Roland Berger Focus

August 2017

Building materials industry potential upsides in an uncertain market

North America building materials winners and industry outlook

Roland Berger

50 YEARS

navigating complexity

Management summary

Generally speaking, the building materials sector and the underlying construction industry have recovered from the Great Recession in 2009. Analysis of Roland Berger's Building Materials Company Index illustrates that total shareholder return is up 41 percentage points over the past three years from July 2014 to June 2017. 2016 year-over-year revenues growth is at 3.1% and industry EBIT margins are at 10.0%. Furthermore, 62% of building material companies are earning above the historical industry average cost of capital (8%).

The primary driver of this relatively healthy performance is the rebounding of the underlying construction market. Construction value put in place reached USD 1.16 trillion in 2016, up from USD 1.00 trillion in 2014 (8.1% p.a.). This growth has been largely driven by the residential sector which grew from USD 375 bn in 2014 to USD 464 bn by 2016 (11.3% p.a.). Sub-industry trends in the residential construction market include double-digit growth in the multi-family segment (2014-2016 CAGR of 15.6%) and population growth in the Southern US.

However, there have been some headwinds hampering the sector – A workforce shortage has consistently plagued the sector with 56% of homebuilders reporting a shortage of labor on projects. This labor shortage has had knock-on effects in the forms of delayed projects, increased wages and higher home prices. Some builders have also had to slow down the pace of accepting new orders to make sure they can meet deadlines.

As we look to the future, there are some short term and long term prospects to alleviate some of the headwinds. The federal government is currently reviewing its regulatory and compliance policies to reduce red tape and costs. There may also be opportunities for the industry to lobby the Trump administration for further relief. Furthermore, if the Trump administration passes its promised USD 1 trillion infrastructure plan, it would be a major windfall for the industry and potentially jump-start labor's interest in the sector.

Beyond regulatory changes and government spending, in the long term, digitalization is an opportunity that the industry has only begun to explore. The internet of things and 24/7 connectivity are converging to make the prospect of building information modeling across the construction value chain a reality. This creates opportunities for innovative building materials companies to streamline processes, directly access end customers and cut costs. Ultimately, digitalization may help to overcome industry headwinds. In this paper we will discuss the financial performance of different parts of the Roland Berger Building Materials Index as well as an overview of the short and long term trends impacting the industry.

Contents

Section 1:

Improvement in favorable conditions

Building Materials industry performance in 2016.

For most of the North American building materials industry, 2016 was a year of strong performance. Construction activity continued to grow, with value put in place of USD 1,164 billion, up nearly 50% from the Great Recession low of USD 788 billion in 2011. The segment that struggled the most, Group F (Construction Metals), showed signs of recovery as prices rebounded somewhat beginning in early 2016.

Industry revenues and profit margins increased by 9.1 and 2.7 percentage points over 2015, respectively. → A

Productivity measures were flat, with working capital of less than 20% of revenues, and revenues of 0.9 times assets (asset turnover). Debt levels were reduced significantly, driven mainly by Group C (Roofing, Siding, and Other Materials) and Group F. Risk-adjusted profits (ROIC – WACC) improved by 2.2 percentage points, with returns on invested capital of 1.5 percentage points above cost of capital.

A: Financial metrics.
Building materials industry financial performance dashboard[1].

		2016	2015	2014-2016 AVERAGE
REVENUE	Revenue [USD bn]	144.2	139.8	144.3
GROWTH	Revenue growth [year-on-year]	3.1%	-6.0%	0.0%
PROFITS	EBITDA margin	10.0%	7.3%	8.2%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	19%	18%	18%
	Asset turnover	0.9x	0.9x	0.9x
RISK	Debt/EBITDA	2.4x	3.1x	2.8x
WINNER'S METRICS	ROIC-WACC	1.5%	-0.7%	0.1%
	Invested capital growth	0.7%	-1.0%	-0.3%
	% of industry earning cost of capital (ROIC > WACC)	62%	68%	62%

1) Includes 88 building materials companies with publicly available finances and headquartered or listed in North America (USA, Canada, and Mexico)

Source: Capital IQ, Roland Berger

B: Industry classification.
We divided Building Materials companies into six industry segments (based on primary SIC industry).

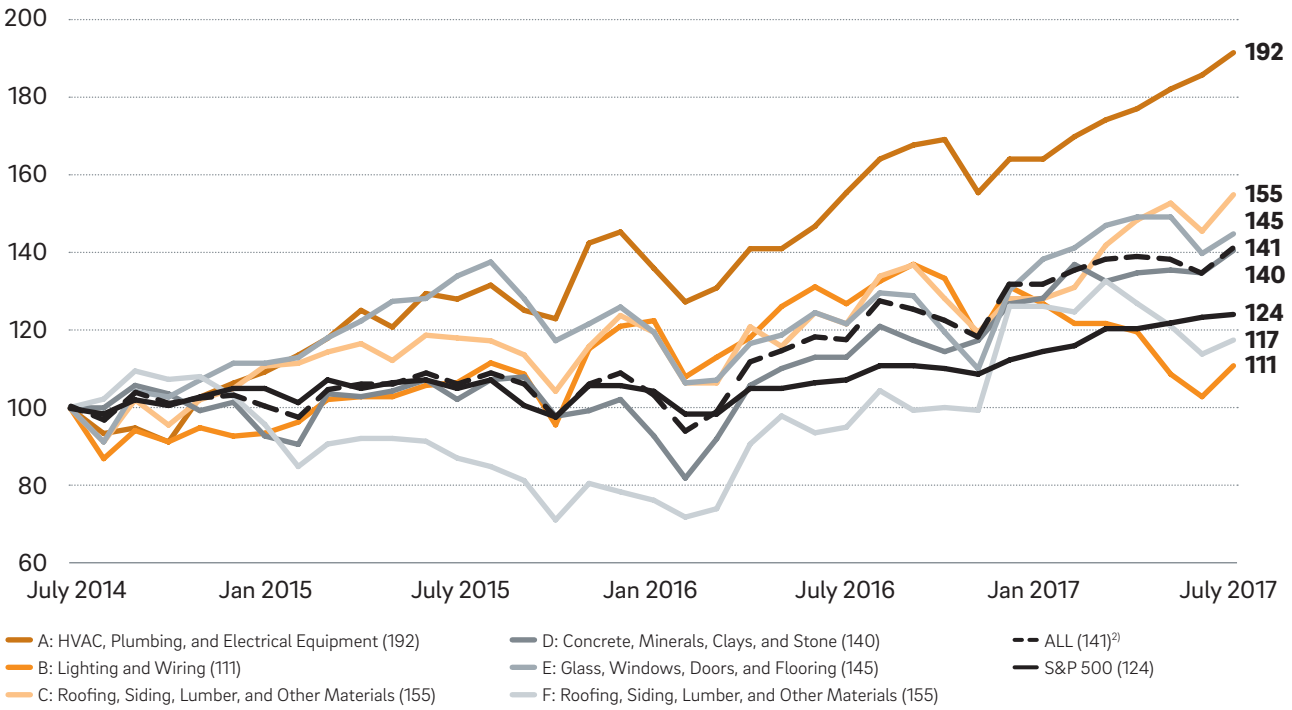
INDUSTRY SUB-GROUP	PRODUCTS	DESCRIPTION
A	**HVAC, Plumbing, and Electrical Equipment**	Includes manufacturers of refrigeration and heating equipment, hot water heaters, boilers, plumbing fixtures, blowers, fans, and electric housewares
B	**Lighting and Wiring**	Includes manufacturers of electric lighting and wiring equipment, and those engaged in drawing and insulating of wire
C	**Roofing, Siding, Lumber, and Other Materials**	Includes manufacturers of millwork, structural wood members, and wood products including cabinets; roofing, siding, and decking products of various materials; and paints, miscellaneous plastics, and other materials
D	**Concrete, Minerals, Clays, and Stone**	Includes producers and manufacturers of cement and concrete ingredients, concrete products, mineral products, and structural clay products
E	**Glass, Windows, Doors, and Flooring**	Includes manufacturers of finished glass products, windows, interior and exterior doors, and flooring products
F	**Construction Metals**	Includes manufacturers of steel, basic metal products, and metal hardware

Source: Capital IQ, Roland Berger

Companies were rewarded for strong performance with total shareholder returns of 12.1% p.a. for the period of mid-2014 to mid-2017[1], versus 7.3% p.a. for the S&P 500. → C Over this period, segments with more differentiated and higher value-add products outperformed commodity-based segments. Groups A, C and E performed strongest, with total shareholder returns of 13% p.a. or greater over the three-year interval. Despite weaker results over the three years, commodity-based Groups D and F had strong returns of greater than 30% in 2016. Group B had a three-year annual return of 14.5% at the end of 2016 but dropped recently, partly due to perceived vulnerability to potential tariffs on Mexican imports.

