2017 BDO MANUFACTURING RISKFACTOR REPORT

2017 BDO Manufacturing RiskFactor Report

Next-Gen Manufacturing = Next-Level Risks

Ready or not, the next generation of manufacturing has arrived. Manufacturers are up against coalescing forces of technological disruption, economic uncertainty, globalization and trade upheaval—all of which will shape the manufacturing industry of tomorrow. Today, that means a wide array of business risks to identify, evaluate and build into business strategy.

But there's also ample reason to believe 2017 is primed for a manufacturing renaissance. The Institute for Supply Management's Manufacturing Index inched up to 54.9 in May, beating estimates and indicating the manufacturing economy grew for the 96th consecutive month. New orders, employment and inventories reflect stability, and coupled with the installation of a new administration vocally committed to boosting U.S. manufacturing competitiveness, momentum seems to be building.

"While manufacturing companies are riding a wave of optimism propelled by the Trump administration's stated focus on regulatory reprieve, the feasibility and speed of potential reform is still murky. There's hope in the industry that a solid level of balance will be reinstated between the greater good some regulations seek and the high costs of compliance."

Rick Schreiber, leader of BDO's Manufacturing & Distribution practice, National Association of Manufacturers board member

Top 20 Risk Factors

cited by the 100 largest publicly traded U.S. manufacturers in the fabricated metal, food processing, machinery, plastic and rubber, and transportation equipment sectors

RISK FACTOR CITED IN 10-K FILING	2017		2016		2015	
Supplier, vendor or distributor disruption	#1	100%	#1t	100%	#1t	100%
Federal, state and local regulations	#2t	98%	#2t	99%	#1t	100%
Labor costs, retention and outsourcing	#2t	98%	#3	97%	#3	98%
General economic conditions, including disruptions in the financial markets	#4	97%	#6	96%	#4	97%
Competition and pricing pressure	#5t	96%	#3t	97%	#5t	96%
Environmental regulations and liability	#5t	96%	#7	95%	#5t	96%
Cybersecurity breaches	#5t	96%	#9	92%	#17	86%
Threats to international operations	#8t	94%	#8	94%	#9	93%
Failure to execute growth or efficiency strategy	#8t	94%	#12t	91%	#10	91%
Foreign currency exposure	#10t	93%	#9t	92%	#12t	88%
M&A, joint ventures and partnerships	#10t	93%	#9t	92%	#12t	88%
Operational infrastructure, including information systems and technology	#10t	93%	#12t	91%	#15t	87%
Less demand for products or services	#10t	93%	#15t	88%	#12t	88%
Commodity, component and raw material costs and availability	#14	92%	#3t	97%	#5	96%
Natural disasters, terrorism and geopolitical events	#15	90%	#12t	91%	#15	87%
Access to capital, financing and liquidity	#16	89%	#15t	88%	#11	89%
International trade policies	#17	87%	#18t	84%	#20	84%
Innovation and meeting consumer needs/ preferences	#18	82%	#17	87%	#18t	85%
Litigation and legal proceedings	#19	81%	#18t	84%	#8	95%
Product contamination and recalls	#20	80%	#18t	84%	#21	79%

**t indicates a tie in the rankings*

MAJOR VOTES ROCK THE STATUS QUO

2016 was undoubtedly a mercurial year in politics. One in 5 manufacturers mention the 2016 U.S. general election and changes associated with the installation of the new administration in their filings. As businesses wait to see how campaign rhetoric will play out in enacted policies, manufacturers seem to be feeling uncertainty around economic priorities and spending. The United Kingdom's Brexit vote in June also spurred global shockwaves. As negotiations continue, global manufacturers could face disruptions to their European supply chains.

