State of the Equipment Finance Industry:

Seizing Opportunity in a Changing Landscape

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The Foundation is the only research organization dedicated solely to the equipment finance industry.

The Foundation accomplishes its mission through development of future-focused studies and reports identifying critical issues that could impact the industry.

The Foundation research is independent, predictive and peer-reviewed by industry experts. The Foundation is funded solely through contributions. Contributions to the Foundation are tax deductible.

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OVERVIEW

message from the chairman

We are pleased to present the 2017 State of the Equipment Finance Industry ("SEFI"). This year's report analyzes the results of the 2017 Survey of Equipment Finance Activity ("SEFA"), covering high-level developments in new business volume, yield and funding, portfolio performance, business operations, and financial performance. The SEFI also identifies and discusses several emerging trends and new technologies that may pose risks or opportunities for industry participants.

Overall, the equipment finance industry managed to make the most of a disappointing 2016. Business investment underperformed, providing a headwind to industry growth. Profitability and related financial performance metrics suffered. Yet, portfolio credit performance remained strong, industry hiring surged, and new business volume grew modestly.

This year, the industry appears set for improved performance. Confidence is high and businesses are investing again. Uncertainty abounds and competition remains fierce, but the industry's fundamentals are solid by most measures.

Industry leaders will need to identify key risks and opportunities on the horizon and adapt their operations and business models accordingly. Emerging economic changes in energy, manufacturing, and retail warrant study. An industry shift toward a "pay as you go" model of pricing continues. And more significant business model disruption seems likely as artificial intelligence (including machine learning), the Internet of Things, and a variety of other transformative technologies begin to see industry implementation.

As in past years, the 2017 SEFI offers a variety of economic data and analytical tools to identify and interpret trends in the equipment finance industry. Macroeconomic data on the U.S. provide context for key industry themes, while the Foundation-Keybridge quarterly Propensity to Finance Equipment Index ("PFEI") and monthly Equipment Investment Momentum Monitors and Sector Matrix highlight shifts in business investment and equipment financing trends.

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 2017 SEFI and the Foundation's many other research publications.

William H. Verhelle
Chairman, Equipment Leasing & Finance Foundation

executive summary

New Confidence Follows a Weak Year

Growth in new business volume slowed significantly to 2.5% in 2016 (down from 12.4% in 2015) as firms cautiously held back their investments in an uncertain business environment. Still, SEFA data indicate the industry expanded modestly even as total equipment and software investment declined 0.9%. Profitability and efficiency dipped slightly, while portfolios mostly remained strong. Most signs now point to renewed business confidence and stronger investment, as several key sectors get back on their feet.

Key findings from the 2017 State of the Equipment Finance Industry ("SEFI") report include:

Weak Growth: According to ELFA's Survey of Equipment Finance Activity ("SEFA"), new business volume growth decelerated to just 2.5%, following 12.4% growth in 2015. Independents once again experienced the industry's fastest growth (12.0%), while Banks' expanded at a moderate pace (5.0%) and Captives' declined (-5.9%). Much of the slowdown was driven by acute factors weighing down the energy and industrial sectors.

Decent Portfolio Performance: Portfolio performance declined from historically strong levels in 2014 and 2015, but delinquencies, charge-offs, and non-accruals remained low. Industry experts report little concern about the state of portfolios due to the industry's continued cautiousness toward underwriting.

Softer Financials: Along with new business volume, industry profitability took a hit in 2016. The industry's Return on Average Equity, Return on Total Average Assets, and Income Before Taxes all declined. A rising interest rate environment caused an uptick in costs, and interest expense ratios crept up. However, the decline in profitability does not appear to have been caused by a reduction in credit quality.

A Slip in Productivity: New business volume per sales full-time equivalent ("FTE") fell nearly 6%, with Banks and Captives driving this decline while Independents' productivity improved. The productivity decline occurred despite a general atmosphere of intense industry competition, which creates a strong incentive to improve efficiency. However, some of the decline is likely the result of the 13% surge in industry employment, as companies incorporate new hires (often for compliance purposes) into their business operations.

Newfound Confidence: Despite a subpar 2016, the industry appears to be recovering. As the energy sector rebounds and pent-up investment demand is released, the equipment finance industry is poised to benefit. Equipment and software investment grew 4.5% and 8.3% in the first and second quarters of 2017, and according to the August release of ELFA's MLFI-25 index, cumulative new business volume for the year stands 5.5% above last year's level.

Uncertainties and Opportunities: The U.S. economy faces an uncertain policy environment caused by government gridlock and shifting political waters. Quietly, however, big macroeconomic developments — including persistently low energy prices, a U.S. manufacturing revival, and the changing nature of retail — are forcing equipment end-users to adapt their business models and creating new opportunities for the equipment finance industry.

Emerging Technologies: Recent advances in financial technology, artificial intelligence and machine learning ("AI"), the Internet of Things ("IoT"), and blockchain technology threaten to upend old business strategies. They may also offer new ways to improve efficiency for firms flexible enough to adopt new business models. While industry players may be tempted to view these technologies as a fad or a threat, those who come to understand them and incorporate them into their businesses will likely be better positioned to increase market share.

key figures

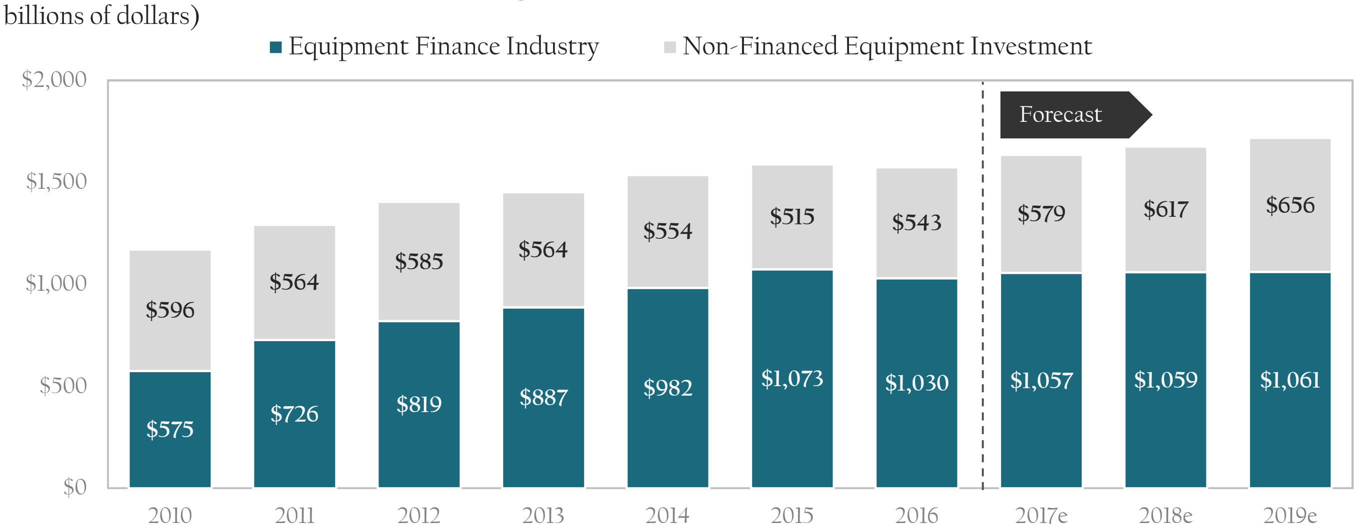
A Temporary Investment Growth Pause

In 2016, new business volume grew more slowly than in previous years. New business volume rose just 2.5% according to SEFA data, after increasing 12.4% the previous year. The disappointing growth rate reflects the subpar performance of equipment and software investment, which fell 0.9% in 2016. After reaching a new high in 2015, the industry contracted slightly for the first time since 2009 but remains above the $1 trillion mark.

In the first half of 2017, business investment has been a key driver of economic growth, and leasing and financing remain attractive ways for businesses to replace equipment and expand operations. While the propensity to finance dipped slightly this year, it remains historically high despite slowly rising interest rates. Overall, after experiencing a growth pause last year, the industry appears well-positioned to continue expanding. While this growth is expected to move at a somewhat slower pace than earlier in the business cycle, most industry leaders interviewed for this study expressed cautious optimism.

Equipment Finance Industry Size

(in billions of dollars)



Sources: 2016-2017 Foundation U.S. Equipment Finance Market Study, Macrobond Financial, ELFA, Keybridge LLC

Note: "Equipment investment" includes private non-residential investment in equipment and software, as well as public investment in equipment and software (defense, non-defense, and state/local) based on data from the U.S. Bureau of Economic Analysis.

Why have the industry size figures changed since the 2015 SEFI?

The estimated size of the equipment finance industry is based on two main components: total public and non-residential private sector equipment and software investment, and the propensity to finance those investments.

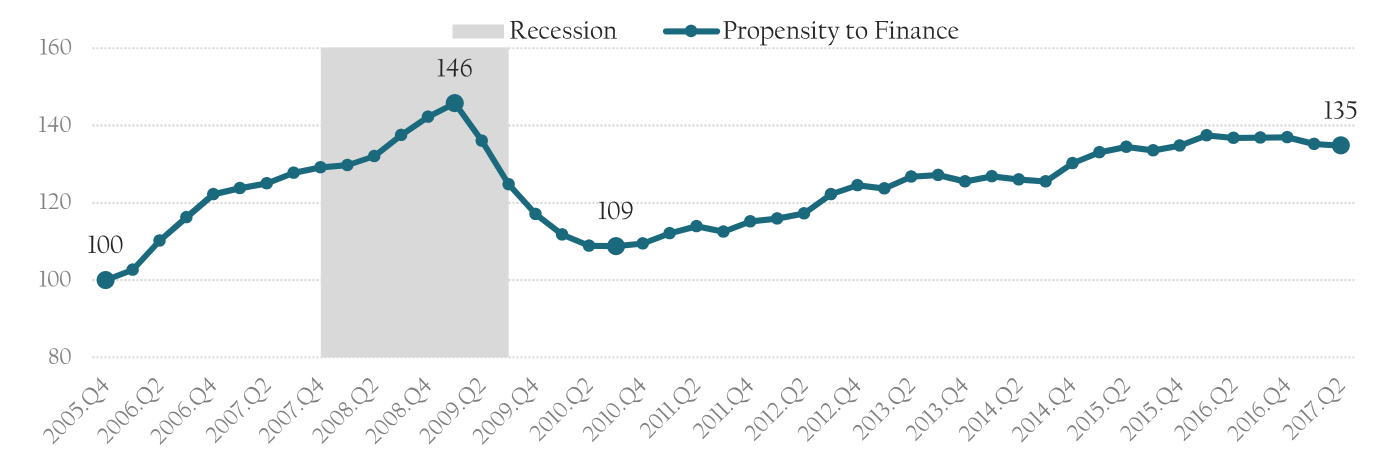
- Equipment and software investment is estimated by the U.S. Bureau of Economic Analysis ("BEA"). Estimates are subject to regular revisions.
- The propensity to finance is estimated by an index constructed by Keybridge (the Propensity to Finance Equipment Index, or "PFEI"). The methodology for the PFEI is described below.

For the 2015 SEFI, the industry size figures combined these two components to create an estimate of the equipment finance industry's size. This year's SEFI uses the same methodology, but has re-baselined the industry size estimates using the results of the Foundation's 2016-2017 Market Sizing Study, which were calculated based on a custom survey of the industry.

The PFEI is a composite of two separate metrics. The first estimates the share of commercial and industrial ("C&I") loans that goes toward equipment purchases, and compares that to total equipment and software investment. The second compares trends in the ELFA MLFI-25 New Business Volume to trends in total equipment and software investment as published by BEA. Both metrics are converted to an index and then averaged to produce the final PFEI.

Foundation-Keybridge Propensity to Finance Equipment Index (PFEI)

(Index, 2005 = 100)



Sources: ELFF, Macrobond Financial, Keybridge LLC

Interpreting the PFEI

Until the Great Recession of 2008-09, private companies took on an increasing share of debt to finance their capital expenditures. The PFEI clearly shows this trend, as the index increased 46% from Q4 2005 to Q1 2009. As the financial crisis reached its peak, businesses began to deleverage — not only by paying down or writing off debt, but also by financing a smaller portion of their capital spending. As a result, the propensity to finance hit a low point in the 3rd quarter of 2010 as the economy struggled to gain a solid footing and there was a high degree of policy, regulatory, and economic uncertainty.

As the second round of quantitative easing began in November 2010, deleveraging in the nonfinancial corporate sector ended and reversed course. The trend in the PFEI over the past several years suggests that the propensity to finance has increased steadily since hitting a post-recession low in late 2010. A combination of low interest rates and rising corporate profits has enabled private companies to take on more debt. The PFEI reached a peak of 137 in the fourth quarter of 2016 and has dipped slightly this year (likely due, at least in part, to rising interest rates following three separate rate hikes by the Federal Reserve). However, the PFEI remains at high levels overall, indicating that businesses are still more likely than not to finance their equipment investments.

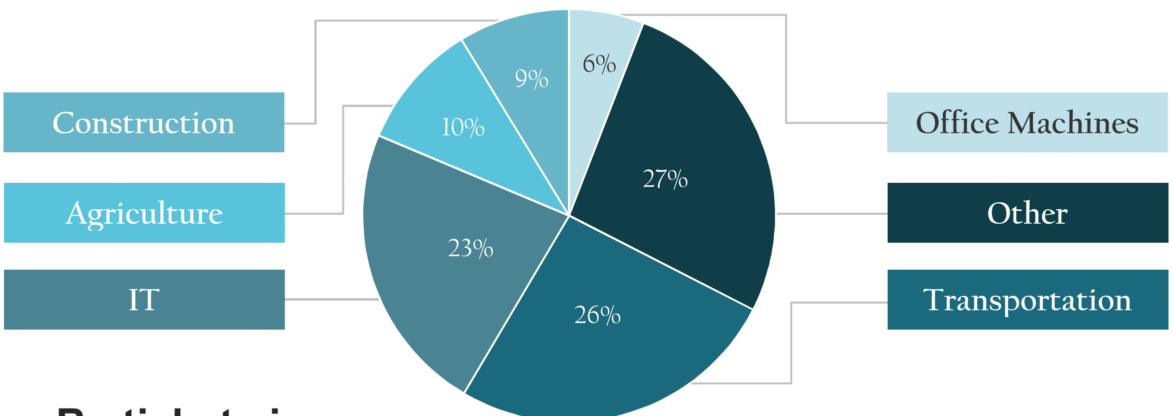
Although the PFEI is not forward looking, it does provide a guidepost for the conditions in which financing would rise or fall. For example, in an environment of steady growth and rising interest rates, the propensity to finance is likely to increase as businesses try to lock in lower rates. In addition, customers' growing preference for flexibility and convenience — rather than ownership — could also drive increases in the propensity to lease or finance in the future.

New Business Volume

(percent of total)

By business model

By equipment vertical

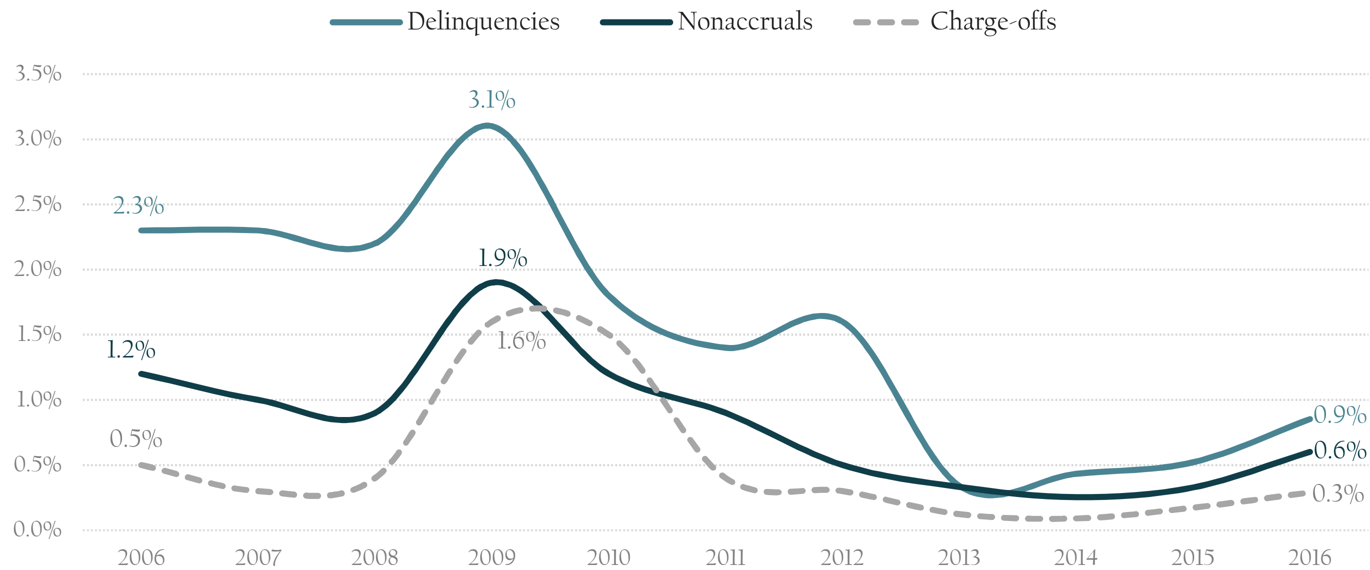


By ticket size

Source: 2017 ELFA Survey of Equipment Finance Activity

Portfolio Performance

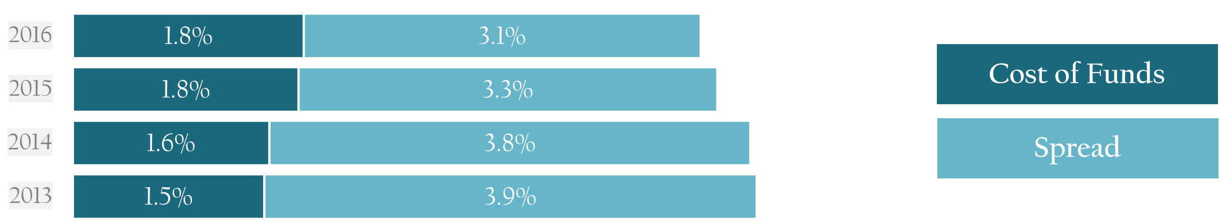
Industry-wide (percent of assets; weighted average)



Source: 2008 – 2017 ELFA Surveys of Equipment Finance Activity

Yield & Funding

Industry-wide (percent; median)



Operating Profit

Industry-wide (percent of revenue; weighted average)

Source: 2017 ELFA Survey of Equipment Finance Activity

INDUSTRY

industry & growth drivers

Signs of Optimism

The equipment finance industry and the U.S. economy overall have struggled to achieve liftoff in recent years. Predictions of breakout growth and a return to the dynamism that was more common before the Great Recession have not be realized, and equipment and software investment contracted last year. However, despite subpar economic performance in 2016, there is reason for optimism. For example, the energy sector and related industries are recovering, the economy is somewhat stronger, and business confidence remains especially high. Meanwhile, new innovations— including financial technology, artificial intelligence and machine learning, and the Internet of Things — are beginning to take hold in the industry and may help to drive future growth.

Another year of lackluster growth in the U.S. economy hampered the equipment finance industry in 2016. Eight years since the Great Recession, the economy has yet to achieve 3 percent growth, and at 1.5%, 2016's real GDP increase was roughly half that of 2015 (2.9%). Echoing the year's disappointing economic performance, equipment and software investment contracted 0.9% in 2016, held back by dramatic investment declines in equipment verticals tied to the oil sector (e.g., mining and railroad). However, 2017 is shaping up to be a better year, as a surge in post-election business confidence and pent-up demand for equipment encourage firms to invest. Although the economy is unlikely to experience breakout growth (i.e., more than 3%) this year, business investment will improve in 2017.

A Cautious Resurgence

The outlook for business investment and new business volume growth in 2017 is encouraging. Equipment and software investment grew at an annualized rate of 4.5% in Q1 and 8.3% in Q2 this year, and cumulative new business volume stands 5.5% above its level a year ago according to the August release of ELFA's MLFI-25 index. During interviews with industry experts, several expected a pick-up in new business volume this year, although a handful described 2017 as "more of the same."

Looking ahead, it is somewhat concerning that capacity utilization, a reliable leading indicator of industrial activity, has not broken 80% (the level historically associated with triggering a new round of capital expenditures) since the Great Recession. But in the near-term, business investment should remain solid — and may improve further if policymakers are successful in enacting more business-friendly policies, such as tax reform, infrastructure spending, and regulatory relief.