1 Calculated from 6/30/2014 to 6/30/2017

C: Value of USD 100 invested[1].
Building Materials outperformed the S&P 500 in terms of total shareholder returns in 2016.



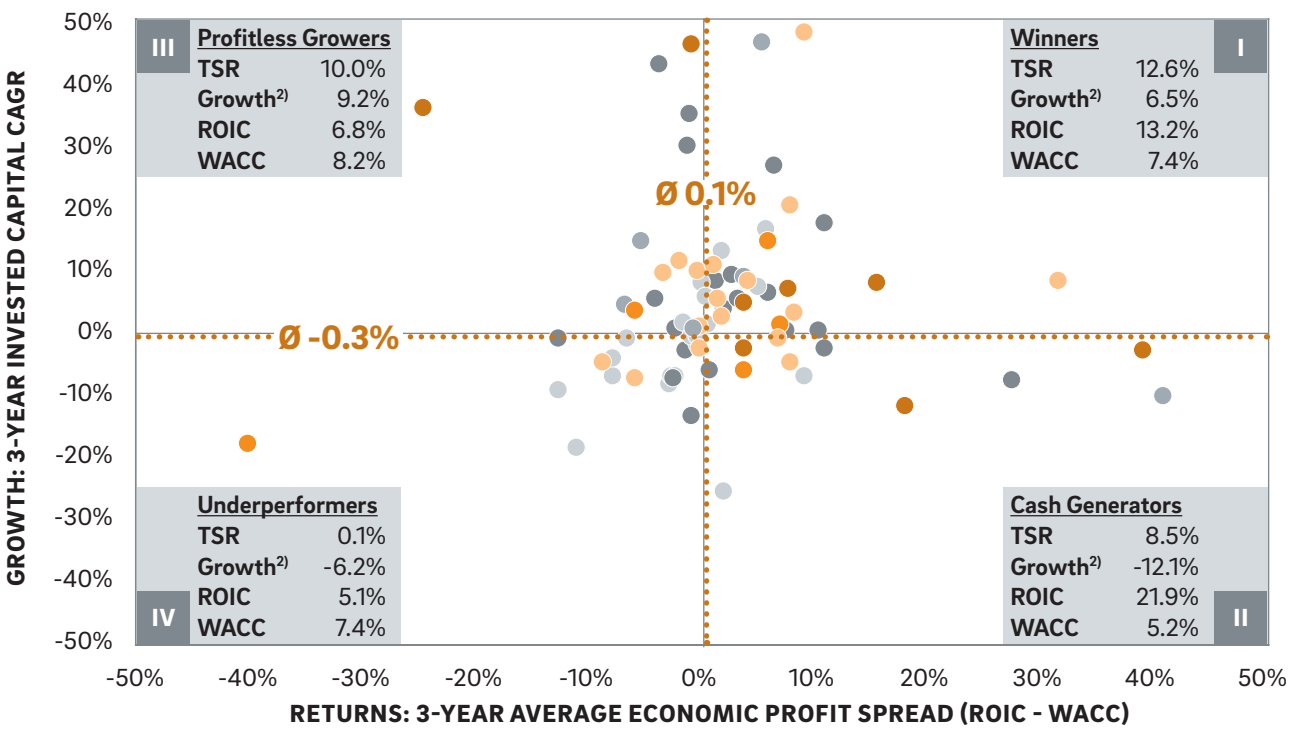
1) Total shareholder returns account for capital gains and dividends
2) Aggregation of all 88 building materials companies in the analysis

Source: Capital IQ, Roland Berger

The financial performance matrix → D maps companies across the industry according to key profit and growth metrics over full years 2014 through 2016. In our view, these metrics provide a strong basis for shareholder value expectations. At the segment level, the results are mixed. The strongest performers were Groups A, B, and C; with each segment achieving profitable growth. Groups D and E were in the middle, with strong growth (after excluding the noted company from Group D) but poorer profitability. The worst performer again was Group F, as low prices over the period affected profits and levels of invested capital.

The financial performance matrix broadly explains market performance. Quadrant I companies, the Winners, had the highest average total shareholder returns, with 12.6% p.a. (unweighted average). Although Quadrant II companies, the Cash Generators, had the highest returns on invested capital, 21.9% p.a., average total shareholder returns were

D: Building Materials financial performance (Winners' matrix) over 2014-2016[1].
More than half of sector categories achieved profitable growth. "Winners" delivered higher TSR performance than their peers.



SEGMENT[3]	2016 REVENUES [USD BN]	3-YR. AVG. ROIC-WACC	3-YR. CAPITAL GROWTH	NUMBER OF COMPANIES
A: HVAC, Plumbing, and Electrical Equipment	8.3	11.7%	13.4%	7
B: Lighting and Wiring	8.3	3.4%	6.8%	11
C: Roofing, Siding, Lumber, and Other Materials	36.1	1.1%	6.9%	19
D: Concrete, Minerals, Clays, and Stone	31.0	0.1%	-1.0%[4]	22
E: Glass, Windows, Doors, and Flooring	7.5	-1.2%	10.2%	7
F: Construction Metals	45.7	-3.4%	-4.6%	21
Total / Average	**136.8**	**0.1%**	**-0.3%**	**87**

1) 2014-2016. Includes companies with financials of three full years during Dec 31, 2013-Dec 31, 2016; 2) 3-year invested capital CAGR; 3) Excludes conglomerates; 4) Removing one company that has sold significant assets to buyers outside of our analysis group yields 7% growth for the segment

Source: Capital IQ, Roland Berger

lower than those of the Winners, at 8.5% p.a. Quadrant III companies, the Profitless Growers, achieved growth rates of 9.2% p.a., and average total shareholder returns of 10.0% p.a. The Underperformers in Quadrant IV earned average total shareholder returns of 0.1% p.a.

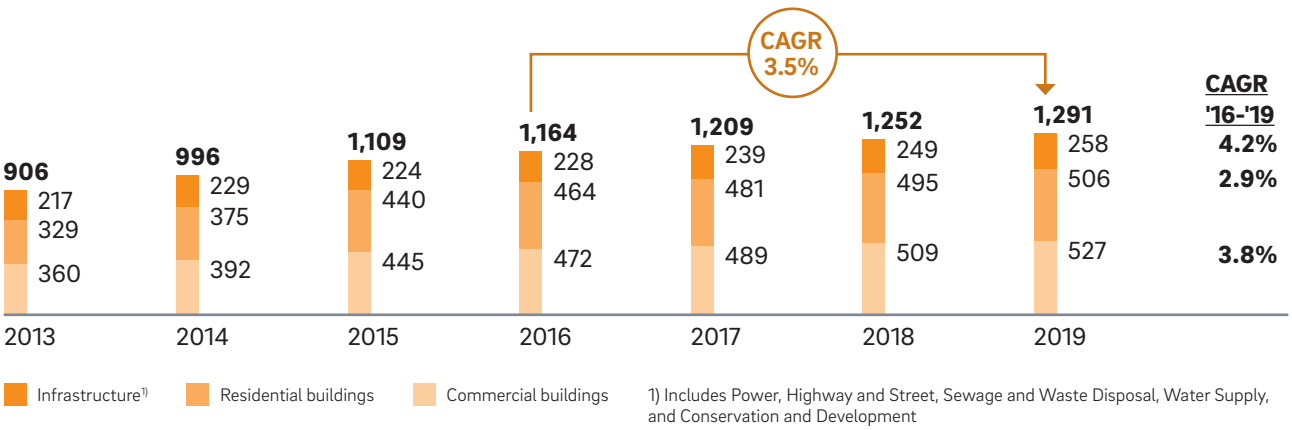
Major segments of the construction market are residential buildings, commercial buildings, and infrastructure. Growth in residential and commercial buildings was the biggest driver on industry performance. → E The annual value of construction put in place in the United States grew at 4.7% in 2016, continuing several years of strong growth. Construction activity is forecasted to continue increasing at 3.5% p.a., with positive factors such as sustained economic growth outweighing negative factors such as a shortage of skilled labor.

