

Quarterly

FMI

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Convergence

Dear Reader,

In a long-ago English literature class, one assignment dealt with W.B. Yeats' *The Second Coming*, an excerpt from which read:

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world...

The mental image that came to mind was a centrifuge, hurling its contents toward some infinite and disparate destinations. This issue of the "FMI Quarterly" takes the opposite tack as its theme: convergence. Rather than focus on the bleakness of Yeats' imagery, we turn our attention to exciting and challenging possibilities of potentially disparate elements converging to yield some newer, more advantageous outcome. For example, managing risk often results in deals being ditched in order to avoid risk altogether. Of course, in total risk avoidance, few, if any, deals would ever get done. In "Understanding the Fundamental Risks of Mergers and Acquisitions," our publishing partner, Zurich, provides us with a piece on the convergence of risk management and risk assumption to achieve growth or strategic market entry through acquisitions after proper deal risk evaluation.

Young and Larrabee in their article "Public Company Underperformance — How Long Will It Last," deftly analyze publicly traded engineering and construction companies to explain why the resurging construction market has not yet resulted in substantially increased earnings nor large shareholder payoffs. Several factors converge to yield these results to date, yet the U.S. construction market continues to be highly attractive on the global front.

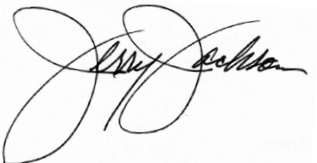
"Navigating the Winds of Social Economic Changes" by Giovannoni, Douglas and Paul blends a metaphor of sailing versus powerboating to fashion a case for using economic dashboards to steer corporate ships. Further, the recommended economic metrics don't just stop at traditional ones (such as interest rates). Giovannoni, Douglas and Paul call for using metrics from social economics to better chart market segments to pursue as well as navigate shifts in the social resources from which future workers will be drawn. Birth rates, behavioral patterns and construction resurgence converge in Sabine Hoover's piece, "Five Reasons Why Millennials Are Great for the Construction

Industry.” Competition for talent will become keener, and Hoover suggests a focused recruitment strategy as one way to win. In his article “Building the Talent Pipeline for Long-term Success,” Ken Wilson presents a case study of a client who contemplated the convergence of a declining worker pool along with an increasing need for skilled workers and leaders. That foresight led the company to craft a recruiting and service delivery strategy built upon talent development.

Rounding out this issue are two articles by veteran FMI stalwarts, Lee Smither and Ken Roper, each of whom was ably assisted by other key FMI consultants. Smither, along with Joel Stinson and Paul Trombitas, takes on the Nostradamian task of predicting how Fed action will impact the engineering and construction industry of the future in their article “Will the Federal Reserve’s Actions Affect the E&C industry?” Joined by Tyler Pare, Roper champions a technique of overhead allocation to projects for estimating complete project costs prior to assignment of profit. FMI developed this technique in the early 1960s, even before this publisher began his career with the firm. The premise still holds today for the self-performing contractor, according to Roper’s and Pare’s article “Pricing for Profits.”

Even if you don’t read these articles as products of convergence, we hope that they will prod you into examining both strategy and tactics in your own firm, as well as considering what new forces may be fast converging with traditional forces, prompting a need for organizational change. Whether small or large, if FMI can serve you in both the how, what and when of change, we would like to talk with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Jerry Jackson", written over a light blue rectangular background.

Jerry Jackson
Publisher



CURT YOUNG AND CAMERON LARRABEE

Public Company Underperformance — How Long Will It Last?

