FUTURE

- 33 On the Horizon: Recession Risk?
- 42 On the Horizon: The Future of Work

49 NOTES

- 50 Acknowledgements
- 51 About Keybridge
- 52 Endnotes

OVERVIEW





Message from the Chairman



We are pleased to present the 2018 Equipment Leasing & Finance Industry Horizon Report. This year's report, which is a "retooled" version of the annual State of the Equipment Finance Industry report (SEFI), combines the best elements of prior SEFI reports and the quadrennial market sizing study. In addition to summarizing key industry performance data, this year's version places more emphasis on forward-looking economic and industry insights related to the U.S. economy — including near-term and medium-term economic risks and emerging industry trends related to the future of work — based on market insights provided by industry leaders and Foundation researchers.

The Industry Horizon report also includes the results of a new Foundation survey of equipment end-users conducted in August 2018. The survey's results can be used to gauge the current size of the equipment finance industry, estimate the propensity to finance private sector equipment and software investment for key equipment verticals, and forecast end-user plans to acquire and finance equipment over the next 12 months.

Overall, the equipment finance industry bounced back in 2017 after a disappointing 2016, driven by an improved U.S. economy and a surge in business investment. The combination of a stronger global economy and a shift to more business-friendly policies — most notably tax and regulatory reform — have increased business confidence and, by extension, investment in equipment and software. However, there are several potential wildcards, including Fed policy and trade policy, that could complicate business investment plans in the months ahead.

While it is always difficult to predict the future, two events on the horizon will profoundly affect our industry: a potential economic downturn and the changing nature of work. This report identifies several reliable recession indicators and concludes that while most are signaling continued economic growth in 2019, they should be monitored closely over the next year. Longer term, the industry will continue to experience technological disruptions that, over time, will lessen the importance of some skills while

placing a premium on others. How firms respond to these events will be critical in determining their relative profitability and longevity.

We wish to thank the many contributors to this report, including the executives who gave interviews offering their key insights on the industry, and the companies and individuals who provided data for ELFA's Survey of Equipment Finance Activity. We hope you enjoy the 2018 Industry Horizon Report and the Foundation's many other research publications.

Jeffrey D. Elliott
Chairman, Equipment Leasing & Finance Foundation



Executive Summary

A Return to Solid Growth

Driven by a resurgence in business investment, the U.S. economy bounced back in 2017, and the \$1 trillion equipment finance industry responded by posting a solid year of growth after contracting modestly in 2016. Based on interviews with 17 industry leaders representing a diverse array of banks, captives, and independents, it is clear that while competition is as fierce as most can remember, confidence levels are high, portfolios are mostly unblemished, and business is good. While rising interest rates, escalating trade tensions, and political dysfunction are key risks to watch in the months ahead, most recession indicators suggest that the economy still has room to run before the next downturn.

Key findings from the 2018 Equipment Leasing & Finance Industry Horizon Report include:

- After a sluggish 2016, total private and public equipment and software investment rebounded in 2017, with nominal investment expanding by 5.9% to \$1.7 trillion. Based on the results of the Foundation's end-user survey and analysis by Keybridge, approximately 60% of this investment was financed, resulting in an industry sizing estimate of \$1.01 trillion.
- According to the end-user survey (which focused only on private sector investment), the most common payment method used by businesses to acquire equipment and software in 2017 was leasing (48%), followed by lines of credit (9%) and secured loans (8%). Among non-financed acquisitions, cash (23%) was the most prevalent payment method, followed by paid-in-full credit card purchases (10%) and "other" (2%).
- The end-user survey also revealed that 58% of respondents who acquired equipment or software in 2017 used at least one form of financing to do so (i.e., lease, secure loan, or line of credit). While this result is lower than the Foundation's 2016 estimate (78%), the decline may be the result of higher interest rates that have increased the cost of borrowing. It may also stem from the substantial improvement in small business confidence that occurred in 2017, which triggered greater equipment investment activity among smaller firms that may be less likely to use financing methods.
- More than twice as many respondents expect their equipment and software acquisitions to increase vs. decrease over the next 12 months (26% increase; 12% decrease), though the majority of respondents expect

equipment and software acquisition to stay the same (59%). Of the respondents who expect acquisitions to increase, most (67%) anticipate paying for at least a portion of that cost in cash, but 59% of respondents expect to use a financing method — suggesting that the propensity to finance is relatively stable.

- New business volume expanded by a healthy 6.9% for the overall equipment finance industry in 2017 according to the annual Survey of Equipment Finance Activity (SEFA), a significant improvement over 2016's 2.5% increase. Similarly, ELFA's Monthly Leasing and Finance Index (MLFI-25), which is based on a separate monthly survey, recorded a 4.6% increase in new business volume in 2017.
- Based on SEFA data, both yield and cost of funds rose in 2017, while average spreads compressed for the fourth consecutive year. Although there is evidence of compression across business types, the effect was most pronounced for independents and captives, for whom spreads fell by 29 basis points and 21 basis points, respectively, on a weighted-average basis. Meanwhile, the industry continues to demonstrate discipline with respect to risky lending and deal structures, as portfolio performance remained healthy in 2017 across various metrics and types of lenders.
- Although the U.S. business cycle is nearly a decade old and the economy is approaching the longest period of growth on record, most economic indicators that have historically provided an early warning sign of a downturn suggest that the current expansion likely still has some room to run. As such, there is reason to be optimistic about the U.S. economy over the next 6–12 months.
- Recent advances in computing technology, including artificial intelligence and machine learning, promise to dramatically change the nature of work over the next 5–10 years. These developments are likely to have major implications for U.S. businesses, including the equipment finance industry. This shift poses many opportunities for humans to take on more challenging tasks and for equipment finance firms to optimize the customer experience. However, the evolving nature of work will force businesses to adjust their operations and recruitment strategy and push U.S. workers to upgrade their skills.

END-USER SURVEY





Sizing the Market for Equipment Finance

Propensity to Finance Remains Strong

The equipment finance industry is a key component of the U.S. economy, facilitating business investment in equipment and software that enables companies to innovate, compete, and thrive. According to the Bureau of Economic Analysis, more than \$1.7 trillion was invested in new equipment and software in 2017, with most of this investment occurring in the private sector. Based on a Foundation survey of private-sector equipment end-users and Keybridge estimates for public sector equipment financing, roughly 60% of equipment and software investment was financed via lease, secured loan, or line of credit in 2017 — equating to an industry size of \$1.01 trillion.

Introduction

Over the last decade, the Foundation has periodically commissioned a survey of equipment end-users to gauge the size and expected growth of the equipment finance industry. The first survey was conducted in 2007 and estimated the industry's size at nearly \$600 billion, or 55% of total equipment and software investment. Subsequent end-user surveys found that the industry has grown substantially since the end of the recession, including a 2016 survey finding that the industry's size was roughly \$1 trillion in 2015.

This year, Keybridge worked with the Foundation to update the end-user survey, with additional breakdowns on equipment verticals to more closely match the verticals tracked by the Foundation-Keybridge Equipment Momentum Monitor. These granular breakdowns are provided for industries and equipment verticals for which at least 25 respondents provided data.¹

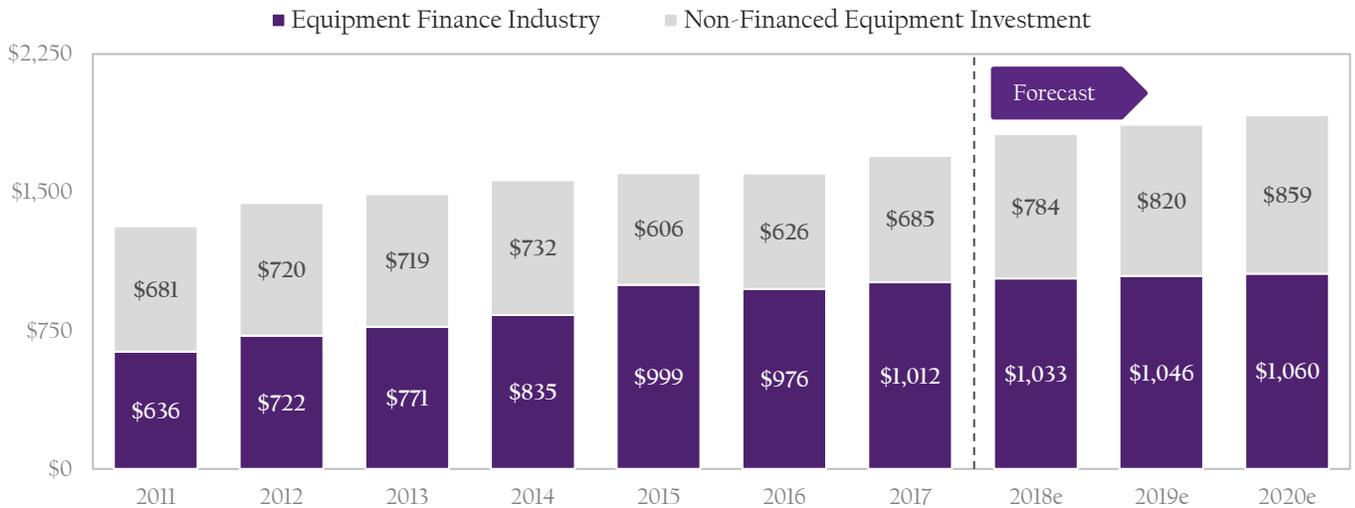
Working closely with Morning Consult, a DC-based research and technology firm that specializes in survey research, Keybridge surveyed over 400 businesses, of which 255 acquired equipment in 2017. Surveys were collected from respondents who self-identified as a CEO, CFO, COO, or other company official knowledgeable about company expenditures and how those expenditures are funded. Respondents reflect a diverse mix of small, medium, and large firms across a range of industries with varying equipment needs, providing a reliable snapshot of overall equipment acquisition trends. The survey was in the field from August 8–21, 2018 and focused on equipment acquisitions that occurred in calendar year 2017 and plans to invest in equipment in 2018.

Estimating the Size of the Equipment Finance Industry

After a sluggish 2016, equipment and software investment rebounded in 2017, with nominal investment expanding by 5.9% — the strongest nominal growth since 2012.ⁱⁱ This growth was driven by a variety of factors, including a cyclical upswing after a growth pause in the manufacturing sector in 2016, improvement in the global economy (particularly emerging markets), a shift toward more business-friendly policies, and improved consumer and business confidence.

The end-user survey revealed that much of this 2017 investment was financed using leases, secured loans, or lines of credit. Specifically, roughly 60% of public and private equipment and software investment was financed in 2017 (see Figure 1). This is down slightly from 62% in 2015 and 61% in 2016, but remains above levels experienced from 2005-14.ⁱⁱⁱ Despite the modest decline in the propensity to finance, the equipment finance industry expanded 3.8% in 2017 to \$1.01 trillion, driven by higher equipment and software investment levels.^{iv} The survey also revealed that 58% of respondents who acquired equipment or software in 2017 used at least one form of financing to do so (i.e., lease, secured loan, or line of credit). While this result is lower than the Foundation’s 2016 estimate (78%), the decline reflects the rise in interest rates that has increased the cost of borrowing. It may also stem from the substantial improvement in small business confidence that occurred in 2017 compared to 2015. The economy was quite weak during the second half of 2015 (a period some economists refer to as a “growth pause”) and as a result many small businesses likely delayed equipment acquisition decisions until things improved. When business confidence skyrocketed in 2017, many of these smaller businesses likely pulled the trigger on delayed equipment investment decisions. This was a positive development for the industry and economy, but it also put downward pressure on the percentage of businesses that finance equipment, as smaller businesses may be less likely to finance equipment acquisitions.^v

Figure 1: Equipment Finance Industry Size, Billions of Dollars



Sources: BEA, IHS Markit, Foundation end-user surveys, Keybridge LLC.

Note: In this chart, the generic term “equipment finance” is used to denote public and private equipment and software that is acquired via lease, secured loan, or line of credit. Non-financed equipment is acquired through cash, credit card (paid in full), or another method.

The 2011, 2015, and 2017 equipment finance estimates are based on surveys of equipment end-users that were conducted in 2012, 2016, and 2018. To calculate industry size in the remaining years, Keybridge relies on two main components: total private equipment and software investment, and the propensity to finance those investments.

- Equipment and software investment is estimated by the U.S. Bureau of Economic Analysis (BEA). Estimates are subject to regular revisions.
- The propensity to finance is estimated using a Keybridge-constructed index called the Propensity to Finance Equipment Index (PFEI). The PFEI is a composite of two separate measures: (1) the ratio of the share of commercial and industrial (C&I) loans that go towards equipment purchases vs. total nominal equipment and software investment, and (2) a trend comparison of the ELFA MLFI-25 New Business Volume vs. total nominal equipment and software investment. Both measures are converted to an index and then combined to yield the final PFEI. An adjustment factor is also applied to account for the reality that public sector equipment and software acquisitions (which comprise roughly 10% of overall investment) are less likely to be financed than private sector acquisitions.

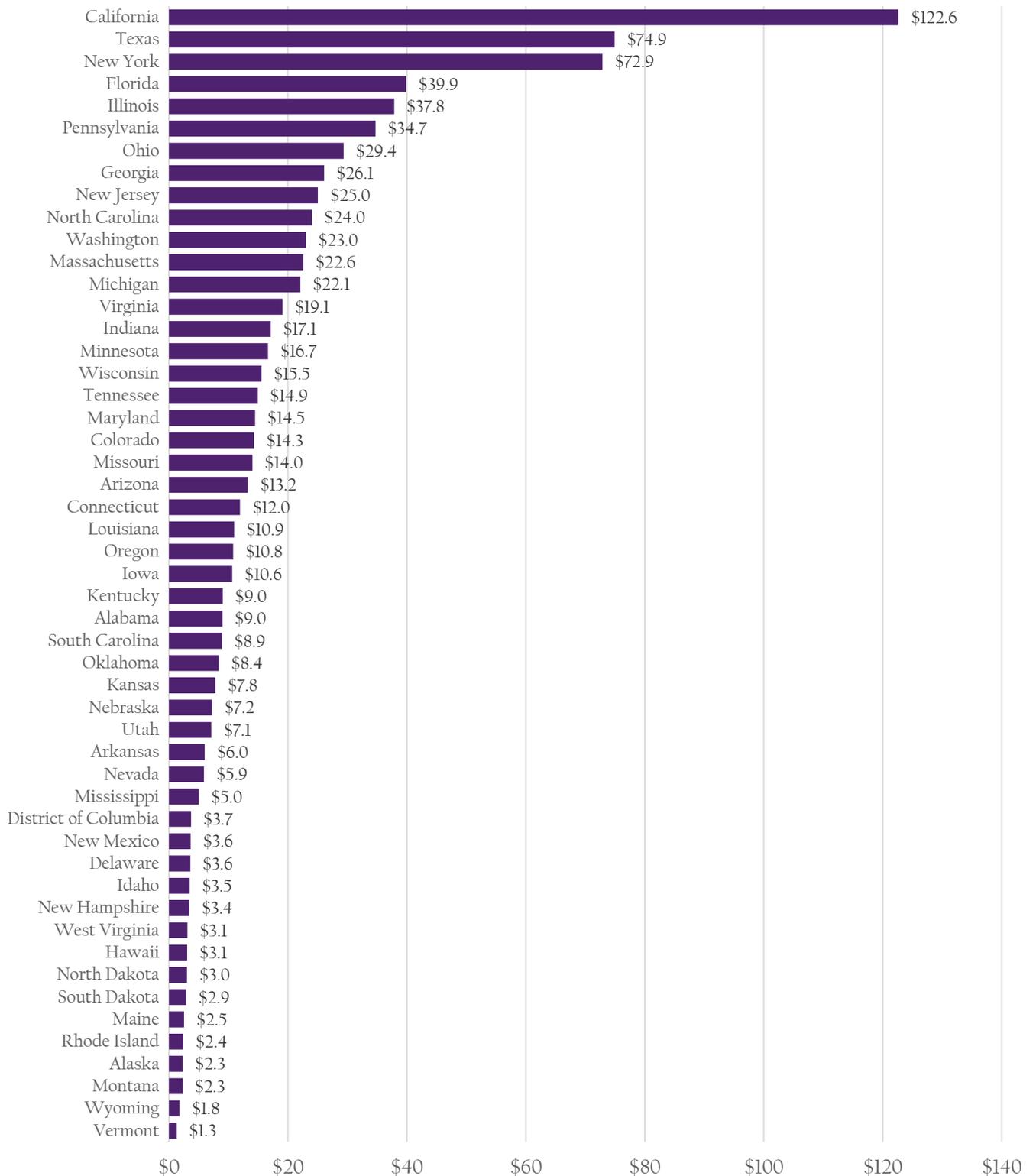
A Note on Industry Sizing

Estimating the size of the equipment finance industry is a complicated task, and over the years a variety of methods have been used to produce different measurements that offer various insights into industry size. For example,

- **MLFI-25:** Since 2001, ELFA has conducted a monthly survey of select Association members to produce the Monthly Leasing and Finance Index, or MLFI-25. This index reflects the economic activity of 25 companies representing a cross section of the equipment finance sector and includes data on new business volume (among other measures). However, while the MLFI-25 offers a useful summary view of industry performance compared to prior years (e.g., annualized growth rates), it does not attempt to estimate the overall size of the industry.
- **SEFA:** Another ELFA survey, the annual Survey of Equipment Finance Activity (SEFA), provides a more comprehensive picture of the industry than the MLFI-25. The SEFA offers detailed data on a variety of industry performance indicators for banks, captives, and independents using data from more than 100 equipment finance firms (the typical response rate is around 30%). However, SEFA data are not extrapolated to produce industry-wide projections, which results in an underestimate of the true size of the industry. Moreover, because the SEFA is focused on the equipment finance industry, it likely does not fully account for equipment acquisitions that are financed under more generic forms of credit, such as commercial and industry (C&I) loans or non-descript lines of credit.
- **End-User Survey:** Every 4–5 years, the Foundation has conducted an end-user survey to estimate the volume of leased and financed equipment by end-user industry, asset class, and transaction size. This survey facilitates the calculation of an overall “propensity to finance” figure that, when applied to BEA data on overall equipment and software investment, reveals a more comprehensive industry sizing estimate that accounts for generic leasing and financing activity used to purchase equipment.