Infrastructure value put in place grew by only 1.7% p.a. since 2013; spend levels tend to be more stable than for other categories as over 60% of infrastructure, and virtually all infrastructure besides power, is publicly funded. A 2016 scorecard by the American Society of Civil Engineers graded America's infrastructure at a D+, outlining approximately USD 200 million per year of additional spending needs until 2025[1]. The potential for a major infrastructure spending bill represents significant upside to the projections.

Commercial buildings value put in place grew at 9.4% p.a. from 2013-2016. Office buildings had the strongest growth, tracking the increase in employment since the Great Recession. Manufacturing also grew significantly, led by investment in chemical plants in the Gulf Coast region. Additional growth was created by e-commerce fulfillment centers, as online retailers continued to fill in distribution networks. Construction of warehouse and distribution space serving e-commerce and international trade has increased dramatically since 2010, from 11 million sq. ft. to 76 million sq. ft. per year[2].

1 Source: American Society of Civil Engineers
2 Source: Reis

E: Annual value of construction put in place in United States [USD bn].
From 2016-2019 infrastructure and commercial buildings will lead US construction growth.

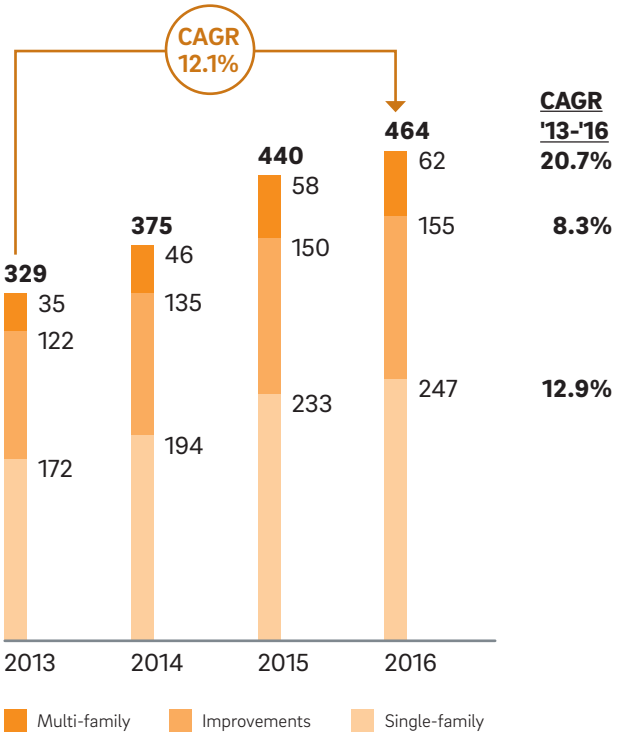


1) Includes Power, Highway and Street, Sewage and Waste Disposal, Water Supply, and Conservation and Development

Source: Capital IQ, Roland Berger

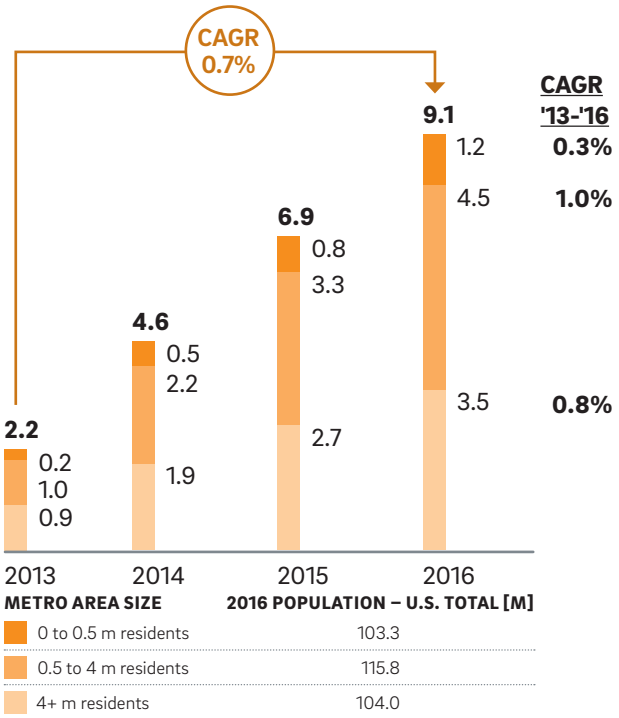
Residential buildings value put in place has grown the fastest in recent years, at 5.5% in 2016 and at 12.1% p.a. since 2013. Within the residential category, multi-family buildings has grown the fastest, with value put in place growth of 20.7% p.a. → F Urbanization is a major driver, with more than 85% of population growth since 2012 occurring in metropolitan areas with at least five hundred thousand residents. → G The shift toward urban and suburban areas has persisted for decades in the United States and is expected to continue creating demand for multi-family buildings. Single-family makes up the majority of residential value put in place and is led by the South and West. → H Improvements comprised about one-third of value put in place in 2016, though this category has grown the slowest over the last three years.

F: Annual value of construction put in place in United States, residential sector [USD bn].
Single-family housing led residential construction, although multi-family grew the fastest.



Source: US Census Bureau, FMI, Roland Berger

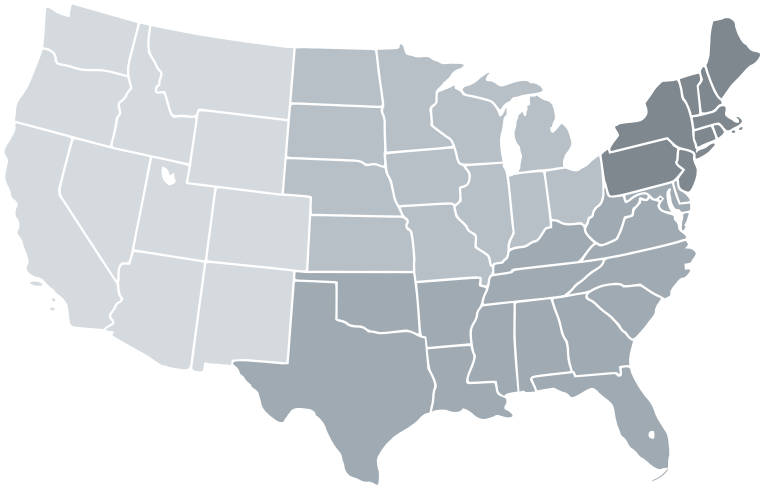
G: Cumulative population increase since 2012 by size of metropolitan area, United States [m residents].
Urban areas have accounted for nearly all population growth.

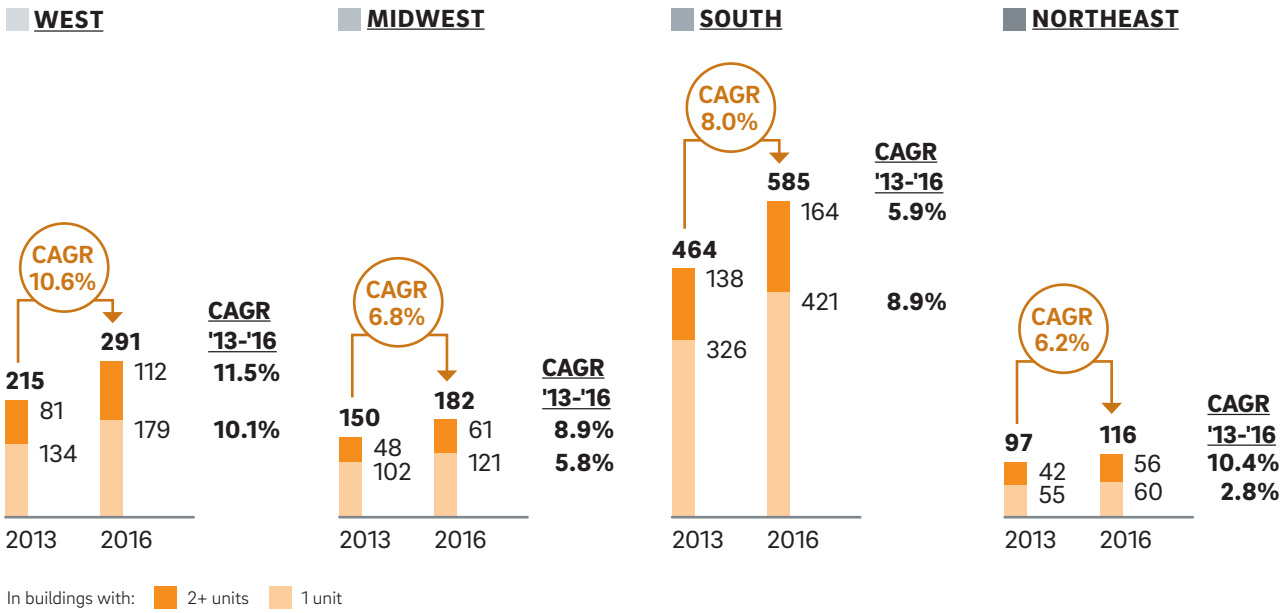


Source: US Census Bureau, FMI, Roland Berger

H: Privately owned housing units started ['000s][1].