Strong Portfolios

Although delinquencies, charge-offs, and non-accruals have inched up since their historic lows in 2014 and 2015, portfolio performance remains healthy, and few in the industry expressed concern about the quality of their portfolios. More than eight years into an economic expansion, much of the decrease in portfolio strength should be considered a natural product of the maturation of the business cycle. Although a continued low interest rate environment and increased competition in the industry are likely to entice some lessors to accept increased risk, portfolio performance should remain quite strong over the next 6-12 months.

Uncertainties Ahead

The conclusion of the 2016 elections, which brought a Republican sweep across the legislative and executive branches, was expected to reduce political uncertainty and help clarify the direction of U.S. policy. Months later, the outcomes of major policy issues that matter a great deal to businesses — including healthcare, tax reform, infrastructure, and immigration — remain uncertain. Some industry leaders remain confident that Congress will agree on tax reform legislation that stimulates economic activity. Others decry never-ending political dysfunction in Washington and doubt that a shared desire to boost economic growth will overcome core policy disagreements among political factions. One issue for which there is widespread agreement among industry leaders is that uncertainty can lead to cautiousness and stagnancy in the equipment finance industry.

Despite political frustrations and lingering uncertainties, big macroeconomic developments are threatening to upend the business landscape — and could bring major opportunities for equipment finance providers. A new era of low-cost energy is likely around the corner, which should be a boon to manufacturers and other energy-dependent end-user markets. After years of decline, U.S. manufacturing is set for a revival because of emerging push and pull factors that should benefit the equipment finance industry. And finally, the transformation of the retail industry may open up new areas for equipment leasing and financing.

Emerging Technologies

An array of new technologies is on the horizon and will have significant and potentially long-lasting implications for the equipment finance industry. Technological change appears to be advancing so rapidly that simply staying in place and adhering to traditional models may no longer be a feasible business strategy for some firms. Increasingly, equipment finance providers that adopt these technologies are likely to gain an edge over those that don't. Changing customer preferences are likely to encourage lessors to offer more Managed Solutions Transaction options, possibly involving smart devices on the Internet of Things ("IoT"). Rapid developments in machine learning may dramatically transform key aspects of the commercial lending business, beginning with credit underwriting, marketing, and sales. Eventually, blockchain may revolutionize the entire financial sector. While seasoned industry experts may be tempted to view these emerging technologies as a passing fad or even as a threat, firms that successfully adopt them to build new business models have the opportunity to realize big gains.

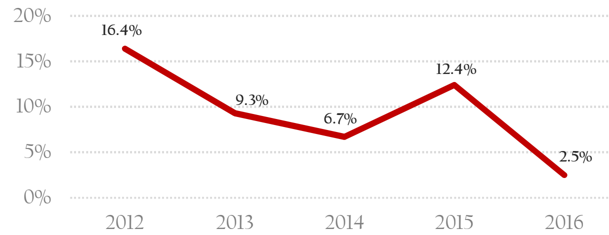
key performance indicators

All data sourced from the 2013-2017 ELFA Surveys of Equipment Finance Activity

Business Volume Performance Indicators

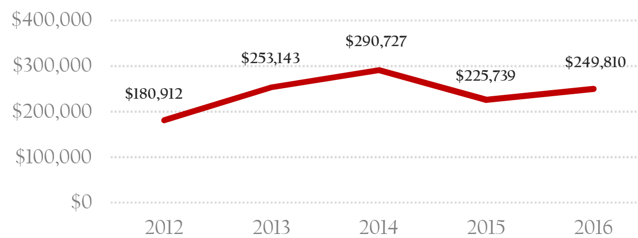
Growth in New Business Volume

New business volume continued to expand in 2016, though at a significantly slower pace.



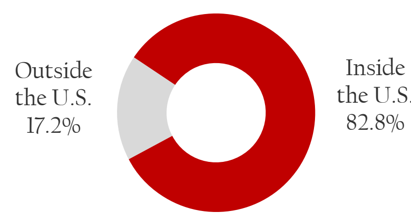
Median New Business Volume per Lessor ($000s)

Median new business volume per lessor increased in 2016 after falling back the previous year. It remains well above pre-recession levels.



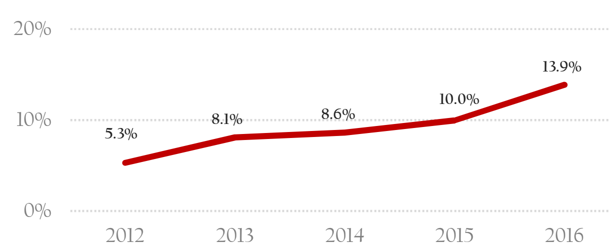
New Business Volume Originated by Region

The share of new business volume sourced outside the U.S. edged down from 18.6% in 2015 to 17.2% in 2016.



Growth in Assets Under Management

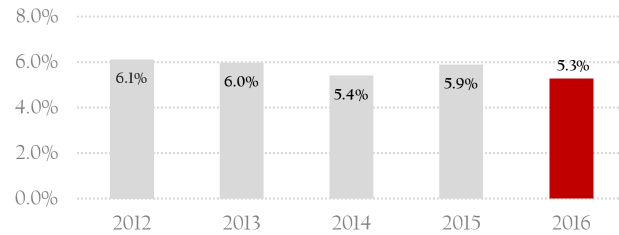
Growth in assets under management continued to improve, marking the sixth consecutive year of stronger expansion.



Yield & Funding Performance Indicators

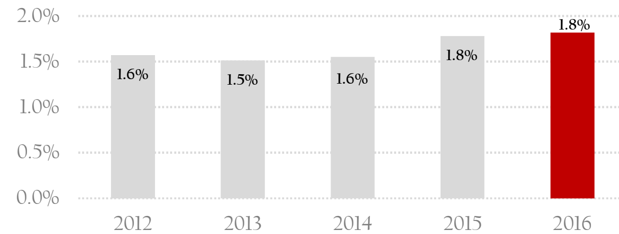
Pre-Tax Yield (median)

Yields dropped over half a percentage point in 2016 as heavy industry competition persisted.



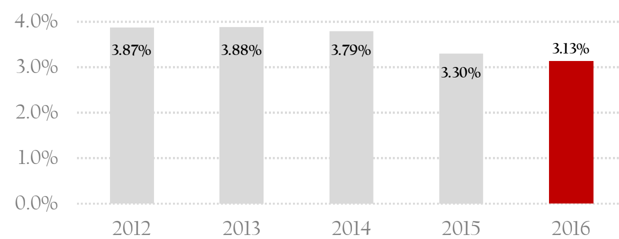
Cost of Funds (median)

The cost of funds was little changed in 2016 and remains low by historical standards.



Pre-Tax Spread (median)

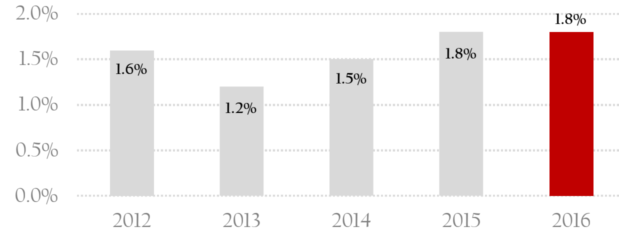
In 2016, spreads compressed reflecting the decline in yields.



Portfolio Performance Indicators

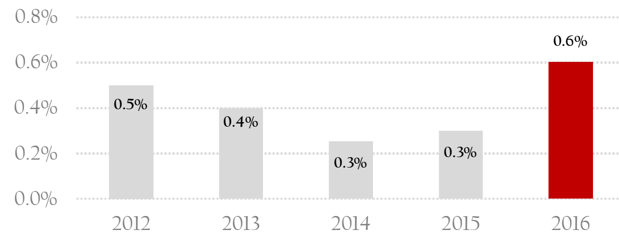
Delinquent Portfolio Over 30 Days (weighted average)

Delinquencies ticked up in 2016, but remain low relative to historical levels.



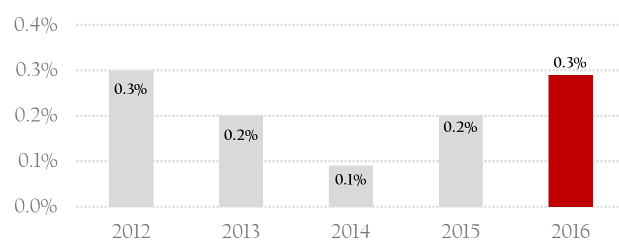
Non-Accrual Assets as a Percent of Receivables and Non-Accrual Assets (weighted average)

Non-accruals rose, in part reflecting loosening credit standards in a hypercompetitive business environment.



Net Full-Year Loss (Charge-Off) as a Percent of Full-Year Average Receivables (weighted average)

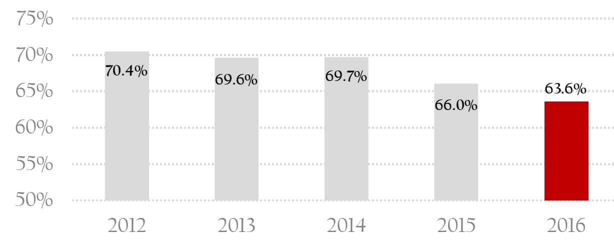
Charge-offs edged up to 0.3% in 2016, but remain well below the recession peak of 1.6% in 2009.



Business Operations Performance Indicators

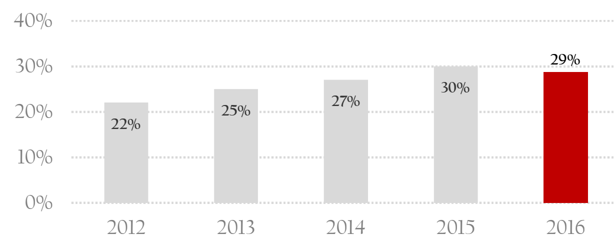
Applications Booked & Funded/Sold as a Percent of Approved (based on $ amount)

With respect to booking contracts, business productivity moderated slightly in 2016, reflecting continued hyper-competitiveness in the market.



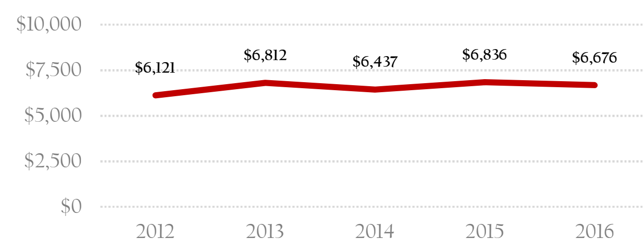
Residual or Salvage Position as a Percent of Original Equipment Cost

Residual values moderated slightly after posting steady gains in the preceding five years.



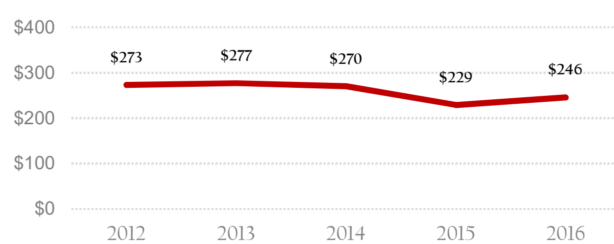
New Business Volume per Full-Time Equivalent ($000s)

New Business Volume per FTE slipped, yet its elevated position continues to reflect efficiency improvements.



Sales, General & Administrative Expense per Full-Time Equivalent ($000s)

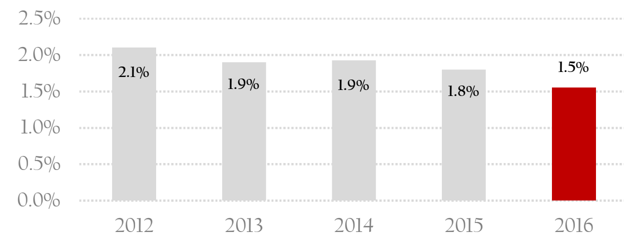
Expenses per FTE inched up following a sharp decline in 2015.



Financial Performance Indicators

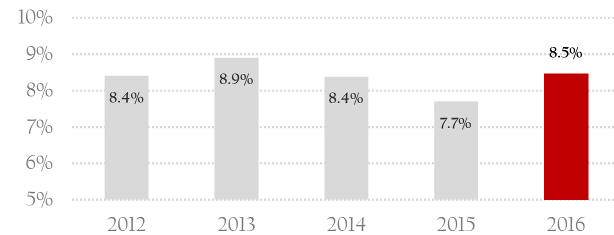
Return on Average Assets (median)

Return on average assets weakened to 1.5%, matching 2010 levels.



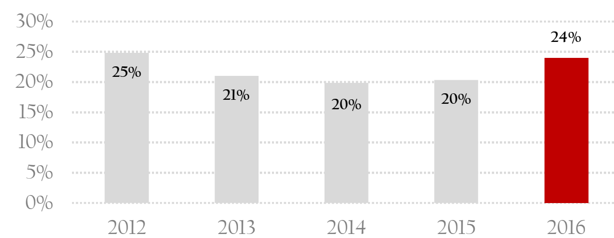
Sales & Marketing Expense as a Percent of Total Revenue (median)

Sales and marketing expenses increased as a percentage of total revenue increased after falling the previous two years.



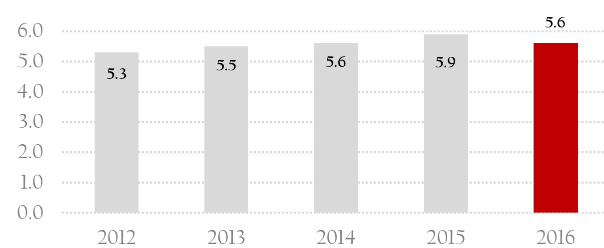
Interest Expense as a Percent of Adjusted Revenue (median)

Interest expenses climbed to nearly a quarter of adjusted revenue in 2016.



Debt to Equity Ratio (median)

Debt to equity fell in 2016, suggesting that equipment finance firms deleveraged after debt to equity reached a post-recession high during the previous year.



financial review & analysis

New Business Volume

New business volume grew 2.5% in 2016, a significant slowdown from recent years. Last year marked the first since 2009 that equipment & software investment contracted (by 0.9%) and also performed worse than the overall U.S. economy. But, these numbers hide considerable differentiation across organization type, ticket size, end-user market, and equipment type. Independents fared the best among organization types, while Captives' new business volume slumped. In contrast to the strength of small business seen in previous years, the middle-ticket segment saw the biggest growth in new business volume in 2016. Across sectors, the worst performers were in the energy sector and related sectors (e.g., railroad transportation), while growth in services partially offset the decline.

Thousands of Dollars or Percent	Industry	Banks	Captives	Independents
2016 Median New Business Volume	$249,810	$533,674	$332,411	$103,000
Growth in Total New Business Volume, 2015-2016	2.5%	5.0%	-5.9%	12.0%
Growth in Assets Under Management, 2015-2016	13.9%	16.3%	2.4%	20.3%
Five-Year Growth in Median NBV	66.8%	110.6%	68.8%	23.7%

Source: 2012 – 2017 ELFA Survey of Equipment Finance Activity

Total equipment and software investment fell 0.9% in 2016, marking the first year of contraction — as well as the first year that equipment and software investment grew slower than the overall economy — since 2009. Investment was dragged down by an abysmal 8.1% annualized drop in the first quarter of 2016, followed by meek growth ranging from 0-2% in the following three quarters. New business volume for the equipment finance industry grew 2.5% in 2016 according to the SEFA, compared to 12.4% growth in 2015, 6.7% growth in 2014 and 9.3% growth in 2013.

The deceleration in new business volume growth was driven by a combination of weak overall growth in the U.S. economy and an oil price decline hangover affecting large swaths of the energy and industrial sectors. Real GDP grew only 1.5% in 2016, with particularly slow growth in the first half of the year that economists deemed a "growth pause." This sluggishness was in part due to the aftereffects of the oil price drop, which stood around $100/barrel in mid-2014 before plummeting to a low of $27/barrel in February 2016. In the past, low oil prices have led to increased consumption that more than offset investment losses in the energy production sector, but the dramatic acceleration in U.S. oil production made possible by improved drilling techniques have created a new paradigm in which extremely low prices can detract from economic growth. Now that oil prices have settled in the $45-55 range, the energy sector has begun to rebound and is contributing to investment growth in the industrial sector.

As a result of these trends, 2017 is shaping up to be better year for the equipment finance industry. Real equipment and software investment growth came in at annualized rates of 4.5% and 8.3% in the first and second quarters of 2017, providing a solid jump-off point for annual investment growth. This investment rebound is reflected in the industry's new business volume readings; according to ELFA's Monthly Leasing and Financing Index, cumulative new business volume in August stands 5.5% above its level from a year ago.

A Major Downturn for Oil-Linked Verticals

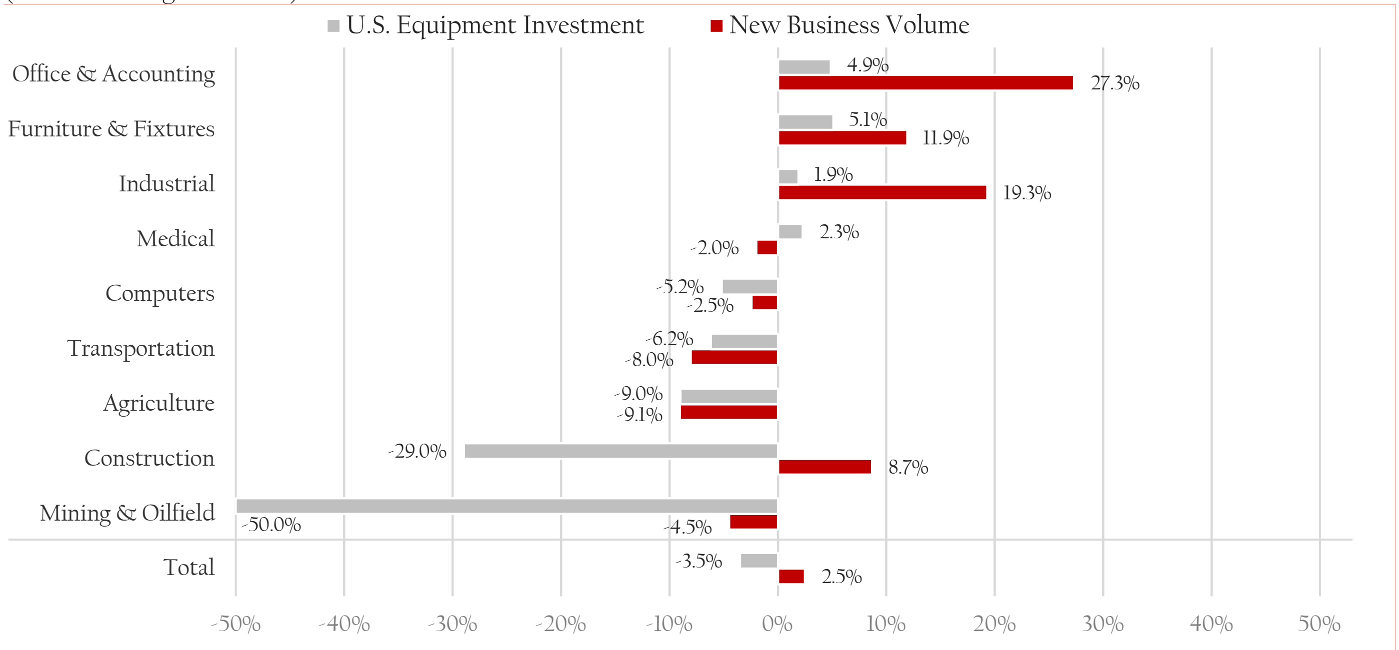
Few equipment verticals had an exceptionally strong 2016. Of the 12 verticals tracked by Keybridge, Software was the strongest performer, expanding 7%. At the same time, several equipment verticals contracted significantly, including Mining & Oilfield (-55%), Railroad (-40%), Construction (-23%), Aircraft (-19%), and Agriculture (-9%). Overall, investment grew modestly to moderately for five equipment verticals, but contracted modestly to severely for seven verticals. Several factors drove these declines, but the most significant was a widespread commodity price drop, affecting oil especially but also other energy sources and the agricultural sector. A moderate recovery in energy and commodity prices that began in mid-2016 and continued over the past year has allowed for improved growth as of September 2017. Year-over-year growth is positive for eight out of 12 verticals, with no major declines for any vertical and solid growth in certain verticals that fared poorly in 2016. According to investment data for the second quarter, the fastest-growing verticals are Mining & Oilfield (+51% annualized growth), Computers (+44% annualized), Construction (+27% annualized), and Agriculture (+19% annualized). This improvement should continue through the rest of the year.

Strong Propensity to Finance

Despite weak equipment and software investment growth in 2016, the investments that occurred were generally more likely to be financed than in previous years. For example, new business volume growth outpaced overall investment growth for Office & Accounting Equipment, Furniture and Fixtures, Industrial Equipment, Computers, Construction, and Mining & Oilfield Equipment. While the propensity to finance was lower for Transportation Equipment and Medical Equipment, a strong propensity to finance overall helped keep new business volume growth afloat despite exceptionally weak business investment. This outcome was driven in part by low interest rates, as well as by a growing preference among equipment end-users for the increased flexibility made possible by leasing or financing equipment rather than purchasing it outright.