20%
mention risks associated with the **new administration**

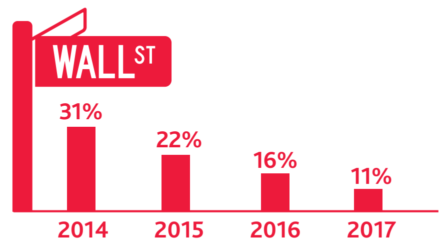
19%
point to **infrastructure spending**, up from 14% in 2016

30%
mention the U.K.'s **Brexit** vote

BALANCING THE REGULATORY SCALES

While it's too early to tell the full scope of changes to come, regulatory easing was a major theme throughout the Trump campaign. One key promise was repealing the Dodd-Frank Wall Street Reform and Consumer Protection Act. In early May, the House Financial Services Committee voted to send the Financial CHOICE Act—which would roll back significant pieces of Dodd-Frank—to the House floor, where the bill passed in early June. Its fate in the Senate, however, remains unclear.

98%
point to **federal, state and local regulations**



11%
cite **Dodd-Frank**

ENVIRONMENTAL LIABILITY HEATS UP

Challenges and regulations related to the environment are also a consistent thorn in manufacturers' sides. More than a third say the effects of climate change are a threat to their business, but regulatory standards aimed at addressing those concerns bring their share of challenges.

35%
say the effects of **climate change** are a threat

96%
say **environmental regulations** are a risk

49%
identify **emissions standards**, up 17% from 2016

STAFFING THE NEXT INDUSTRIAL REVOLUTION

Manufacturers are still working out the kinks when it comes to finding, retaining and engaging the next generation of engineering, technology and factory floor talent. Simultaneously, they're feeling their C-Suite personnel trickling into retirement. That's leaving many unsure of how to staff the industrial revolution that's underway—and speeding up.

98%
point to **labor costs, retention and outsourcing** challenges

2/3
of manufacturers mention **strikes or work stoppages**

75%
cite **attracting and retaining key management personnel**

SPOTLIGHT

On Your Mark, Get Set, Go – To Industry 4.0

The arrival of Industry 4.0, or the fourth industrial revolution, signifies the next era in manufacturing in which plants, processes, products and people come together in an entirely new way and blur the line between the digital and physical.

Borne out of a confluence of technology disruptions—including Big Data, analytics, the Internet of Things, and artificial intelligence—Industry 4.0 ultimately hinges on the ability to integrate data with physical processes. The growth of smart factories has the power to transform the entire manufacturing landscape in many ways. But two of the most important transformations to watch are the changing roles of human operators as a result of automating and decentralizing monitoring and decision-making in factories, as well as the emergence of new security risks on factory floors and in products.

"Just as a contractor wouldn't build over a cracked foundation, manufacturers must be certain they have the right building blocks in place to implement advanced technology in their operations and products. Moving too quickly without establishing the right infrastructure and business intelligence systems could put companies on shaky footing later."

Eskander Yavar, national leader of BDO's Management Advisory Services practice

BRICK BY BRICK: BUILDING A NEXT-GEN STRATEGY

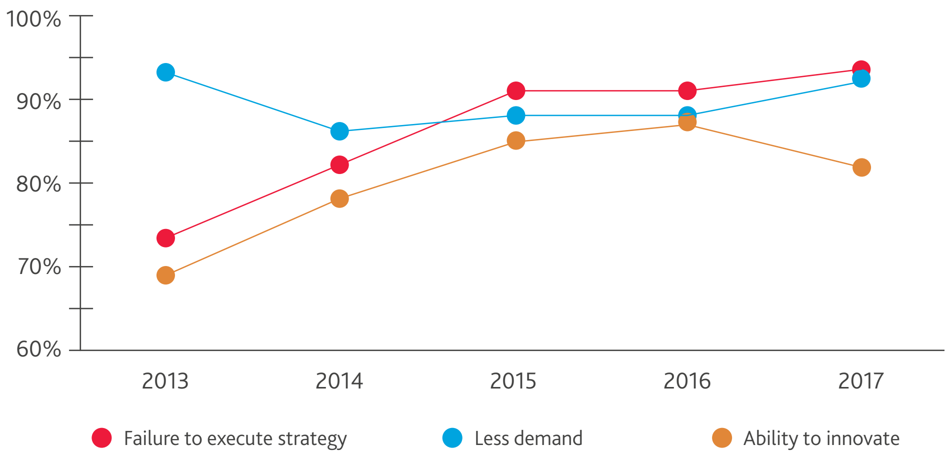
Implementing and maintaining systems that preserve the integrity of production processes without the same level of human oversight remains one of the main challenges to Industry 4.0 implementation. If the underlying data or analysis has errors, the automated decision-making based on that data will also be error-prone. More than ever, it will be imperative to ensure data is clean, accurate and accessible as part of an overall information governance strategy.