Of the three methods described above, the Foundation believes that the end-user survey provides the most reliable estimate of the industry’s size, and Figure 1 represents the Foundation’s “official” estimate and forecast of equipment leasing and finance activity.

Figure 2: Equipment & Software Finance by State (2016), Billions of Dollars



Sources: BEA, Keybridge LLC, 2018 Foundation end-user survey.

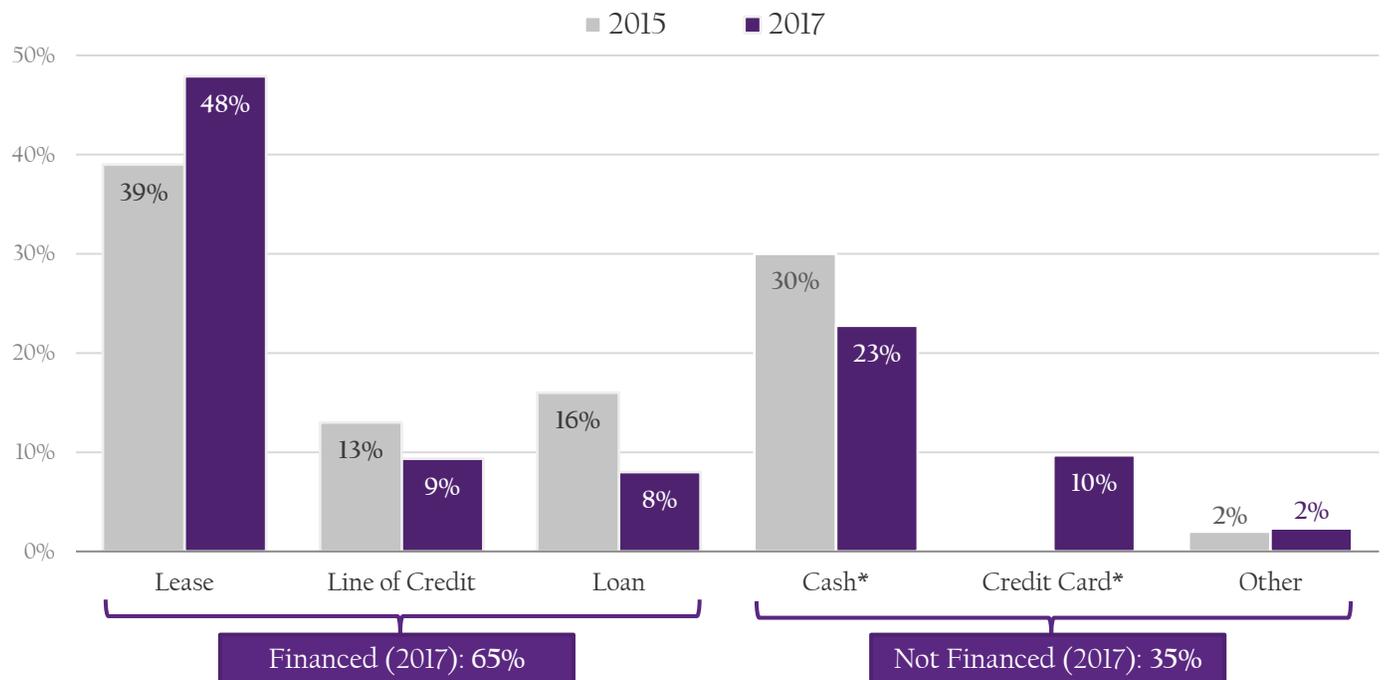
Note: Estimates are based on 2016 equipment and software investment data due to data availability.

Looking ahead, the industry sizing forecasts for 2018, 2019, and 2020 predict that annual growth is likely to slow to 1.5–2.0% but remain positive, which should keep the industry above the \$1 trillion mark. However, it is important to note that while the 2018 projection is based on the Foundation’s published forecasts of equipment and software investment, the projections for 2019 and 2020 rely solely on historical investment and financing trends that have occurred since 2001. As such, they are likely to be overly pessimistic if equipment and software investment continues to expand as it has thus far in 2018, and overly optimistic if the economy slows or slides into recession in the next 12–18 months. In December 2018, the Foundation will publish its 2019 Equipment Leasing & Finance U.S. Economic Outlook, which will contain an annual forecast for equipment and software investment in 2019 — and, by extension, provide an early indication of whether the industry’s growth rate will ultimately exceed or fall short of historical trends.

A Closer Look at Financing Methods

According to surveyed equipment end-users, the most common payment method used by private businesses to acquire equipment and software in 2017 was leasing, as nearly half of purchase volume (48%) was acquired via an operating, capital, or other type of lease. Other forms of financing were less common, with 9% of private sector equipment and software acquisitions financed through lines of credit and 8% through secured loans. Among non-financed acquisitions, cash (23%) was the most prevalent payment method, followed by paid-in-full credit card (10%) and “other” (2%).^{vi} As shown in Figure 3, these results were generally in line with the Foundation’s 2016 end-user survey, which found that leasing (39%) was the most common form of equipment financing, following by secured loans (16%) and line of credit (13%). Among private sector end-users, the propensity to finance in 2017 (65%) fell slightly compared to 2015 (68%).

Figure 3: Share of Private Equipment & Software Investment Volume by Payment Method, 2015 vs. 2017**



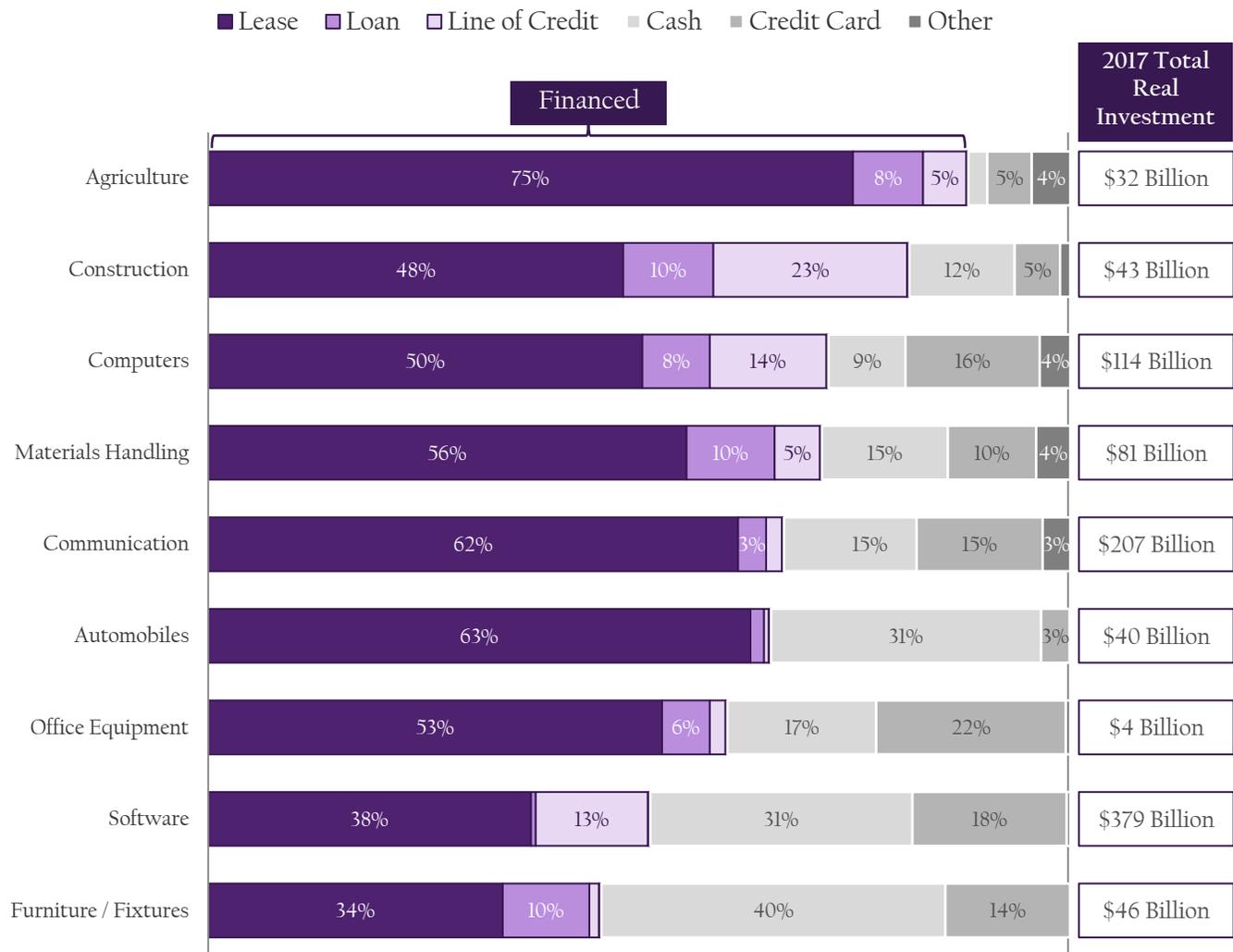
Source: 2016 and 2018 Foundation end-user surveys

*Note: The 2016 Foundation end-user survey did not break out paid-in-full credit card acquisitions from cash acquisitions.

**Note: Chart excludes public sector equipment and software acquisitions.

Of the 17 equipment verticals included in the survey, nine received enough responses to allow for a breakdown by type of finance (see Figure 4). Agriculture equipment was the vertical most likely to be financed, with 88% of 2017 acquisition volume secured through a lease, secured loan, or line of credit, according to survey respondents. Other equipment verticals that were highly likely to be financed include Construction (81%), Computers (72%), and Materials Handling (71%). The equipment verticals that were least likely to be financed in 2017 were Furniture & Fixtures (45%) and Software (51%).

Figure 4: Equipment Finance Methods by Equipment Vertical, 2017



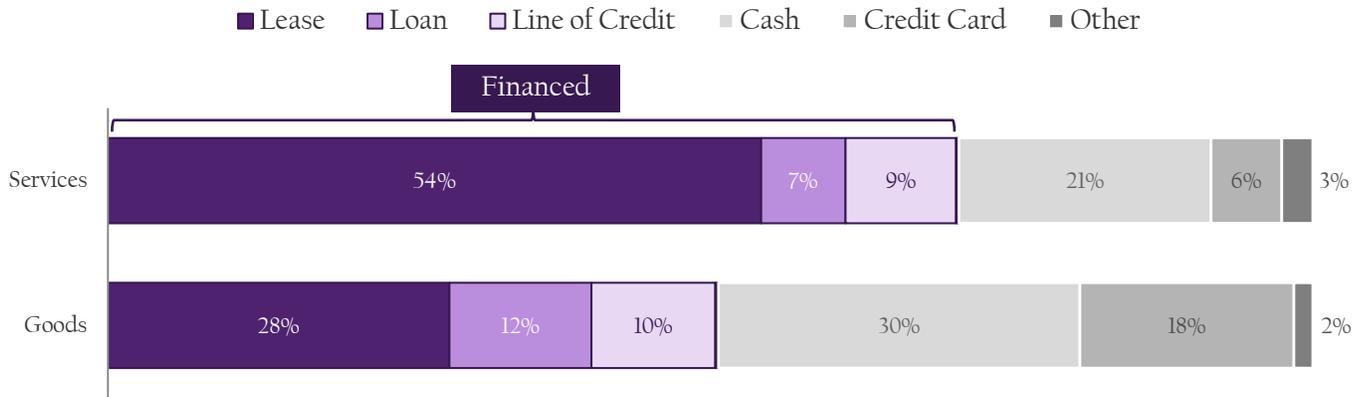
Source: 2018 Foundation end-user survey

Note: Equipment verticals not shown did not receive a sufficient number of responses to produce statistically viable results. Shares 2% or less are not labeled.

From an industry perspective, nearly four out of five respondents represented service industry firms (e.g., professional services, health care, educational services, construction, real estate), while the remainder represented goods-producing industries (e.g., manufacturing, construction, agriculture, textiles). The propensity to finance for service firms (71%) was substantially higher than for goods-producing firms (51%), particularly with respect to leasing (see Figure 5). Only three industries (professional services, manufacturing, and health care) received enough responses to allow for an

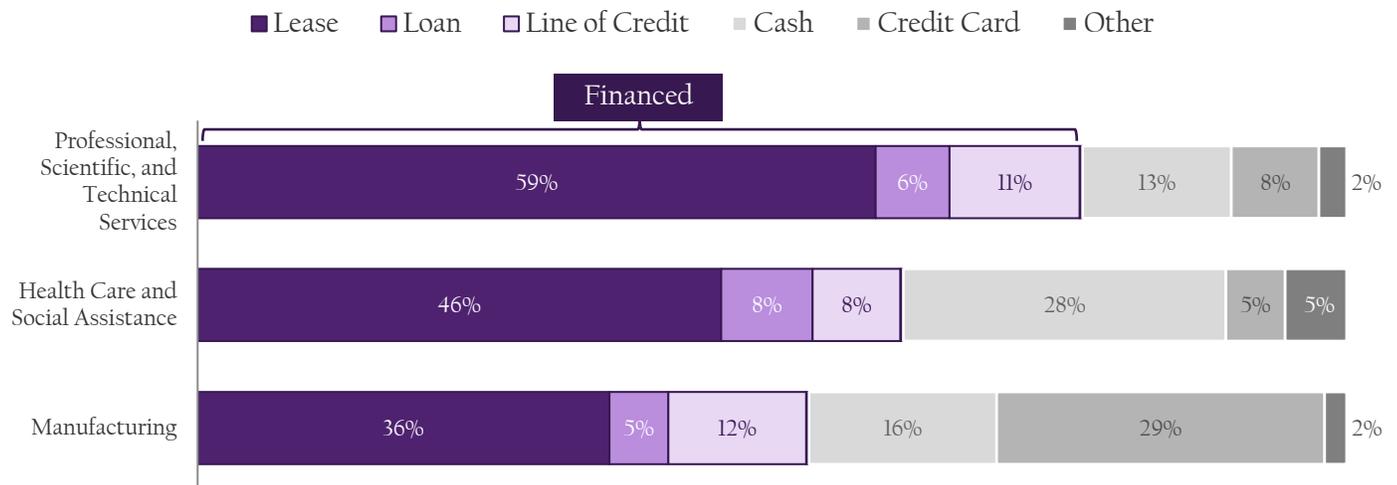
industry-specific breakdown, with professional services achieving the higher propensity to finance (77%), driven mostly by leasing (see Figure 6).