Equipment Finance Penetration

(2016 nominal growth rate)



Source: 2017 ELFA Survey of Equipment Finance Activity (red bars), Bureau of Economic Analysis (gray bars)

Independents Led Growth, Small-Ticket Segment Sluggish

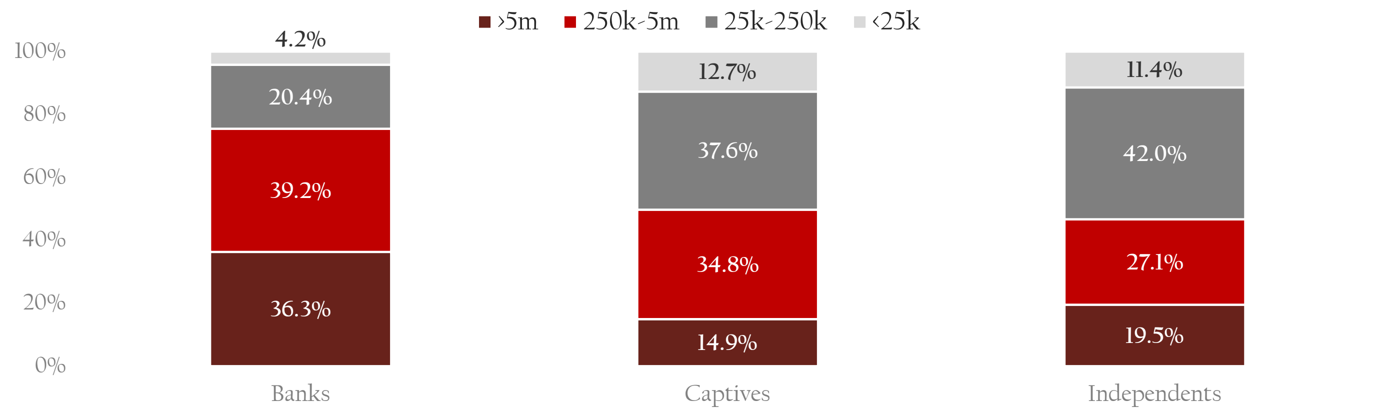
In a year marked by heightened uncertainty, Independents grew their businesses more successfully than other organization types in part because of their ability to provide flexible deal structures and enhanced customer service, as well as their capacity to shift resources away from struggling sectors and into faster-growing markets. Conversely, for Captives, which are tied to the equipment types and end-user markets of their parent companies, 2016 was a difficult year. Independents' new business volume grew by an impressive 12% compared to 2015, while Captives' new business volume contracted 5.9% and Banks held their own with a 5.0% growth rate. These performances allowed Banks and Independents to capture market share from Captives. Banks' share of new business volume grew from 67.3% to 68.9% and Independents' from 5.9% to 6.5%, while that of Captives fell from 26.8% to 24.6%.

In contrast to previous years, new business volume growth for the middle-ticket segment was much stronger than for the small- and large-ticket segments. Middle-ticket new business volume grew 5.2% compared to 2015 levels, while small-ticket new business volume inched up by 0.8% and large-ticket new business volume contracted 1.8%. These trends accentuated the middle-ticket segment's dominance as a supplier of growth opportunities: at 51%, the middle-ticket segment makes up a majority of the industry's new business volume, compared to 30% for the small-ticket segment and 19% for the large-ticket segment.

Although the small-ticket segment has driven industry growth in recent years, it was essentially flat in 2016. This sluggishness reflects flagging confidence among small businesses last year, as revealed by several measures. For example, the PayNet Small Business Lending Index ("SBLI") and the National Federation of Independent Business ("NFIB") Small Business Optimism Index declined in 2016. However, both measures have improved markedly in 2017: while the SBLI has inched up modestly throughout the first half the year, the NFIB Index surged after the election and has largely maintained its post-election highs. Similarly, the Wells Fargo/Gallup Small Business Index has notably improved, averaging over 30 points higher in 2017 compared to 2016. Renewed small business confidence could mean the small-ticket segment will rebound in 2017.

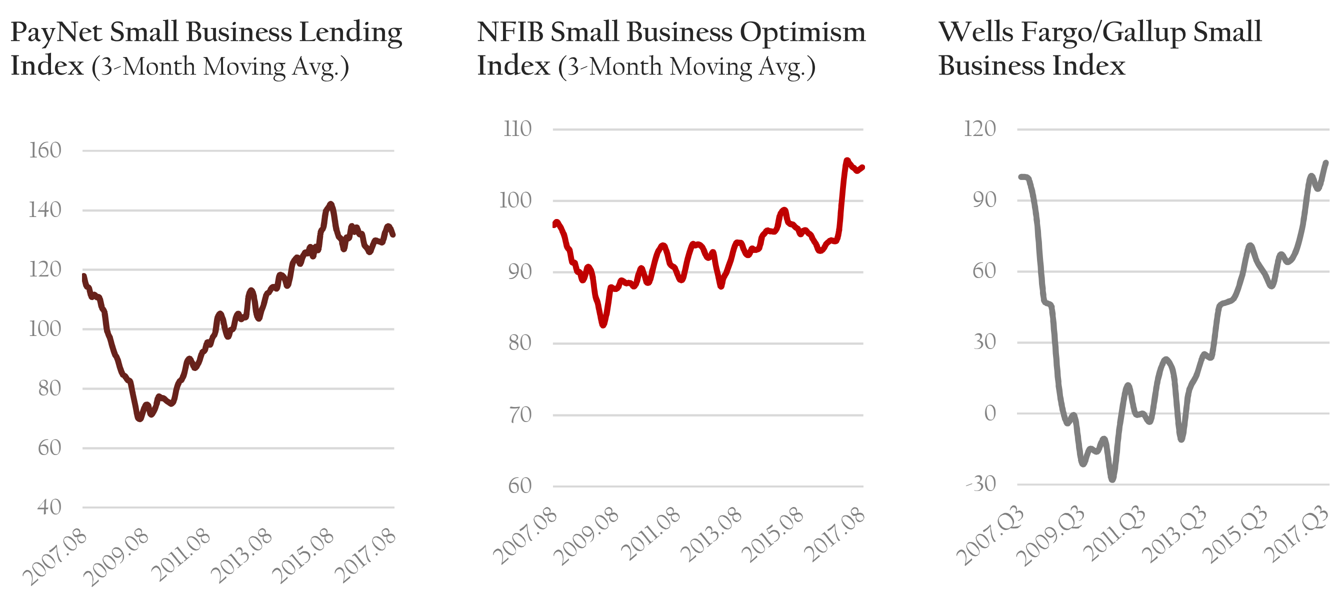
Share of Portfolio by Transaction Size

(percent of total portfolio)



Source: 2017 ELFA Survey of Equipment Finance Activity

Small Business Dashboard



Sources: Macrobond Financial, PayNet, Inc.

Fast Growth in Utilities, Telecom, Government

Among end-user industries, 2016 was a year of contrasts. New business volume growth was strong in some sectors, including Utilities (+55.6%), Printing & Publishing (+20.3%), Telecommunications (+19.0%), and Government (+18.4%). Conversely, other sectors experienced double-digit declines, including Mining, Oil Extraction, & Pipelines (-51.2%), Finance, Insurance & Real Estate (-12.2%), and Transportation (-10.9%).

Among end-user sectors, some of the strongest growth occurred in smaller markets. The three fastest-growing end-user segments (Telecommunications, Utilities, and Printing & Publishing) comprise less than 10% of the overall industry, and growth has been strong in these segments for the past several years. Conversely, two of the largest end-user segments (Agriculture at 11.7%, and Industrial Manufacturing at 12.4%) collectively account for nearly a quarter of the industry, but struggled in 2016: Industrial Manufacturing grew just 2.2% over the previous year, while Agriculture fell 7.9%. Falling oil prices also caused a big drop in new business volume in several other end-user segments, including Mining, Oil Extraction, & Pipelines and Railroad Transportation.

Growth Attribution

The charts on the following two pages show the top five end-users (by share of new business volume) for each organization type (Banks, Captives, Independents) and 2016 new business volume growth for each of those end-users, as well as each organization type's top five equipment types and their 2016 new business volume growth.

Both Banks and Independents experienced the biggest increase in new business volume in the Services sector; as Services comprised 27% of Banks' growth and 37% of Independents' in 2016. Transportation is also a top-five end-user segment for Banks and Independents, although its share among Independents has fallen nine percentage points since 2014, when it was the top end-user market for new business volume. Meanwhile, 42% of new business volume growth for Captives was in agriculture, even while overall new business volume in agriculture fell 7.9%. Captives' dominance in agriculture reflects the manufacturing focus of parent companies and also explains much of the decline in new business volume for Captives in 2016.

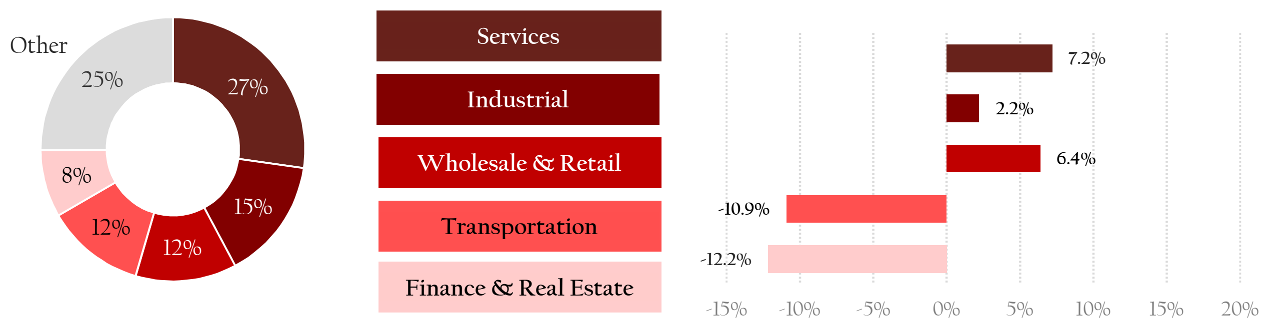
By equipment type, new business volume largely matched trends seen in end-user industries. Renewable Energy (+64.9%), Telecommunications (+37.8%), Energy, Environmental Controls & Electrical Devices (+37.0%), and Office Machines (+27.3%) exhibited the fastest growth in 2016, while Printing (-20.8%) and Agricultural (-9.1%) experienced the steepest drops. Renewable Energy experienced a rebound in new business volume after two years of noticeable decline, indicating a shift toward clean energy alternatives as the oil extraction suffered from low oil prices.

Growth Attribution by End-User

Banks

percent of new business volume

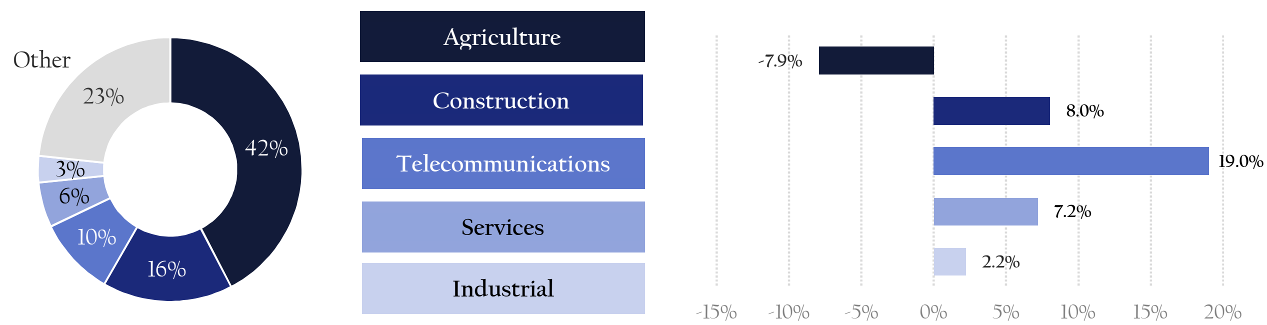
year-on-year new business volume growth



Captives

percent of new business volume

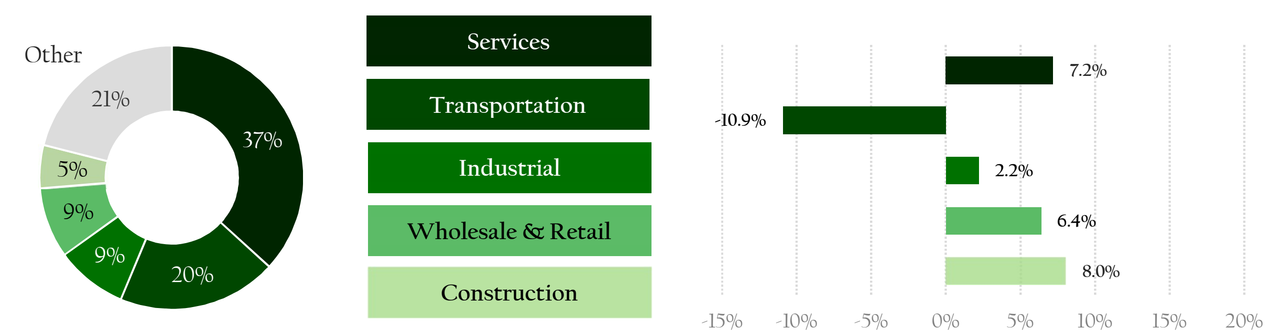
year-on-year new business volume growth



Independents

percent of new business volume

year-on-year new business volume growth



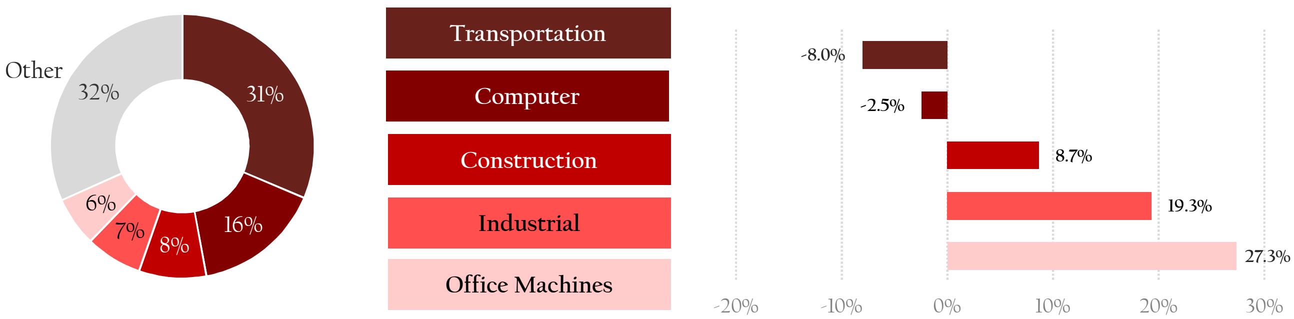
Source: 2017 ELFA Survey of Equipment Finance Activity, Keybridge LLC
Note: Due to rounding, percentages may not sum to 100%.

Growth Attribution by Equipment Type

Banks

percent of new business volume

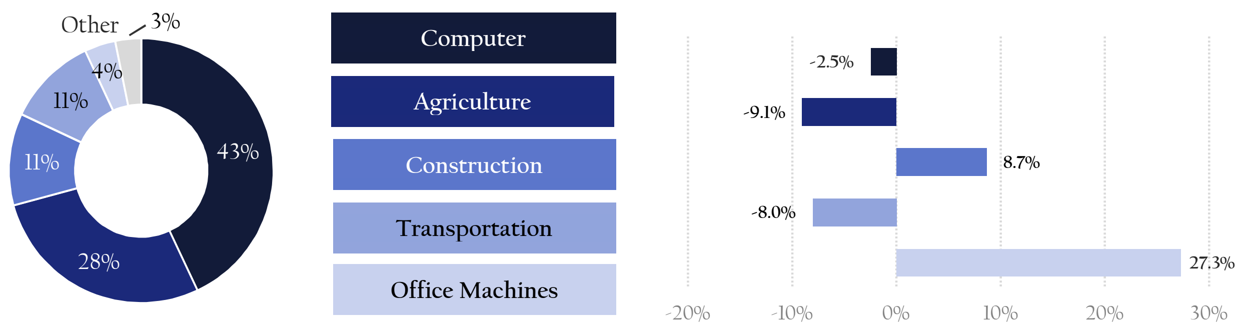
year-on-year new business volume growth



Captives

percent of new business volume

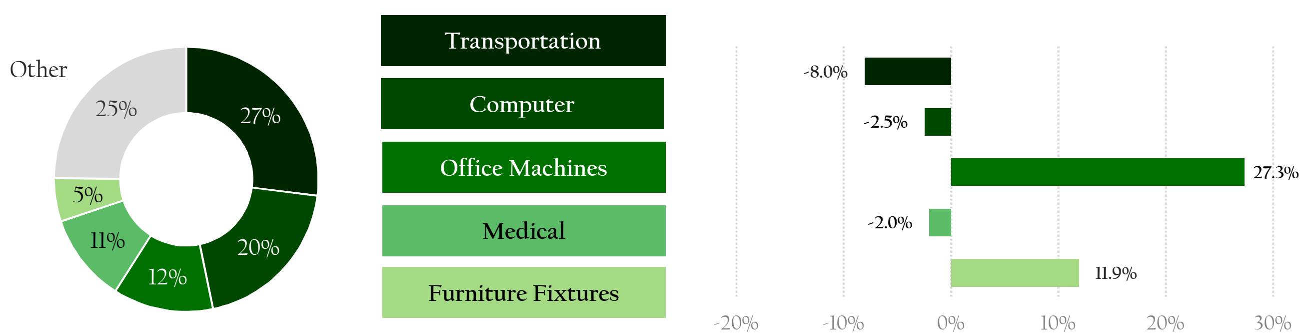
year-on-year new business volume growth



Independents

percent of new business volume

year-on-year new business volume growth



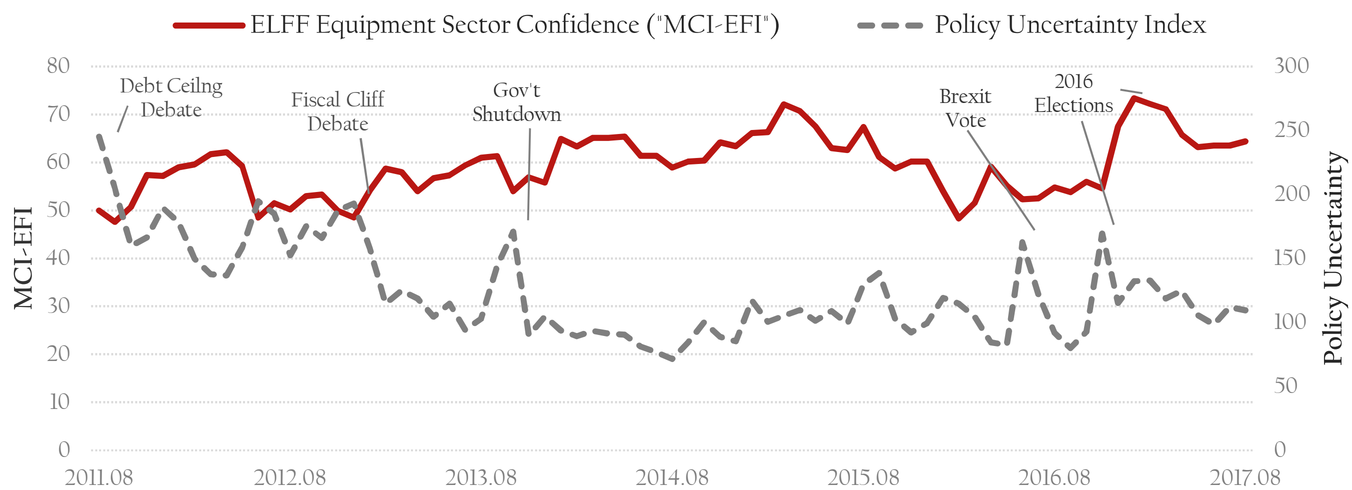
Source: 2017 ELFA Survey of Equipment Finance Activity, Keybridge LLC
Note: Due to rounding, percentages may not sum to 100%.