Industry 4.0 is already enabling an evolution in product design and speed to market. Additive manufacturing and rapid prototyping techniques are fueling a "fail fast" mentality, more complex designs, smaller parts and less waste. These changes coincide with a shift in demand from standardization to customized products and modular manufacturing. And manufacturers seem to be feeling the pressure to keep up. This year, more than 9 in 10 (93 percent) manufacturers worry about slowing demand for their products, up from 88 percent last year.

BDO's recently released [2017 Global Risk Landscape study] shows U.S. manufacturers aren't alone in their challenges keeping up with rapidly shifting customer demands, but they do feel outsized pressure. Compared with 82 percent of the U.S. manufacturers we analyzed, 72 percent of global companies surveyed across industries ranked failure to innovate and meet customer needs as one of the top risks for which their business is unprepared.

More than 9 in 10 (94 percent) companies cite risks related to executing corporate strategies, like growth, cost reduction or the improvement of efficiencies. The number of manufacturers mentioning strategic challenges has increased 27 percent over the last four years, suggesting companies could be facing challenges while building long-term strategies that address disruptions to their business models, products and processes.

THE RACE TO INDUSTRY 4.0



93%
point to challenges with implementing and maintaining information systems and operational infrastructure

BYTE BY BYTE: STRENGTHENING CYBER DEFENSES

Arguably, the biggest challenge to implementing Industry 4.0 is cybersecurity. The integration of new cyber-physical systems creates more potential access points for bad actors, leading to an entirely new set of security risks on factory floors and in products themselves.

Cybersecurity broke into U.S. manufacturers' top five risks this year with 96 percent citing potential security breaches in their filings. That represents a 50 percent jump from just four years ago, when 64 percent of manufacturers mentioned them. For manufacturers, data breaches don't always target customer data; intellectual property theft is often a top motivator for hackers. Our analysis found 69 percent of manufacturers cite copyright or intellectual property risk in their disclosures.

It's no surprise that cybersecurity is now fully on manufacturers' radars. According to IBM Security, ransomware attacks, which target critical data and information systems for the purposes of extortion, rose by 6,000 percent in 2016. Not only are attacks growing more frequent, but they're also reaching unprecedented magnitudes. In mid-May, news broke of a massive global cyberattack, dubbed "WannaCry," with more than 75,000 ransomware attacks in 153 countries, and an estimated 3,300 infections in the U.S. Manufacturers often have complex networks and a vast array of Internet-connected devices and machinery, which put them at risk for these types of attacks. And there's also the human element: spear-phishing attacks rely on users to open fraudulent emails and attachments, and the WannaCry attack succeeded because many users failed to install a months-old Microsoft patch.