Figure 5: Methods of Acquiring Equipment and Software, by General End-User Industry, 2017



Source: 2018 Foundation end-user survey

Figure 6: Methods of Acquiring Equipment and Software, by Select End-User Industry, 2017

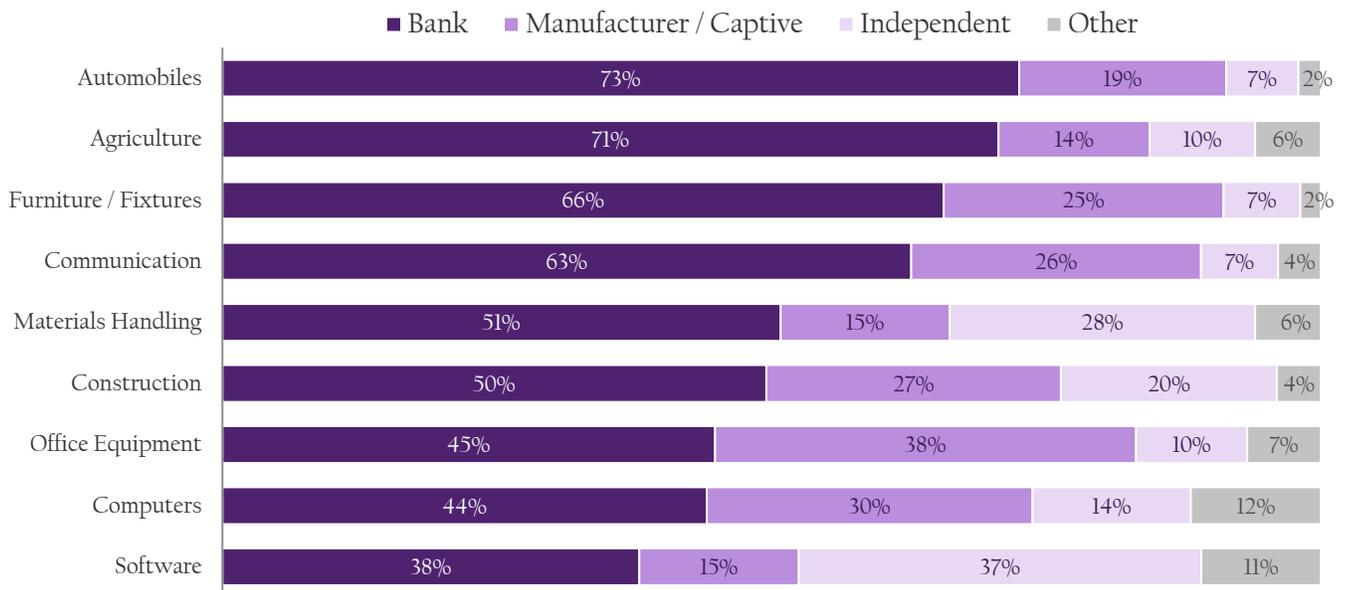


Source: 2018 Foundation end-user survey

Note: Industries not shown did not receive a sufficient number of responses to produce statistically viable results.

As prior end-user surveys have found, the equipment finance industry was dominated by banks in 2017, with an estimated 57% of equipment and software finance volume coming from bank lenders, according to respondents (up from 47% in 2015). Manufacturers and vendors (Captives) comprised 21% of finance volume in 2017 (down from 30% in 2015), while Independents comprised 16% (unchanged from 2015). As shown in Figure 7, among specific equipment verticals, Banks were particularly dominant for Automobiles (73%), Agriculture Equipment (71%), Furniture and Fixtures (66%), and Communication Equipment (63%), while Captives had a higher market share for Office Equipment (38%) and Computers (30%) and Independents were more active in Software (37%) and Materials Handling Equipment (28%). Overall, Banks had the largest share of financing volume for every equipment vertical for which the Foundation obtained enough responses to report a granular breakdown.

Figure 7: Equipment Finance Market Segmentation by Equipment Vertical, 2017



Source: 2018 Foundation end-user survey
 Note: Equipment verticals not shown had insufficient responses.

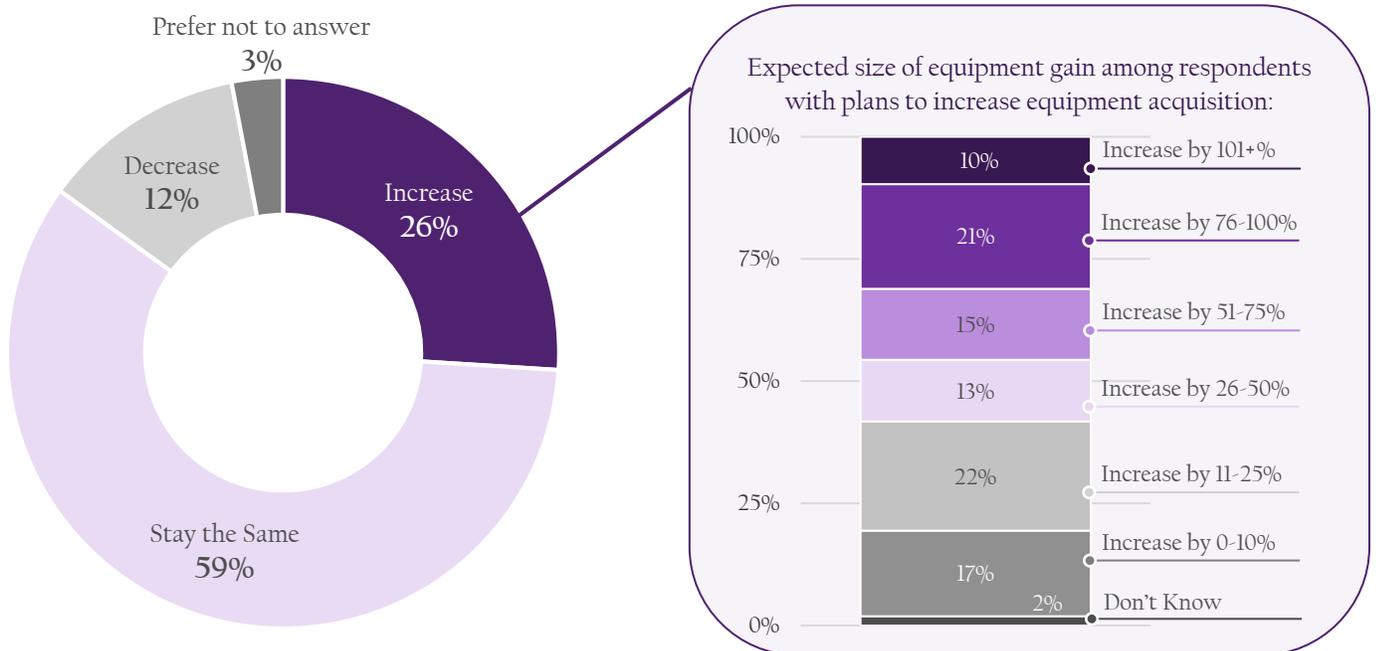


Planning Ahead: The Next 12 Months

Equipment end-users were generally optimistic regarding their plans to acquire additional equipment over the next 12 months, with more than twice as many respondents expecting acquisitions to increase vs. decrease. The propensity to finance is likely to remain stable, even though rising interest rates and a combination of lower tax rates and a strong economy make cash-based financing more viable for many business owners. Economic conditions (51%) and technology advancements and/or obsolescence (28%) are the most important factors expected to influence decisions to acquire additional equipment.

In addition to providing information relevant for sizing the equipment finance industry in 2017, equipment end-users revealed their plans for investing in new equipment. As shown in Figure 8, more than twice as many respondents expect their equipment and software acquisitions to increase vs. decrease over the next 12 months (26% increase; 12% decrease) — with nearly half of those respondents indicating that their equipment acquisitions would increase by more than 50%. Of those who expect acquisitions to increase, the most commonly selected equipment verticals were Computers (41%), Agriculture (33%), and Automobiles (30%).

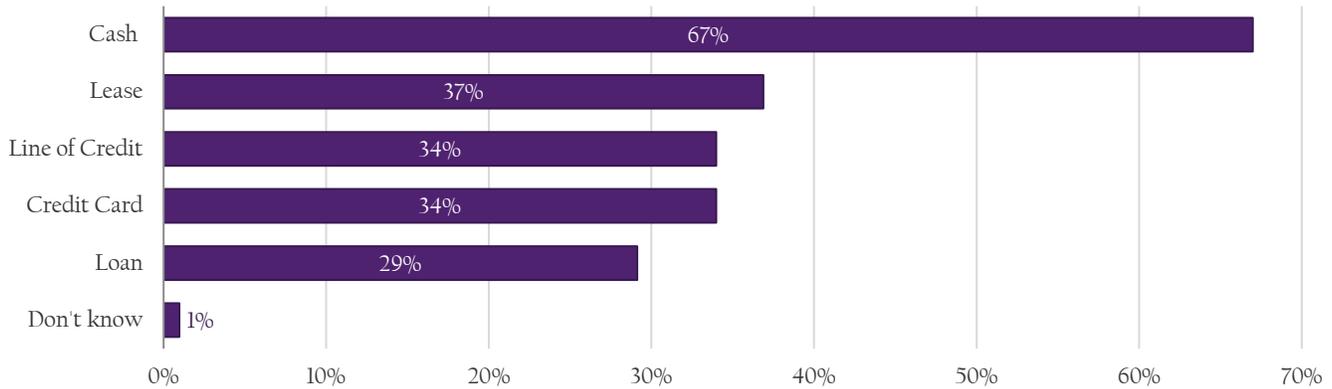
Figure 8: Anticipated Change in Equipment Acquisition, Next 12 Months



Source: 2018 Foundation end-user survey

As shown in Figure 9, of the respondents who expect acquisitions to increase, most (67%) anticipate paying for at least a portion of the cost in cash, but 59% of respondents expect to use a financing method (i.e., lease, secured loan, or line of credit). Based on this result, the propensity to finance appears to be stable, as 58% of respondents used some form of financing for their 2017 acquisitions.

Figure 9: Finance Methods to Increase Equipment Acquisition, Next 12 Months

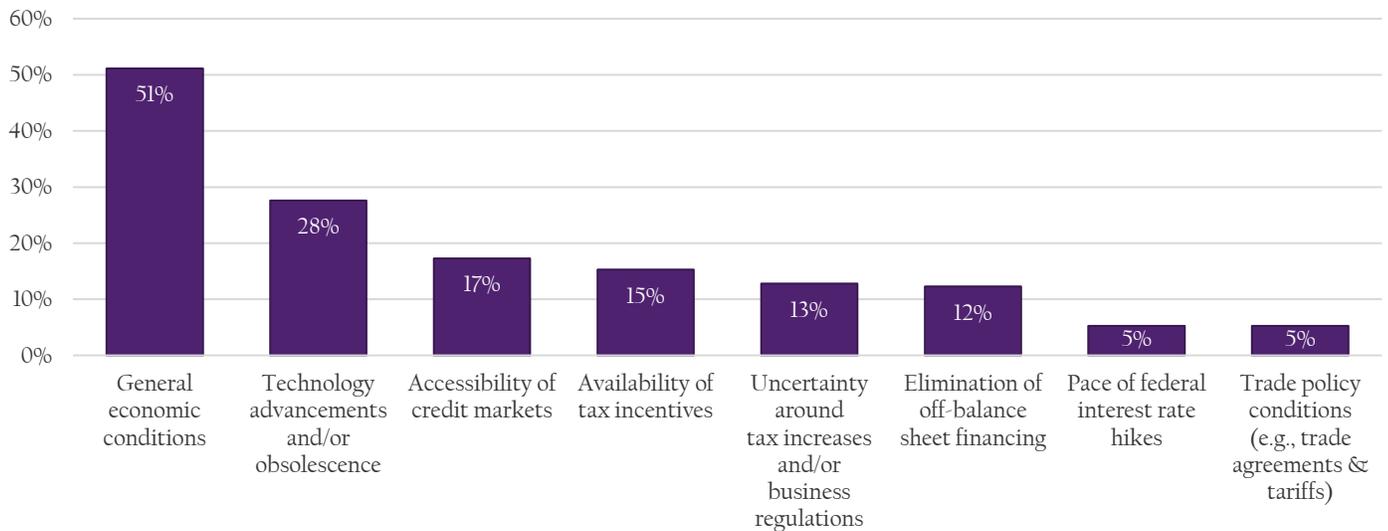


Source: 2018 Foundation end-user survey

Note: Only respondents who intend to increase equipment acquisition over the next 12 months are shown. Respondents were allowed to select multiple payment methods, so percentages will not sum to 100%.

Respondents listed general economic conditions (51%) and technology advancements and/or obsolescence (28%) as the external factors most likely to influence their decision to lease or finance additional equipment over the next 12 months (see Figure 10). Just 12% and 5% of respondents (respectively) selected “elimination of off-balance sheet financing” and “trade policy conditions” as external factors that would influence their near-term acquisition decisions, but those who did select these factors indicated they would be more important in 2019 than they were in 2017.

Figure 10: External Factors Affecting Equipment Acquisition, Next 12 Months

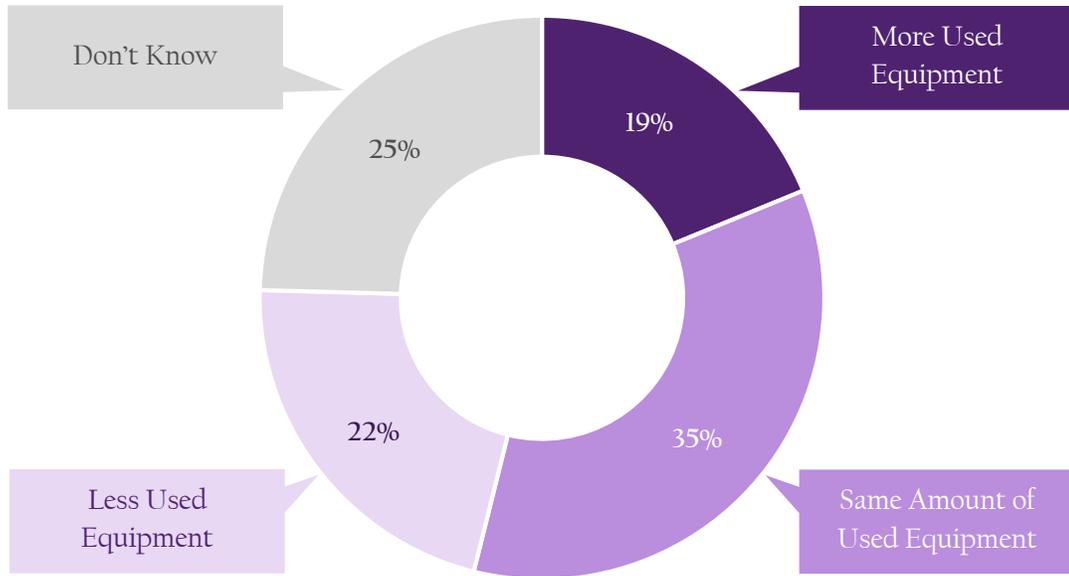


Source: 2018 Foundation end-user survey

Note: Many respondents selected multiple factors, so percentages will not sum to 100%.

Given recent changes to the federal tax code, equipment end-users were asked whether they expect the share of used equipment as a percentage of overall equipment acquisitions to change in the next 12 months compared to 2017. As illustrated in Figure 11, respondents were mixed on this topic, with 19% expecting the share of used equipment to increase, 22% expecting the share of used equipment to decrease, and 35% expecting no change (25% were unsure). The Foundation will continue to monitor this issue in future surveys as the elements of the tax law become better understood.

Figure 11: Plans to Acquire New vs. Used Equipment, Next 12 Months Relative to 2017

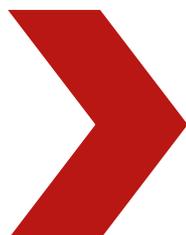


Source: 2018 Foundation end-user survey



INDUSTRY





Industry Growth

Growth in the equipment finance industry has been generally strong, and the industry appears to be on sound footing with solid growth prospects in the coming year. By most measures, the industry expanded at a healthy pace in 2017, and recent data on business investment and confidence suggest that the industry is likely to repeat or improve on that trend in 2018. Looking ahead, several policy developments have the potential to bolster or dampen the industry's growth potential over the coming year. Tax reform and regulatory reform add to business confidence and willingness to invest, but Fed policy and trade policy could increase policy uncertainty and may complicate business investment plans.

Thousands of Dollars or Percent	Industry	Banks	Captives	Independents
2017 Median New Business Volume	\$292,775	\$568,772	\$348,004	\$120,854
Growth in Total New Business Volume, 2016-2017	6.9%	5.3%	9.9%	10.0%
Growth in Assets Under Management, 2016-2017	4.0%	3.5%	3.8%	15.6%
Five-Year Growth in Median NBV	59.2%	47.1%	61.3%	31.6%

Source: 2013 – 2018 ELFA Survey of Equipment Finance Activity

New business volume expanded by a healthy 6.9% for the overall equipment finance industry in 2017 according to the Survey of Equipment Finance Activity (SEFA), a significant improvement over 2016's 2.5% increase.^{vii} Similarly, ELFA's MLFI-25 (which measures new business volume on a monthly basis by a consistent sample of 25 equipment finance firms) recorded a 4.6% increase in new business volume in 2017, compared to a 2.4% decline the previous year. New business volume growth for the equipment finance industry mirrored overall trends in the U.S. economy. In 2017, U.S. GDP expanded 2.2%, an improvement over 2016's relatively weak 1.6% growth figure. Underlying this improvement was a considerable pickup in business investment: compared to virtually flat (0.7%) growth in 2016, equipment and software investment expanded by a healthy 6.9% in 2017, the fastest growth rate in five years.

2018 is set to be another bright year for the industry. According to the MLFI-25, new business volume growth surged in the early part of the year, growing 11% year-on-year in January and 31% year-on-year in February. Growth rates have fallen since this early double-digit jump but remain healthy, and as of September, on a year-to-date basis new business volume is up 5% compared to 2017. One explanation for the flood of new business in early 2018 is the Tax Cuts and Jobs Act, which helped spur new investment and made certain forms of equipment financing more attractive. This initial flurry of activity has quieted, but underlying business confidence and a strong overall U.S. economy have bolstered business investment and new business volume growth.