The South and West have led in housing starts over the last three years and continue to have the strongest growth.

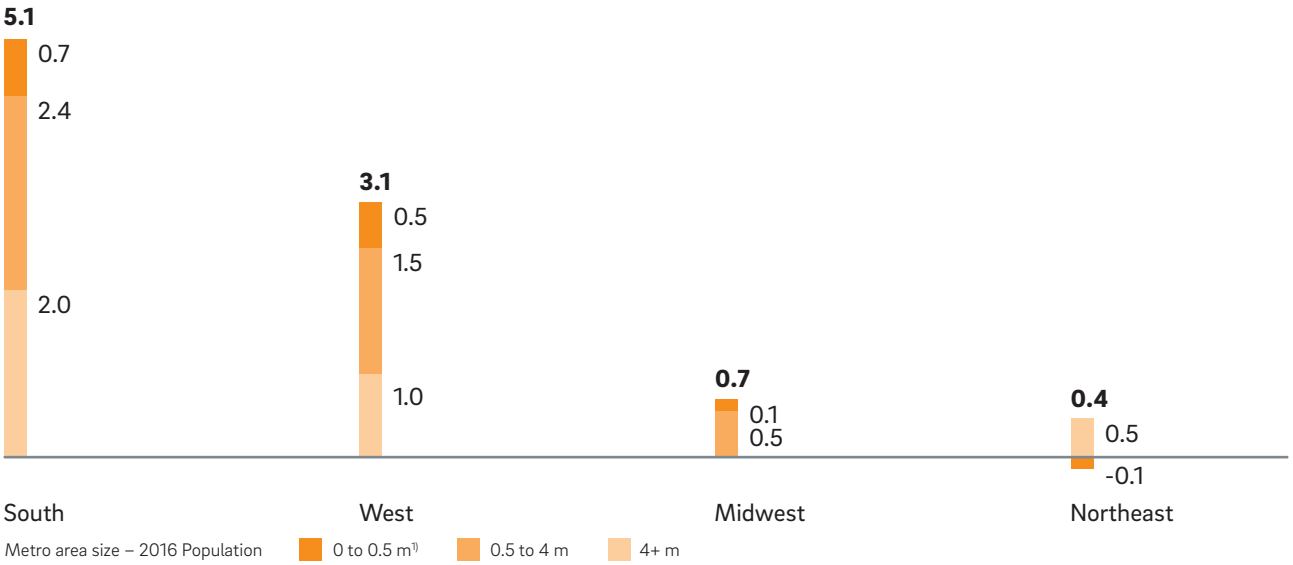




1) Regional segmenting excludes about 18 million people living outside of a core based statistical area, which is defined as having an urban core of at least 10,000 population

Source: Capital IQ, Roland Berger

I: Population increase from 2012-2016 by size of metropolitan area, United States [m residents].
Population growth has stalled not only in rural areas, but across the Midwest and Northeast.



1) Regional segmenting excludes about 18 million people living outside of a core based statistical area, which is defined as having an urban core of at least 10,000 population

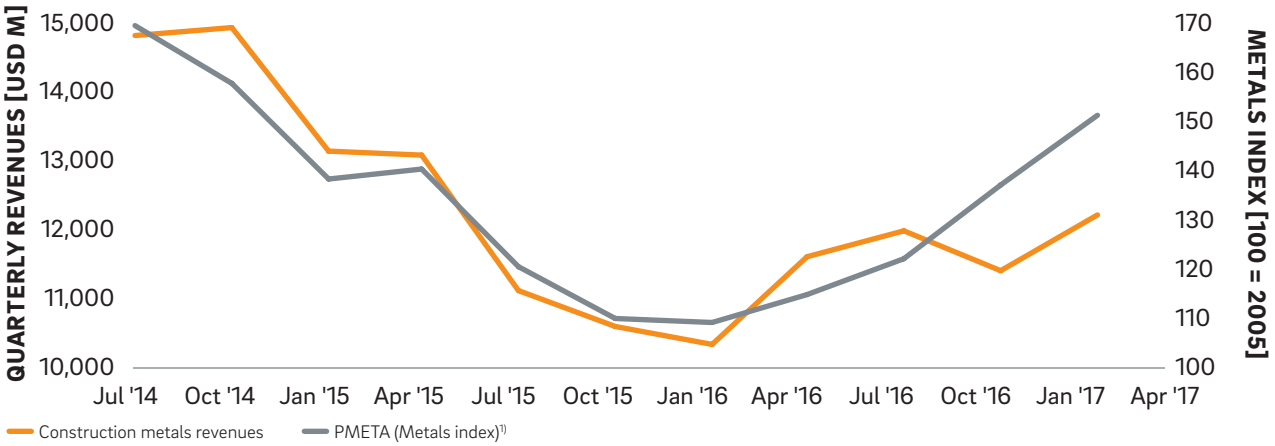
Source: IMF, Capital IQ, Roland Berger

Population growth has been strongest in metropolitan areas of between five hundred thousand and four million residents (14 U.S. cities had more than four million residents in 2016, home to 104 million residents), particularly in the South and West. → I Accordingly, housing starts have grown the fastest across these areas, at over 8% p.a. In the Midwest and Northeast, population growth has been significantly lower, but unit starts in buildings with two or more units have still grown at over 8% p.a., driven by apartment and condominium construction in urban and suburban areas.

Construction Metals (Group F) was an industry laggard in terms of growth and profitability and deserves closer analysis due to its relative size. Segment revenues closely tracked the metals price index. → J Full year 2016 revenues were slightly below 2015 but were trending up. Metals prices increased partly because of improved demand in China and reduced illegally subsidized imports to the United States; local construction trends likely had a smaller effect. The upward trend, and possibly the anticipation of protectionist policies under the Trump administration, contributed to strong shareholder returns in 2016.

Consensus metals forecasts are nearly flat to 2020. Dramatically reduced capital expenditures since 2013 have allowed demand to catch up with supply, as producers focus on reducing costs rather than undertaking new projects. This supply discipline should keep prices stable for the next several years. → K

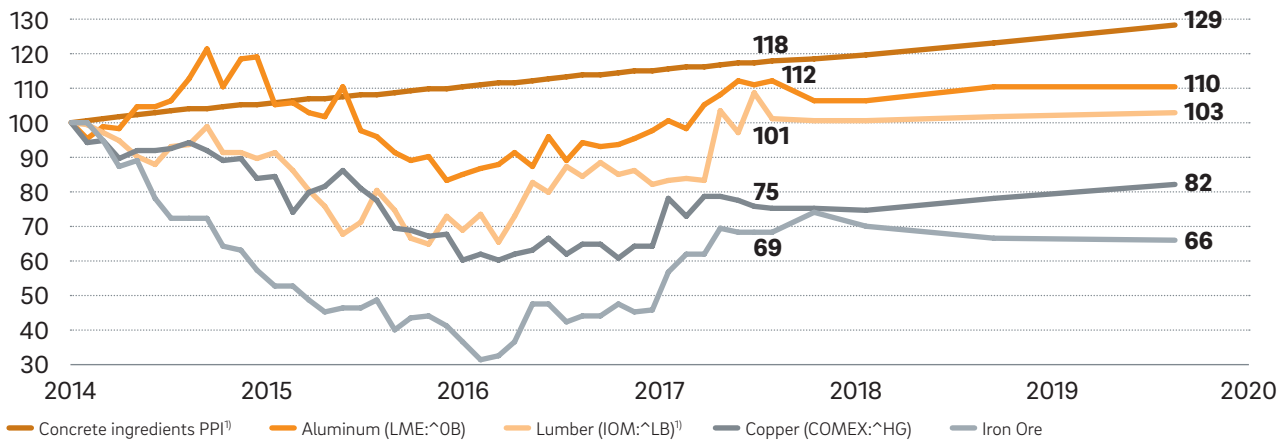
J: Construction Metals quarterly revenues in North America [USD bn].
Construction metals performance has closely tracked the index of metals prices.