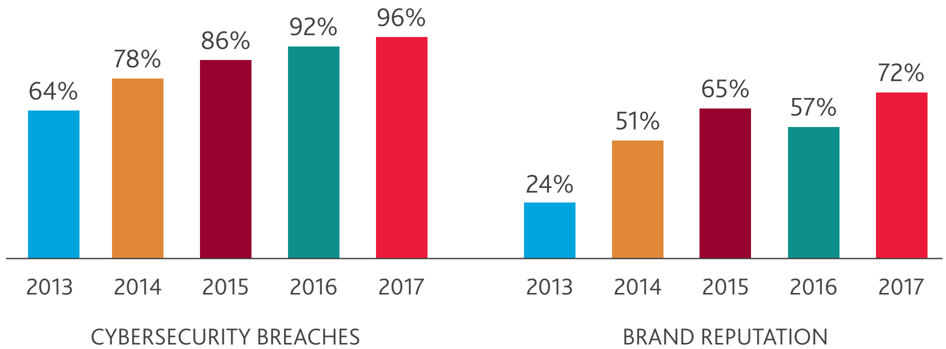
The average cost of a data breach in 2016 was $4 million, according to IBM and Panemon. And beyond the financial fallout, companies can experience significant reputational costs in the aftermath of a breach if trust in their brand falters as a result. The number of companies citing threats to their brand reputation and image has tripled since 2013, with almost three-quarters (72 percent) mentioning the risk this year.

On the bright side, the prevalence of cyberattacks has shifted the dialogue around how companies approach cybersecurity protections. It's no longer about if your company will experience a breach, but when. As companies become more reliant on information systems and operational technology, the focus of cyber strategy is shifting from prevention to defense.

Data from our **2017 MPI Internet of Things Study** suggests manufacturers still have room for improvement in their cybersecurity protections, and some could even be overconfident. The majority (81 percent) of manufacturers surveyed globally say they're confident in their current cyber risk management program's ability to address security concerns in the increasingly connected manufacturing environment. Yet more than a quarter (27 percent) said they don't have or are not sure if they have a security policy in place for their supply chain partners and other vendors.

As manufacturers shift to more connected manufacturing operations, security must be considered and embedded into products from design to distribution and everywhere in between. Manufacturers need to build a forward-looking cybersecurity framework that considers the evolving threat environment and cyber risk throughout the entire supply chain. To achieve that, investments should prioritize proactive threat intelligence, detection and rapid response.

CYBERSECURITY & REPUTATION RISK



"With the nation's eyes on the manufacturing industry, companies can't afford to take chances with their cybersecurity measures. It's safe to assume a breach is always a possibility, so to avoid manufacturing interruptions, losing valuable intellectual property and taking a reputational beating in the event of a cyberattack, manufacturers should regularly test their incident response plan to ensure it's ready to deploy at a moment's notice."

John Riggi, Head of BDO's Cybersecurity and Financial Crimes Practices

SPOTLIGHT

Future for Finances: Ask Again Later?

Amid unprecedented innovation and change in the industry, many manufacturers have one critical question: How will we fund it?

Companies are looking closely at their financials, liquidity and expectations for the future to ensure they can fund innovation and growth while still meeting the demands of existing customers and orders. To be sure, there is plenty of reason for optimism. In addition to the ISM Manufacturing Index's indication of steady growth, the Manufacturers' Alliance for Productivity and Innovation Foundation forecasts 1.6 percent growth for U.S. manufacturing and a U.S. GDP growth of 2.2 percent over the next three years. But perhaps most notably, the National Association of Manufacturers (NAM) reports that 93.3 percent of manufacturers are positive about their own company's outlook, up significantly from 56.6 percent last year and marking an all-time high for their survey.

Still, manufacturers remain exposed to external factors out of their control; chiefly, the availability of capital, challenges in business planning and the potential for increased interest rates. With uncertainty around these critical factors, manufacturers may be as good at predicting outcomes as a Magic-8 Ball.

"Spurred by a positive environment, many manufacturers have expanded capital spending budgets this year. Whether these funds are earmarked for acquisitions, the Internet of Things, or other investments, having sound plans for financing and cash management are important to ensure capital availability and cost minimization and ultimately to maximize the bottom line."