Despite Policy Uncertainty, Confidence Jumps to Record Highs

Policy uncertainty and confidence are typically inversely related, and the past year has largely followed this trend. The chart below shows the Economic Policy Uncertainty Index overlaid on the Foundation's Monthly Confidence Index for the Equipment Finance Industry ("MCI-EFI"). Uncertainty was elevated after the Brexit vote and during the runup to the U.S. elections due to confusion about the future direction of the domestic and global economies. Meanwhile, equipment sector confidence was low throughout 2016 (but was generally stable after the Brexit vote). Policy uncertainty spiked before the Presidential election, but quickly fell in December and has declined further in 2017. Meanwhile, industry confidence soared following the election and remains well above year-ago levels (though it has moderated from its early 2017 peak). While the elections were expected to bring greater clarity to the direction of U.S. policy, divisions in Congress — both between and within each party — have led to few legislative accomplishments and caused many experts to question whether certain beneficial policy initiatives once thought to be near-certainties (e.g., tax reform and infrastructure spending) will come to fruition.

Policy Uncertainty and Industry Confidence

(index values)



Source: ELFF, Macrobond Financial

Yield & Funding

In 2016, the weighted-average cost of funds rose by a modest 6 basis points. Weighted-average pre-tax yields ticked up 4 basis points, despite increased industry competition and softer new business volume growth. The end result was a slight dip in spreads.

Looking forward, the upward trajectory in the cost of funds is likely to increase, driven in part by Fed rate hikes (although according to several industry experts, the industry has yet to feel a major effect of tighter monetary policy). The Federal Reserve has raised its benchmark interest rate three times in the last year and recently commenced a multi-year effort to shrink its balance sheet.

Higher interest rates will raise the cost of funds, but may also help to widen margins provided that future hikes are gradual. Meanwhile, renewed business confidence should lead to increased business investment and stronger new business volume growth, which may put additional upward pressure on both yields and spreads in 2017.

Percent	Industry	Banks	Captives	Independents
Weighted-Average Cost of Funds	1.62%	1.46%	1.80%	2.86%
Weighted-Average Pre-Tax Yield	4.16%	3.92%	3.83%	7.97%
Weighted-Average Pre-Tax Spread	2.54%	2.46%	2.03%	5.10%
Median Cost of Funds	1.83%	1.54%	2.29%	3.65%
Median Pre-Tax Yield	5.27%	4.03%	5.40%	8.21%
Median Pre-Tax Spread	3.11%	2.63%	3.19%	4.83%

Source: 2017 ELFA Survey of Equipment Finance Activity

The cost of funds rose slightly in 2016, driven mainly by rises in the weighted-average cost of funds for Independents and Captives, while Banks' weighted-average cost of funds was virtually unchanged. Weighted-average pre-tax yields fell for the industry overall, despite rising significantly for Independents. Weighted-average pre-tax spreads compressed as a result, continuing a general trend over the past several years.

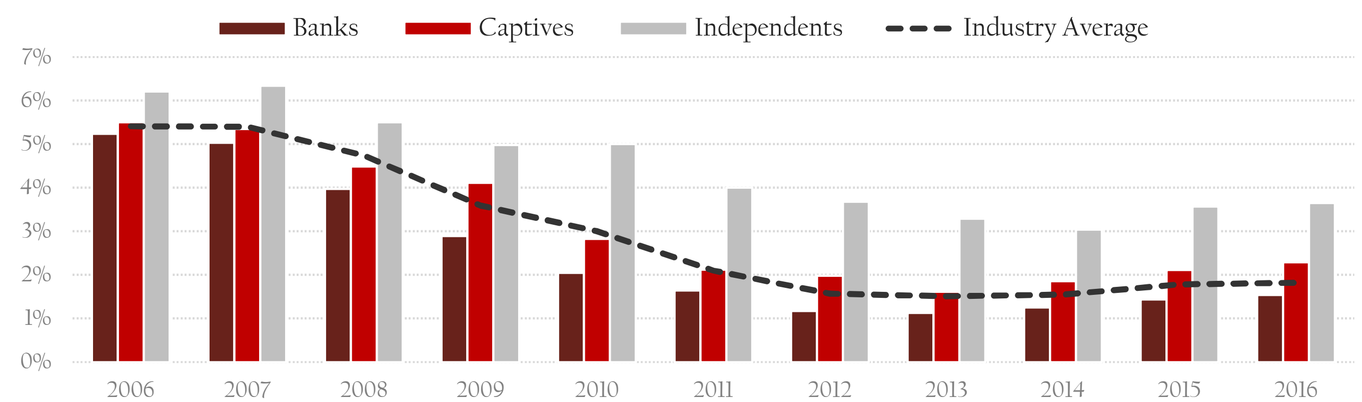
Cost of Funds Rises

In 2016, the cost of funds for the industry rose for the third year in a row, after several years of significant decline. However, at 1.83%, the median cost of funds remains at historically low levels, largely due to the continued low interest rate environment. Banks maintained their cost of funds advantage over Captives and Independents, but in a reversal from the previous two years, the difference in weighted average cost of funds between Banks and Independents rose. The industry-wide increase in the cost of funds was driven mostly by the increase in the weighted-average cost of funds for Independents (+29 basis points) and to a lesser extent Captives (+12 basis points), while the weighted-average cost of funds for Banks was mostly unchanged (+1 basis point).

Two years ago, many in the industry remarked that Independents were making notable competitive gains on Banks and Captives. The latest data suggest that this trend appears to have eased somewhat. However, industry experts continue to emphasize that Independents can earn higher yields and achieve a competitive edge by offering more services and flexibility to customers to compensate for their higher cost of funds (particularly for small-ticket deals).

Median Cost of Funds

(percent)



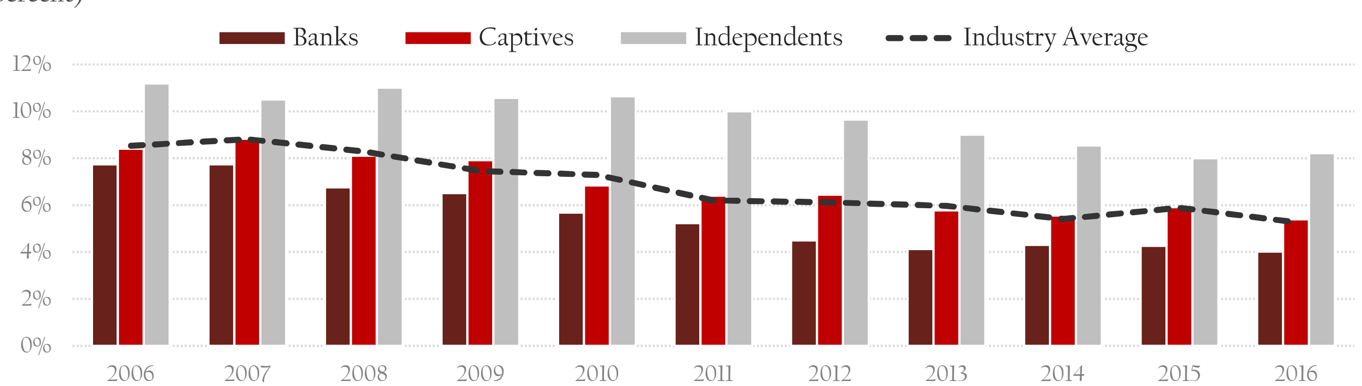
Source: 2010 - 2017 ELFA Surveys of Equipment Finance Activity

Yields Fall for Industry, Rise for Independents

A hyper-competitive environment drove the median pre-tax yield downward to 5.27% in 2016 (down from 5.81% in 2015), its lowest rate in over a decade. Independents, which consistently earn higher yields than Banks and Captives, saw their weighted-average yield rise 21 basis points to 8.21%, Banks' fell 24 basis points to 4.03% and Captives' dropped 52 basis points to 5.40%. Independents have continued to compete by concentrating in niche areas of the market, often in the small-ticket segment, where risk and yields are higher.

Median Pre-Tax Yield

(percent)

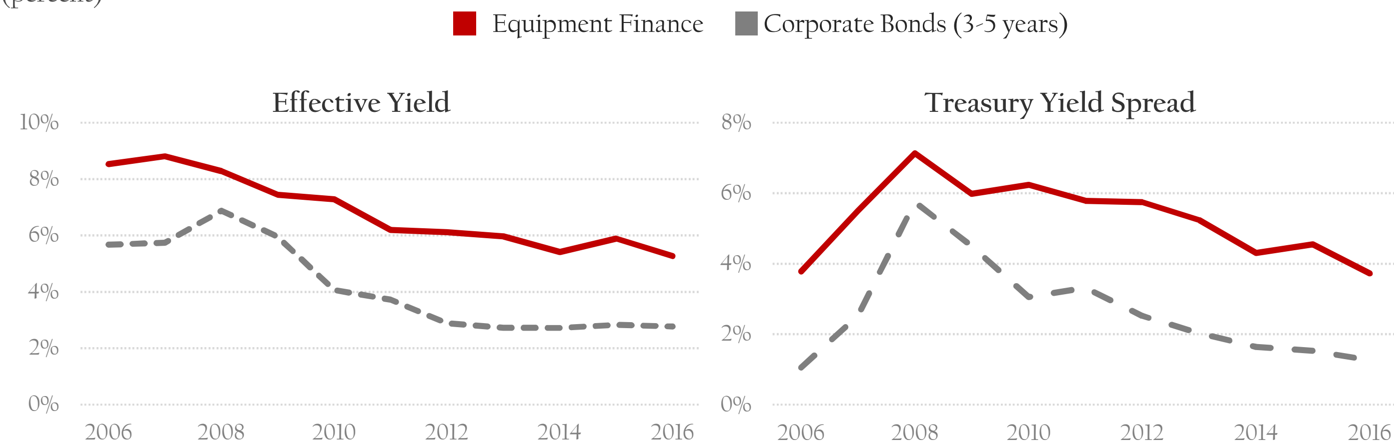


Source: 2010 - 2017 ELFA Surveys of Equipment Finance Activity

Equipment finance yields continue to exceed corporate debt yields, despite declines for both in recent years. In 2016, the effective median pre-tax yield in equipment finance stood at 5.27%, compared to 2.77% for corporate bonds (3–5 years). However, the gap between yields was notably lower in 2016 (2.50 percentage points) compared to 2015 (3.06 pp). Likewise, the spread on equipment finance compared to 3-year Treasuries, at 3.72%, exceeds that of corporate bonds, at 1.26%.

Yield & Spread Comparison

(percent)



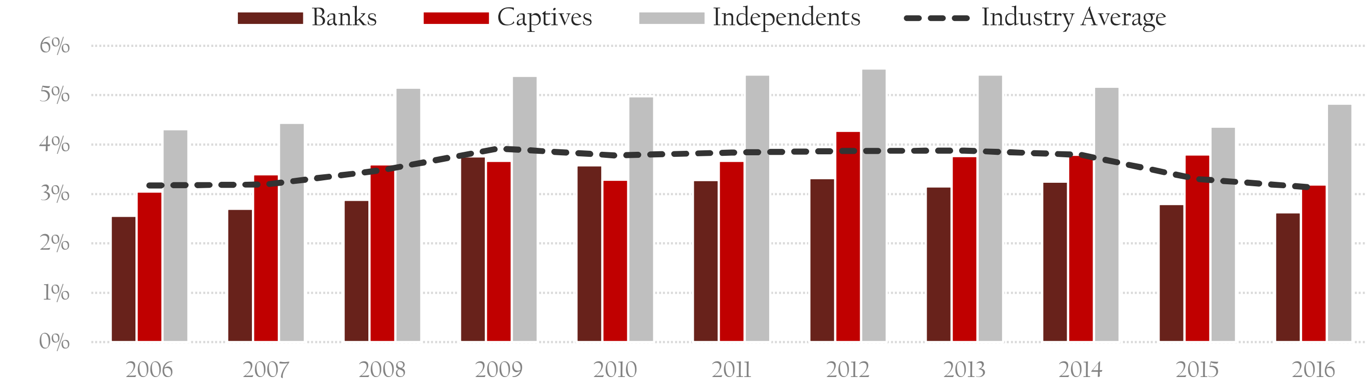
Source: 2011 – 2017 ELFA Surveys of Equipment Finance Activity, St. Louis Federal Reserve, Macrobond Financial, Keybridge LLC

Spreads Compress, Including Small-Ticket

Continuing an ongoing trend, spreads compressed further in 2016, though by a small amount. The industry's median pre-tax spread dipped slightly (3.11%, down from 3.21% in 2015), while the weighted average pre-tax spread was roughly flat (2.54%). Independents' median pre-tax spread rose further in 2016, from 4.36% to 4.83% (mostly driven by higher yields), while pre-tax spreads for Banks and Captives fell. Independents continued to have significantly higher spreads than Banks and Captives, leading to bigger yields that more than offset their higher cost of funds. This development is somewhat surprising given Independents' reliance on the small-ticket segment: small-ticket spreads declined notably in 2016 (by 18 basis points), driven by both a significant decline in the median pre-tax yield and a rise in the median cost of funds. Although spreads typically show an inverse relationship with ticket size, in 2016 the median pre-tax spread was higher for the large-ticket segment (3.35%) than for the medium ticket segment (2.37%).

Median Pre-Tax Spread

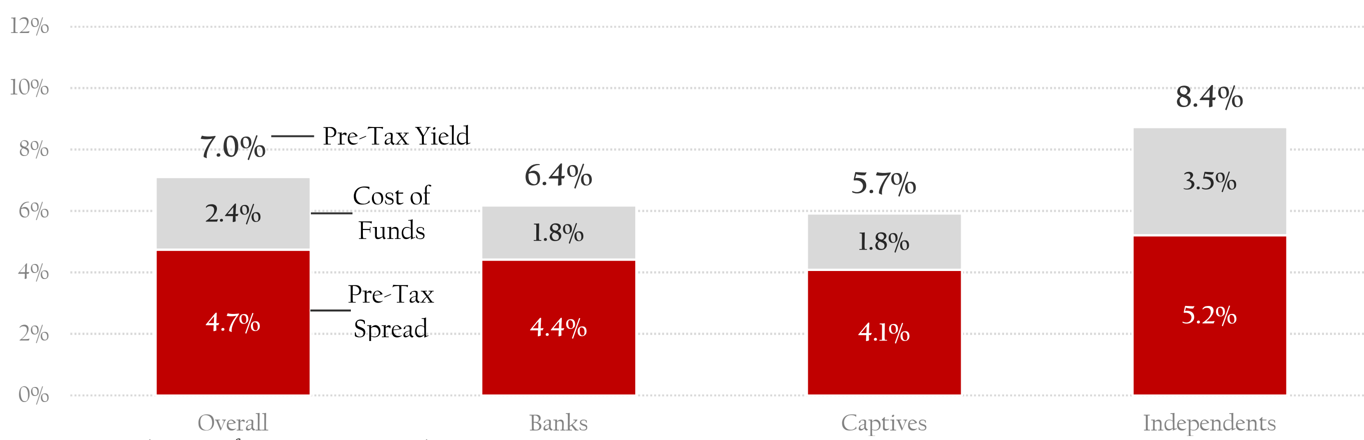
(percent)



Source: 2010 - 2017 ELFA Surveys of Equipment Finance Activity

Small-Ticket Equipment Finance Yield & Funding

(median; percent)



Source: 2017 ELFA Survey of Equipment Finance Activity

Note: Due to rounding, Pre-Tax Yield minus the Cost of Funds may not precisely equal Pre-Tax Spread.

Portfolio Performance

Delinquencies, non-accruals, and charge-off averages inched up slowly in 2016. Banks experienced stronger portfolio performance than both Captives and Independents in 2016, in line with the strategies dictated by their respective business models. Although the large-ticket segment saw a notable rise in delinquencies, charge-offs remain low. Several end-user industries — including Mining / Oil & Gas Extraction, Railroad Transportation, and Agriculture — experienced high delinquencies and low growth in 2016, a hangover from the oil price drop. Meanwhile, end-users in the Transportation and Services sectors pose opportunities for strong growth and below-average risk. Portfolio performance should gradually weaken going forward as its natural cycle progresses: continued economic expansion, a prevailing low interest rate environment, and heightened industry competition are likely to encourage lessors to loosen credit standards. Few in the industry appear concerned about rapidly declining credit quality in the short term, as new regulations and conservative lending behavior since the financial crisis have kept a cap on risk appetite within the industry.

Percent (weighted average)	Industry	Banks	Captives	Independents
Delinquent Portfolio Over 30 Days	1.8%	1.0%	5.9%	1.6%
Non-accrual Assets as a Percentage of Receivables and Non-accrual Assets	0.6%	0.6%	0.7%	0.5%
Net Full-Year Loss (Charge-off) as a Percentage of Full-Year Average Receivables	0.29%	0.24%	0.40%	0.76%

Source: 2017 ELFA Survey of Equipment Finance Activity

Portfolio performance for the equipment finance industry slipped in 2016, but remains in a healthy range that should be considered normal for this stage of the business cycle. Delinquencies and charge-offs for all C&I loans are notably higher now than they were two to three years ago, but there is some evidence that portfolio performance has flatlined or even improved over the past year. For example, the C&I loan delinquency rate stood at 1.35% in Q2 2017, (compared to 1.60% in Q2 2016) while the lease delinquency rate as of Q2 2017 (0.98%) is three basis points below year-ago levels. Overall, while portfolio performance has worsened from historically strong levels in 2014 and 2015, there is little evidence of a serious deterioration, and few in the industry have expressed concern about risky deal structures.

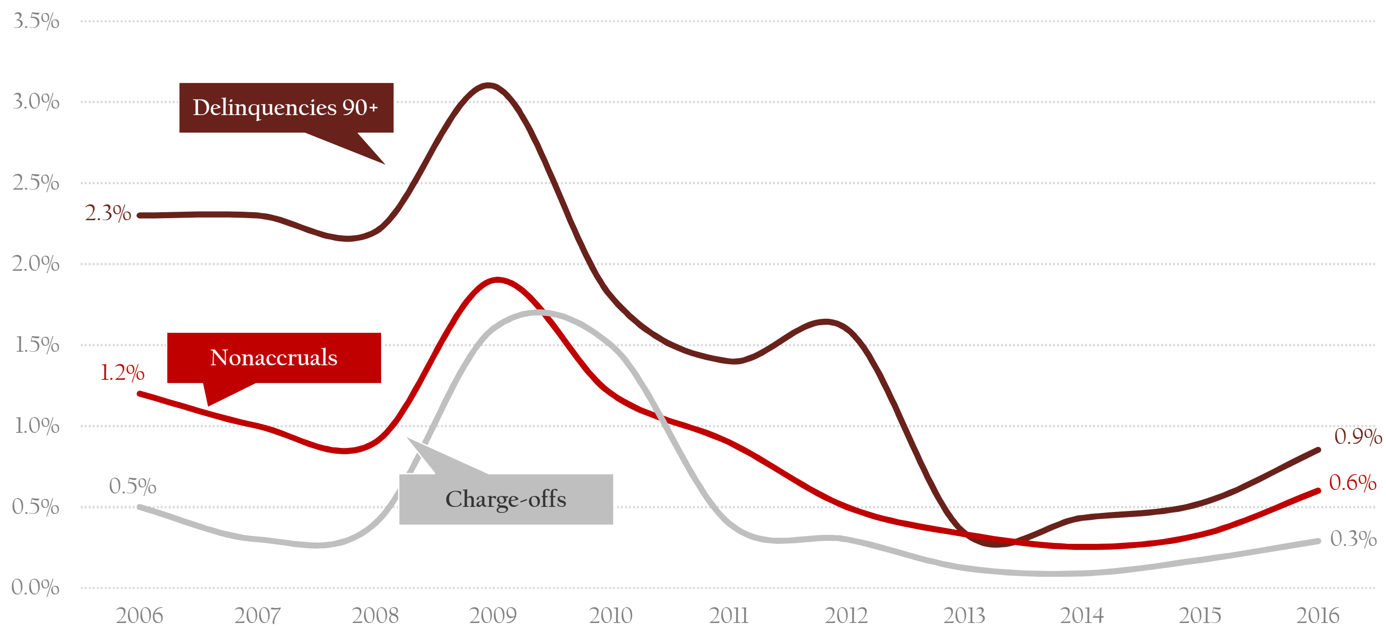
An Extended Portfolio Performance Cycle

As described in the Foundation's *Applied Economics Handbook*, portfolio performance tends to follow a cycle similar (but inverse) to the overall business cycle, with roughly 8-11 years between peaks in delinquencies and charge-offs. Although eight years have passed since the last peak in portfolio weakness in mid-2009, there is little evidence of an imminent deterioration in portfolio strength. In the August 2017 MLFI-25 survey, average losses (charge-offs) as a percentage of net receivables stood at 0.44% — the same rate as a year ago. Similarly, the aging of receivables over 30 days, at 1.5%, has trended up slightly for the past 18 months, but remains relatively low by historical standards. PayNet's Small

Business Delinquency Indices (SBDI) for both 31-90 and 91-180 days past due are each on a steady but slow upward trend, after bottoming out in October 2013 and October 2015, respectively.