1) Index includes Copper, Aluminum, Iron Ore, Tin, Nickel, Zinc, Lead, and Uranium Price Indices

Source: IMF, Capital IQ, Roland Berger

K: Commodity prices.
Prices have rebounded from early 2016 lows, but forecasts are flat for the medium term [2014=100],



1) Forecasted using previous 3-year CAGR

Source: Capital IQ, IMF, World Bank, Roland Berger

Section 2:

Industry short term and long term prospects

Despite upward trends in sector performance, the workforce shortage in the construction industry looks like it may persist in the near term. Digitalization presents a long term potential upside for the industry.

In 2009, the number of new housing units dipped to historically low 583,000 units, however by 2016 the number of new housing units climbed up to 1.2 million. → L However, employment in the home building industry has not bounced back in a similar manner. According to a 2016 survey conducted by the National Association of Home Builders (NAHB), the share builders reporting a workforce shortage has "skyrocketed from a low of 21 percent in 2012 ... to 56 percent in 2016." The workforce shortage is caused by workers leaving the industry during the Great Recession of 2009 and choosing not to return. Many of the domestic workers went back to school for higher education or moved to less cyclical employment.

Meanwhile, foreign workers have returned to their home countries due to improving economic conditions and tougher US immigration laws. In some states, the foreign-born workforce can be as high as 40% in the construction industry (e.g., Texas, California). As a result of the labor shortage, the construction industry has had to increase wages, however this has not been enough to entice workers back to the industry. In the short-medium term, the construction sector can expect to see a continued trend of increasing wages for skilled and unskilled labor. → M

There may be opportunities to scale back regulations that increase costs and compliance requirements

When President Trump took office on January 20, 2017, his Chief of Staff, Reince Priebus issued a memorandum for the heads of executive departments and agencies with the subject line: "Regulatory Freeze Pending Review."[1] This memo instructed all executive departments or agencies to take three actions: 1) To send no regulations to the Office of the Federal Register until a department head could be appointed by President Trump; 2) Withdraw any regulations that had been sent to the Federal Register, but had not yet been enacted; 3) Delay any regulations registered with the Federal Register that had not yet taken effect for a review period of 60 days.

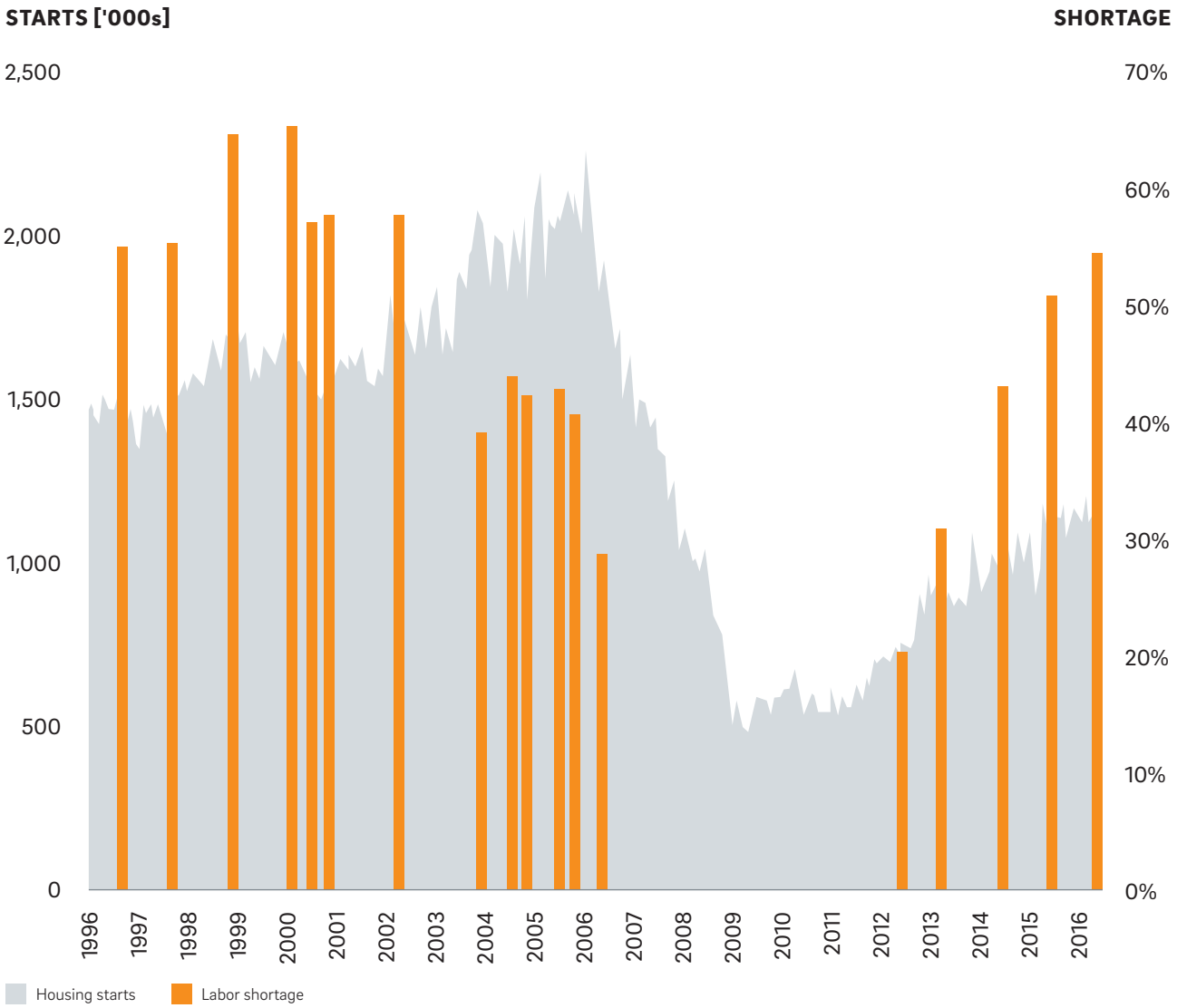
This memorandum has effectively delayed any and all new regulations from taking effect until they have been reviewed and approved by the Trump Administration. Consequently, the Occupational Safety and Health Administration (OSHA) has delayed and reviewed three potential new OSHA regulations: 1) Occupational exposure to beryllium; 2) Crystalline silica standards; 3) Electronic reporting compliance for improved tracking of workplace injuries and illnesses.

In 2015 and 2016 the Obama administration developed rules regarding workplace regulations for the handling of beryllium[2]. Beryllium is a lightweight metal used primarily in specialty alloys and beryllium oxide ceramics and inhalation can lead to lung disease that is estimated to kill 100 people each year. OSHA published its initial beryllium rules on January 9, 2017 and announced the effective date would be March 21, 2017. When President Trump was sworn into office the effective date was subsequently delayed to May 20, 2017 and a review of the regulation was initiated. Subsequent to the review, the broad regulation stayed in place but the construction and shipyard industries were carved out for further review. The review period for public comment was started on June 27, 2017 and the results have not yet been announced, however OSHA was claiming

1 The White House, Office of the Press Secretary, Memorandum for the Heads of Executive Departments and Agencies (January 20,2017)