Dan Shea, managing director, BDO Capital Advisors

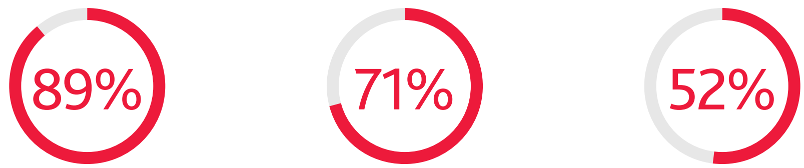
CAPITAL CONCERNS: IF YOU ALLOCATE IT, WILL IT COME?

NAM's [First Quarter Outlook Survey] found that manufacturers expect their own capital expenditures to increase by 2.1 percent in 2017. Most report they are encouraged to spend due to increased demand, new products and innovations, and the possibility of an improved business policy environment.

Despite renewed opportunities to deploy capital, concerns over liquidity and access to financing held steady in our analysis. In addition, more manufacturers point to risks related to their debt exposure and financial or debt covenants that could limit their flexibility to act on opportunities like M&A, expansion and innovation. Seasonality and the cyclicality of sales are also a risk for just over half of manufacturers, many of whom point to challenges with strategic planning and liquidity linked to difficult-to-predict sales periods and results.

MORE CONFIDENCE IN CUSTOMERS

While manufacturers may be feeling uncertain about their own financial security, they appear to have more confidence in the financial footing of their key customers. Concerns over customers' access to capital and credit remained relatively steady in this year's study, but fewer manufacturers point to the potential loss of a major customer, canceled orders, excess inventory and the general health of the industries they serve.