Equipment Finance Industry Portfolio Quality

(weighted-average percent)



Source: 2007 – 2017 ELFA Surveys of Equipment Finance Activity

These figures are evidence that the portfolio performance cycle – as measured by indicators like delinquencies, charge-offs, and non-accruals – is currently on an upward path (i.e., worsening), since delinquencies and charge-offs already bottomed out about two years ago. However, portfolios are not likely to experience an imminent downturn. As the *Applied Economics Handbook* explains in more detail, a sudden drop in portfolio strength is usually driven either by an economic downturn, or a notable increase in risky lending behavior. A drawn-out portfolio performance cycle, like the one currently occurring, is consistent with an environment in which (1) economic growth is steady but modest, with little chance of the economy overheating; and (2) lenders avoid risky behavior. Both conditions appear to be present. While not robust by historical standards, GDP growth is expected to be within a moderate 2-2.5% range this year, while inflation remains at a steady 2% level. Meanwhile, credit risk has not increased substantially over the past 1-2 years, in part due to continued caution among lenders since the Great Recession. Several industry executives noted that new regulations implemented since the financial crisis (e.g., the “know your customer” requirement) have slowed lending, particularly among larger entities. However, these regulations may have reduced high-yield, high-risk lending behavior, and portfolio quality has remained strong. As a result, while portfolio performance is likely to worsen in the coming years, a long period of slow and steady decline points to an extended portfolio performance cycle, with only marginal risk of financial stress within the next 12 months.

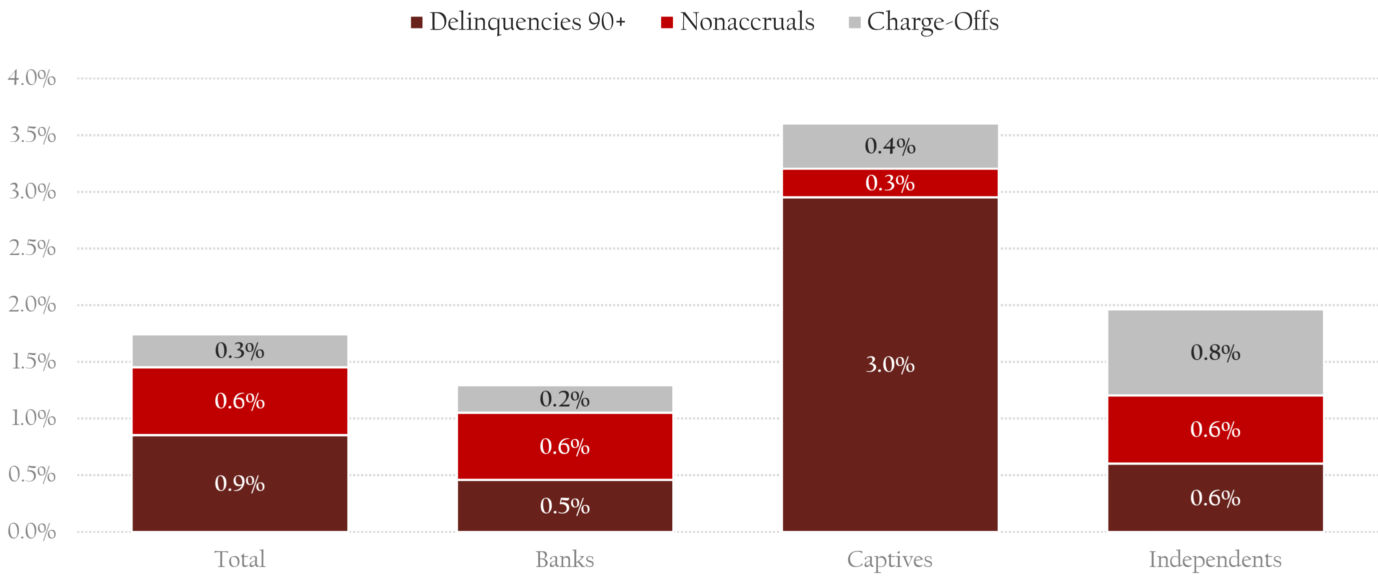
Banks Continue to Lead in Portfolio Performance

Typically, banks specialize in lower-risk areas of the equipment finance market, while independents and captives find their niche among a higher-risk, higher-yield customer base. This state of affairs held again in 2016. At 1.0%, banks 30+

day delinquencies were lower than that of independents (1.6%) and captives (5.9%). Likewise, charge-offs for banks (0.2%) were roughly half that of captives (0.4%) and a quarter that of independents (0.8%).

Portfolio Quality by Type of Organization

(weighted-average percent)



Source: 2017 ELFA Survey of Equipment Finance Activity

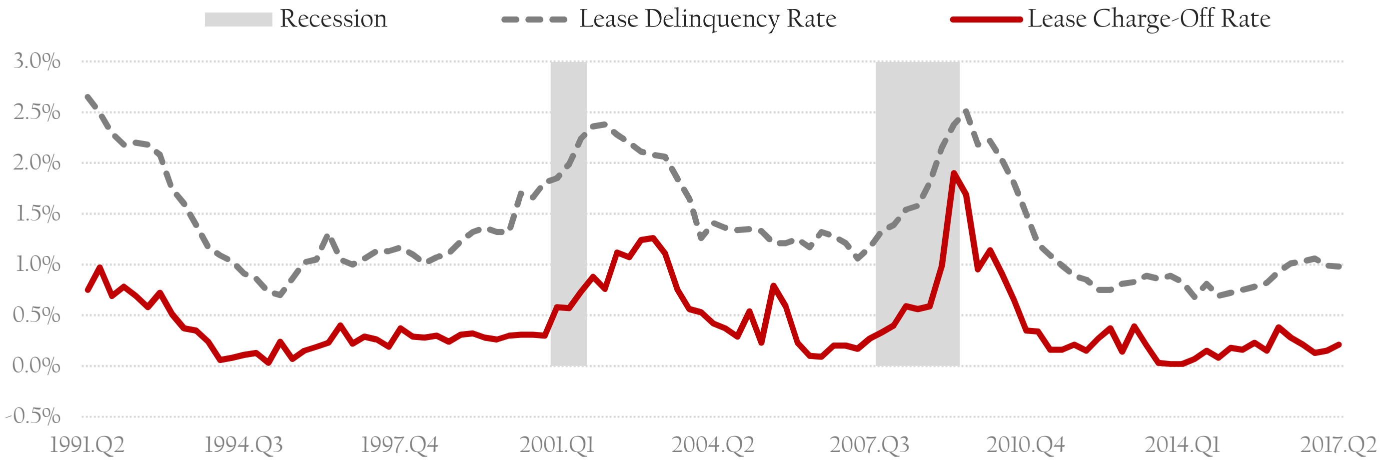
This variation is driven mostly by fundamental differences between business models. Banks, which in many cases are large enough to take advantage of economies of scale, tend to compete more heavily on price and often offer lower interest rates in exchange for less credit risk. Banks are also subject to stricter regulation than other organization types, driving more focus on credit quality. In contrast, Independents are more likely to compete by moving into niche areas of the market, which may entail engaging in higher-risk deal structures. As compensation for additional risk, they may demand a higher rate of return. Meanwhile, Captives operate in specific markets associated with their parent company. In 2016, Captives posted weaker portfolio performance on average, in part because they are more likely to lease to sectors (agriculture, industry, mining) that have struggled over the past two years. Another factor driving weaker portfolios for Captives is their higher risk tolerance, which is due to their ability to offset losses on lease transactions with increased equipment sales accruing to their parent company.

Delinquencies and Charge-Offs Tick Up Across Market Segments

In 2016, delinquency and charge-off rates increased across all market segments. Delinquencies rose from 1.9% to 2.3% for the small-ticket segment, from 0.8% to 1.0% for the middle-ticket segment, and from 2.5% to 3.1% for the large-ticket segment — all within a normal range for this period of the portfolio performance cycle. Charge-offs have ticked up in a similar fashion, with small-ticket charge-offs rising from 0.48% to 0.54%, middle-ticket charge-offs from 0.07% to 0.26%, and large-ticket charge-offs from 0.03% to 0.07%. Although the large-ticket segment now possesses the highest delinquency rate, charge-offs for that segment remain very low.

Lease Delinquencies and Charge-offs for all U.S. Commercial Banks

(annualized percent rate)



Source: Macrobond Financial

High Delinquencies in Energy, Rail, and Industrial Sectors

At 7.0%, 30-day delinquencies in the Mining / Oil & Gas Extraction sector are the highest among end-users in 2016. Although rig counts have increased steadily over the past year, oil prices have settled in the $45-55 range, and some in the industry point to an emerging turnaround, it is clear that the hangover from the oil price collapse of 2014-2015 continues to weigh on the energy sector and related industries. For example, Transportation – Railroad has the second-highest 30-day delinquency rate (4.1%) largely due to its dependence on energy transport. Some sectors in the industrial space are likewise still in a slump, including Wood, Paper, Chemical & Plastic Manufacturing (2.7%) and Metal & Machinery Manufacturing (1.8%). While these sectors have struggled to bounce back, the mining and energy sectors have shown signs of steady growth in 2017, meaning that portfolio strength is likely to strengthen for the above sectors in 2017 and 2018.

Agriculture, Forestry, and Fishing, with 30-day delinquencies at 3.4%, continues to sit in an extended slump that arrived at the end of the so-called "supercycle" about 18 months ago, when agricultural commodity prices were pulled down as new suppliers came onto the market and as commodity prices fell more broadly. As a result, the agricultural sector has struggled to finance investments made during the earlier high-price environment. Meanwhile, delinquencies remain low across most sectors in the Transportation and Services spaces, as would be expected given the strong growth in these industries over the past year.

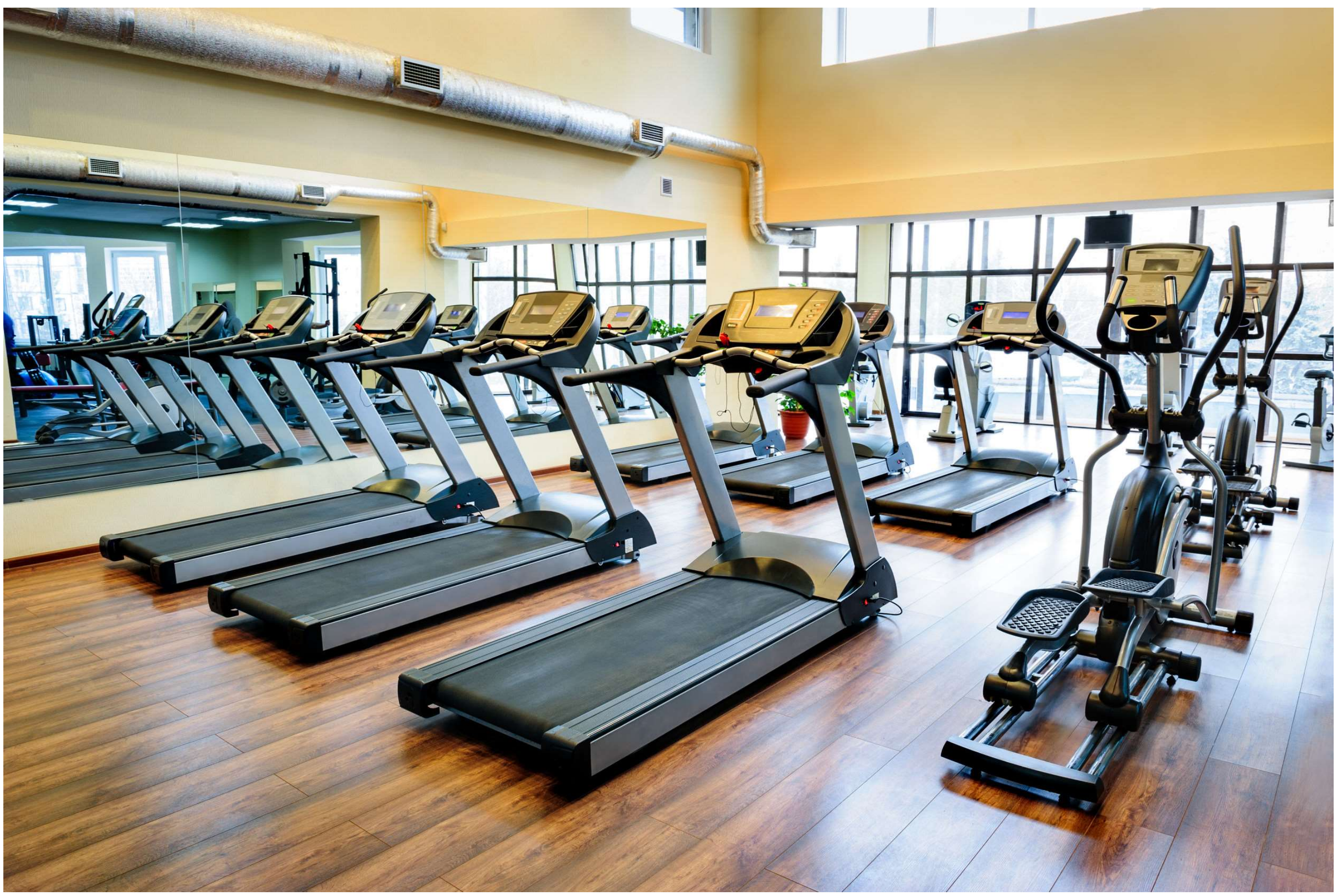
Insights on Risk & Growth

By evaluating delinquency rates in conjunction with growth in new business volumes, equipment lessors and financers can target the most attractive industries in which to expand their portfolios. Differentiation among industries is a crucial focal point for businesses that seek to increase their business volume in markets where they currently play, or to penetrate new markets. End-user industries span a wide range in terms of growth and risk, and equipment lessors can take advantage of this variation by focusing their efforts on industries where there is high business volume growth coupled with low delinquency rates.

The figure below plots the year-over-year change in new business volume and delinquency rates by end-user industry. The matrix offers insight into the movement of industries over the past year and can be instructive for equipment asset allocation and business expansion efforts. Industries in the top left quadrant of the matrix (shaded in gray) were both fast-growing and high-performing in 2016. This group includes Utilities, Bus Transportation, Air Transportation, Telecommunications, Federal Government, State & Local Government, Educational Services, and Wholesale and Retail Trade. Industries in the lower right quadrant (also shaded in gray) exhibited slower-than-average growth and high delinquencies. This group included Mining / Oil & Gas Extraction; Railroad Transportation; Agriculture, Forestry, & Fishing; and Metal & Machinery Manufacturing.

A Solid Outlook for Portfolio Performance

Despite a steady decrease in portfolio performance, there is little indication of a broad deterioration in credit quality or a major upsurge in risky deal structures. This portfolio performance cycle has progressed slowly even despite increased industry competition, the ongoing economic expansion, and high industry confidence — an indication that the financial crisis remains within the rearview mirror. Industry experts stressed that their businesses continue to focus on high credit quality, due to a combination of tighter regulation on high-risk behavior and a desire to run their businesses conservatively. Although the continued business cycle expansion and increasing industry competition are likely to drive a continued rise in delinquencies, the outlook for portfolio performance over the next year is solid, and a major disruption of this picture is unlikely.



Risk-Growth Analysis by End-User Industry

1. Pipelines
2. Utilities
3. Transportation – Bus, Transit
4. Transportation – Air
5. Finance, Insurance, Real Estate
6. Telecommunications
7. Government – State & Local
8. Services – Educational
9. Truck Transportation
10. Transportation – Water
11. Wholesale / Retail
12. Services – Arts, Entertainment & Rec.
13. Industrial- Other
14. Services – Accommodation / Food
15. Services – Health
16. Services – Other
17. Services – Transportation
18. Government – Federal
19. Construction
20. Industrial – Metal & Machinery
21. Printing, Publishing
22. Industrial – Wood, Paper, Chem. & Plastic
23. Agriculture, Forestry, Fishing
24. Transportation – Railroad
25. Mining / Oil & Gas Extraction

Source: 2017 ELFA Survey of Equipment Finance Activity

Business Operations

Equipment lessors' efficiency and productivity declined in 2016, but other indicators suggest that companies are taking advantage of emerging opportunities to streamline and improve their business operations. Applications booked/funded as a percentage of approved and new business volume per sales FTE both fell; however, industry employment surged and industry leaders are mostly optimistic about expanding their operations. Many industry leaders described efforts to incorporate new financial and software technologies into their businesses, which is a trend that is likely to continue.

Thousands of Dollars or Percent	Industry	Banks	Captives	Independents
Booked & Funded/Sold as a Percent of Approved (based on $ amount)	63.6%	63.2%	66.1%	59.7%
Residual or Salvage Position as a Percent of Original Equipment Cost	28.3%	22.6%	45.6%	18.3%
Percentage of Full-Time Equivalents (FTE) in Sales/Origination	25.3%	26.0%	19.3%	31.5%
New Business Volume per Sales Full-Time Equivalent	$22,192	$25,502	$25,097	$7,841
Sales, Gen & Admin Expense per FTE	$208	$226	$181	$172

Source: 2017 ELFA Survey of Equipment Finance Activity

Although business operations in 2016 were not drastically different from previous years, a few notable changes emerged. Industry employment improved, and all signs point to a continuation of that trend in 2017. Credit approval ratios did not diverge markedly from recent years, but do reveal a new emphasis on favoring larger deals over smaller ones. Overall, efficiency and productivity measures dipped slightly according to SEFA data, despite industry-wide efforts to improve the speed of business operations as a way of gaining a competitive edge. Some of this decline could be related to increased employment, as efficiency often declines temporarily when companies onboard new staff. However, some indicators of efficiency did improve, suggesting that the industry's growing reliance on automation and new financial technology applications to speed up their business operations may be taking hold.

Credit Approvals Reveal Emphasis on Larger Deals

In 2016, the industry-wide approval rate (based on dollar amount) rose from 66.7% to 70.3%, reversing a declining trend over the previous two years. This effect was mainly driven by a significant increase in approval rates for Banks, which jumped from 64.4% in 2015 to 70.9% in 2016, as well as a small uptick in approvals for Independents (58.6% to 59.4%). Meanwhile, the approval rate for Captives declined from 77.2% to 73.2%.

Despite the increase in approval rate based on dollar amount, industry-wide approval based on number of applications eased from 74.5% to 73.0%. Banks' approval rate based on this measure fell from 71.5% to 67.9%, while that of

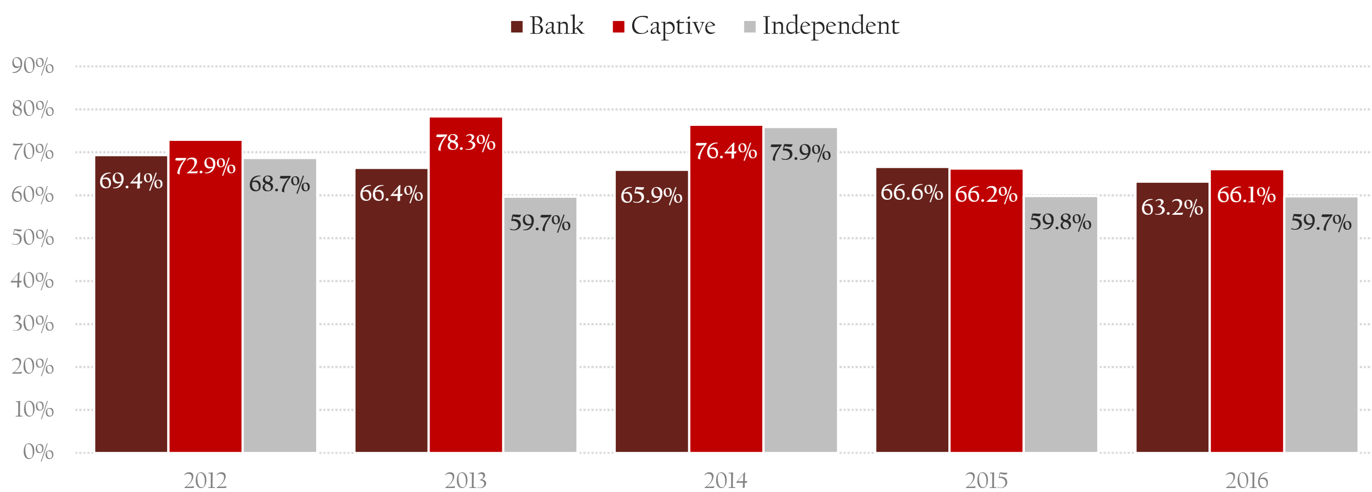
Independents rose significantly from 63.4% to 70.1% and that of Captives ticked down from 86.7% to 86.2%. According to both loan approval metrics, Captives continue to hold the highest approval rating among organization types, in part due to their greater flexibility on credit quality and emphasis on generating sales for their parent companies.