2 The permissible exposure limit is 0.2 µg/m with short-term exposure limit of 2.0 µg/m

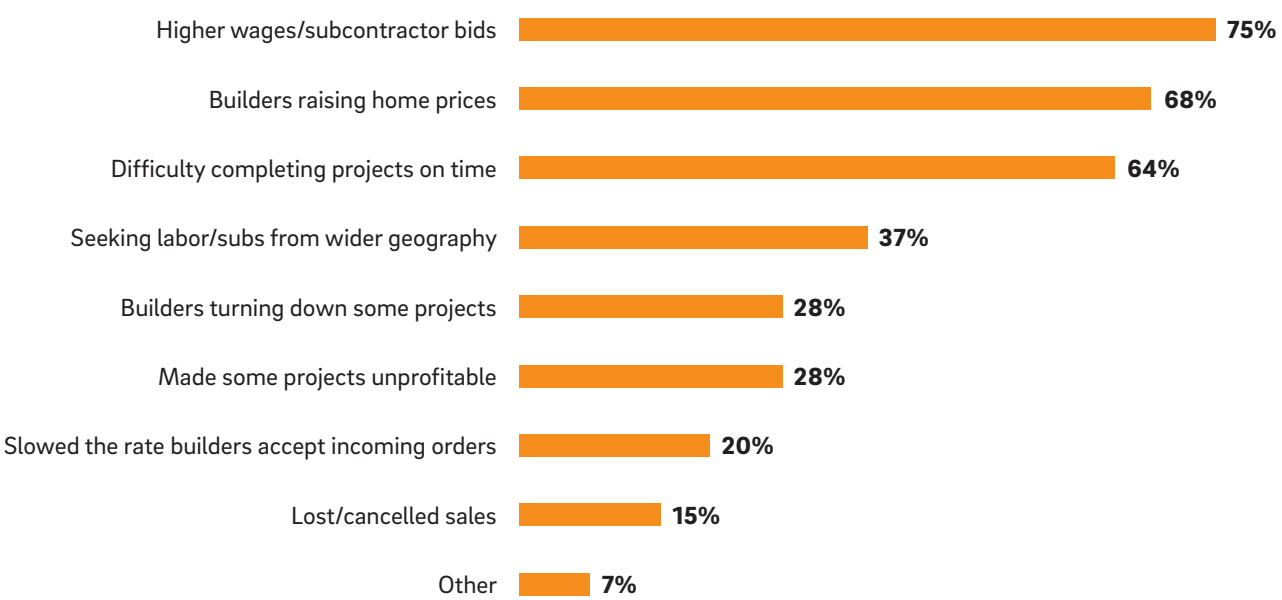
L: Housing starts and labor shortage.
Housing starts has rebounded, but the work force has not returned.



1) NAHB Housing Market Index: Special Questions on Labor and Subcontractors' Availability

Source: NAHB Housing Market Index: Special Questions on Labor and Subcontractors' Availability

M: Effects of labor/subcontractor shortage [% of builders reporting a challenge].
Higher wages, increased home prices and delayed projects are a result of the workforce shortage.



Source: NAHB Housing Market Index: Special Questions on Labor and Subcontractors' Availability

that it had evidence that exposure in these industries is limited to a few operations and requiring ancillary personal protective equipment may not improve worker protection and be redundant with overlapping protections in other standards. This leads us to believe that the construction and shipyard industries will ultimately gain an exemption to any additional costs or procedures regarding the handling of beryllium.

Similar to the beryllium regulations, OSHA is reviewing its new regulations for crystalline silica standards and electronic reporting compliance for improved tracking of workplace injuries and illnesses. The originally scheduled effective date of the crystalline silica regulations was June 23, 2017 but it has been delayed to September 23, 2017 to give OSHA enough time to review the regulation. Similarly, the electronic reporting compliance for improved tracking of workplace injuries and illnesses was originally scheduled to take effect on July 1, 2017 and has been delayed until December 1, 2017. If these regulations come under the same scrutiny as the beryllium regulations, it is possible that the construction and building materials industries will also be exempted from these rules and the associated costs. The OSHA regulatory changes are also indicative of reviews occurring at other agencies like the EPA and regulatory costs may be lower than anticipated in the short term.

Over the long term, building information modeling, the internet of things and digitalization are major opportunities for building materials suppliers

The internet of things (IoT) and digitalization are converging to make building information modeling (BIM) a reality. According to the National Institute of Building Sciences, "a BIM is a digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its lifecycle from inception onward." → N As illustrated in the diagram to the right, this will free key stakeholders in the design, development and construction of a new or existing building to make decisions more transparently and earlier in the process. This will dramatically impact the building materials sector in three ways:

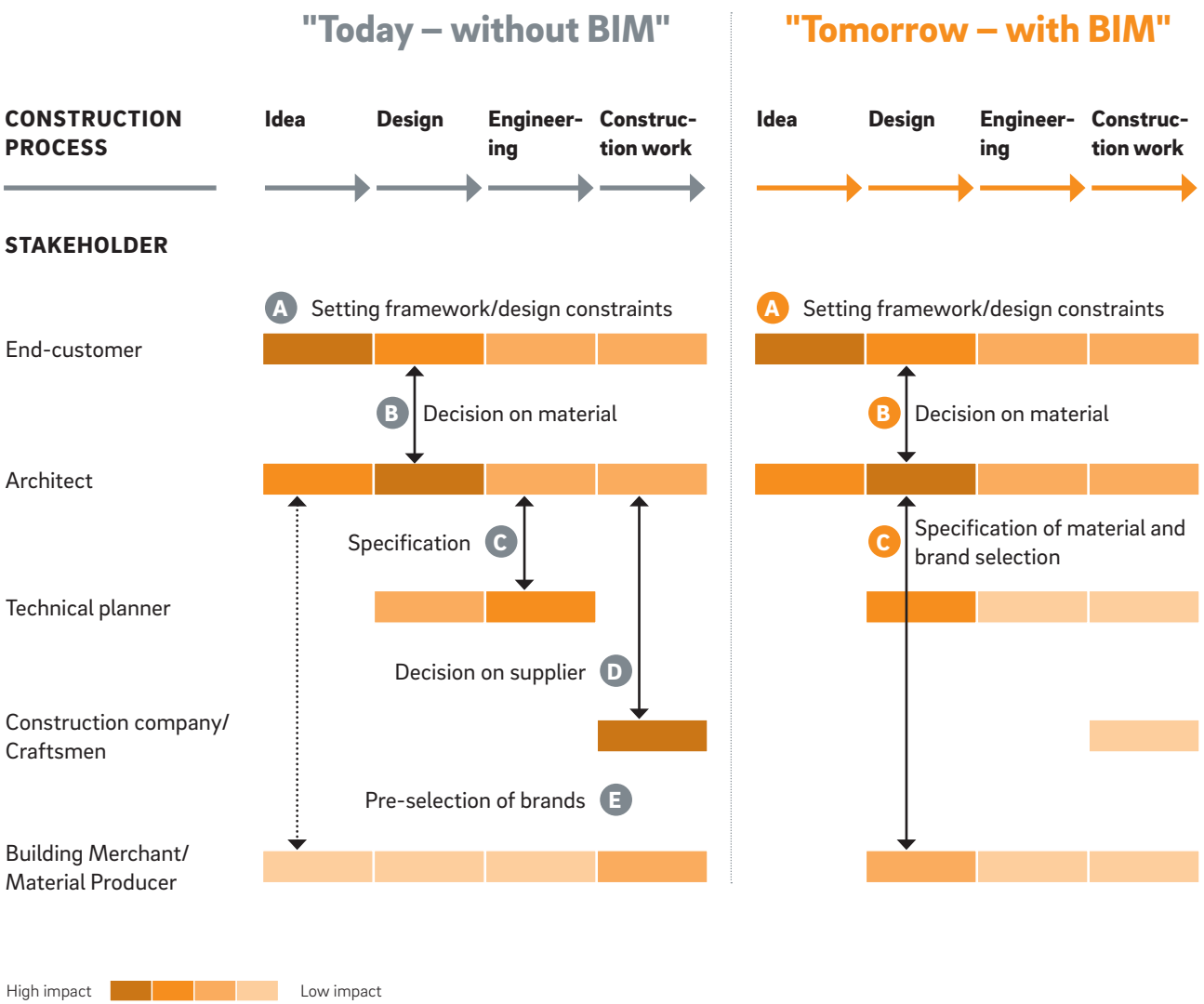
1) The distance between end users and building material suppliers will shrink – Traditionally, construction companies and contractors receive building specifications from a technical planner and then help choose the final building materials suppliers. With robust BIM systems, the technical planners will be able to bypass construction companies and directly select the materials suppliers that meet the building's requirements.

2) Purchasing decisions will be made earlier in the process – The result of increased transparency between the technical planners and material suppliers will mean that purchasing decisions will be made sooner in the planning stage, requiring suppliers to be more responsive to bids and quotes.

3) Online portals will become table stakes for materials suppliers – As BIM systems and standards are developed, it will be expected that building material suppliers are able to provide their specifications in a seamless manner compatible with technical planner systems. Eventually digital compatibility will become a table stakes requirement.