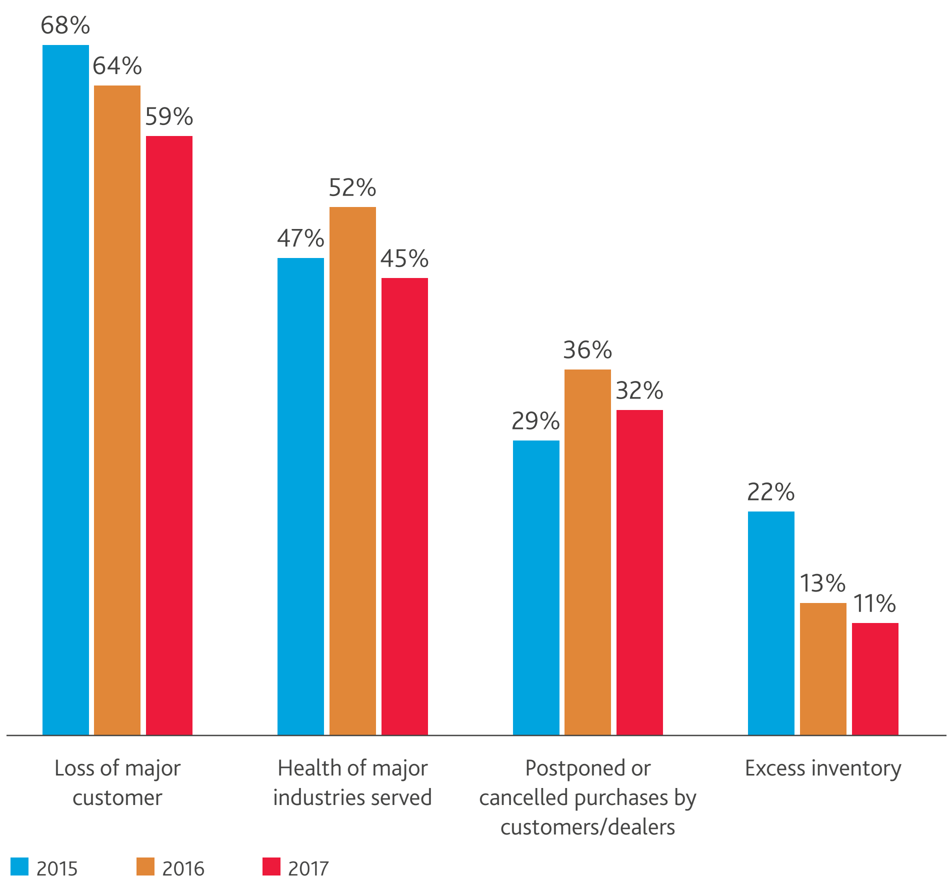


note concerns over **access to capital**

cite **indebtedness and lack of flexibility**, up from 61% in 2016

cite **challenges with seasonality and cyclicality**, up from 45% in 2016

MORE CONFIDENCE IN CUSTOMERS



In addition to being themselves a bellwether of the overall economy, manufacturers also serve many industries that track closely to the health of the market, including energy and construction. There are high hopes that 2017 will be a rebound year for both sectors.

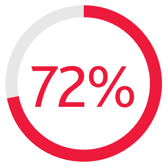
After oil slumped to less than $30 a barrel at the end of 2015 and beginning of 2016, the oil & gas market has largely stabilized. In early June, crude prices dipped 4 percent, surprising the market at the beginning of the busy summer travel season. Looking at the industry overall, however, OPEC's decision to cap production to stabilize supply and demand has helped prices rightsize. It also provided a temporary boost to U.S. energy companies that have ramped up production. The Energy Information Administration expects U.S. oil production will reach a record 10 million barrels per day in 2018.

The Trump administration's pro-manufacturing policies also extend to planned infrastructure spending. While there is hope that a renewed focus on infrastructure from the White House and Congress will spur growth for manufacturers, particularly those that serve the construction and building industries, whether that will materialize remains to be seen. Construction spending dropped in May despite a forecasted increase, reflecting a slowdown in homebuilding and new construction projects.

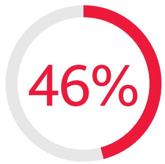
THE RATE DEBATE: WILL THEY, OR WON'T THEY?

One stumbling block for manufacturers' momentum is the potential for raised rates. In March, the Federal Reserve signaled their own confidence in the economy by raising the short-term interest rate to its highest level since 2008. In mid-June, the Fed raised the short-term interest rate by 0.25 percent, signaling confidence in an improving job and labor market. Some analysts predict it will not be the last rate increase this year.

As a result, the number of manufacturers pointing to interest rate changes as a risk jumped significantly this year, perhaps reflecting improved confidence in the economy and the realities that rate increases are more likely. In 10-K filings, manufacturers note that interest rate increases could negatively impact sales by placing more financial strain on customers and impacting their own return on investments and cash flows. More manufacturers also point to concerns related to their hedging instruments and arrangements, which may not protect them fully from exposures to both rate increases and currency exchange rates.



say **interest rate changes** are a risk, jumping 31% from 2016



worry **hedging activities** may not successfully address risk, up from 36% in 2016

cite concerns over **government banking, monetary and fiscal policy**, up from 28% in 2016

SPOTLIGHT

Manufacturers Navigate Global Flux

For much of the period of modern globalization, the search for lower production costs propelled a steady migration of American manufacturers' plants overseas. Now, the combined forces of protectionist trade and immigration measures, rising commodity costs and sharpening international currency risks might be priming the industry to buck this trend.

A NEW COMPASS FOR TRADE

Manufacturers are heavily revising their financial and supply chain models to adapt to global shifts. This year, 94 percent report risks to their international operations and sales, which has been consistent in the past two years of our analysis. The U.S. is a manufacturing powerhouse—it accounts for 19 percent of global manufacturing, according to *Bloomberg*—and that figure could rise in the wake of a flurry of "America First" policies implemented by the Trump administration in its first few months.

Most notably, the U.S. withdrew from the Trans-Pacific Partnership (TPP) and the Paris climate accord, and vowed to renegotiate the North American Free Trade Agreement (NAFTA). These decisions may reverse manufacturers' long-established dependence on foreign countries for supply chain operations, growth markets and labor. **The effects will play out both immediately and in the long term**, shifting manufacturers' processes, standards and operations. American manufacturers will also closely watch how the remaining members of NAFTA, the TPP and the Paris climate accord proceed without U.S. involvement.