Looking ahead, most signs point to continued strength for the majority of sectors and equipment types in 2019. Despite the presence of downside risks to business activity, confidence remains high for businesses, consumers, and the equipment finance industry. Among the industry leaders interviewed for this report, 69% expect industry-wide new business volume growth to accelerate in 2019, while only 6% expect it to slow down (with the remainder expecting the industry to grow at roughly the same pace as 2018). An even greater share (87%) expect their own businesses to grow at a faster pace in 2019.

Across the Board Improvement

In 2017, growth in new business volume was sustained throughout the equipment finance industry, across major organization types and ticket sizes. Compared to 6.9% growth for the industry overall (per the SEFA), new business volume for Banks increased 5.3%, while Captives and Independents saw faster growth at 9.9% and 10.0%, respectively. 2017 marked a particularly strong year for Captives after a dismal 2016, when the segment's new business volume declined 5.9%. As the business type that is the most "locked in" to particular customer and equipment types, Captives tend to be more exposed to shifting macroeconomic and market forces. With strong improvement in economic growth beginning in 2017 (particularly in certain "Captive-heavy" industries), Captives' new business volume has improved considerably.

Likewise, new business volume expanded across ticket sizes, growing 4.3% for the small-ticket segment, 9.7% for the middle-ticket segment, and 2.8% for the large-ticket segment. Each segment's growth improved on its performance in 2016, when the small-ticket and middle-ticket segments grew 0.8% and 5.2%, respectively, while the large-ticket segment contracted -1.8%. For the second year in a row, the middle-ticket segment saw the fastest growth.

Commodities-Linked Sectors Regain Footing

A major source of the improvement in new business volume and investment growth has been the recovery of the energy and agricultural sectors, driven by a steady rise in oil prices and (to a lesser extent) other commodities following a broad-based price collapse in 2014–16. As oil prices rebounded from a low of \$26 in February 2016 to around \$70 in mid-2018, investment in the oil and gas sectors has gradually come back online, leading to an investment boost in oil and gas extraction equipment as well as other equipment vertical types used in the broader industrial economy. Investment in mining and oilfield equipment jumped 28% in 2017 after double-digit declines in 2015 and 2016. Industry leaders whose businesses service the oil and gas sector reported renewed confidence and faster new business volume growth so far in 2018. Indeed, investment in mining and oilfield equipment surged 24% (annualized) in Q2 2018 and stands 3.1% above its level one year ago.

New business volume trends for the agricultural sector are mixed, but the general tone among interview participants was one of cautious optimism. Overall investment in agricultural equipment expanded 7.1% in 2017 and has accelerated this year, including an impressive 33% annualized gain in Q2 2018. However, interview participants noted that these

numbers may not represent a broad-based agricultural renaissance because growth varies considerably between different segments of the agricultural sector. Moreover, future growth may hinge in part on the impact of the escalating trade war with China and federal policymakers' willingness to further subsidize farmers to offset the negative effects of retaliatory tariffs on agricultural products.

Mixed Trends in Transportation

Despite general optimism for the transportation sector, new business volume trends in the transportation arena are mixed, with softness in some areas and for certain equipment types.

The rail sector, which has strong links to the oil and gas sectors, has struggled to recover following the 2014–16 oil price collapse, even as the oil and gas industry has regained footing. Railroad equipment investment fell 8.1% in 2017, potentially reflecting a reduced emphasis on railcars as transportation support for the oil and gas sector. Though the situation has improved since late 2015 when investment growth bottomed out, the rail sector has continued to struggle in 2018, with investment declining 23% (annualized) in the second quarter after flat growth in the first quarter. Despite the recent decline, however, interview participants noted that the overall trend for rail is one of stabilization following a collapse that began roughly three years ago. Moreover, the Foundation-Keybridge Equipment and Software Momentum Monitor for railroad equipment has been on an upswing in recent months and points to an improved investment outlook through at least the first quarter of 2019.

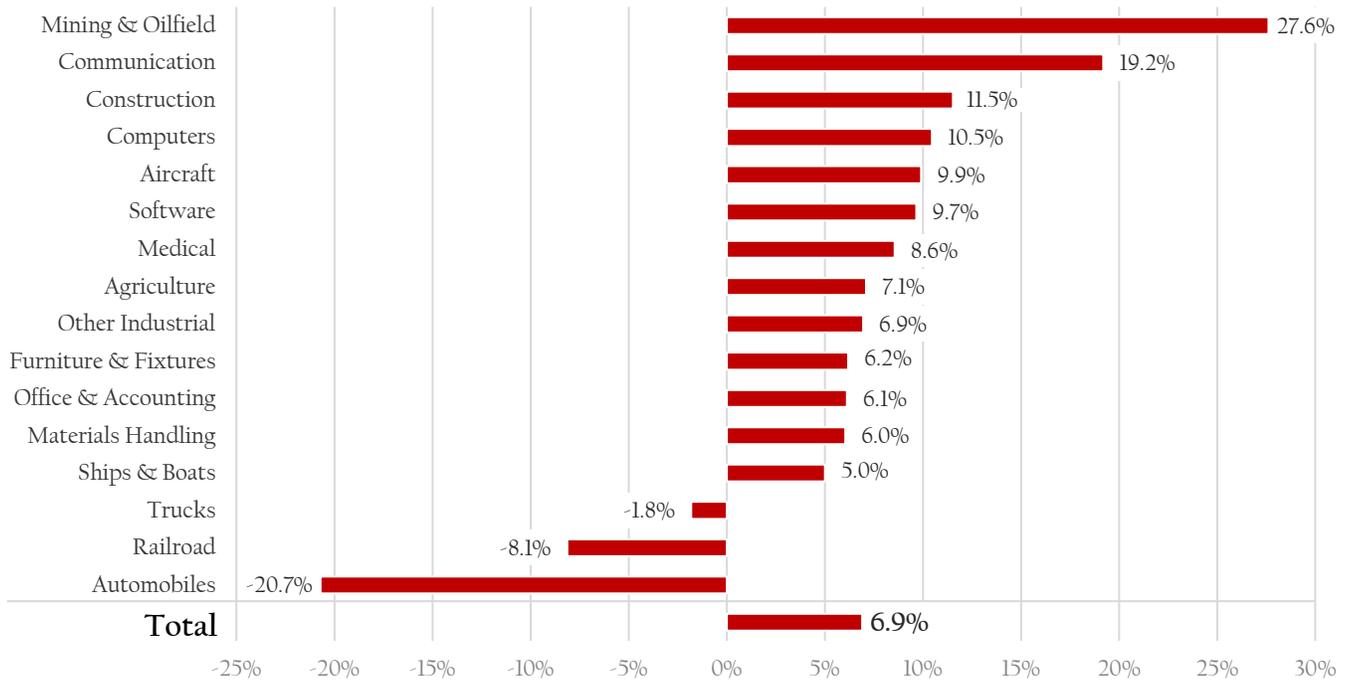
Water transportation has likewise struggled. Although investment in ships and boats grew 5.0% in 2017 according to government figures, the SEFA reported a 12% decline in new business volume for water transportation equipment last year. The sector continues to struggle in 2018, with double-digit annualized declines in investment in both the first and second quarters. Of the 12 equipment verticals tracked by the Foundation, ships and boats is the only one that reported negative year-on-year growth (-9.2%) in the second quarter. Meanwhile, growth trends for aircraft equipment remain volatile but are generally encouraging: aircraft investment grew 10% in 2017, and that healthy trajectory has continued with 9.3% year-over-year growth in Q2 2018.

After a softening in trucking investment in 2017, growth has been stronger thus far in 2018 — but the near-term demand outlook for trucks is mixed. Trucking investment for the total U.S. economy fell 1.8% in 2017, but investment grew 14% year-over-year in the second quarter. Interview participants who operate in the sector indicated that although underlying business conditions should drive continued elevated demand for trucks, widespread driver shortages may undermine this otherwise encouraging picture and weigh on new business volume growth in 2019.

Healthy Demand for Construction, Industrial Equipment

Demand for construction and industrial equipment has been healthy and the short-term outlook for both verticals is positive. Following modest declines in 2016 — driven by a broad-based softening throughout the industrial and manufacturing economies after the collapse of the U.S. oil and gas sectors — investment in construction and industrial machinery (including materials handling equipment) increased 12% and 6.0%, respectively, in 2017. Growth continues apace in 2018, as construction machinery investment rose 14% year-over-year in the second quarter and industrial machinery investment likewise expanded 5.1%. Interview participants whose businesses finance these equipment types were mostly optimistic about the potential for additional growth in 2019. However, some participants expressed worry about construction labor shortages and other headwinds affecting the housing sector related to trade policy, which could hold back growth in the construction sector next year.

Figure 12: U.S. Real Equipment and Software Investment Growth, Y/Y (2017)



Source: Bureau of Economic Analysis

Strong and Steady Growth for Tech, Medical, Renewables

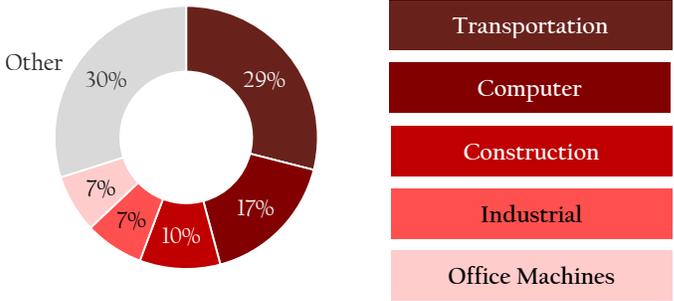
Interview participants expressed almost universal optimism about the growth potential for “lighter” equipment, such as electronic technology, medical equipment, and green technologies. These equipment types are perceived to be on track for continued healthy growth for the foreseeable future because they possess a combination of demand inelasticity (i.e., businesses are less inclined to significantly scale back investment in this sort of equipment during a downturn), secular increases in demand, and favorable policies. For example, demand for medical equipment will almost certainly increase in the coming years as the U.S. population ages, while societal interest in reducing carbon emissions will likely continue to drive growth in renewables (through, for example, favorable tax treatment). These equipment types experienced strong investment growth in 2017, including communications equipment (19%), computers and peripheral equipment (10%), and medical equipment (8.6%).



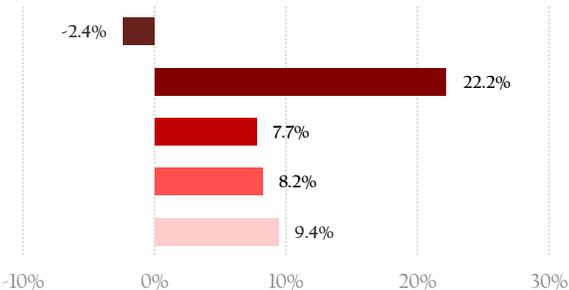
Figure 13: Growth Attribution by Equipment Type, 2017

Banks

percent of new business volume

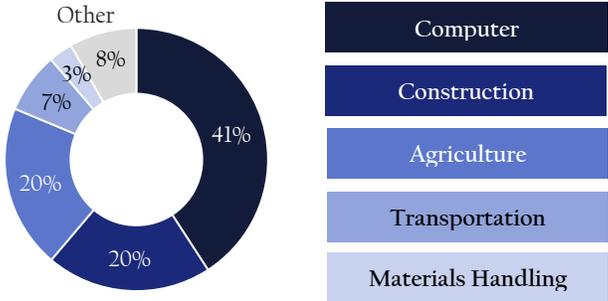


year-on-year new business volume growth

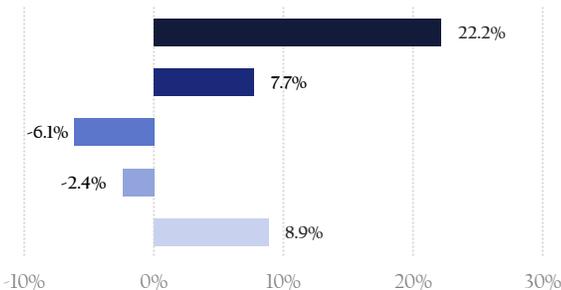


Captives

percent of new business volume

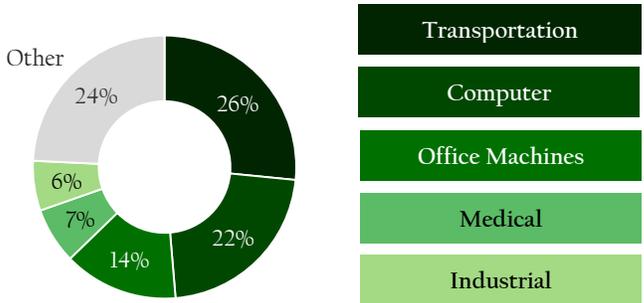


year-on-year new business volume growth

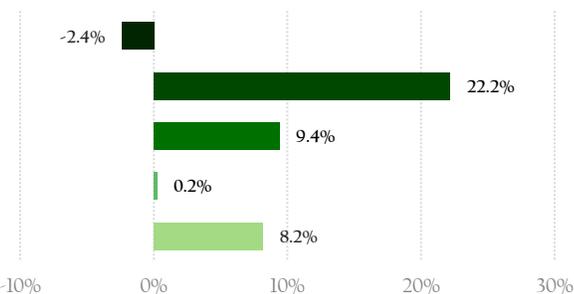


Independents

percent of new business volume



year-on-year new business volume growth



Source: 2018 ELFA Survey of Equipment Finance Activity, Keybridge LLC
 Note: Due to rounding, percentages may not sum to 100%.

Elevated Confidence Bolsters Industry Growth

Business confidence typically goes hand-in-hand with strong investment growth and demand for equipment. As such, examining recent trends in measures of business confidence offers insight into the industry's growth potential over the coming months. As one interview participant stated, "When will confidence begin to wane? Because that's typically when the recession happens."

Fortunately, recent trends in business confidence are encouraging, and most metrics are near historic highs. For example:

- The Foundation's Monthly Confidence Index for the Equipment Finance Industry (MCI-EFI) jumped 5 points to 65.5 in September, in line with 2017 levels and well above its levels in the 2015-2016 period.
- The National Federation of Independent Business (NFIB) Small Business Optimism Index rose to a record high in August, continuing an upward trend seen throughout 2018.
- The Wells Fargo/Gallup Small Business Optimism Index hit an all-time high in the third quarter of 2018.
- The Business Roundtable's CEO Economic Optimism Index reached a record high in the first quarter of 2018 and remains near all-time highs, despite falling somewhat in the second and third quarter due to tariff concerns.

These trends generally portend fast growth for the small ticket finance segment over the next several months. Elevated business confidence indicates that businesses are likely to continue to increase capital expenditures, which will in turn boost the equipment finance industry's growth prospects.

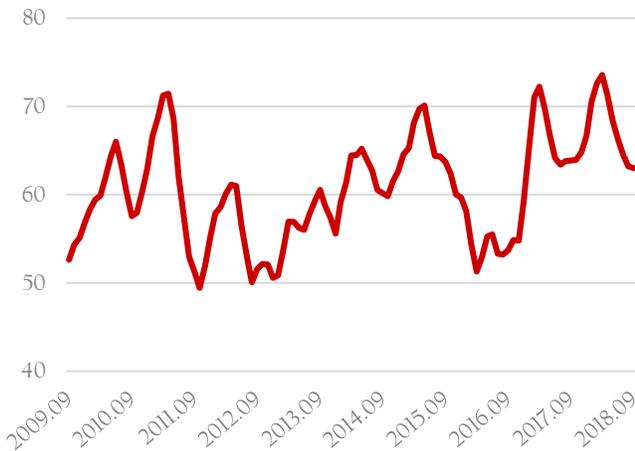
Changes in business confidence are often influenced by public policy decisions. Businesses are more confident when recent policies or proposed policies act (or are perceived to act) in ways that boost the economy, increase profitability, or facilitate business operations. Conversely, the expectation of unfavorable policies and/or heightened policy uncertainty can slow business investment decisions, reduce customer demand, and decrease business profitability. In light of these facts, industry leaders interviewed for this report mentioned several recent or emerging policy trends and their expected effects on the industry's growth prospects. Although optimism is high and economic growth is strong, one common perception was that most of the recent "upside" policy risk has already been realized (e.g., reforms to tax and regulatory policy), leaving mostly "downside" policy risk (e.g., rising interest rates and an expanding trade war) going forward. Interviewees indicated they will be keeping a close eye on the following policy trends over the coming months.