For savvy building materials players, digitalization represents an opportunity to cut costs while defining the standards and expectations of end users, architects and technical planners. While it may not materialize in the immediate term, it is an inevitable reality suppliers must plan for and exploit.

N: Impact of BIM – Decision makers and level of impact along Go-2-Market (illustrative).
BIM will result in decisions being made faster and earlier in the planning process creating new opportunities and challenges for all value chain participants.



Source: Roland Berger

Section 3:

How to win in building materials

Winners must respond to construction market trends while adapting for digitalization in the long term.

Companies must balance strategic moves to take advantage of the current market upswing and position for the future

Building materials suppliers should position themselves in the current construction cycle by capitalizing on market trends and preparing for digitized supply chains. Below we outline a few ideas for each industry segment.

Group A: HVAC, Plumbing, and Electrical Equipment
This group is the current technology leader in building materials. Security systems have been quick to adopt new technologies; the most advanced systems already integrate sensors, cameras, and smart locks. HVAC companies have developed smart thermostats that respond to real time electricity pricing, operating when prices are low and reducing activity when prices peak. Companies should build on strong earnings by continuing to innovate, preparing for the connected homes of the future.

Group B: Lighting and Wiring
Years into the transformation away from incandescent lighting, LED appears poised to win the lighting market. Furthermore, regulations and consumer preferences are likely to make conventional lighting obsolete in the next ten years. Lighting companies must develop long-lasting, energy efficient products, competing on price for basic applications and on innovation for more advanced solutions in garages, kitchens, and bathrooms. Wiring companies must adapt to an uncertain future, as many electrical devices could eventually become wireless. However, in the near term, wiring should proliferate with increasingly electrified houses (as has occurred in the automotive industry).

Group C: Roofing, Siding, Lumber, and Other Materials
Companies in the segment had strong revenue growth and profits in 2016, behind strong residential construction. Companies should continue making incremental improvements in products, as customers expect increasing energy efficiency in products that are also attractive, durable, and affordable. Manufacturers should manage capacity prudently and avoid over-investing capital in the upswing. They should also begin developing participation plans for e-commerce and a digitized supply chain.

Group D: Concrete, Minerals, Clays, and Stone
Segment earnings have recently improved to be above the cost of capital. Profitable growth should remain the focus – companies should manage costs while growing with the construction boom. Due to the limited geographical extent of operations, costs must be understood and managed at a local level. Companies should also decide if they have an advanced materials play, as well as how they will participate in a digitized supply chain.

Group E: Glass, Windows, Doors, and Flooring
Although primary criteria for customers are quality and cost, windows and doors are also subject to increasing scrutiny on energy efficiency, as occupants become aware of energy costs over the product lifecycle. Segment performance improved in 2016, with profits exceeding cost of capital for the first time since 2008. Margins improved to 6.7%, still the lowest in our building materials index, besides metals. Manufacturers need to define how they will reposition for a digitized supply chain, and windows manufacturers, in particular, need to determine how or if to integrate advanced technology.

Group F: Construction Metals
With a low metal price outlook due to global supply and demand trends, metals companies must continue to

drive down costs through efficient manufacturing processes. Increased scrutiny on imports should provide some supply cover for North American manufacturers, while urbanization trends should support demand growth. The segment will also face pressure for more sustainable operations, by making lighter products and reducing energy usage.

Companies must become more flexible and make smarter products to supply a digitalized industry

As discussed in section 2, building information modeling (BIM) and digitalization are major long term opportunities for all industry players. But the coming changes are likely to be evolutionary, not revolutionary. This means that industry leaders have the chance to shape BIM and the future competitive landscape.
Savvy building materials suppliers will view the emerging changes as an opportunity to gain a sustainable competitive advantage such as:

- → Shaping early adopter customer experiences to become the supplier of choice
- → Developing the digital products and services required by smart homes and building information modeling
- → Investing in information technology infrastructure to build a sustainable foundation for the business

The exact steps to take will vary by industry sub-segment and company, but there will still be the same set of key questions to be answered. We have outlined what those high level questions are to the right → O and will discuss BIM and digitalization in more depth in an upcoming Think:Act study to be published soon.

O: Key questions to ask when preparing for digitalization & BIM.

RELATIONSHIP MANAGEMENT
> Does your current strategy allow you to win in a digitized future?
> What is your company's digital strategy and can it be articulated to your employees and your customers?

COMPETENCIES
> Do we have the core competencies required to compete in the BIM future?
> Are we attracting and retaining the right talent to fill the roles we will need?

STANDARDIZATION
> How can we align our products to meet future requirements and to develop a plan to push standards across the industry?

RELATIONSHIP MANAGEMENT
> How will we organize ourselves to bypass construction companies and directly deal with end customers, architects and technical planners?
> Are our suppliers ready to work in a digitalized future and respond to data and information requests in real time?

DECENTRALIZATION
> Do we have the kind of decentralized organization that can quickly respond to a broad range of end customers, architects and technical planners?

INFORMATION TECHNOLOGY
> Do we have the right systems in place to meet future demands?
> Do we have the right level of cyber security to keep our data and our customers' data secure?

Photo: Yuttana Studio / Adobe Stock

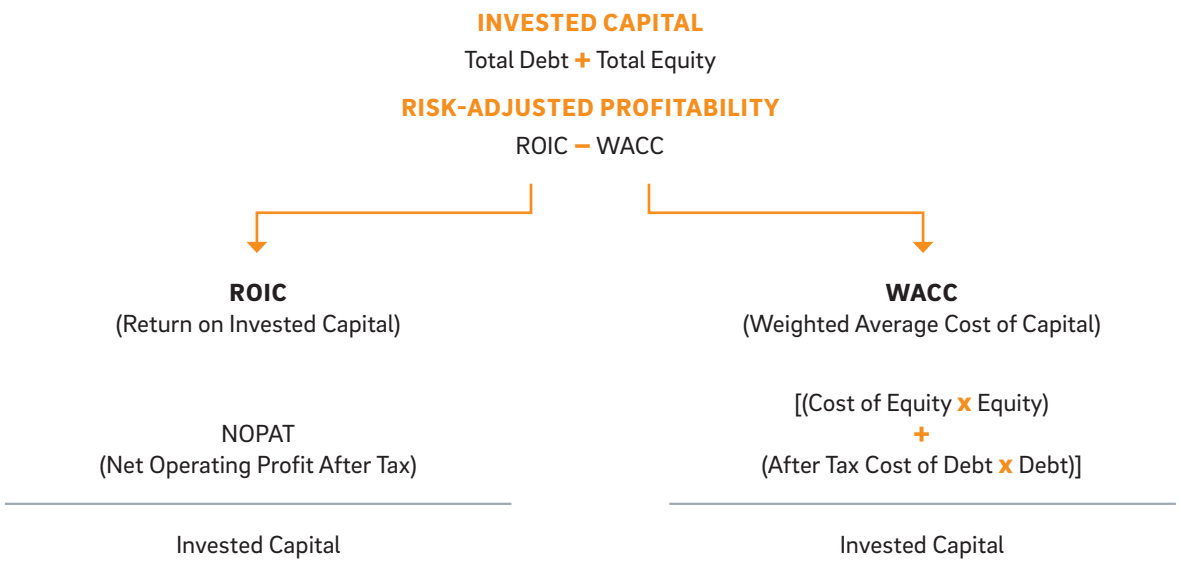
Section 4:

Roland Berger Winners' metrics

Appendix.

When developing their expectations of financial performance of a company, investors, both implicitly or explicitly, are analyzing its profitability and growth potential, and adjusting these metrics for risk. Typically, investors will develop a financial forecast to build a free cash flow model. Revenue growth will be used as the growth metric, EBIT margin percentage as the profitability metric, and the cost of capital representing the risk adjustment. We believe the best metric to analyze growth is the real growth in the invested capital of a company, which represents the capital on a company's books which finances its assets. It is a better metric to measure growth compared with revenues, which is more commonly used. Revenue trends can be misleading due to price volatility, driven by raw material fluctuations (common in the building materials industry as evidenced in the construction metals cycle) or supply and demand dynamics. Invested capital growth measures the growth in assets and represents additional investment into the enterprise, and is not as affected by raw material price changes. We believe the best metric to measure risk-adjusted profitability takes the difference between the return on invested capital (ROIC) and the weighted average cost of capital (WACC). → P It is better than EBIT margin because it is a normalized metric, which measures not only profitability, but the amount of capital required to generate the profitability. EBIT margins provide no perspective on the capital intensity of a company and therefore may be misleading when comparing companies with different business models.