With the U.S. economy in

***recovery
mode,***

**one may expect
industry stock prices
to be surging.**

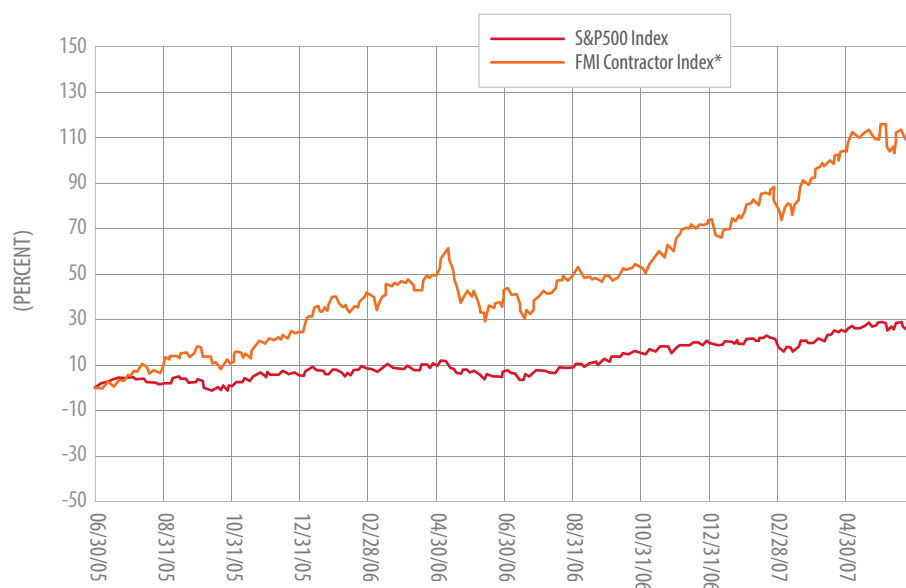
**However, that has
*not been the case.***

The Engineering and Construction (E&C) industry is certainly no stranger to volatility. It is normal for the industry to outperform the market during periods of expansion and underperform the market during periods of contraction. The exhibits in this article demonstrate this phenomenon among publicly traded firms participating in the industry pre- and post-recession. Specifically, the publicly traded companies tracked by FMI, comprised of 37 general/specialty contracting firms, significantly outperformed the market in the years leading up to the Great Recession (see Exhibit 1), but woefully underperformed the market during the throes of the Great Recession (see Exhibit 2).

With the U.S. economy in recovery mode, one may expect industry stock prices to be surging. However, that has not been the case. As shown in the graph below, the stock markets have experienced tremendous gains since the end of the recession, but contractors have failed to gain any significant traction in the market. Between June 30, 2010, and June 30, 2015, the S&P 500 outpaced the growth of FMI's contractor index by 6% (see Exhibit 3). Over

EXHIBIT 1 S&P500 vs. CONTRACTOR INDEX PRE-RECESSION

JUNE 30, 2005–JUNE 29, 2007



* Comprised of 37 publicly traded firms (weighted by market capitalization)
Source: Capital IQ

that time, the S&P 500 grew by over 100%, whereas, the median share price of the firms in FMI's contractor index climbed less than 40%. As indicated, the gap in performance has widened over the past couple of years. Specifically, in 2014 stock markets realized significant gains as the Dow Jones Industrial Average increased by 7.5% and the S&P 500 posted a gain of 11.4%. Growth of the S&P 500 cooled in the first half of 2015, with the index expanding by a meager 0.2% through June 30, 2015. In comparison, the median share price of publicly traded contractors dropped by 8.1% in 2014, then tumbled an additional 17.9% during the first half of 2015.

So what is different this time around?