Lighter Regulatory Burden Adds Slight Upward Boost

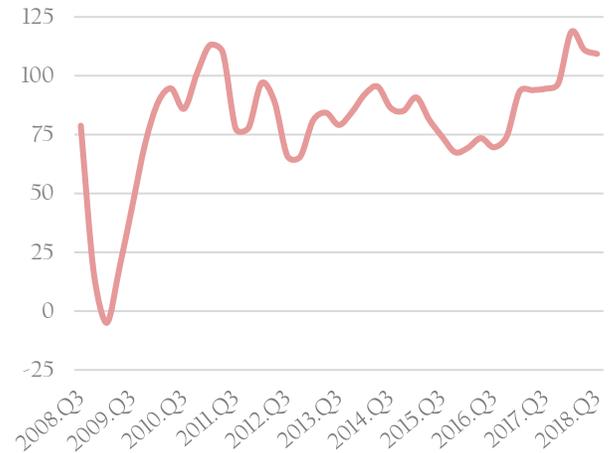
In past years, concerns about regulatory burden have been relatively common during interviews with industry leaders, either due to financial regulation impacting the industry directly or other types of regulation that impact equipment end-users. These concerns appear to have abated over the last two years, presumably due to the Trump administration's deregulatory activity and rhetoric. For example, when asked about the effect of the Administration's "one in, two out" requirement for new regulation, most industry leaders indicated that the effects have been neutral to positive. The benefit of such measures is perceived by industry leaders to come mostly from the anticipation of fewer new regulations rather than the rollback of previously issued regulations. As one interview participant stated, "Most 'reg reform' is just talk — but the regulators are probably not quite as assertive as they've been in the past."

Figure 14: Business Confidence Dashboard

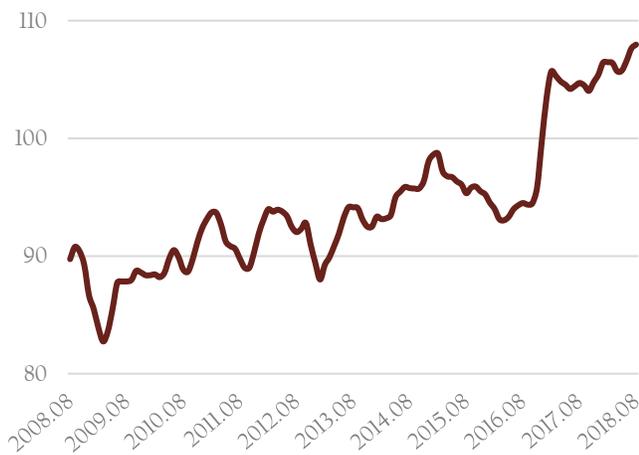
ELFF Equipment Sector Confidence (“MCI-EFI”)
 3-Month Moving Average



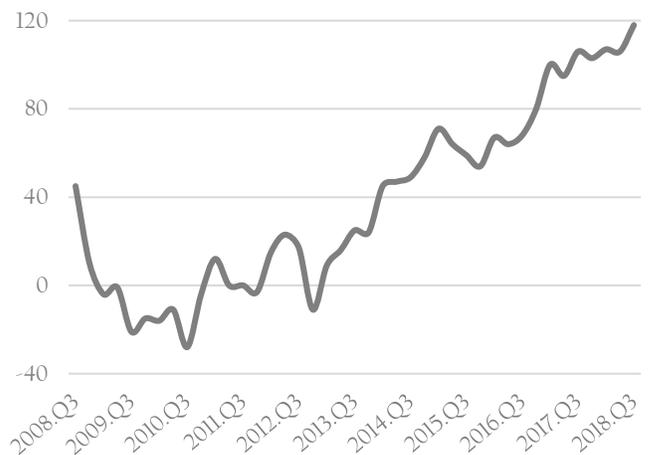
Business Roundtable CEO Economic Outlook Index



NFIB Small Business Optimism Index
 3-Month Moving Average



Wells Fargo/Gallup Small Business Optimism Index



Source: Macrobond Financial

Tax Reform Effects Mixed, but Lean Positive

The Tax Cuts and Jobs Act, passed in December 2017, introduced widespread change across the entire economy as U.S. businesses experienced a modification in their tax treatment. The law’s complexity meant that many businesses and industries had to scrutinize their accounts to determine how they might be affected. Ten months later, feedback from industry leaders is somewhat mixed, but leans positive. Several interview participants thought it was “too soon to tell” what the overall effect on the industry might be, but others are already witnessing changes.

While most interviewees believed their firms' tax burdens would fall (particularly for banks), they expressed mixed views regarding the effect of the new law on new business volume and customer demand. Some of the law's provisions (e.g., 100% expensing) provide an incentive to companies to invest in equipment, but some interviewees worried that this change may cause a shift away from leasing towards loans or cash. They also cited concerns that industry firms may need to take on greater risk at a lower return as a result.

Overall, however, most industry leaders agree that the net effect of the tax bill will be positive, in large part due to the its effect on business confidence and business investment. Indeed, the MLFI-25 saw a surge in new business volume in January and February 2018 after the law's passage. Industry confidence shot up around the same time. Overall business investment has been strong throughout 2018, particularly at this stage of the business cycle, and the combination of solid U.S. macroeconomic fundamentals and a lower tax burden on most businesses is likely responsible.

Fed Policy: Effects So Far Ambiguous, but a Risk to Watch

Most industry leaders indicated that they are closely monitoring policy decisions by the Federal Reserve Board and their effect on interest rates. The consensus is that, thus far, rising interest rates have had little effect on new business volume or customer demand because the increases have been gradual, and rates remain quite low by historical standards. One industry leader argued that despite the industry's conventional wisdom that rising rates would push customers toward leasing over debt financing, the reality is much more ambiguous and the effects on customer demand have been imperceptible.

Regardless, when the Fed raises rates in a booming economy to guard against inflation, the result is a higher cost of capital, which could lead to falling demand for capital in the next 1–2 years. For this reason, several industry leaders indicated that they are keeping a close eye on Fed policy to gauge whether interest rates might rise faster than the U.S. economy can absorb (though few voiced real concerns that this was the case at present).^{viii}

Trade: A Known Unknown

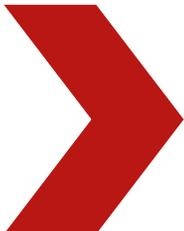
Trade policy shifts under the Trump administration — including the imposition of tariffs on steel and aluminum imports and Chinese imports, NAFTA renegotiations, retaliatory tariffs from U.S. trading partners, and other proposed changes — are an emerging risk to growth that could have widespread effects on the global and U.S. economies over the next year (or longer). As an industry operating at the nexus of the “real” economy and the financial sector, the equipment finance industry is broadly perceived by industry leaders to be mildly exposed to trade policy risks. It is unlikely that a single trade policy change would directly impact the entire industry, but taken together, the confluence of several trade policy changes may affect the industry indirectly if equipment end-users face negative (or positive) repercussions, or if overall economic growth is affected.

Most interview participants indicated that they are not particularly worried about the impact of trade policy changes but will monitor the issue closely. The degree of concern varies somewhat by business type and customer base, as (unsurprisingly) companies with an international footprint and companies that serve the agricultural sector pay closer attention to trade developments and are more concerned about their exposure to tariffs on imported inputs and counter-tariffs on exported products. Although concerns about trade policy changes emerged months ago, industry leaders interviewed for this report were unanimous in the view that the effect on the industry has been minimal. One interviewee opined that the reason for this may be a widespread perception in the private sector that developments so far amount to posturing as an attempt to gain leverage in the trade negotiation process, and that the potential for negative repercussions will eventually fizzle out. A minority of interviewees noted the possibility that trade tensions

with U.S. trading partners may have a net positive effect on growth in the medium to long term if the Trump administration is able to negotiate more favorable trading arrangements.

Given the variation in views, it is clear that trade policy represents a “known unknown”: a point of uncertainty for the equipment finance industry, and an issue to watch over the next year.





Credit Conditions

Credit conditions appear healthy, and the overall credit environment remains conducive to strong profitability and manageable risk for the equipment finance industry. In 2017, both the yield and cost of funds rose across the industry, but a faster increase in the cost of funds caused spreads to narrow. Meanwhile, the industry's portfolio performance remains solid, despite the late stage of the credit cycle during which riskier lending behavior typically leads to higher delinquency and default rates.

Two major drivers of credit conditions going forward will be continued hyper-competitiveness in the industry and rising interest rates. By all accounts, industry competition has only increased in the past year, which may be encouraging businesses to compromise on price and lending standards in order to chase profitability and volume. Rising rates may contribute to narrowing spreads and a deterioration in portfolio performance, but thus far, the shadow of the financial crisis has helped maintain discipline and kept credit conditions generally stable.

Yield & Funding

Percent	Industry	Banks	Captives	Independents
Weighted-Average Cost of Funds	2.11%	2.00%	2.24%	3.10%
Weighted-Average Pre-Tax Yield	4.61%	4.51%	4.28%	7.74%
Weighted-Average Pre-Tax Spread	2.50%	2.51%	2.04%	4.64%
Median Cost of Funds	2.31%	1.99%	2.89%	4.40%
Median Pre-Tax Yield	5.70%	4.52%	5.84%	8.81%
Median Pre-Tax Spread	3.00%	2.50%	2.90%	4.62%

Source: 2018 ELFA Survey of Equipment Finance Activity

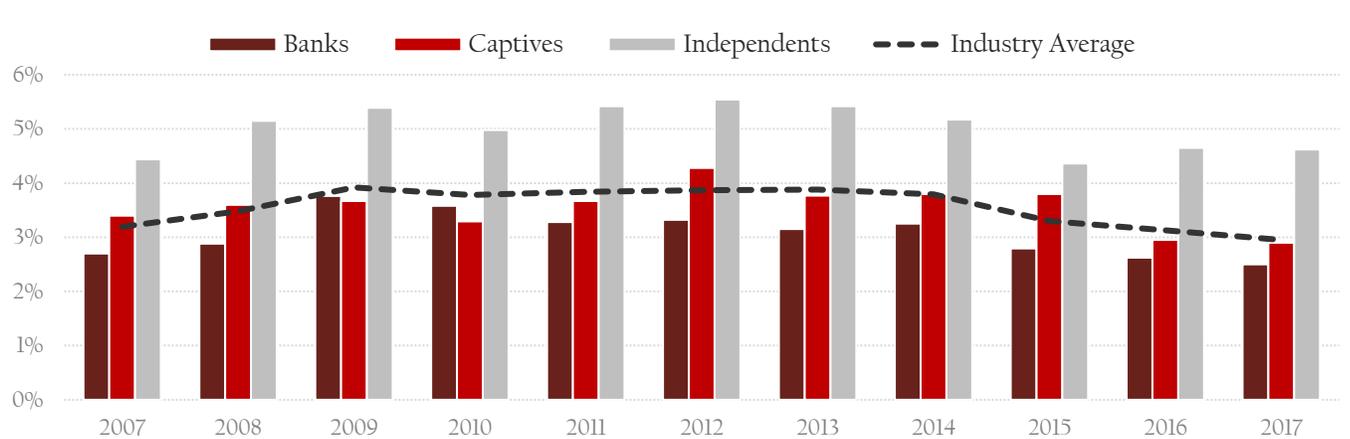
Across the equipment finance industry, both yield and cost of funds rose in 2017, but increases in the industry's cost of funds generally offset rising yields, leading to a further compression of spreads. 2017 marks the fourth year in a row that spreads have narrowed for the industry, according to SEFA data. The effect is widespread across company and equipment types, but independents bore the brunt of the effect in 2017 compared to the previous year on a weighted-average basis.

Industry Yields and Cost of Funds Rise, Spreads Compress

According to the SEFA, industry-wide spreads compressed in 2017: on a weighted-average basis, industry yields rose 33 basis points to 4.61%, while the cost of funds increased 41 basis points to 2.11%, pushing weighted-average spreads down 9 basis points to 2.50%. On a median basis, yields rose 43 basis points to 5.70% while the cost of funds rose 34 basis points to 2.31%. Though yields rose faster than the cost of funds on a median basis, median spreads fell 8 basis points to 3.00% in 2017.^{ix}

Spread compression occurred across segments of the market, as weighted-average spreads declined 29 basis points among Independents, 21 basis points among Captives, and 4 basis points among Banks. Similarly, median spreads edged down across the board, led by a 13 basis point decrease among Banks. Meanwhile, Captives and Independents saw median spreads fall 5 basis points and 3 basis points, respectively. Independents continue to command the highest spreads in the industry, and industry leaders reiterated that to compete, Independents offer their customers other benefits (e.g., speed and responsiveness, flexibility, and customizability) to offset their higher prices.

Figure 16: Median Pre-Tax Spread



Source: 2011 - 2018 ELFA Surveys of Equipment Finance Activity

Competition Intensifies

Spread compression in recent years has been driven by increasing competition in the equipment finance industry, and this trend continued in 2017. Interview participants noted the proliferation of new market entrants and an increasing share of market actors attempting to expand their footprint to non-traditional market sectors. In an environment of strong economic growth and widespread capital investment, it is no wonder that new players are trying to enter the field. As a result, many industry leaders noted that it is becoming increasingly difficult to remain disciplined on price in an environment where a competitor may easily undercut one's business, particularly given internal targets for new business volume. Still, the fact that both the average yield and cost of funds rose significantly across the industry in

2017 indicates that while a race-to-the-bottom effect may be present, it is not outweighing an otherwise rising rate environment — which is underlaid by strong economic growth and the confidence that businesses can withstand a higher cost of capital.

Rising Interest Rates Contribute to Squeezed Margins

Another likely factor behind the narrowing of spreads across the industry is the rising interest rate environment. Over the last three years, the Federal Reserve has gradually begun to normalize monetary policy after taking extraordinary measures (e.g., dropping interest rates to zero and pursuing three rounds of quantitative easing) in response to the recession. More recently, interest rate hikes have accelerated in response to the strengthening economy. Despite conventional wisdom in the industry that higher interest rates will give lenders and lessors more breathing room to raise yields, evidence from this business cycle and previous business cycles suggests that margins tend to get squeezed in a rising rate environment. A simple explanation for this phenomenon is that when interest rates rise throughout the economy, many lenders and lessors struggle to pass the higher rate onto their customers before they themselves must pay the higher rate (via a higher cost of funds).

Some interview participants acknowledged this effect and described how it has impacted their profitability and business strategy. One noted, “In this environment, I have to communicate to my sales team that they can’t be offering ultra-low rates anymore. If customers balk, I have to explain why they’re paying a higher price — it’s rising interest rates in the U.S. economy.” Of course, these strategies are harder to implement in an environment of intense industry competition, in which charging a higher price based on interest rate movements may lead to declines in new business volume if other firms are willing to assume more risk and/or lower margins in exchange for volume. In this late stage of the business cycle, this effect is likely to continue over the next year or more. For more information on how rising interest rates affect spreads, profitability, and other aspects of an equipment finance firm’s business — and what industry members can do in response — consider reviewing the Foundation’s new report, *On the Rise: How Inflationary Pressures and Rising Interest Rates Could Impact the Equipment Finance Industry*.

Portfolio Performance Holds

According to SEFA data, portfolio performance remained generally healthy in 2017. 30-day delinquencies for the total industry increased from 1.8% to 2.1%, largely reflecting an increase in Captives’ delinquencies, which rose from 4.4% to 5.4%. Independents saw 30-day delinquencies increase as well, inching up from 1.3% to 1.5% in 2017, while delinquencies among Banks held steady at 1.1%. However, other measures of portfolio performance point to sustained industry health: non-accrual assets as a percentage of receivables and non-accruals fell from 0.7% to 0.6% in 2017, and the industry’s net full-year loss (charge-off) as a percentage of full-year average receivables declined from 0.33% to 0.26%.

The Portfolio Performance Outlook

Ten years into an economic expansion, the industry continues to demonstrate discipline with respect to risky lending and deal structures. However, as the economy continues to expand at a moderately strong pace and interest rates continue to creep up, the temptation for lenders to chase volume at the expense of quality is high.

Portfolio Performance

Percent (weighted average)	Industry	Banks	Captives	Independents
Delinquent Portfolio Over 30 Days	2.1%	1.1%	5.4%	1.5%
Non-accrual Assets as a Percentage of Receivables and Non-accrual Assets	0.6%	0.6%	0.6%	0.5%
Net Full-Year Loss (Charge-off) as a Percentage of Full-Year Average Receivables	0.26%	0.18%	0.42%	0.63%

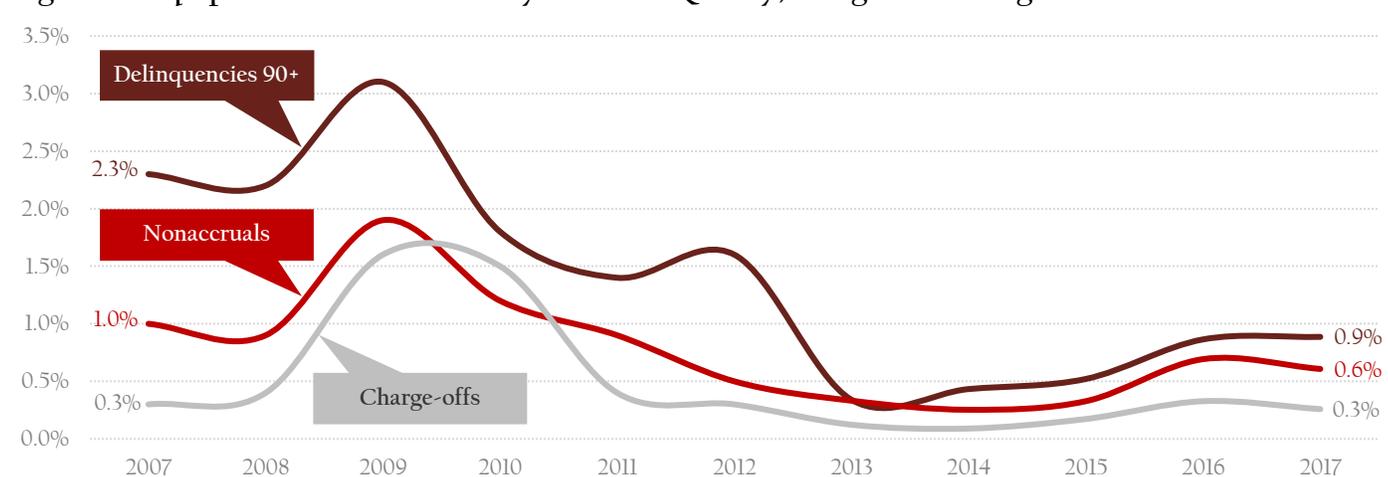
Source: 2018 ELFA Survey of Equipment Finance Activity

Industry leaders interviewed for this report offered several interesting perspectives regarding portfolio performance:

- Several interviewees expressed concern about the oil and gas sector given its volatility and believe that many firms remain vulnerable to oil price shocks, which complicates the industry's risk profile.
- The industry's portfolio performance has suffered in rural areas as urbanization has led to overcapacity (and therefore, delinquency and default risk) in certain labor-intensive industries like healthcare and services.
- Some industry leaders expressed concerns about the risks to portfolio performance associated with rising interest rates, noting that the past decade of low interest rates has bred complacency among some lenders and borrowers. Others expressed concern that the industry may be losing memory of the 2008-09 financial crisis and shifting emphasis towards chasing yield over managing risk.