P: Definition of economic profit in Winners analysis.
The right metrics to measure growth, profitability, and risk.



Source: Roland Berger

Q: Winners' characteristics.
We have defined these characteristics and how they separate Winners from Underperformers.

1 BUSINESS LEADERSHIP

Winners set the agenda in their areas of participation by combining:
> A comprehensive understanding of the core competencies they posses in each business
> A business model grounded in these competencies
> Focused participation in customer segments in which the business model offering is relevant

2 STRATEGIC COHERENCE

Winners are the high value owners of their portfolio businesses, achieved by having:
> A clear strategic intent, describing what the company wants to be, and what it stands for
> A portfolio of businesses that operates similar business models and supports the strategic intent
> Strong competencies and industry knowledge at the corporate level to successfully run the portfolio businesses (parenting advantage)

3 FINANCIAL SCALE

Winners are relevant to investors, driven by:
> Size which makes them more likely to be included in well-know financial indices
> Clear risk-reward propositions to investors

4 PROVEN ABILITY TO EXECUTE

Winners deliver results by executing along four key dimensions:
> Clear communication of the strategic intent and successful execution against it
> Disciplined approach to identify and deploy competitive advantage to drive Business Leadership
> Active portfolio management
> Systematic standardization of processes and centralization of key functions to capture benefits of Strategic Coherence

Source: Roland Berger

R: Group A: HVAC, Plumbing , and Electrical Equipment[1].
The strongest performing segment, with high profitability and strong growth.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	8.3	8.0	8.0
GROWTH	Revenue growth [year-on-year]	4.5%	5.0%	11.5%
PROFITS	EBITDA margin	13.3%	11.6%	11.5%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	15%	15%	16%
	Asset turnover	1.4x	1.4x	1.4x
RISK	Debt/EBITDA	0.9x	0.9x	1.0x
WINNER'S METRICS	ROIC-WACC	14.3%	12.6%	11.7%
	Invested capital growth	7.1%	-0.3%	13.4%
	% of industry earning cost of capital (ROIC > WACC)	71%	86%	76%

1) Includes 7 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

S: Group B: Lighting and Wiring[1].
Strong performance in 2016, although less than half of companies earned their cost of capital. Strong growth in revenues and invested capital.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	8.3	7.6	7.7
GROWTH	Revenue growth [year-on-year]	8.9%	5.0%	7.5%
PROFITS	EBITDA margin	12.6%	12.6%	12.2%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	24%	25%	27%
	Asset turnover	1.1x	1.1x	1.1x
RISK	Debt/EBITDA	1.4x	1.1x	1.3x
WINNER'S METRICS	ROIC-WACC	4.0%	4.3%	3.4%
	Invested capital growth	12.0%	2.2%	6.8%
	% of industry earning cost of capital (ROIC > WACC)	44%	67%	48%

1) Includes 11 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

T: Group C: Roofing, Siding, Lumber, and Other Materials[1].
Strong revenue growth and improved profitability in 2016.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	36.1	30.6	31.4
GROWTH	Revenue growth [year-on-year]	18.1%	11.0%	11.5%
PROFITS	EBITDA margin	8.3%	6.3%	6.9%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	12%	14%	15%
	Asset turnover	1.3x	1.2x	1.2x
RISK	Debt/EBITDA	2.0x	2.7x	2.3x
WINNER'S METRICS	ROIC-WACC	4.1%	-0.7%	1.1%
	Invested capital growth	5.3%	13.2%	6.9%
	% of industry earning cost of capital (ROIC > WACC)	61%	71%	72%

1) Includes 19 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

U: Group D: Concrete, Minerals, Clays, and Stone[1].
Total invested capital decreased with debt levels in 2016. Over three-fourths of companies were profitable.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	31.0	30.5	30.4
GROWTH	Revenue growth [year-on-year]	1.6%	2.7%	0.0%
PROFITS	EBITDA margin	15.6%	13.4%	13.5%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	13%	13%	12%
	Asset turnover	0.5x	0.5x	0.5x
RISK	Debt/EBITDA	3.2x	3.9x	3.8x
WINNER'S METRICS	ROIC-WACC	0.9%	1.2%	0.1%
	Invested capital growth	-3.1%	1.5%	-1.0%
	% of industry earning cost of capital (ROIC > WACC)	76%	81%	71%

1) Includes 22 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

V: Group E: Glass, Windows, Doors, and Flooring[1].
Profitability improved while invested capital growth slowed over the past two years.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	7.5	7.1	7.2
GROWTH	Revenue growth [year-on-year]	5.5%	3.5%	5.4%
PROFITS	EBITDA margin	6.7%	5.2%	5.3%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	19%	20%	20%
	Asset turnover	1.3x	1.2x	1.2x
RISK	Debt/EBITDA	2.4x	3.0x	2.7x
WINNER'S METRICS	ROIC-WACC	0.6%	-1.8%	-1.2%
	Invested capital growth	2.0%	7.1%	10.2%
	% of industry earning cost of capital (ROIC > WACC)	57%	71%	57%

1) Includes 7 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

W: Group F: Construction Metals[1].
Performance improved over 2014 and 2015, but the segment was still unprofitable. Total shareholder returns were strong.

		2016	2015	2014-2016 Ø
REVENUE	Revenue [USD bn]	45.7	49.0	52.5
GROWTH	Revenue growth [year-on-year]	-6.8%	-22.2%	-8.8%
PROFITS	EBITDA margin	6.2%	2.1%	4.5%
CAPITAL PRODUCTIVITY	Working capital [as % of sales]	26%	25%	24%
	Asset turnover	1.1x	1.2x	1.2x
RISK	Debt/EBITDA	2.2x	3.8x	2.7x
WINNER'S METRICS	ROIC-WACC	-2.2%	-6.7%	-3.4%
	Invested capital growth	-0.2%	-8.9%	-4.6%
	% of industry earning cost of capital (ROIC > WACC)	53%	45%	47%

1) Includes 21 companies with financials of three full years during Dec 31, 2013-Dec 31, 2016

Source: Capital IQ, Roland Berger

Imprint

WE WELCOME YOUR QUESTIONS, COMMENTS AND SUGGESTIONS

AUTHORS

Gareth Hayes
Partner
+1 312 731-5949
gareth.hayes@rolandberger.com

Christopher Hoyes
Senior Project Manager
+1 312 823-4849
christopher.hoyes@rolandberger.com

Kyle Bonney
Senior Consultant

About us

Roland Berger, founded in 1967, is the only leading global consultancy of German heritage and European origin. With 2,400 employees working from 34 countries, we have successful operations in all major international markets. Our 50 offices are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by 220 Partners.

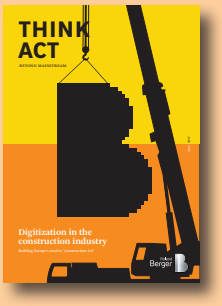
Navigating Complexity

For half a century, Roland Berger has helped its clients manage change. Looking at the next 50 years, we are committed to supporting our clients conquer the next frontier. To us, this means navigating the complexities that define our times. We help our clients draft and implement responsive strategies essential to success that lasts.

FURTHER READING

Think:Act Booklet

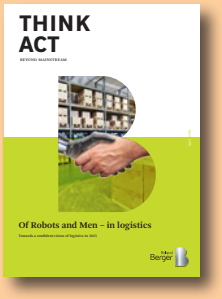
Digitization in the construction industry
(2016)



There is no alternative to digitization. Even on the building site. Construction needs to catch up. Digitization is about businesses encountering connected systems at every link in the value chain. It is about working with tools and practices based on information and communication technology. This understanding is changing the role of digital technologies.

Think:Act Booklet

Of Robots and Men – in logistics
(2016)



Is the age of robotics upon us? Signs point to yes. And far from being limited to heavy manufacturing as in the past, the impacts of this new industrial revolution will be felt primarily in the logistics industry. When will this sea change take place? And how can logistics firms in France and Europe prepare for it?

Publisher

ROLAND BERGER GMBH
Sederanger 1
80538 Munich
Germany
+49 89 9230-0
www.rolandberger.com

ROLAND BERGER LLC
300 N. LaSalle
Suite 2000
Chicago, Illinois 60654
USA
+1 312 662-5500