In terms of European relations, Brexit concerns 30 percent of manufacturers included in our analysis. So far, British manufacturers have been keeping calm and carrying on, but this could change as the U.K. begins to formally exit the European Union. Manufacturers cited the **difficulty of predicting the Brexit fallout**, but they do anticipate divergent trade regulations, stock market volatility, currency fluctuations and diminished consumer confidence as potential challenges once the legal divorce is passed.

Domestically, these developments could send a signal to manufacturers to re-shore their assets. While re-shoring has been on the industry's radar for several years, 2017 could be the year for acceleration. Given the administration's stated focus on reforming global trade partnerships, there could be changes in how the U.S. participates in national security reviews with other countries, as well as impacts on the Committee on Foreign Investment in the United States' (CFIUS) position on reciprocal market access. The Department of Commerce is planning a report that aims to streamline federal permitting processes and question regulations that are slowing down domestic manufacturers.

94%

cite threats to **international operations** and sales

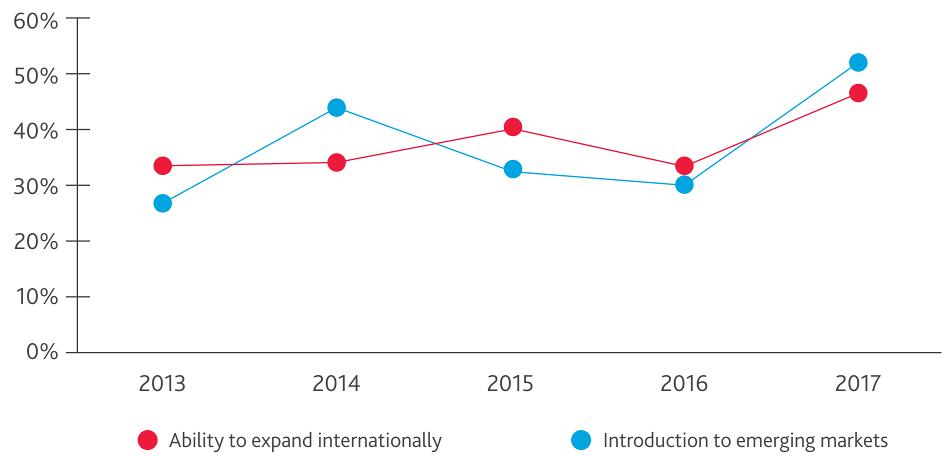
87%

are concerned by **restrictive trade policies**

20%

cite challenges posed by the **new administration**

RISKS OF INTERNATIONAL EXPANSION



"While countries across the globe work to cement economic and political priorities, manufacturers are proceeding with business as usual. With rules impacting cross-border deal flow, supply chains and global trade in the balance, digital industrial implementations and promoting talent expansion will be key growth drivers for the industry while the uncertainty plays out."

Tom Lawton, National Head of Manufacturing, BDO UK (UK member firm of BDO International)

GLOBAL TAX REFORM STILL PLAYING OUT

Globalization and economic development has spurred a surge of demand for U.S. brands and products in emerging or previously untapped international markets. This year, almost half (47 percent) of American manufacturers are concerned with their ability to expand internationally, up 42 percent from last year. Risks associated with expanding into emerging markets were mentioned by 51 percent, a 19 percent jump from 2016. Manufacturers pointed to lack of confidence in consumer demand and expansion climates in emerging international markets in their disclosures.

Companies engaged in multinational operations are watching the new administration's proposed tax reform closely, as the proposal comes with many implications for global companies. If tax reform passes, only income originating within the U.S. would be taxed in the U.S. and companies would repatriate foreign earnings. On a global scale, the Organization for Economic Co-operation and Economic Development (OECD) is working on a 15-point Action Plan encompassing BEPS, transfer pricing, interest deduction and financial payments. The OECD's Action Plan advises that companies with international operations and annual revenue north of $850 million file country-by-country reports on income and taxes paid. With this guidance, the OECD aims to prevent large corporations from taking advantage of international tax discrepancies and help global tax authorities monitor transfer pricing risk.