Still, the financial data on portfolio performance both within the equipment finance industry and throughout broader credit markets tell an overall positive story. Given the late stage of the credit cycle, portfolio performance is likely to deteriorate somewhat over the coming year, but based on recent data, this deterioration is unlikely to be severe. Overall, most industry leaders are cautiously optimistic: when asked to summarize their concerns about the industry's portfolio performance, three-fourths indicated they were "not at all worried" (13%) or "a little worried" (63%), while one-fourth stated they were "moderately worried" (no interviewee indicated they were "very worried").

Figure 17: Equipment Finance Industry Portfolio Quality, Weighted Average



Source: 2008 – 2018 ELFA Surveys of Equipment Finance Activity

FUTURE





On the Horizon: Recession Risk?

More than 10 years since the onset of the Great Recession, the U.S. economy appears strong, a fact that bodes well for the equipment finance industry's prospects over the coming months. However, signs suggest that the economy has entered the late stage of the credit cycle, when interest rates rise and confidence soars. This reality means that it is time to begin questioning when the next recession might occur — and what businesses should do to prepare for it.

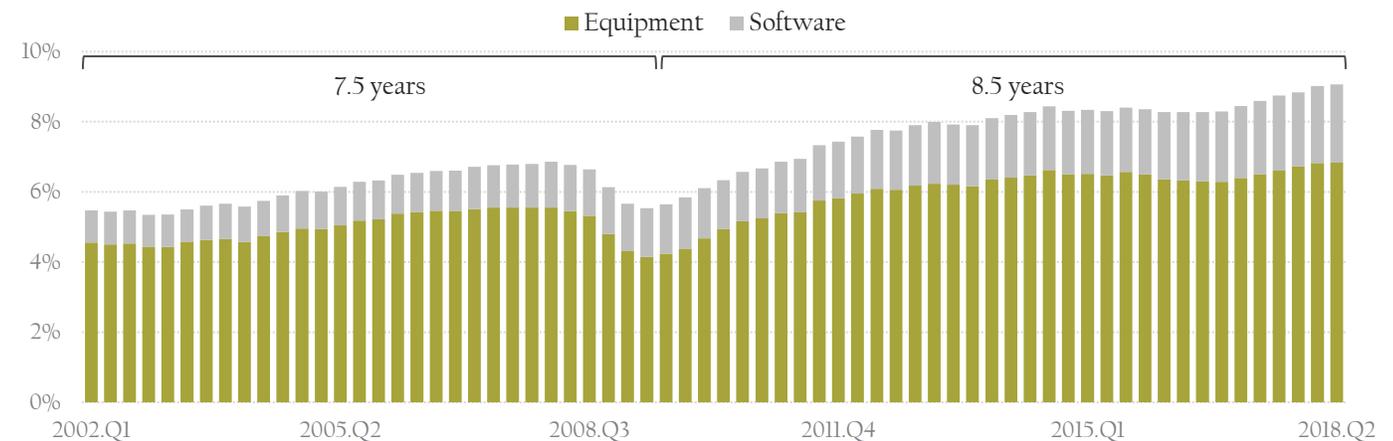
Although recession forecasting is a notoriously challenging art, a handful of financial and economic indicators have a history of providing a reliable recession signal with a 6–12 month lead time. No one indicator provides foolproof evidence of an impending recession, but taken together they yield valuable clues. Fortunately, the key indicators highlighted in this section generally paint a sunny picture of the U.S. economy's near-term prospects. Still, equipment finance professionals should remain vigilant regarding the potential for a recession in late 2019 or early 2020 by monitoring key indicators closely and adjusting their business plans accordingly.

Throughout this report, the overarching theme for the equipment finance industry is one of confidence and optimism. 2017 was a rebound year for the industry after a weak 2016, and in 2018, the equipment finance industry is set to meet or exceed the pace of growth experienced last year. In the interviews Keybridge conducted with industry leaders, most participants suggested that the current period is the most unambiguously positive the industry has seen since the recession, and possibly longer.

For that reason, several interviewees stated that their greatest concern for the industry over the coming year is that the U.S. economy may finally enter a recession, more than 10 years after the last one began in late 2007. As one participant stated, “A downturn in the economy is the single biggest risk to this industry. As goes the U.S. economy, so goes the equipment finance industry.” Several noted that the optimism prevailing throughout the industry is precisely why it is time to look around the corner for signs of an asset bubble or an impending shock to business confidence.

Indeed, many signs point to the likelihood that the U.S. economy is nearing a “peak” in the business and credit cycles. The current economic expansion is the second-longest in recorded U.S. history and may become the longest ever by next summer, suggesting the economy may be due (or overdue) for a slowdown. After years of near-zero interest rates, the Federal Reserve has embarked on a rate-hiking, credit-tightening path — a pattern that usually precedes a recession. The latter stages of the business cycle are often accompanied by a period of high confidence, which is often considered “irrational exuberance” in hindsight. A look at the equipment and software investment cycle (see Figure 18) likewise indicates that the industry may be approaching a peak.

Figure 18: Equipment and Software Investment Cycle (Percent of Real GDP)



Source: Macrobond Financial, Keybridge LLC

It is of course challenging to predict when the economic wave will crest. But analysis of past business cycles shows that there are a handful of reliable leading indicators that signal when the economic outlook is about to turn negative, and evaluating them as a whole can provide a good sense of the likelihood of a recession in the next 6–12 months. This section walks through some of the best leading indicators of a downturn, explains why they tend to work, and assesses what they are currently signaling — and, by extension, whether a recession is on the horizon. Fortunately, most of the indicators that are historically reliable predictors of recession are in reasonably good shape, suggesting that the equipment finance industry is headed for another year of solid growth in 2019.

Financial Indicators

Financial markets can provide early warning signs that something is amiss in the real economy. The sheer volume of financial market activity makes it challenging to isolate the signal from the noise, and most individual financial indicators fail to reliably predict recessions. Still, the few high-quality leading indicators that do exist tend to signal an upcoming recession much farther in advance than do data on the real economy.

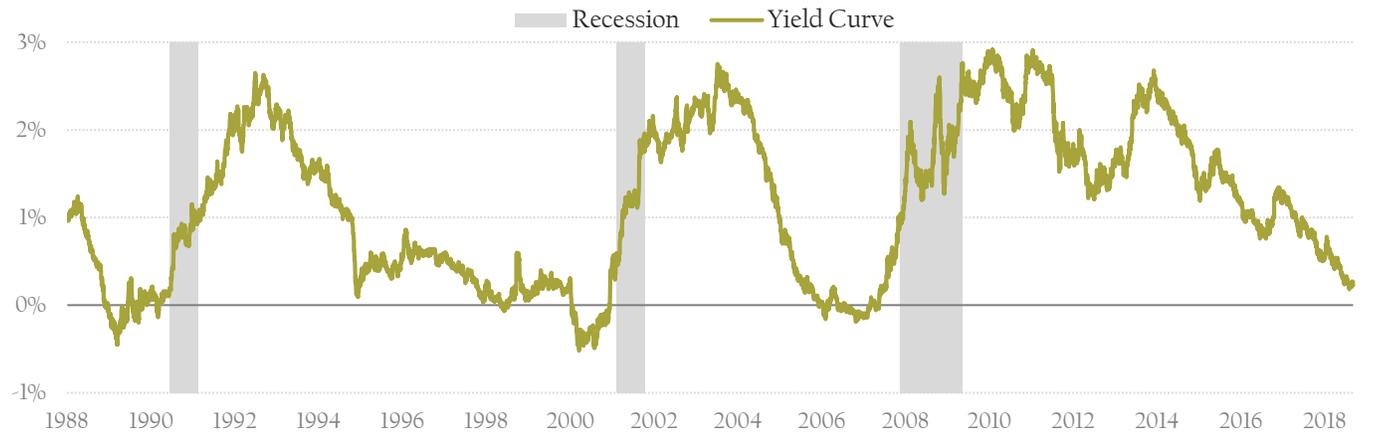
The Yield Curve

The “yield curve” commonly refers to the spread between the yields on any long-term and short-term Treasury bond — most commonly, the difference between the yields on 10-year and 2-year Treasuries. A well-known and commonly watched recession signal, the yield curve is widely understood to indicate an upcoming recession at the point when it crosses the zero threshold and “inverts.” For the last three U.S. economic recessions, the 10-year/2-year yield curve has reliably inverted roughly 12 to 18 months before the recession began.

The yield curve holds predictive power for several reasons. Interest rates on Treasuries reflect, among other phenomena, the market’s perception of the risk associated with the bond’s maturity. When the rate on 2-year Treasuries rises above that of 10-year Treasuries, the market perceives that risk in the U.S. economy is higher in the short term than in the long term, which in turn suggests that a recession may be near. The yield curve also reflects market expectations about the Fed’s interest rate hike path. Because a rise in the federal funds rate tends to exert more upward pressure on short-term yields than long-term yields, an inversion of the yield curve can indicate the market’s anticipation of a compressed Fed rate hike schedule. In the past, U.S. recessions have sometimes been facilitated or hastened by the Fed’s moves to

tighten credit conditions, so market expectations of rapid interest rate hikes can often precede a recession. Over the course of 2018, the yield curve has narrowed from roughly 60 basis points in January to 23 basis points in late September. If narrowing continues at the same pace, the yield curve could invert in early 2019.

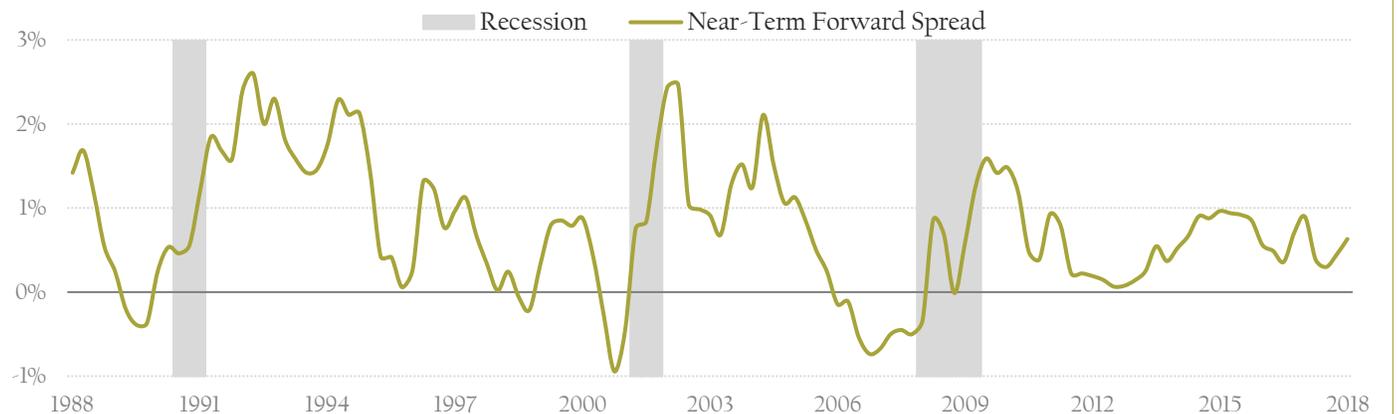
Figure 19: U.S. Yield Curve: 10-Year Treasury/2-Year Treasury Spread



Source: Macrobond Financial

Although the yield curve has strong predictive power, it is not an infallible signal. No U.S. recession has occurred without a prior inversion of the yield curve, but the yield curve has occasionally produced false signals (e.g., it inverted briefly in 1998 before rising again for 18 months and then dipping below zero a second time). Moreover, its long and variable lead time means that when it does invert, it can still be difficult to pin down the timing of the next recession. Several economists and Federal Reserve officials have questioned the predictive power of the yield curve, asserting (among other things) that the Fed’s policy of quantitative easing may have artificially depressed long-term yields, causing a narrowing of the yield curve that may not reflect economic realities. For that reason, the Fed has recently proposed an alternative yield curve called the near-term forward spread, and Fed officials believe it may better isolate market perceptions about the economy. At present, the near-term forward spread has neither fallen below zero, nor does it appear to be on a downward path. This suggests that markets are not pricing in the expectation of a rate cut (which the Fed would undertake in a recession) over the next four quarters.

Figure 20: U.S. Near-Term Forward Spread: 6-Quarter Forward Rate/3-Month Treasury Spread



Source: Federal Reserve

*Note: Latest data available is from Q1 2018

The BAA – 10 Year Spread

Another financial indicator that holds predictive power is the spread between long-term BAA corporate bond yields and 10-year Treasuries. Since BAA corporate bonds are rated non-investment grade, they are assumed to imply a much greater degree of risk than prime corporate bonds and Treasury bills. The spread over 10-year Treasury yields therefore implies the additional risk of investing in BAA bonds over government bonds (on top of the risk-free return). When this figure increases, it implies the market perception that subprime corporate debt carries a heightened level of risk — potentially because the U.S. economy is about to enter a recession.

As with the yield curve, no U.S. recession has occurred without the BAA – 10 year spread peaking at historically high levels in advance, but the indicator does occasionally produce a false signal. In addition, its lead time varies greatly, by as much as a year and as little as one or two months. Still, when assessed in combination with other indicators, a low spread can add reassurance that the U.S. economy is in a healthy state. At present, the BAA – 10-year spread is just under 200 basis points, the 30th percentile of all its historical readings, which implies that a recession is not imminent.

Other Financial Indicators

Many other financial indicators are rumored to predict recessions, often for very intuitive reasons. But in most cases, their movement against the U.S. business cycle is inconsistent, which make them unreliable. The stock market generally moves with the real U.S. economy, but it usually lags an economic downturn and is thus not helpful as a prediction tool. The Case-Shiller price-earnings (P/E) ratio, for example — a commonly cited leading indicator which reflects the degree of overvaluation in the equity markets — is sometimes considered a good leading recession indicator whenever it reaches historic highs. In reality, however, many recessions have occurred while the ratio was quite low, and the P/E ratio has only really surged in advance of Black Tuesday (the 1929 stock market crash which preceded the Great Depression) and the bursting of the dot com bubble (which preceded the early 2000s recession). However, at a reading of about 33, the P/E ratio is historically elevated, indicating that there is at least some degree of equity overvaluation that could be a source of vulnerability in the leadup to the next recession.

Another commonly suggested leading indicator is the copper/gold price ratio, which is thought to decline when the market shifts its preference toward gold (considered a safe investment) over copper (which is associated with economic activity and whose price tends to increase when economic demand is strong). Although intuitively plausible, the indicator nonetheless reveals no particular relation to the U.S. business cycle. In addition, at a current reading of around 5, the copper/gold ratio is well within its historical range and has not moved significantly in recent months.

Economic Indicators

Indicators of activity in the real economy also provide valuable clues about when an economic downturn may be coming. In comparison to financial market indicators, economic indicators tend to be more reliable, especially when they are evaluated in concert and not individually. However, they typically provide less notice of an impending recession (often less than six months).

The Conference Board's Leading Economic Index

Perhaps the most reliable, publicly available advance indicator of the health of the U.S. economy is the Conference Board's Leading Economic Index (LEI). Its success in predicting economic performance by a lead time of several months likely comes from the fact that it is an aggregation of several major U.S. economic indicators and is optimized to predict

recessions and surges in economic activity. Keybridge analysis of the Index’s performance reveals that the LEI has entered the bottom of its historic “trading range” 6–15 months in advance of each recession that has occurred in the last 30 years (with no false signals). As such, it is a highly useful indicator of whether the U.S. may be entering a recession in the next year. At present, the LEI has been rising from already elevated levels, indicating that the U.S. economy is set to perform well over the next 6-12 months.