Industry Efficiency Dipped

Applications booked & funded/sold as a percentage of approved fell for the industry from 66.0% to 63.6%. This decline was mostly driven by Banks, while the measures for Captives and Independents were flat. As in previous years, Captives had the highest booked/funded/sold-to-approved ratio among the three organization types due to their emphasis on quickly bringing in new business for their parent companies, although Captives have experienced a significant decline in this metric relative to 2012-14 levels. Among Independents, the booked/funded/sold-to-approved ratio was nearly identical in 2015 and 2016 after spiking in 2014, reflecting the increasingly competitive environment in which Independents operate. Several industry leaders stressed that Independents typically cannot compete with Captives and Banks on price alone, but can still generate new business volume by offering end-users increased flexibility and enhanced customer service (among other benefits).

Applications Booked & Funded/Sold as a Percent of Approved

(based on dollar amount)



Source: 2013 through 2017 ELFA Surveys of Equipment Finance Activity

Residual Values Flat

As a percentage of original equipment cost ("OEC"), the average residual position for the equipment finance industry was essentially flat from 2015 (28.4%) to 2016 (28.3%). The average residual value for independents gained significantly from 12.2% to 18.3%, while that of Captives was up slightly from 45.2% to 45.6% and that of Banks slipped from 23.4% to 22.6%. As in previous years, Captives had a noticeably higher average residual position – more than twice that of Banks and 2.5 times that of Independents. In part, this reflects the dominance of Captives in two equipment verticals that fall among the top five with highest residual value, Agriculture and Construction, which comprised roughly half of Captives' new business volume in 2016.

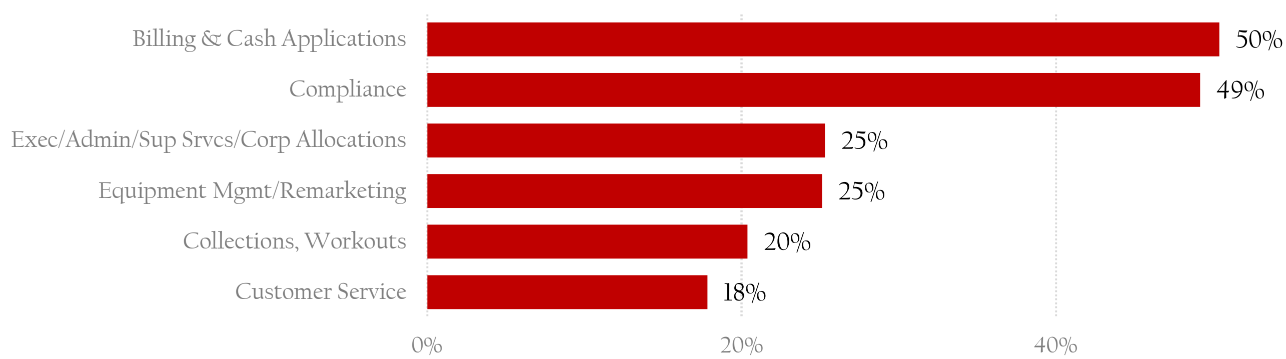
The three equipment types with the highest residual positions (as a percentage of OEC) were Railroad (60.4%), Agriculture (58.3%), and Aircraft – Corporate (50.0%). Meanwhile, the equipment types with the lowest residual positions were Telecommunications (6.5%), Office Furniture and Equipment (8.3%), and Office Machines (8.5%).

Strong Growth in Industry Employment

Employment growth made robust gains in 2016, outpacing solid labor market improvements across the U.S. economy. After a 3.9% decline in 2015 and modest gains in the two previous years, equipment leasing and finance employment surged by 13% in 2016. Employment grew across nearly every sub-category, with the largest increases occurring in Billing & Cash Applications (+50.4%) and Compliance (+49.2%). Sizable gains also occurred in areas identified by industry leaders as high priorities, such as Equipment Management/Remarketing (+25.1%) and Customer Service (+17.8%). These employment trends reflect the views of several industry leaders who stressed the growing emphasis on offering more flexibility and better customer service as part of "managed solution" customer offerings that help firms stay ahead of the curve in a hyper-competitive industry. They also reflect concerns mentioned by many industry leaders related to the regulatory burden their firms face, which has led to a sharp increase in compliance-related personnel.

Changes in Employment: Select Sub-Categories

(year-over-year percent change)



Source: 2017 ELFA Survey of Equipment Finance Activity.

Industry employment growth appears to be accelerating in 2017. According to the MLFI-25, job growth expanded 17% on a year-over-year basis in August (though this is partly attributable to significant acquisition activity at a large MLFI reporting company). These robust gains are occurring even as the U.S. labor market continues to tighten and employers have an increasingly difficult time finding qualified workers. Overall unemployment has hovered in the low- to mid-4% range this year, and average monthly job growth this year is only slightly slower than last year's pace (176,000 in 2017, down from 187,000 in 2016). Several industry leaders mentioned increased hiring activity to support compliance and customer support functions

Looking ahead, a tight U.S. labor market will make it more challenging for the industry to find qualified labor to fill positions. According to multiple industry leaders, retaining talented staff needed to drive their business forward is a key area of concern. A tight labor market is also likely to drive up labor costs across the industry, as employees are better positioned to demand greater pay and benefits. Another potential challenge concerns the need for businesses to find younger talent in a graying industry. It is critical for current industry leaders to recruit the next generation of innovators who can provide fresh ideas and apply new technologies to keep the industry thriving.

Productivity Slips

New business volume per sales FTE is a key business operations indicator helping to illuminate industry trends in productivity. New business volume per sales FTE fell 5.8% for the industry in 2016. Banks and Captives saw sales per FTE decline, while Independents saw a slight improvement in sales per FTE. Banks and Captives hold much higher new business volume per sales FTE ($25,502 and $25,097, respectively) than Independents ($7,481). This is partly due to the much higher percentage of employees in sales for Independents (31.5%) compared to Banks (26.0%) and Captives (19.3%). Even so, Independents have greatly improved their business productivity over the last three years, as their sales per FTE increased 19.5% from 2014-15 and another 10.7% from 2015-16.

Independents Continue to Face Higher Costs

As with productivity, costs vary greatly across organization type. For example, the median sales & marketing expense as a percentage of revenue for Independents (13.4%) is more than double that of Banks (6.9%) and Captives (6.1%). These differences tend to stem from Banks' emphasis on minimizing costs through economies of scale and Captives' goal of streamlining transactions for the benefit of their parent company's bottom line, in contrast to Independents' strategy of enhancing customer service through increased customer intimacy, and in some cases adopting innovative new business models that have yet to achieve scale. (They may also result from undercounting marketing dollars spent by Captive and Bank parent entities.) Although some of the industry variation in costs, efficiency, and productivity are the result of differences between business models, many industry leaders remain obsessed with the long-standing business model characterized by an exhaustive focus on cost control and a cost leadership business strategy rather than flexibility or innovation.

Emerging Technologies to Improve Efficiency

This year, several industry experts expressed optimism about financial and software technology innovations. Much of this optimism centered on using online application portals, data analytics, and automation to improve their firms' efficiency and productivity while reducing costs. Because of the constantly evolving nature of these technologies, several industry leaders noted that future possibilities for incorporating financial technology into their business models are quite extensive. Potential near-term and medium-term applications of financial technology are discussed in the final section of this report.

Equipment lessors that take advantage of these emerging opportunities are likely to gain an edge over their competitors. For example, credit decision turnaround time, which currently ranges from several hours for the smallest transactions (under $25,000) to several days for the largest transactions (over $5 million), could be significantly shortened while simultaneously managing risk through better use of financial technology. Indeed, credit decision turnaround times declined across the board in 2016, which could be an early indication that the industry is already beginning to benefit from increased use of data analytics and automation.

Financial Performance

The industry's financial performance declined in 2016, as return on assets, return on equity, and income to revenue all fell compared to 2015. The industry has struggled to widen spreads and expand margins in an environment of modest economic growth and low interest rates. Although 2017 is not likely to be a year of breakout growth for the U.S. economy, several developments may lead to improvements in the industry's financial performance. Chief among them are strong business confidence and a rebound in equipment investment in 2017, which are driving new business volume growth. While interest rates remain historically low, they are rising gradually enough to improve margins and help demand for new leasing equipment remain buoyant.

Percent (Median)	Industry	Banks	Captives	Independents
Return on Total Average Assets (ROA)	1.5%	1.2%	1.9%	2.2%
Return on Average Equity (ROE)	10.3%	10.1%	7.7%	11.1%
Sales & Marketing Expense as Percent of Total Revenue	8.5%	6.9%	6.1%	13.4%
Debt as Percent of Total Assets	77.8%	81.2%	53.0%	77.5%
Debt to Equity	5.6	7.1	1.8	4.8
Liabilities to Equity	6.0	8.1	2.2	5.0

Source: 2017 ELFA Survey of Equipment Finance Activity

Profit gains were weak for the total financial sector in 2016, and especially weak for the equipment finance industry. Most industry measures of profitability declined, as industrial and energy sector weakness drove only a modest 2.5% increase in new business volume according to the SEFA — a notable deceleration from previous years. The U.S. economy is growing at a moderately stronger pace in 2017 and is on track for 2.0 – 2.5% growth this year, and business investment in particular has improved substantially compared to a year ago (in part due to a recovering energy sector). Meanwhile, the Fed's efforts to normalize interest rates should help to improve margins, although competitive pressures are likely to remain intense. Barring a major unforeseen event, profitability should improve in 2017.

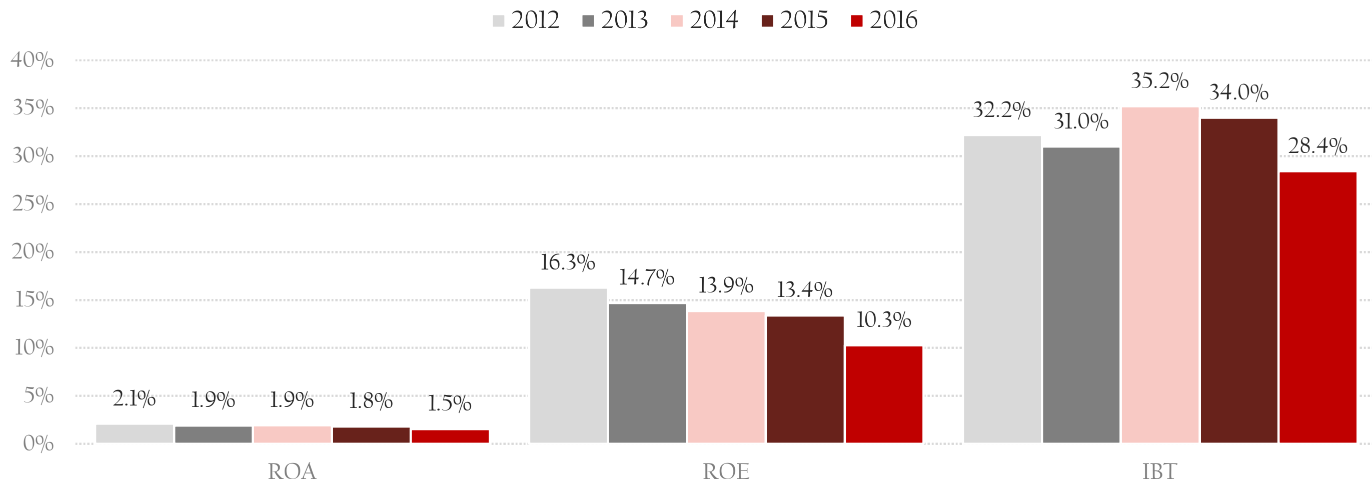
U.S. Banks' Profitability Holds, Industry Profitability Falls

Profitability was somewhat disappointing for the financial industry in 2016. Overall, Return on Assets ("ROA") for U.S. banks was mostly flat, dipping one basis point from 1.03% in Q4 2015 to 1.02% in Q4 2016, while Return on Equity ("ROE") fell slightly from 9.20% to 9.03% over the same period. Profitability in the equipment finance industry fell substantially in 2016, with ROA declining from 1.8% to 1.5% (a continuation of a five-year downward trend). ROE has also declined steadily since 2013, but saw an especially profound drop from 13.4% to 10.3% in 2016. Pre-tax income as a percentage of total revenue ("IBT") also retreated to sub-2011 levels.

Equipment sector profitability suffered more than that of the overall financial industry due to sluggish industrial sector activity and a contraction in other sectors tied to energy extraction (where investment growth plummeted due to low oil prices). However, the trend of declining profitability in the equipment finance industry precedes the oil price drop and industrial sector woes, and has been more pronounced than in other financial subsectors.

Profitability Ratios, Five-Year History

(median)

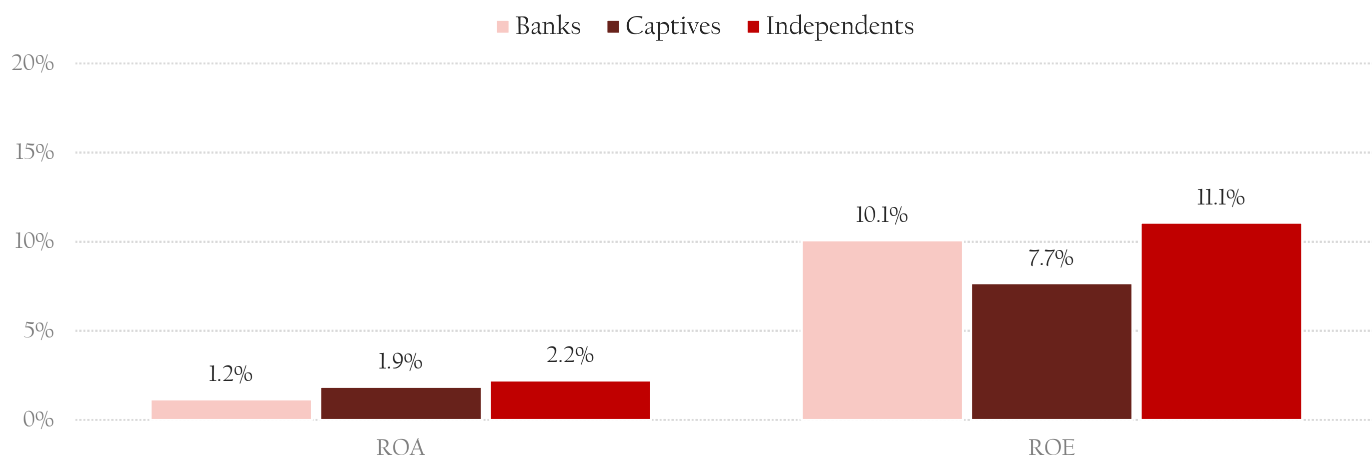


Source: 2017 ELFA Survey of Equipment Finance Activity

In a reversal from previous years, Independents led on profitability in 2016, holding both the highest ROA (2.2%) and ROE (11.1%). However, Independents' lead was not driven by improvements to their profitability, but rather by a substantial decline in profitability among Captives. Indeed, ROA and ROE both fell for all three organization types in 2016. Declines were smallest for Banks, whose ROA fell from 1.4% to 1.2% and whose ROE fell from 11.5% to 10.1%.

Profitability Ratios, By Business Model

(2016; median)



Source: 2017 ELFA Survey of Equipment Finance Activity

Independents' ROA dropped from 2.5% to 2.2% and ROE fell from 13.6% to 11.1%, while Captives' ratios fell by more than half, from 3.9% to 1.9% for ROA and from 16.1% to 7.7% for ROE. The decline is largely attributable to Captives' substantial footprint in Agriculture and Construction (which both struggled in 2016) and their reduced ability to shift their portfolios to other verticals and end-user markets, as compared to Banks and Independents.

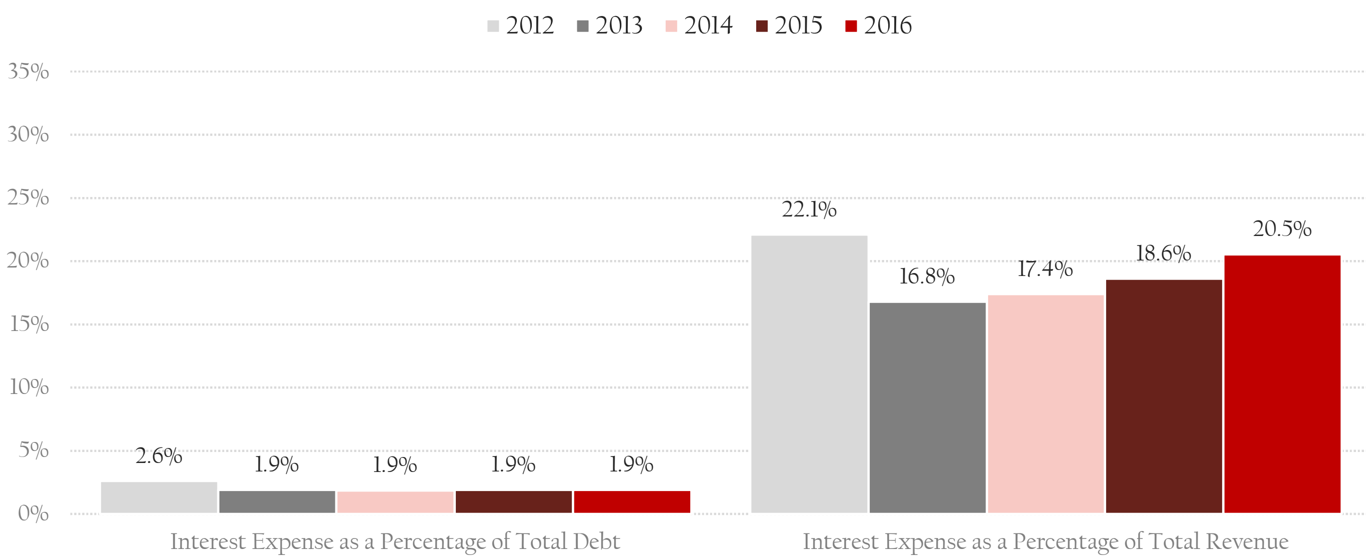
Interest Expense Ratios Crept Up

Interest expense ratios inched up slightly on average in 2016. Although interest expense as a percent of total debt has held steady at 1.9% for the past four years, interest expense as a percent of total revenue has been consistently rising over the same period, reaching 20.5% in 2016, up from 18.6% in 2015. These measures suggest that while interest payments are growing at a faster pace than revenues, the cost to borrow is relatively stable — likely reflecting a historically low interest rate environment. Moreover, both ratios remain below 2012 levels (2.6% and 22.1%, respectively).

Looking ahead, the industry's interest expense ratios are likely to continue rising as interest rates continue to normalize. The Federal Reserve has raised its benchmark interest rate three times in the last year, and although the likelihood of further rate hikes in 2017 has declined, the Fed recently announced the beginning of its years-long effort to decrease the size of its balance sheet by unwinding its quantitative easing policy. Such an action would have the effect of tightening credit conditions. Moreover, if inflation begins to ramp up in response to a tightening labor market, the Fed will likely continue to raise interest rates gradually in 2018. Although higher rates will put upward pressure on the industry's interest expense to debt ratio, the effect on its interest expense to revenue ratio is more ambiguous. Higher rates should increase the cost of funds and may cause interest expenses to rise, but could also provide lenders with more pricing flexibility and improve margins and profitability. Several industry experts did not expect a slow and steady rise in interest rates to have much of an effect on their businesses, while another stated "the flow of cheap money in recent years has led to a lot more competition in the industry."