After a years-long rally in the strength of the dollar, manufacturers have felt its effects on trade; particularly, the slowing of exports. But early winds of change seem to be blowing as the U.S. dollar trades near a seven-year low. Despite that, import rates increased at an unexpected rate in April, suggesting demand for foreign goods isn't yet contracting along with the dollar's strength. While the recent decline hasn't yet spurred significant effects, a return to early-2016 lows could spur higher inflation and lower wages and cause profit margins for manufacturers and retailers to take a haircut. This year, more than 9 in 10 manufacturers cited currency risks in the year ahead.

KEEPING AN EYE ON ANTI-BRIBERY BLIND SPOTS

The number of manufacturers pointing to concerns around the Foreign Corrupt Practices Act (FCPA) hovered at 71 percent this year. Since 2013, the number of manufacturers citing anti-bribery and anti-corruption regulations as a risk climbed by 58 percent. Intended to promote American business around the world, the FCPA's regulations tightened recently with news that companies can now be charged if they are deemed to have "created a risk" of bribery. Already in 2017, Rolls-Royce plc, the British manufacturer and distributor of power systems for the aerospace, defense, marine and energy sector, agreed to pay $170 million to the U.S. following an international investigation into the company's bribery schemes to win government contracts.

President Trump has openly criticized the FCPA, and in February he struck down a rule created using a Dodd-Frank amendment that required oil, gas and mining companies to disclose how much they pay to foreign governments. While they wait for clarity on the future of anti-corruption regulation, manufacturers can shield themselves from potential FCPA violations by prioritizing transparent finances throughout their global operations, scheduling diligent monitoring of their operations and voluntarily disclosing FCPA violations before the threat of a government investigation arises.

"Globalization, technological disruption and an increasingly populist agenda in the U.S. and Europe have led to more complex business environments that are ever-changing. For manufacturers, success will require a deft touch to evolve their business models and supply chains, and balance seizing opportunity with managing risk."

Vicky Gregorcyk, national leader of BDO's Risk Advisory Services practice

Despite international volatility and disruptions in the markets and technology sphere, manufacturers should still find solace in the exciting developments being made by companies of all sizes. Industry 4.0 is energizing and refining manufacturers' products and processes, and the new administration remains focused on vigorously revitalizing the sector within the U.S. Some necessary changes might be temporarily painful, but manufacturing remains a broadly supported industry with potential to spark global economic growth.

The ***2017 BDO Manufacturing RiskFactor Report*** examines the risk factors in the most recent 10-K filings of the largest 100 publicly traded U.S. manufacturers in the food manufacturing, transportation, fabricated metals, machinery, plastics and rubber segments; the risks are analyzed and ranked by order of frequency cited.

ABOUT BDO'S MANUFACTURING & DISTRIBUTION PRACTICE

BDO's Manufacturing & Distribution practice consists of multi-disciplined professionals, well versed in compliance and consulting matters. Our professionals have many years of experience in financial reporting and accounting, tax and auditing issues and are continually updating their knowledge and, therefore, are dedicated to giving timely and accurate advice.

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RICK SCHREIBER
Manufacturing & Distribution Practice Leader, Memphis
901-680-7607 / rschreiber@bdo.com

LARRY BARGER
Managing Director, Assurance, Pittsburgh
412-434-8203 / lbarger@bdo.com

MATT BECKER
Tax Partner, Grand Rapids
616-802-3413 / mkbecker@bdo.com

CATHY ROZANSKI MCNAMARA
Assurance Partner, Detroit
248-244-6524 / crozanski@bdo.com

ESKANDER YAVAR
Management Advisory Services National Leader, Houston
713-407-3293 / eyavar@bdo.com

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