Figure 21: The Conference Board’s Leading Economic Index



Source: Macrobond Financial

Indicators of Business Health

Valuable indicators of business health include business confidence measures, such as the NFIB Small Business Optimism Index and the Business Roundtable CEO Economic Outlook Index, as well as measures of corporate profits. As major engines of U.S. economic growth, small business and big business have great power to determine the direction of the U.S. economy, and indicators of their financial health and the outlook of their leaders can therefore provide telling clues about whether a downturn may be imminent.

The NFIB index has entered historically low levels in advance of every U.S. recession in the last three decades by about 3–6 months (with some false signals). U.S. nonfinancial corporate after-tax profits have likewise tended to decline significantly year-over-year in the six months preceding a recession. Although corporate profits are a highly reliable leading indicator and rarely produce false signals, the data are released only quarterly and have a significant lag. More advanced notice may therefore be gleaned from analysis of corporate earnings data for major U.S. companies. At present, business confidence measures are at historic highs, and growth in corporate profits has accelerated over the last year. Together, these data do not indicate that a recession is imminent.



Figure 22: Corporate Profits Annual Growth Rate (Post-Tax)

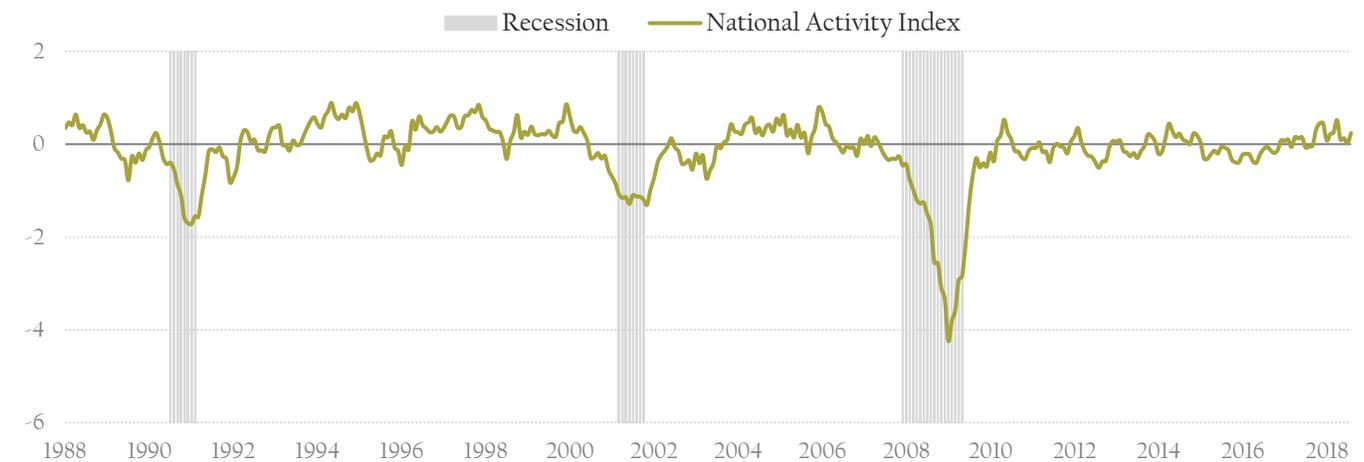


Source: Macrobond Financial

Indicators of Business Activity

Other useful data series for predicting recessions are the U.S. industrial production and the Chicago Fed National Activity Index, both of which approximate the level of business activity in the U.S. economy. Historically, these two indices have tended to decelerate significantly or decline year-over-year in the 6–9 months before a recession. However, both indicators failed to anticipate the Great Recession by more than one month — which may stem from the fact that the Great Recession was triggered not by a downturn in business activity or business health (as in other recessions) but by a subprime mortgage crisis and turmoil in the consumer credit markets. Still, these two indicators are worth examining in concert with others to help determine where the U.S. economy may be heading. The Chicago Fed National Activity Index remains healthy, while industrial production has risen in six out of the last seven months, which also suggests positive near-term economic momentum.

Figure 23: Chicago Fed National Activity Index (3-Month Moving Average)



Source: Macrobond Financial

Figure 24: U.S. Industrial Production



Source: Macrobond Financial

Indicators of Labor Market Health

The labor market can likewise provide clues about the strength of the U.S. economy. Among the many indicators worth watching, two stand out for their predictive power: initial jobless claims and overtime hours for manufacturing employees. Both indicators have “flashed red” in the 1–3 quarters preceding the last three recessions, although both also produced false signals in the mid-1990s.

- The number of initial jobless claims is a weekly indicator that measures the number of Americans who lost their job in the preceding week, and unsurprisingly, it typically rises in the months preceding an economic downturn. The high frequency of this indicator makes it one of the earliest warnings of a weakening economy.

Figure 25: Initial Jobless Claims (Thousands)



Source: Macrobond Financial

- Overtime hours for manufacturing employees usually fall several months before a downturn, reflecting the fact that as demand and business activity fall, employers cut their employees’ overtime hours to reduce labor costs without laying anyone off.

Figure 26: Manufacturing Overtime Hours for Production & Non-Supervisory Employees



Examined alongside indicators of business activity and business health, data on the labor market provide useful clues as to whether the U.S. economy may be headed for a recession. At present, both indicators point to exceptional U.S. labor market health and economic strength.

Early Warning Dashboard

Pooling the above indicators, one can assemble a snapshot of the U.S. economy by examining recent movements in the data and comparing those movements to the indicators' historic performance prior to a recession. Each of these indicators has tended to flash red in the 3–12 months prior to a recession, while the yield curve gives advance warning in the 12–24 months prior to a recession. According to Keybridge analysis, there are two reliable triggers for when the U.S. economy enters a “recession watch”:

- 1) The yield curve has inverted in the last two years; and
- 2) Four of the other eight indicators are signaling a downturn — that is, their performance has recently taken a notable turn for the worse relative to how that indicator has performed in the past.^x

Fortunately, only the yield curve (which may invert later this year or early next year) gives any real cause for concern in the near term. All other indicators give reason for optimism about the U.S. economy over the next 6–12 months. Although the current U.S. business cycle has likely entered the late stage and the possibility of a recession is worth monitoring, the current economic expansion likely still has some room to run.

Table 1: Early Warning Dashboard

Recession Indicator	Indicator Type	Latest Reading
Yield Curve	Financial Market Health	23 basis points
Near-Term Forward Spread*	Financial Market Health	63 basis points
BAA – 10 Year Spread	Financial Market Health	184 basis points
Conference Board's Leading Economic Index	General Economic Health	+6.4% Y/Y
NFIB Small Business Optimism Index	Business Health	+3.3% Y/Y
Corporate After-Tax Profits	Business Health	+16% Y/Y
Chicago Fed National Activity Index (3MMA)	Business Activity	+29 basis points Y/Y
Industrial Production	Business Activity	+4.9% Y/Y
Initial Jobless Claims	Labor Market Health	-30% Y/Y
Manufacturing Overtime Hours	Labor Market Health	+4.5% Y/Y

Source: Macrobond Financial; Keybridge LLC

*Note: Latest data available is from Q1 2018



On the Horizon: The Future of Work

Technological changes that have emerged over the last several years — including big data, artificial intelligence, and machine learning — will exert dramatic changes across the U.S. economy, including the equipment finance industry. One area that will be among the most affected is labor, and this will have profound significance for equipment finance firms' operations, human resources, and recruitment efforts.

Recent public debate and academic research have focused on a major concern: that these technologies will displace human labor and eliminate millions of jobs, causing widespread joblessness among those unable to adapt to the new economy. However, other evidence, including interviews and surveys of business leaders as well as historical experience with technological innovation, suggests that new jobs will be created by these technologies, and that those new positions will likely require a notably different set of skills. Overall, the future of work looks bright and full of opportunity for both employers and employees, provided that industry leaders and other equipment finance professionals consider the best ways to incorporate these technologies into their operations and devote resources to building the workforce of the future.

The 2017 State of the Equipment Finance Industry report highlighted how emerging technologies like artificial intelligence (AI), the internet of things, and blockchain could dramatically change how equipment finance firms conduct business and interface with customers. This year's Industry Horizon Report focuses on a particular area where new technologies may dramatically alter the way firms function: automation and its effect on the industry's workforce. New research from a variety of sources shows that automation and AI have the potential to upend the way work is done, which will have significant consequences for the U.S. economy and the equipment finance industry. These changes pose both challenges and opportunities for industry leaders and employees alike.

Automation and AI: Could Machines Take Half the Jobs?

In public debate and speculation about how technology will change the nature of work, perhaps the foremost concern is that automation and AI could render many workers' jobs obsolete, causing millions of positions to disappear. According to this fear, some of the latest digital technologies — from voice recognition to big data and machine learning — will quickly become superior to many human capabilities. As demand for these technologies rapidly overtakes the demand for human labor, companies will automate key tasks, lay off a large percentage of their labor force, and replace labor with capital wherever possible. Worse, many of those laid off will struggle to find new jobs in a brave new world where their skills are no longer useful. Too often, human attempts to fill skill gaps that computer technology has not

yet filled will be outpaced by computers' ability to rapidly learn those same skills. Eventually, automation could dramatically reduce participation in the labor force and create a permanent underclass of the unemployed, who struggle to find income and make ends meet.

Some recent research finds good reason to accept this threatening scenario.

- In a seminal paper, Carl Benedikt Frey and Michael Osborne of Oxford University estimate that as many as 47% of all U.S. jobs are highly susceptible to elimination over the next 20 years because of automation.^{xi} Most of those jobs, including credit analysts, telemarketers, legal secretaries, and cashiers (among thousands of other occupations) consist of repetitive tasks that can be easily absorbed by machine learning.
- Similarly, a 2017 study by the McKinsey Global Institute (MGI) dissected roughly 800 occupations in the U.S. economy by their dominant skills and found that about half of American jobs could have more than 40% of their tasks eliminated by automation over the next several years.^{xii} These tasks amount to \$2.7 trillion in wages — and about half of all U.S. working hours.

Understandably, many Americans are concerned about the effects of automation technology on society. In a survey, Pew Research found that 72% of U.S. adults worry about a future where robots and computers can do many human jobs. The fact that computers may replace vast swaths of human labor means that 76% of Americans believe automation will worsen inequality, and only 25% of Americans think automation will create new, high-quality, well-paid jobs.^{xiii}

An Alternative View: Automation and the New Task Mix

Despite widespread public worry about the potential for mass unemployment and employee headcount reductions, other research — particularly research focused on employer needs — shows that automation and AI may actually *increase* demand for labor over the coming years.

A 2018 MGI study, centered on a survey of major employers in the United States and Europe, finds that the vast majority of companies (94%) plan to maintain or increase their employee headcount over the coming years as a direct consequence of automation.^{xiv} This finding corroborates comments from equipment finance industry leaders: of the 17 industry leaders interviewed by Keybridge, none intend to reduce headcount or expressed significant concern about this possibility due to automation. Conversely, most interview participants discussed the potential for greater demand for labor over the coming years (albeit for workers with certain desired skillsets), though several worried that the industry may struggle to attract the kind of talent needed to meet the technological demands of the future. These facts may help explain why the same Pew Research survey which found that Americans worry about automation also found that Americans aren't particularly worried that their *own* jobs will be eliminated due to automation.

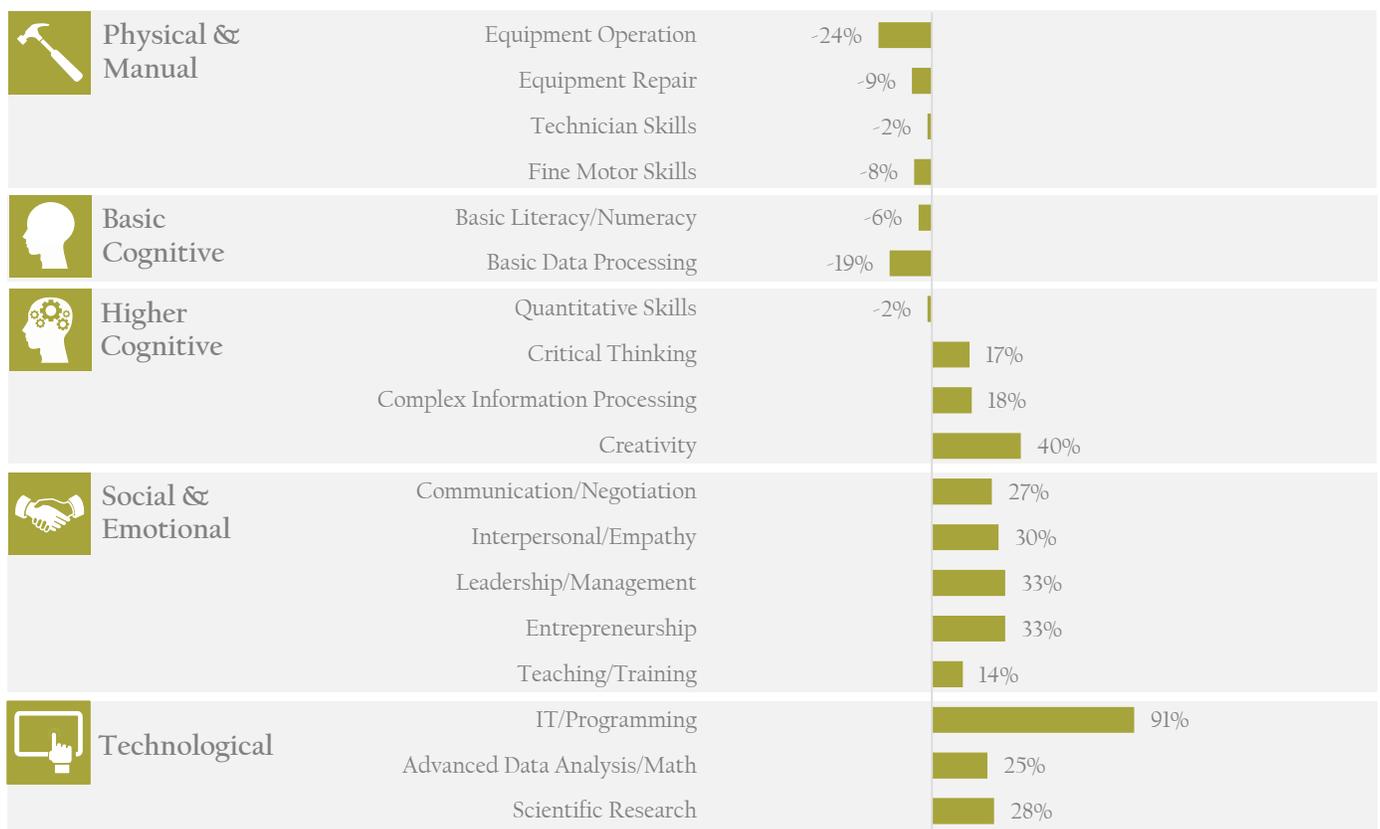
What explains this seemingly contradictory set of findings? Although automation is almost certain to eradicate certain repetitive tasks, the notion that new technology will eliminate the need for most human talent is highly suspect. The fact is that most people's jobs consist of a variety of tasks, some of which are susceptible to automation and others that aren't (at least in the foreseeable future). Moreover, for occupations in which most tasks can be automated, the associated productivity gains and income generation should stoke demand for new jobs and tasks on the frontier of technological capabilities. Research by MIT economist David Autor finds that automation over the last several decades is characterized both by eliminated tasks and by increased demand for other tasks, which arises as a direct consequence of a new technology's introduction. The end result of this technological disruption typically isn't widespread

unemployment because, as Autor summarizes, “tasks that cannot be substituted by automation are generally complemented by it.”^{xv}

An Increased Demand for Key Skills

Still, the shifts generated by automation technology will be profound, and employers and employees alike will have to adapt to these changes. In comparison to other industries, the need to adapt may be greater in the equipment finance industry, which is widely understood by industry leaders to be somewhat behind the curve in incorporating automation technology into their business operations. In adapting to this new reality, employers must adjust the way they recruit and hire new talent, emphasizing a different set of skills from what they have hired and cultivated in the past. Likewise, employees will have to consider what skills they will need to emphasize and focus on improving them to reduce the likelihood of being replaced by a machine or algorithm. The equipment finance industry is already headed down this path. As one industry leader noted in an interview, “What we hire now is very different from what we used to hire. We value industry experience and industry knowledge less, and value employee capabilities, technology skills, and adaptability more.”

Figure 27: Percent Change in Hours Worked by Skill, 2018-2030



Source: McKinsey Global Institute, 2018

Key Skill #1: Working with Technology

Unsurprisingly, a key skill that employers will demand of their future workforce is technological savvy and the ability to work with technology to create value. To ensure that tasks are complemented by new technology rather than

replaced by it, employees must know how to use the latest software and systems to speed up certain tasks and improve their own efficiency to produce results. MGI's 2018 study on the future of work estimated that by 2030, 91% more hours will be directed to information technology (IT) and programming skills — almost double the amount of time currently allocated to these areas. Similarly, the number of hours devoted to advanced data analysis and scientific research is expected to increase 25–30% (see Figure 27).