Interest Expense Ratios, Five-Year History

(median)



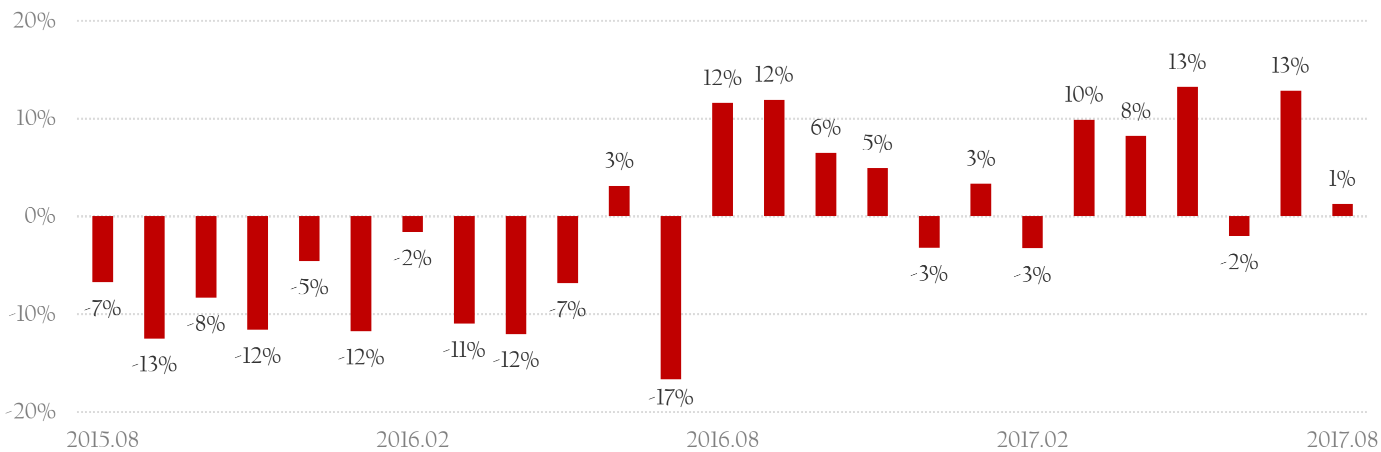
Source: 2017 ELFA Survey of Equipment Finance Activity

Future Opportunities for Increased Profitability

Despite 2016's decline, the outlook for profitability in the equipment finance industry in 2017 and beyond looks positive. New business volume fell 2.2% in 2016 according to the ELFA MLFI-25 index, but as of August 2017 cumulative new business volume is 5.5% above year-ago levels. Business confidence measures, such as the NFIB Small Business Optimism Index and Business Roundtable CEO Economic Outlook Index, remain elevated across industry sectors and firm size, which is an encouraging market signal that investment growth will remain strong for at least the next 1-2 quarters. Meanwhile, a continued economic expansion and tightening labor market should lead to additional Fed rate hikes, allowing for a bit more breathing room for margins. While policy uncertainty remains a concern (the success of Congressional efforts to reduce taxes on businesses and pass an infrastructure improvement bill will be key factors to watch), the industry should expect improved profitability over the next year.

MLFI-25 New Business Volume

(year-over-year percent change)



Source: ELFA

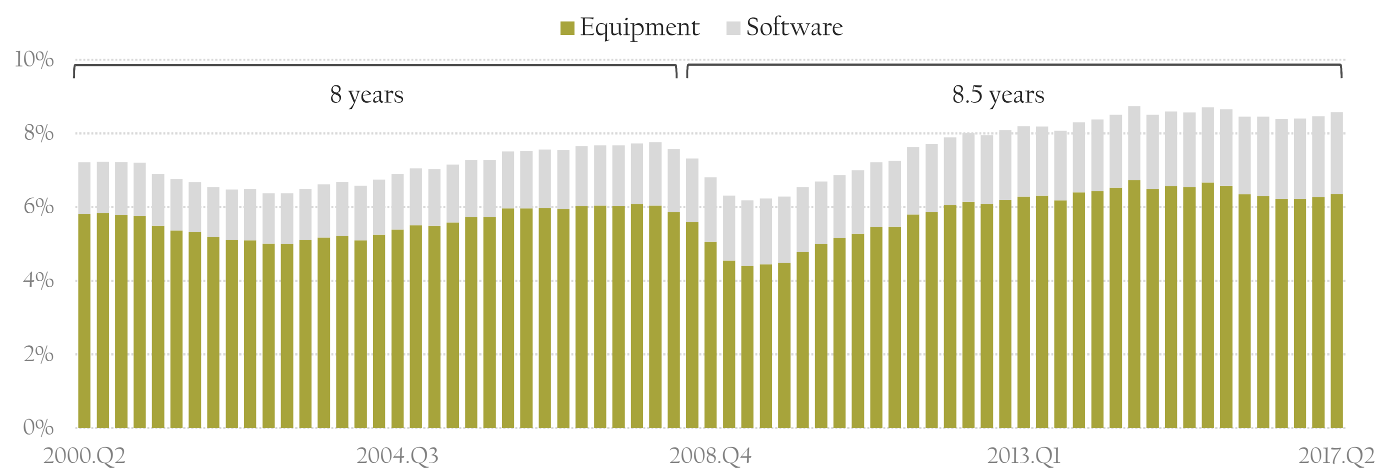
FUTURE

long-term equipment investment trends

Equipment and software investment appears to be in the midst of an extended cycle and has moved past the economic "growth pause" that led to a slight investment contraction in 2016. This year, pent up demand for investment is being unleashed, and growth is likely to remain solidly positive for the next two quarters. Other broad economic trends have major implications for certain equipment verticals. A structural expansion in the supply of energy from oil, natural gas, and renewable sources is likely to keep energy prices low, affecting growth in certain energy sector end-user industries. That same trend is likely to contribute to the reshoring of U.S. manufacturing, which will lead to more equipment investment opportunities in the manufacturing sector and increase higher-skilled manufacturing-related employment. Finally, the decline of conventional retail and the rise of e-commerce pose new risks and opportunities for the industry.

Equipment Investment Cycle

(percent of real gdp)



Source: Macrobond Financial, Keybridge LLC

The 2015 State of the Equipment Finance Industry report noted that the equipment investment cycle appeared to have reached a peak. In mid-2015, equipment and software investment as a share of GDP was at decade-long highs, comprising 8.6% of GDP. The report predicted that this measure would wane as the cycle progressed further, engendering a pivot away from business investment and toward consumption as a GDP growth driver. This prediction proved quite accurate over the next year and a half, as a deep and prolonged drop in oil prices, declining industrial production, strong dollar, and sluggish U.S. economy led to a softening in equipment and software investment in the latter half of 2015 and a slight contraction in 2016.

However, contrary to our prediction, waning investment growth did not signal an end to the current equipment investment cycle. GDP growth in 2016 was weak — some economists referred to the first half of the year as a "growth pause" — but the economy continued to expand. Despite negative growth in equipment and software investment last year, its share of GDP dipped only modestly to 8.2%, and the first half of 2017 saw annualized investment growth climb to 4.5% and 8.3% in Q1 and Q2. In fact, business fixed investment has served as an important driver of growth this year, keeping the economy growing at a 2.0 – 2.5% pace even while residential investment and consumption have fallen short of expectations.

Equipment and software investment growth should remain solid for at least the next two quarters. Several measures of business confidence (a generally reliable leading indicator of capital investment decisions) are at multi-year highs, and pent-up investment demand should boost capex spending after last year's contraction. Despite a slightly higher interest rate environment this year, rates remain very low from a historical perspective, and additional rate hikes are unlikely to significantly inhibit investment. Although the current equipment investment cycle is now approaching 9 years, there is scant evidence of an impending downturn in investment in the next 12 months. Most industry experts state that while growth could be stronger, there are few early warning signs of a pending recession. Some economic analysts believe the growth pause of 2016 might have actually served as a mini-recession, taking the place of a more significant downturn. Investment should therefore remain reasonably strong for the next several months, particularly if Congress is able to come to agreement on a tax reform package that encourages additional business investment.

However, it is worth noting that for the equipment finance industry, tax reform could be a double-edged sword. First, for reform efforts to benefit the industry, they would need to maintain the current policy of interest deductibility (which most tax experts and industry leaders expect). Second, multiple industry leaders point out that in a tax incentive-driven industry, decreasing tax rates also effectively diminishes the tax incentive to finance equipment — which could have a negative impact on the industry even while encouraging more equipment investment overall.

Real GDP and Equipment & Software Investment Growth

(percent change q/q, saar)

Source: Macrobond Financial; Keybridge LLC

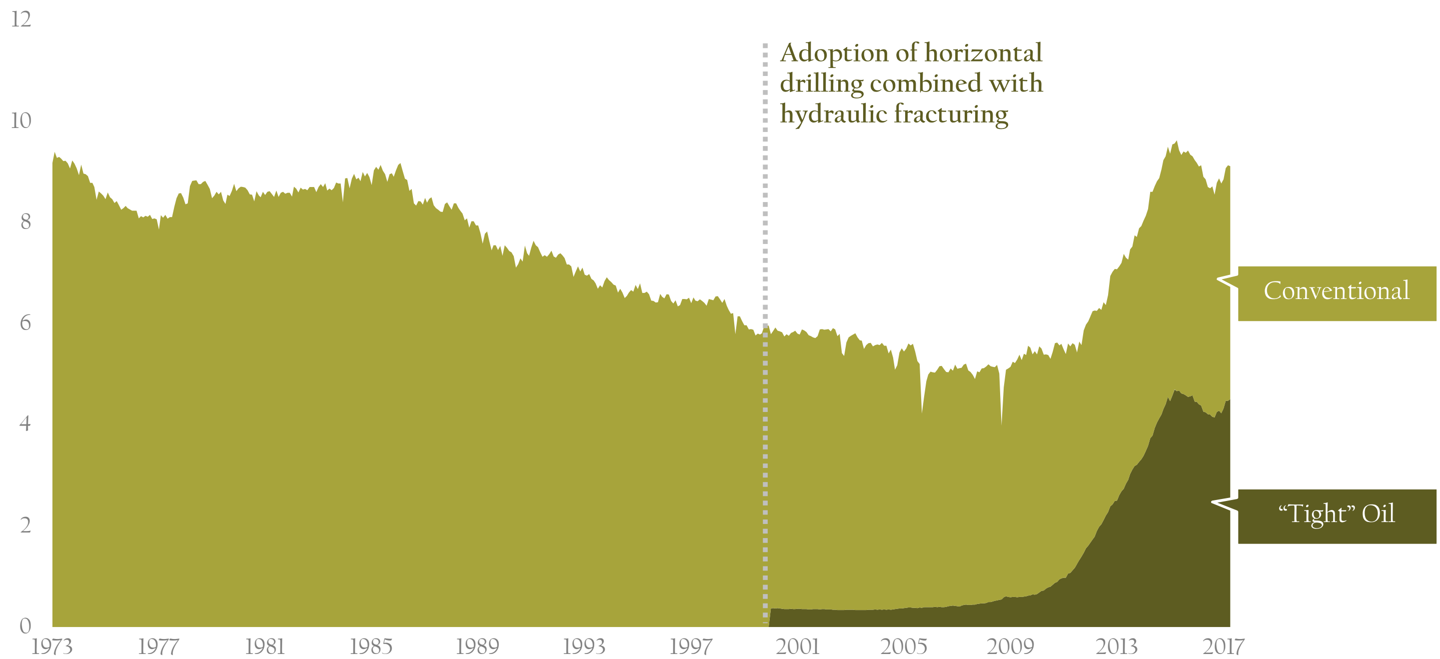
A Future of Plentiful, Low-Cost Energy

Oil prices have recovered from their $27-per-barrel low in February 2016 and have now stabilized in the $45–55 range, leading to a rebound in equipment investment in the oil & mining sector. Although a sudden drop in oil prices that knocks the sector off its newfound footing is unlikely, the medium- to long-term outlook for oil and other sources of energy is a persistently low-price environment.

Lower prices are resulting from a long-term supply increase in a variety of energy sources, both conventional and alternative. For example, the supply of oil and natural gas has surged since 2010, driven by the shale revolution that began years earlier. The United States has drastically increased its production of oil and gas via hydraulic fracturing and horizontal drilling, particularly from tight oil formations. The result has been a significant increase in oil and gas supply and substantially lower energy prices.

United States Crude Oil Production

(million barrels per day)



Source: Macrobond Financial; EIA Estimates

This trend is expected to continue. While production slowed significantly during the 2014–16 oil price decline, producers are now increasing their activity and rig counts have steadily risen for the last year. Meanwhile, other countries have observed the impact of the U.S. shale revolution and are exploring ways to develop their own fracking capabilities — not only to boost revenue, but also to reduce their own dependence on foreign oil and diversify their energy resources. The expected result is a steady increase in the global oil supply over the next several years, coupled with relatively low oil prices.

The story is similar for natural gas, which has experienced a similar production boom since 2010. The United States is already witnessing a broad shift in energy consumption away from coal and toward natural gas, primarily due to the latter's increasing affordability. Another development that may drive this effect even further is a decline in the cost of liquefied natural gas (LNG). Oil is already a fungible energy source that can be shipped around the world, but until recently gas supply has been held back by cross-regional transportation barriers. Now, many energy analysts note that with the development of more liquefaction and regasification facilities, combined with technological improvements in these processes, LNG costs are likely to fall. The result would be a global expansion in the supply of gas — and, potentially, a decline in prices. (However, current regional price variations may disappear, leading to a single global price that may be higher than current prices in certain regions.)

Alternative energy is also likely to follow this trend. Solar energy prices have been on a persistent decline for years, falling by between 11% and 26% in 2016 alone according to Lazard, an industry leader in determining energy production costs. Although onshore wind, geothermal, and biomass costs were more stable in 2016, they also have fallen in recent years, leading to improved cost-competitiveness with conventional energy sources (especially in certain areas of the country). In sum, alternative energy sources are becoming increasingly viable for a growing number of energy consumers.

Unsubsidized Levelized Cost of Energy

(levelized cost — $/MWh)

Source: Lazard Levelized Cost of Energy Analysis 10.0 (2016)

The implications of this long-term, low-price energy environment on the equipment finance industry are potentially significant. As consumers draw from an increasingly broad array of energy sources, equipment lessors may need to respond by diversifying their portfolios in terms of both end-user markets and equipment types. Previously dominant extraction industries such as coal and oil may suffer from capital oversupply, leading to a decreased need for new investment and new equipment. All else equal, lower energy prices should be a boon to capital and energy intensive industries like manufacturing, particularly chemical manufacturing (see below). Utilities may also benefit from lower prices due to lower input costs allowing for higher margins (though this depends on the utility's regulatory structure). From a macroeconomic perspective, lower energy prices should put downward pressure on inflation, as input costs for many industries fall and those savings are passed on to the consumer in the form of lower prices. This, in turn, could help keep interest rates lower than they otherwise would be.

The Revival of U.S. Onshore Manufacturing

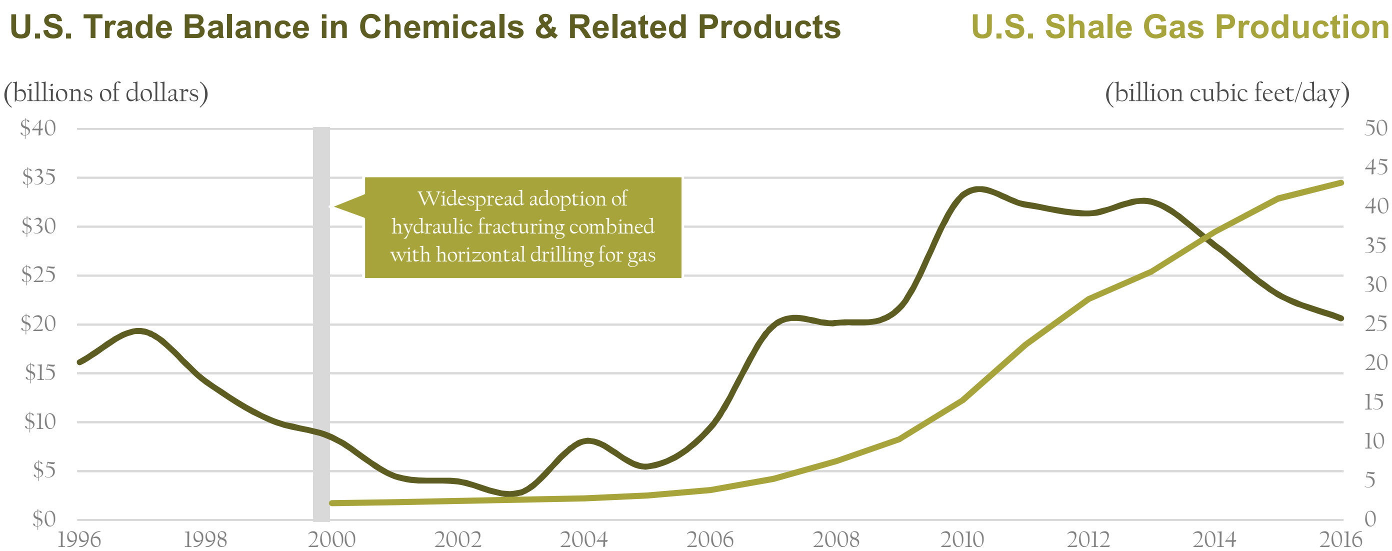
In recent years, many Americans have become accustomed to the idea that U.S. manufacturing is in a permanent state of decline. Conventional wisdom holds that over the past couple of decades, lower labor costs in emerging markets drove U.S. firms to outsource and offshore their manufacturing capabilities, leading to permanent deindustrialization in advanced economies like the United States. Indeed, manufacturing makes up a significantly smaller share of the U.S. economy than it used to, especially when measured by employment. In 1980, 21% of Americans worked in manufacturing; today, only 8% do. Manufacturing trends have taken on greater political importance, as President Trump and other political leaders have pledged to bring manufacturing jobs back home. Skeptics of these promises hold that manufacturing jobs are unlikely to make their way back to U.S. soil because of immutable economic forces (e.g., a globalized economy and lower wages abroad), and that a change in government policy will have little effect.

However, conventional wisdom fails to account for the fact that U.S. manufacturing has already been making a quiet comeback. Since 2010, the United States has added almost one million net manufacturing jobs, while industrial output has risen 20% over the same period. In 2016, manufacturing job openings recovered to their pre-recession highs, suggesting that a large portion of the losses incurred during the recession were cyclical, not structural. This revival has occurred not because of any major policy changes, but in response to three major macroeconomic developments.

- First, the aforementioned shale revolution has reduced prices for oil and natural gas, which are key inputs for many U.S. manufacturers. A 2017 study by Arezki, Fetzer, and Pisch finds that from 2005 to 2012, around 10% of the growth in U.S. manufacturing exports was driven by lower prices for natural gas. As the price of gas has sunk even further since 2012, this effect has likely strengthened. Lower oil and gas prices particularly benefit the chemicals manufacturing industry, which may explain some of the recovery in the U.S. trade balance in chemical products since the onset of the shale revolution.

- Second, labor costs have risen significantly in emerging markets, particularly China. Many of the economic gains that have occurred in emerging markets have gone to labor, resulting in higher wages and living standards for workers. For example, average hourly earnings in China's manufacturing sector tripled between 2005 and 2016 (to $3.60), exceeding wages in Brazil and Mexico and approaching those of Greece and Portugal. While labor costs are still significantly lower in China than in the United States, their rise means that the "pull" factor for foreign manufacturing activity in China is weakening. Some manufacturing companies may opt to relocate to other emerging markets where labor is cheaper. But many will likely opt to eliminate their need for inexpensive, low-skilled labor through automation, which makes the United States more competitive.

- Third, increased automation in U.S. manufacturing means that effective labor costs (that is, labor costs per unit of output) are falling, making U.S. onshoring increasingly attractive. Boston Consulting Group (BCG) estimates that 10% of automatable tasks worldwide are currently being performed by robots, but that share is expected to reach 25% by 2025. Over this period, it is estimated that automation will result in a 22% drop in U.S. manufacturing labor costs due to automation (compared to a 16% decline globally). In countries like the United States with relatively high labor costs, the incentive to invest in automation is particularly strong.



Source: American Chemistry Council; EIA

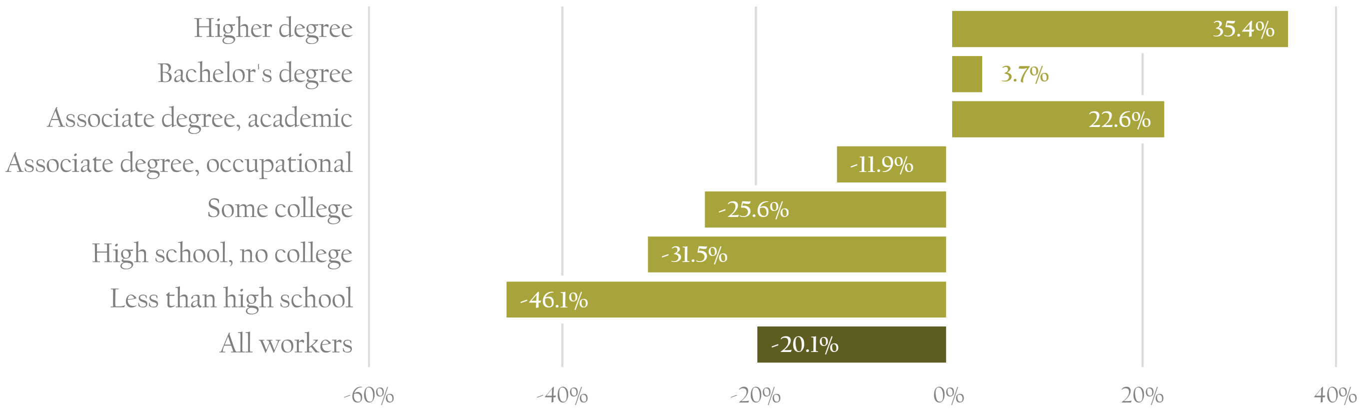
Combined with some of the factors that have always made the United States attractive to manufacturers — including closer proximity to end-user markets, access to a highly educated and highly skilled workforce, lower transport costs, a more familiar business and regulatory environment, the absence of language barriers, and reduced political risk — these three factors are driving many companies to reconsider where they locate their manufacturing activity. Indeed, according to the BCG Manufacturing Survey, the United States has now surpassed China and Mexico as the most likely destination for new manufacturing capacity to serve the U.S. market.