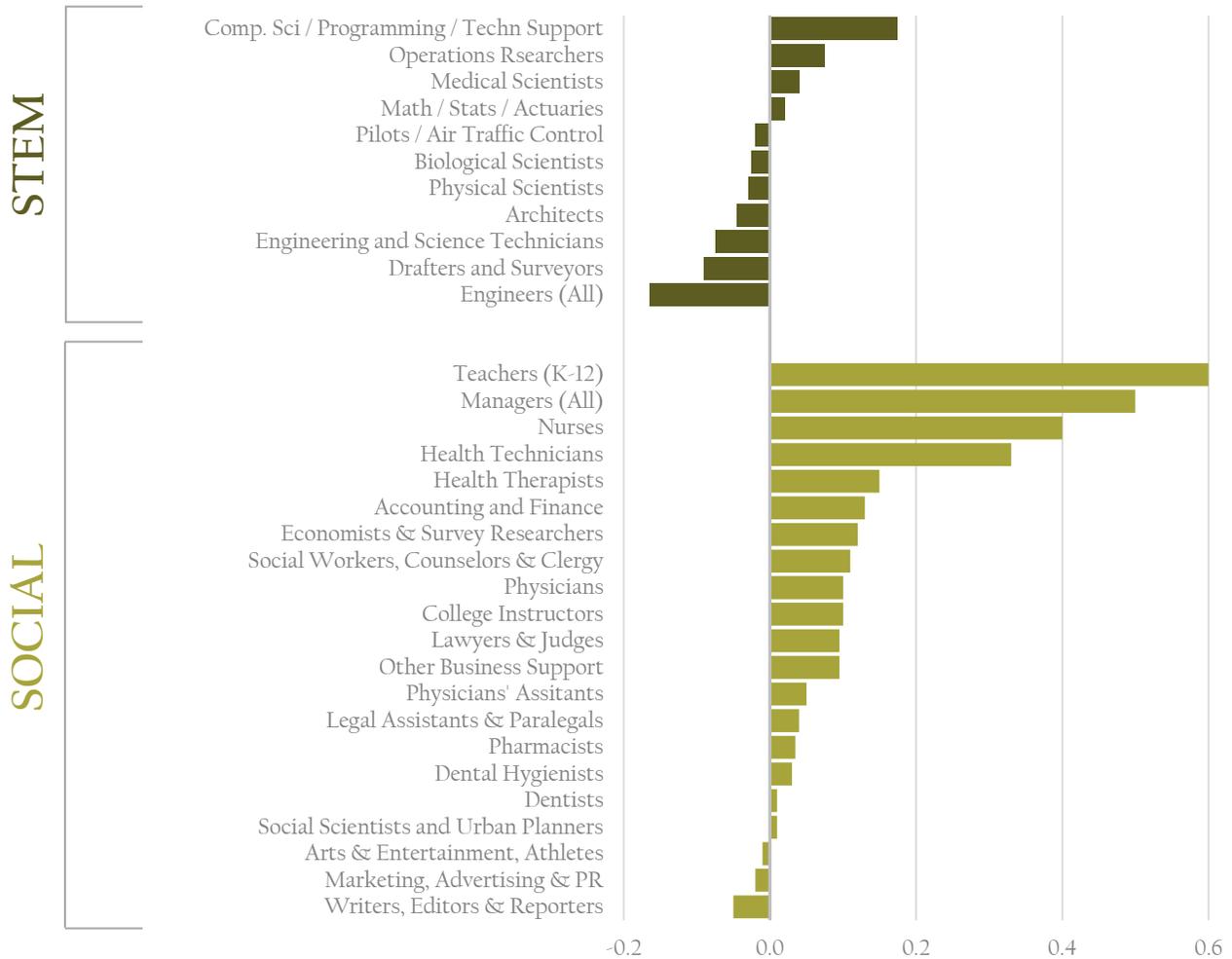
In interviews, equipment finance industry leaders likewise emphasized the importance of technological skills in terms of what they look for in new talent and emphasize in their recruitment efforts. Many noted that this need dovetails with the importance of attracting a younger workforce, as younger employees are often better positioned to incorporate technology into their work because they are more likely to possess the necessary knowledge, intuition, and inclination.

Key Skill #2: Communication

Among the jobs that are least likely to be automated over the next several decades are those that involve doing what humans do best (and what we are likely to do better than computers for the foreseeable future): interacting with other humans. Despite recent advances in voice recognition technology and artificial intelligence, most researchers and industry leaders concur that communication skills will be increasingly in demand in the workforce of the future. A recent study by David Deming, which analyzes changes in U.S. employment over the last 15 years, finds that the occupations whose employment share has increased the most have demanded strong communication and social skills, whereas occupations requiring STEM skills, perhaps somewhat counterintuitively, have seen mixed employment outcomes.^{xvi} This trend is expected to continue, as automation eliminates many of the tasks involved in lesser-skilled STEM occupations. MGI's 2018 study likewise estimates that employee hours spent using social and emotional skills will increase 15–35% over the next 12 years.



Figure 28: Change in Employment Share for Cognitive Occupations, 2000 - 2012



Source: David Deming, "The Growing Importance of Social Skills in the Labor Market" (2015)

Interviews with industry leaders demonstrate with clarity that this trend has not been overlooked. In an interview, one industry leader pointed out that while technology skills are important, the ability to communicate well with customers remains the most important skill their company looks for during recruitment. The reason is that customers who are considering paying a substantial amount of money on a major deal require the sense of trust that can only come from interacting with another human. Financial technology and other technological systems might facilitate this process, but ultimately, most people still feel a psychological need to talk with another person about their options before making a major financial decision.

Key Skill #3: Critical Thinking and the Ability to Learn

Another set of skills that will prove increasingly important in the future are those involving higher-order cognitive tasks.

- For example, creativity, critical thinking, and analytical skills are likely to grow in importance over the coming years because they are among the skills that are the most difficult to teach, and therefore the most difficult to

program a computer to do. By nature, they involve devising new plans and coming up with new ideas, whereas computers tend to specialize in perfecting what has already been done. This fact corroborates McKinsey estimates that the number of hours devoted to critical thinking, complex information processing, and creativity will increase significantly over the next several years.

- In addition, the ability to learn helps employees guard against the possibility that their skills will stagnate and be overtaken by new technologies. An employee who is always learning can consistently remain ahead of the curve and determine how to complement his or her talents with the opportunities provided by new technologies.

To paraphrase one industry leader interviewed for this study: “We have invested a lot of resources in technology, so I don’t need people that are only good at data entry, making phone calls, and pulling forms together. We’re looking for analysts, architects, alternative thinkers — people who can work with data to improve the customer experience.”

The Future of Work: Challenges for the Equipment Finance Industry

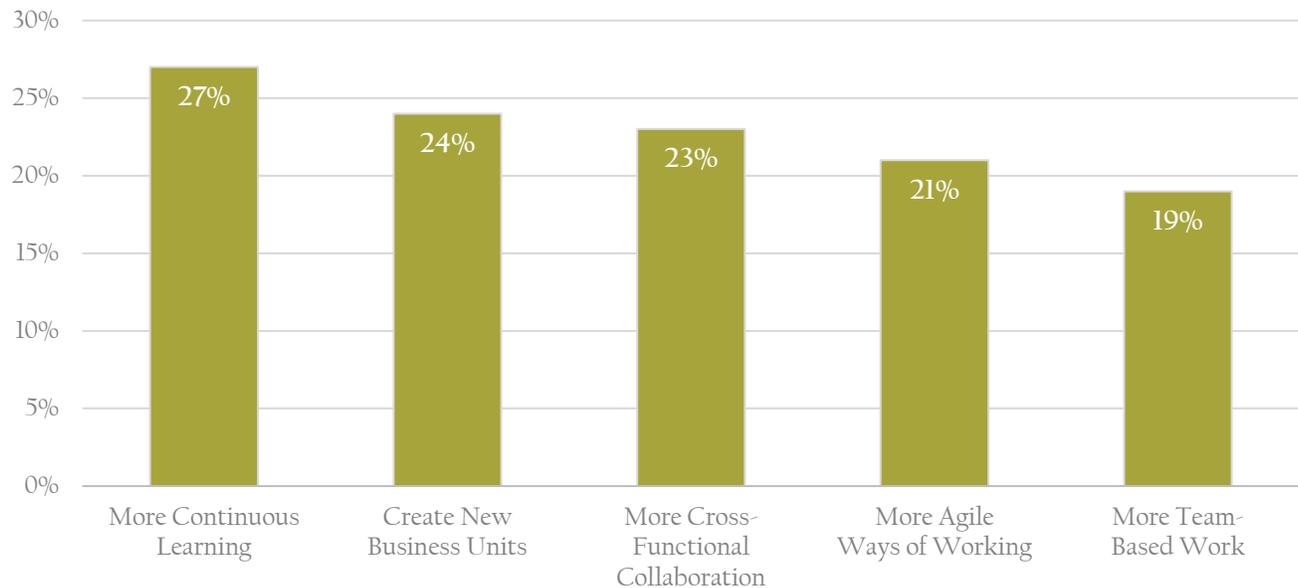
On the whole, investigative research and industry leader perspectives suggest that the way new technologies will change the nature of work should be cause for excitement and enthusiasm in the equipment finance industry. Tedious and repetitive tasks can be eliminated by new systems technologies, boosting productivity and incomes and leaving employees with more interesting tasks that require creativity and innovative thinking. The industry will be better able to serve its customers by marrying the efficiency of technology with an increased emphasis on the human element of the customer experience.

However, incorporating these technologies will pose challenges for the equipment finance industry, particularly for management.

- One major obstacle to effectively building the workforce of the future is the difficulty of implementing AI and automated systems in an industry that, as industry leaders describe, is often focused on doing things the way they have always been done. It will be difficult for management to effectively harness the comparative advantage of human beings if the newest technologies are not being incorporated. Indeed, to successfully incorporate these new technologies will require applying some of the same skills — critical thinking, communication, working with technology, and the ability to learn — that will eventually become even more important once those technologies are deployed across the company. Therefore, a company looking to upgrade its existing systems might consider recruiting more employees possessing these key skills in order to facilitate the uptake of new systems technologies and bring their company ahead of the curve.
- A second major challenge that equipment finance firms will face is finding the right talent. Many industry leaders pointed out that, compared to other industries, a key weakness of the equipment finance industry is its comparative age. The relative lack of youth and diversity among existing staff compared to other industries could make it more challenging to attract the young and technologically savvy employees that companies will need for their future workforce.
- Third, the U.S. labor force will suffer from a shortage of workers possessing the key skills outlined above. Indeed, part of the reason for widespread societal concern about AI and automation technology is the notion that educational institutions will struggle to impart the most useful skills to today’s students given how quickly skill needs are changing. A combination of policy innovations and private sector engagement will be needed to address this challenge. When the United States transitioned from an economy dominated by agriculture to one dominated

by manufacturing and services in the early twentieth century, governments responded by increasing investment in public education for all children through secondary school so that all Americans would possess the skills (e.g., reading, writing, and arithmetic) necessary for success in the new economy. A similar commitment by policymakers and the business community may be needed again. For example, the private sector — including the equipment finance industry — might consider ways of increasing its efforts to collaborate and partner with educational systems and institutions to ensure that the next generation of equipment finance professionals have the skills they need to survive and thrive in the new economy.

Figure 29: How Companies Plan to Respond to Adoption of Automation and AI, % of Respondents



Source: McKinsey Global Institute, 2018

- Finally, the changing nature of work is likely to pose new organizational challenges for all U.S. businesses, including the equipment finance industry. MGI's 2018 survey found that many companies are being pushed to adapt to the changing nature of work by providing more continuous learning opportunities, creating new business units, facilitating more cross-functional collaboration, and allowing for more agile ways of working and more team-based work. As employees face increasing pressure to learn new skills, equipment finance firms may need to offer more opportunities for training and professional development. A shifting skill mix — both among the whole company workforce and within individual job categories — may require the creation of new business units and more cross-unit collaboration. In addition, many industry leaders have noticed that new automation and communication technologies have allowed (and made employees advocate for) more agile ways of working, such as remote work arrangements. While such arrangements can be disruptive initially and often require additional company investment to make them possible, firms will be more attractive to high-quality potential employees and will provide access to a wider talent pool.

Overcoming each of these challenges will entail considerable cost and time, but the overall benefits of adopting new systems and technologies to eliminate tasks and complement the company workforce are likely to outweigh the costs. Such a transition will help ensure that equipment finance firms can attract and retain the best talent possible and provide better value to customers and clients.

NOTES





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- Aylin Cankardes – President, Rockwell Financial Group
- James Cress – Vice President & General Manager, Stryker Flex Financial
- Rich Doherty – President, PNC Equipment Finance
- Jeff Elliott – Senior Managing Director, Huntington Equipment Finance
- Dave Fate – President & CEO, Stonebriar Commercial Finance
- Matt Gonser – Vice President, Public and Commercial Sales, Dell Financial Services
- Tom Petersen – Executive Vice President, Wells Fargo Equipment Finance
- Ralph Petta – President & CEO, Equipment Leasing & Finance Association
- Kirk Phillips – President & CEO, Wintrust Commercial Finance
- Deb Reuben – President, Reuben Creative
- Mike Romanowski – President, Farm Credit Leasing Services Corporation
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Endnotes

- ⁱ In future years, the end-user survey will collect more responses (500+) to allow for additional industry- and vertical-specific breakdowns.
- ⁱⁱ In other publications, such as the Foundation's Equipment Leasing & Finance U.S. Economic Outlook, real (i.e. inflation-adjusted) investment is used rather than nominal investment. However, given that survey respondents reported their equipment acquisitions in nominal terms, nominal investment data is consequently used to estimate the industry's size in order to ensure an apples-to-apples comparison.
- ⁱⁱⁱ The 2016-17 U.S. Equipment Finance Market Study reported that 68% of equipment and software investment was financed. However, this result was based on a survey of equipment end-users from the private sector and did not adjust for the lower propensity to finance among public sector end-users. This year's report uses historical SEFA data to estimate the public sector propensity to finance from 2010 – 2017 and adjusts the overall propensity to finance accordingly, yielding an overall propensity to finance of 62% in 2015.
- ^{iv} Careful readers may notice that the industry sizing estimates for historical years in Figure 1 are slightly lower than the estimates published in previous reports (e.g., the 2016-17 Equipment Finance Market Sizing Study and the 2017 State of the Equipment Finance Industry report). The changes are mostly due to benchmark revisions in BEA's investment data, as well as revised assumptions concerning the propensity to finance public sector equipment acquisitions in historical years, as described in the previous endnote.
- ^v Both the 2012-13 U.S. Equipment Finance Market Study and the 2016-17 U.S. Equipment Finance Market Study reported that firms with fewer employees and lower net revenues have a lower propensity to finance. For example, according to the 2012 report, "Companies with less than \$1 million in revenues used financing in only 49% of their equipment acquisitions, while companies with revenues between \$25 million and \$100 million used financing in 86% of their acquisitions." This year's survey identified a similar trend.
- ^{vi} "Other" payment methods include gifts, ATM / debit cards, and barter / trade.
- ^{vii} This estimate may differ from other estimates of new business volume growth (e.g., estimates based on the MLFI-25 index or the survey of equipment end-users) because it is based on a sample of ~100 industry firms that submitted a response to the SEFA survey.
- ^{viii} The Foundation released a study in June 2018 discussing the effect of rising inflation and interest rates on the equipment finance industry, which can be downloaded for free at <https://www.store.leasefoundation.org/cgi-bin/msascart.dll/ProductInfo?productcd=Inflation2018>.
- ^{ix} While it may seem counterintuitive for the median spread to fall when the median yield rises more than the median cost of funds, this result is likely the result of skewness in the underlying responses. Specifically, it could occur if the median increase in the cost of funds significantly understates increases faced by many lenders, or if the median rise in yields significantly overstates those experienced by many lenders (or both).
- ^x Specifically, an indicator is designated as red when its year-on-year change is in the highest 10–20% of all readings (for negative indicators like jobless claims) or the lowest 10–20% of all readings in the last 30 years.
- ^{xi} Frey, Carl Benedikt, and Michael A. Osborne. "The Future of Employment: How Susceptible Are Jobs to Computerisation?" *Technological Forecasting and Social Change* 114 (2017): 254–80.
- ^{xii} McKinsey Global Institute, "Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation." December 2017.
- ^{xiii} Pew Research Center, "Automation in Everyday Life." October 2017.
- ^{xiv} McKinsey Global Institute, "Skill Shift Automation and the Future of the Workforce." May 2018.
- ^{xv} Autor, David. "Why Are There Still So Many Jobs? The History and Future of Workplace Automation" *Journal of Economic Perspectives* 29:3 (2015): 3–30.
- ^{xvi} Deming, David. "The Growing Importance of Social Skills in the Labor Market" *National Bureau of Economic Research Working Paper*. August 2015.

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