However, it should be noted that these developments are not likely to bring back many of the traditional lesser-skilled, blue collar manufacturing jobs that were plentiful in the past. Most of the jobs added in manufacturing since 2000 have required an Associate Degree or higher, and this trend is likely to continue. Increasingly, the jobs needed to power the U.S. manufacturing revival will be in the areas of information technology, engineering, strategy, and management.

The revival of U.S. manufacturing is great news for the equipment finance industry, as manufacturing is a capital-intensive industry with high demand for equipment. Moreover, the growth is occurring precisely because the industry is becoming more capital-intensive due to automation. U.S. firms that lease or finance equipment to the manufacturing sector will be well-positioned to take advantage of this trend (indeed, several industry leaders mentioned that the manufacturing equipment vertical has experienced an uptick in new business volume over the last 12 months). In addition, equipment lessors may consider concentrating business development efforts toward certain equipment types — such as manufacturing robots and the software required to operate them — where demand is likely to grow.

Manufacturing Employment by Worker Education

(percent change, 2000 - 2016)



Source: Bureau of Labor Statistics; Current Population Survey

The Decline of Conventional Retail and Rise of E-Commerce

The retail industry has struggled in 2017. Most retail companies have performed poorly in equity markets (excluding Amazon, the S&P 500 Retail Index has been virtually flat since 2015). Nearly 7,000 jobs have been lost per month in retail this year, and several high-profile brands have filed for bankruptcy (e.g., RadioShack, The Limited, Payless, and most recently, Toys R Us).

The decline of traditional retail is not a temporary phenomenon, but rather a structural trend driven by the rise of e-commerce. The United States is currently witnessing a sharp decline in commercial real estate dedicated to retail. Retail store closings are expected to reach an all-time high of 146 million square feet this year, and since 2010 total retail space has fallen by 10 percent. Some believe this is just the beginning. Due to the rapid growth in e-commerce, several industry experts stated that sectors previously thought to be relatively safe (e.g., groceries) are now understood to be at risk. In short, the medium-term consequences of this seminal shift are likely to be substantial.

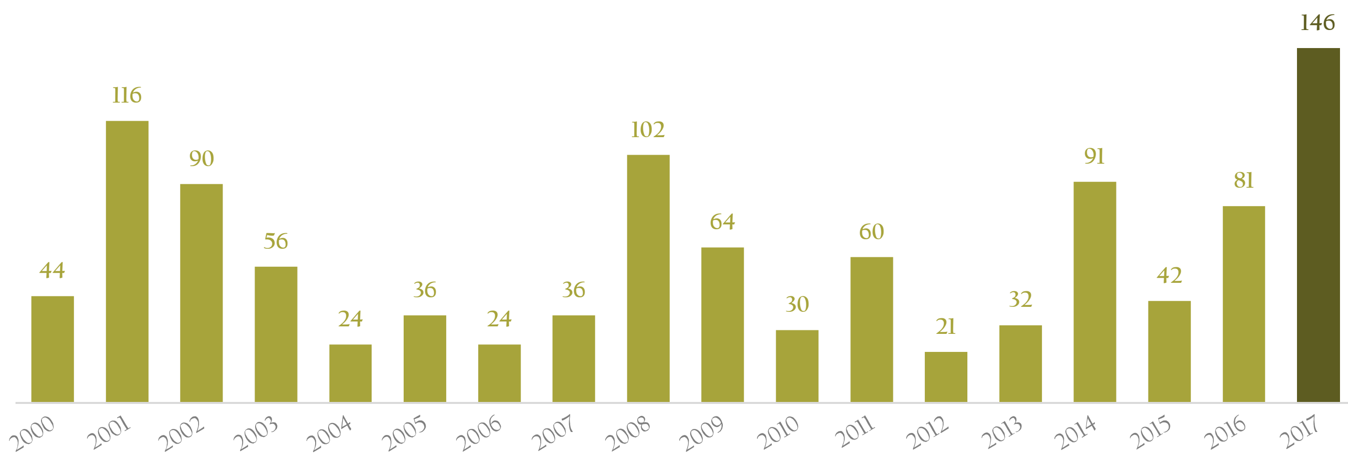
Conventional retail is not a major end-user of equipment, and as such a substantial negative impact on the equipment finance industry due to the decline of conventional retail is unlikely. That said, the rise of e-commerce presents risks and opportunities that industry leaders should carefully consider. For example:

- Surging demand in online shopping has led to a shortage of warehouses. According to The Journal of Commerce, the industrial vacancy rate currently stands at 5.3%, a 17-year low. Therefore, while commercial real estate devoted to retail is currently oversupplied, industrial real estate construction should expand over the next several years — benefiting firms that lease or finance construction equipment and materials handling equipment. There is likely to be an important geographic component to this trend: while retail space is in oversupply in U.S. suburban malls and more remote areas of the country, demand for industrial warehouses is surging in areas near large urban centers.

- The rise of e-commerce also has implications for the trucking industry. While goods still need to be shipped no matter where they are ultimately sold (e.g., retail stores vs. warehouses), the growth in e-commerce may increase the demand for smaller trucks that are better suited for smaller shipments. Longer term, several industry leaders warned that firms dealing in trucking equipment should keep an eye out for trends that may reduce demand. For example, courier services like FedEx or UPS may face the threat of "uberization" in which goods could be delivered by a gig employee operating his or her own vehicle. Although significant regulatory hurdles must be overcome, package delivery could eventually migrate to drones, which would provide a new equipment type for the industry to lease or finance.

Retail Store Closings by Square Footage

(millions of square feet)



Source: PwC; Credit Suisse; Financial Times

on the horizon

Technological Opportunities

Roughly twenty-five years following the widespread adoption of the internet, a surge of new technologies and applications now have the potential to upend the financial sector and equipment finance industry. Although the internet and related technologies forced all businesses to change how they communicated with their customers, until recently the business implications for the financial sector have been limited.

Now, big changes are coming to commercial equipment finance. As described in the previous section, equipment end-users are being forced to adapt to major macroeconomic developments in the energy, manufacturing, and retail sectors. Meanwhile, the industry's shift toward a "pay as you go" model of pricing continues. Faced with such developments, some financial incumbents might be tempted to view new technologies as a passing fad or a threatening harbinger of businesses obsolescence. Others, however, see them as major opportunities. Industry leaders who choose to learn about emerging technologies — and adapt their operations and business models accordingly — will be better positioned to compete in the years ahead.

Emerging technologies can be difficult to describe and comprehend, let alone apply to one's business. As new innovations are developed, it takes time before their potential uses are discovered, understood, and incorporated into business operations. During that process, many new technologies are jettisoned as better ones quickly take their place, while others persist but are not applied in the way that was originally envisioned. For these reasons, making accurate predictions about future technologies and their applications is a difficult task — but one that is nevertheless worth undertaking. This section will outline some of the emerging technologies relevant to the equipment finance industry, and provide insights into how industry leaders can take advantage of them.

Financial Technology

As a part of the financial sector in a 21st-century economy, the equipment finance industry should continuously scan the horizon for developments in financial technology, or fintech. Fintech discussions can be challenging because the term does not refer to a specific technology, but rather to a broad category of technologies where the common theme is their application to financial activities. Further complicating matters, "fintech" is often used in the equipment finance industry as shorthand for a specific type of small-ticket and micro-ticket financing firm. This report uses the term in its traditional sense (i.e., as a catch-all descriptor for innovative new financial technologies and techniques).

While there are several categories of fintech, applications that are relevant to the equipment finance industry can be categorized into one of three groups: (1) facilitate the processing of financial transactions, (2) improve risk assessment, and (3) alter the risk structure of a transaction to expand credit access or provide better terms to borrowers. (Note: blockchain can also be classified as a financial technology, but it is excluded here and discussed later in this section.)

(1) **Facilitate transaction processing:** Many consumers, especially younger and more tech-savvy customers, have come to expect that it should be possible to process payments and other financial transactions entirely from their own smartphone, as quickly and easily as they check their email. Banks are currently in a race to boost customer service by making it ever quicker, easier, and cheaper to make transactions — for example, to pay a bill or transfer funds to another account in seconds using a user-friendly app rather than a check. Several industry leaders expressed a strong belief that this expectation is likely to migrate to other financial transactions, including equipment leasing and financing. Indeed, according to one industry leader, a fintech lending platform currently operational in the equipment finance industry processes a typical small-ticket transaction in 6 minutes. "You can apply for a loan and get approved almost immediately. The funds are ACH'd in real time, and off you go."

(2) **Improve risk assessment:** Advancements in "big data" analytics are making their way into the financial space, and financial actors who can access this data and make sense of it are likely to benefit from improved credit risk assessments and pricing. In the future, it is quite likely that businesses and individuals will be provided lines of credit on highly personalized terms calculated through the analysis of hundreds or thousands of different indicators about the borrower, other actors similar to the borrower, the borrower's industry, the nature of the loan, and other factors. Moreover, fintech tools are already being used within the industry to enable lenders to underwrite and review loans faster (as well as improve targeting of sales and marketing efforts) using data analytics and machine learning — all at a substantially reduced cost, and without compromising quality or increasing risk.

(3) **Expand credit access and/or provide better lending terms:** Better credit access and lending terms are obviously a key concern of borrowers, and technological advancements are creating new avenues of securing loans at lower rates — often by cutting out the middleman through peer-to-peer lending. Such an approach is attractive to borrowers who may not be able to secure credit through traditional lending platforms, or who believe they can secure a better rate or terms through peer-based lending instead of a bank or other traditional funding source. Lenders can benefit from peer-to-peer lending by making loans specifically to customers they would like to support, allowing them to make a positive impact. If the loan is crowdfunded — for example, with hundreds of lenders each providing small amounts to a single borrower — lenders may be able to finance investments at a tolerable level of risk in a way that a single lender could not.

Industry leaders say that fintech is sometimes viewed by financial incumbents as threats to their business. Indeed, some feel that while many fintech firms are well-run, others are too quick to make deals without fully understanding the risk involved using algorithms that are not sufficiently transparent — thereby potentially placing the entire industry on weaker footing. Some also expressed concerns about the heightened fraud risk that could result from the lack of customer touchpoints and reliance on "big data" rather than "real data" to verify a borrower's credit-worthiness.

Nonetheless, most industry leaders agreed that fintech has a significant and growing role in the industry and is here to stay. As a result, firms that can use it to improve efficiency and capture market share without taking on too much risk will have a significant competitive advantage over their peers. An equipment lessor who notices their customers demanding an easier application process and faster approval time can respond by partnering with a fintech company or using fintech software that meets this demand. Likewise, lessors can gain an edge over their competitors by incorporating data analytics capabilities into their credit pricing and loan review process. Some industry leaders expect many fintech companies will be ultimately absorbed by larger entities (particularly banks). However, others hold that the fintech business model and mindset is materially different from that of a bank. As such, they may well continue to capture market share in the small-ticket and middle-ticket space — particularly if they are able to develop more "industry seasoning" and build relationships that complement their natural strengths in speed and efficiency.

The Changing Nature of Ownership

The equipment finance industry is currently grappling with major changes to how customers conceive of the ownership and use of equipment — changes that are largely driven by technological advancements of the last five years. Several industry leaders note that customers increasingly want to use equipment in a way that resembles "on-demand renting" more than "owning": they want to pay only for the amount that they use a piece of equipment, and not be responsible for covering repairs or damage to the equipment.

Some industry experts point out that these customer demands can be difficult to meet: customers want the lessor to bear more of the risk, but are not always willing to pay a higher price. However, there is no denying that this expectation has sprung from a change in mentality that is the product of business models like Uber and Zipcar. Someone living in a city may not need to use a car enough to justify buying and owning one, instead preferring to pay only for intermittent automobile access. Typically, this added convenience and lesser burden should come at a significantly higher price (as it did with taxis). But new companies figured out how to make supply meet demand at a lower price by using smartphone application technology to facilitate the transaction — that is, by bringing car and rider together more quickly and easily, and by building economies of scale through carpooling.

As with fintech, customer expectations are likely to migrate from the consumer space to the business space. Those in the equipment finance industry who anticipate and internalize this "Uberization" trend by using new technologies and adopting new business models will increase their future competitiveness. The use of Managed Solutions Transactions has been common in the leasing of photocopiers for many years, in part because photocopiers are able to easily measure the extent of usage. Until recently, photocopiers were unique in this respect, but the so-called Internet of Things (see below) may be upending the measurement of usage in the equipment finance industry. As one expert put it, "it's all about creating a frictionless customer experience. Everything should be driven by thinking about the customer first. Firms need to stop thinking about what works for them and start thinking about what their new customers are demanding — and provide that."

The Internet of Things ("IoT") and Artificial Intelligence ("AI")

The Internet of Things ("IoT") refers to a network of physical devices, vehicles, buildings, and other objects that are embedded with network connectivity. If a network of computers forms the internet, then a network of objects possessing computing power makes up the IoT, with each object collecting data and communicating with other objects in the network. A 2016 IHS study forecasts that the IoT could support more than 30 billion objects by 2020.

Given that almost any device could be connected to the IoT in theory, this technology has the potential to affect business models across almost every industry, including end-user markets of equipment finance. Many of these new "smart devices" could be leased. Smart devices that are likely to emerge in the next several years include:

- Farming equipment that tracks weather changes to determine irrigation needs and dispense water accordingly;
- Wearable medical devices that continuously monitor and analyze a patient's vitals to identify health risks; and

- Transportation vehicles that track their own movement and condition, allowing for the use of data analytics to improve traffic patterns and vehicle maintenance.

Over time, as these objects collect more and more data, they may come to resemble what are normally thought of as "robots" possessing AI, capable of recognizing complex patterns in the data they gather. In this way, these devices can perform at maximum efficiency with less need for additional programming or human intervention.

Just as the equipment finance industry can benefit from the use of data analytics to improve risk assessments (and, by extension, profitability), the industry's end-user markets are likely to demand smart devices that would allow them to collect and analyze data to make their operations more efficient. Equipment lessors should embrace opportunities to lease smart devices. In doing so, they should consider how these devices' ability to collect data, distribute data through a network, and eventually perform their own analytics may affect the leasing transaction structure. For example, customers' desire to be charged only for the amount that they use a piece of equipment may become more feasible if the device can measure its own usage and transmit this information to the equipment lessor. As one industry expert put it, "many of us in the industry have been highly successful in what we've always done, so we don't always see the reason to change — even as the world changes around us. If you're not willing to question everything, it's going to be hard to take advantage of these technologies."

Blockchain

A little farther on the fintech horizon is the eventual widespread use of blockchain technology. A blockchain is a distributed ledger that automatically records peer-to-peer transactions between actors on a secure network. A variety of data for each transaction (e.g., timestamp, the amount transferred, and parties involved) is logged and corroborated by the network, with the various computer actors in the blockchain continuously validating the information stored in each transaction. As described in ELFF's 2017 Industry Future Council report:

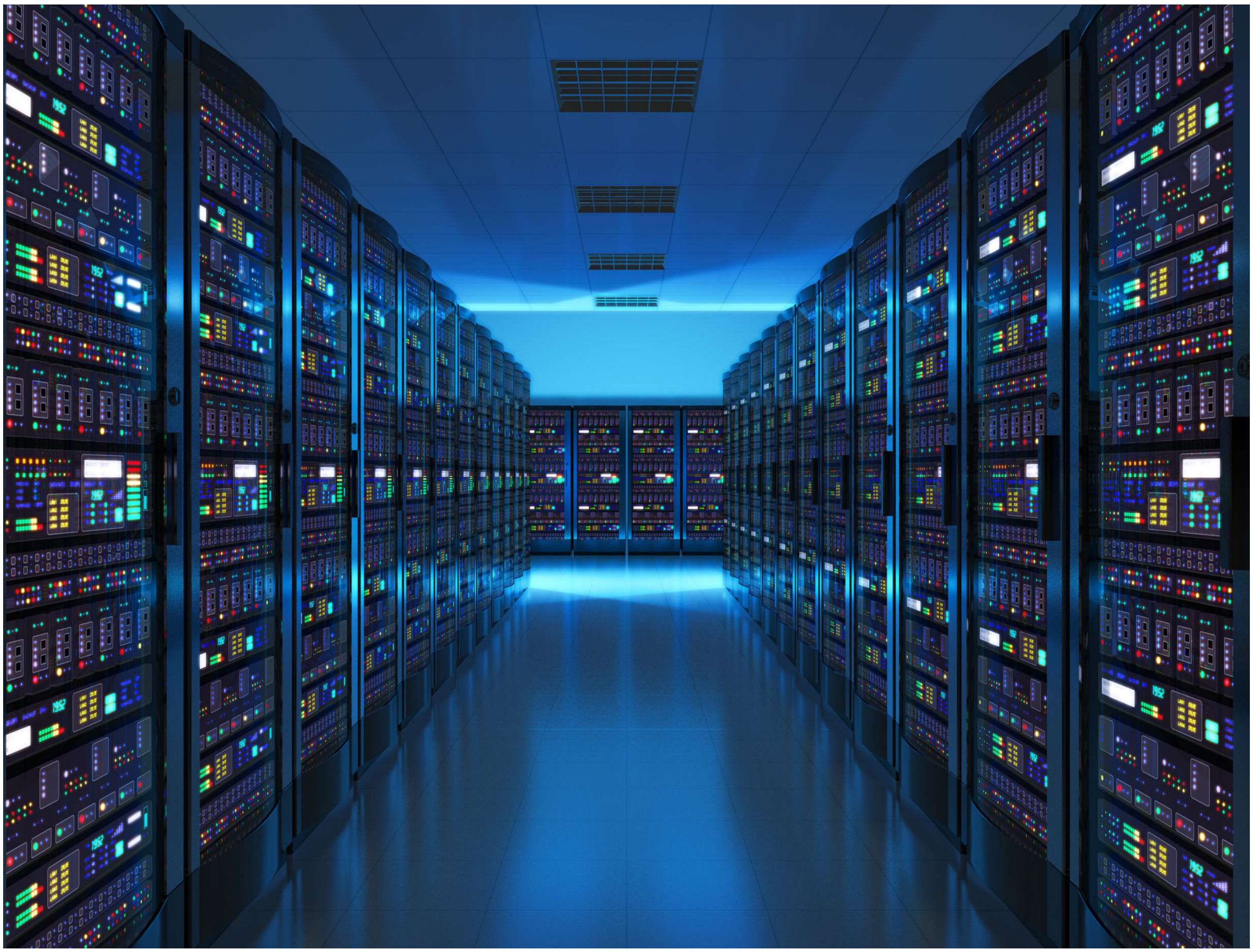
> *Think of sending an email with an attachment. Recipients don't receive the original; they receive an electronic copy of both documents. But when we send money electronically, we don't send a copy. If we did, senders would still be in possession of the funds. Blockchain technology works similarly in that we can use it to send money through PCs. Each transaction is saved into an electronic block and connected to previous transactions, then copied into a network-wide distributed ledger involving thousands of separate computers. These blocks cannot be altered or erased....No transaction can be added to the chain without the consensus of all other users, and each transaction is permanently recorded in many locations, reducing or eliminating the potential for fraud.*

Perhaps the most well-known blockchain network is Bitcoin, a cryptocurrency whose supply, value, and usage is likewise continuously confirmed by and recorded on its blockchain. Like the internet, blockchain technology is most useful when a large number of entities participate in it. And like the internet, achieving a significant level of uptake will probably take several years. However, the equipment finance industry should be attuned to the fact that blockchain is a potentially game-changing technology and is likely here to stay.

The greatest risk associated with blockchain technology for the equipment finance industry is that as an inherently decentralized, distributed financial network, it needs no intermediaries. Transactions are recorded and accounted for not by a traditional financial institution, but by the network itself. Therefore, if blockchain technology takes hold in the industry, it could result in less demand for banks by eliminating the need for a trusted middleman in favor of a trusted system.

All industry experts interviewed for this report agreed that widespread adoption of blockchain is unlikely to occur anytime soon, but many recognized the possibility that this technology could eventually revolutionize how transactions are recorded. In the meantime, blockchain is generally unregulated and perceived by many (correctly or incorrectly) as high risk. For this reason, it is likely that a robust federal regulatory structure would need to be implemented before blockchain could truly take hold as a safe and viable replacement for banking intermediaries.

Still, as an emerging technology with the potential to completely upend the global financial system, blockchain technology should be closely watched by industry leaders, as its disruptive effects would have a major impact on banks and non-banks alike.



NOTES

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