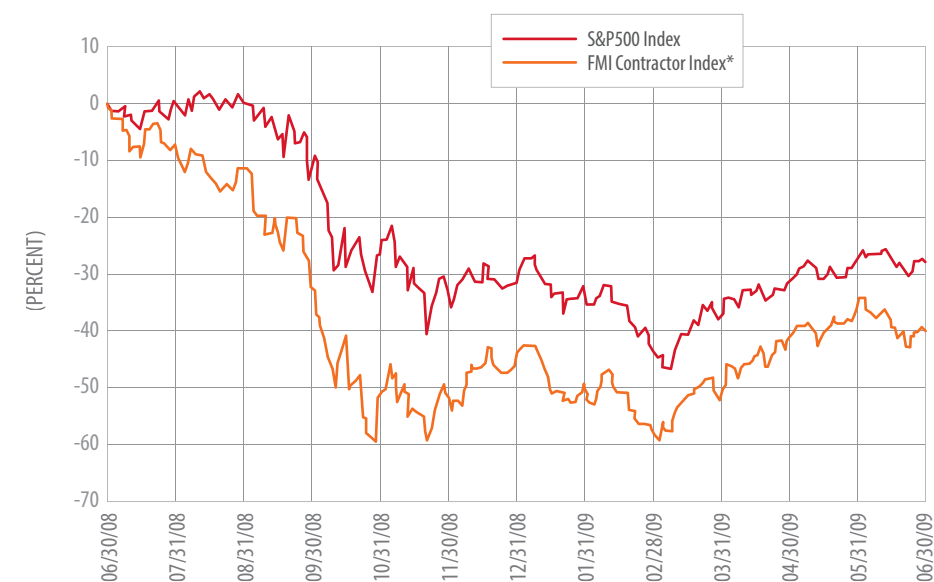
While there is no way to pinpoint the root cause(s) (i.e., the stock market is a fickle beast after all), a number of forces seem to be in play: 1) Inability to increase margins, 2) Weak foreign markets, 3) Anemic public funding levels and 4) A steep decline in oil prices.

Depressed Margins

As indicated in Exhibit 4, publicly traded construction contractors were able to increase their margins substantially leading up to the recession, with median EBIT and EBITDA margins peaking at 6.6% and 8.8%, respectively. Given the lag time associated with construction projects, earnings performance peaked during the height of the recession, but deteriorated quickly thereafter.

EXHIBIT 2 S&P500 vs. CONTRACTOR INDEX RECESSION

JUNE 30, 2008–JUNE 30, 2009



* Comprised of 37 publicly traded firms (weighted by market capitalization)
Source: Capital IQ

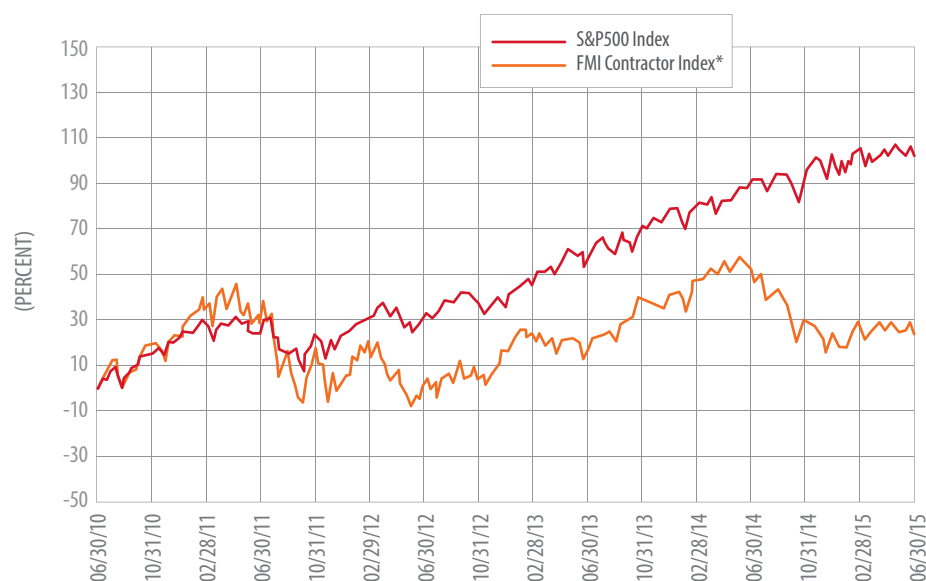
The severe downturn in market conditions, marked by a heightened competitive environment, resulted in a multiyear decline in contractor performance. Considering that markets have started to improve and grow out of the recession, one would think that margins would currently be displaying a strong upward trajectory. Unfortunately, as indicated below, that has not been the case. Margins have remained at reduced levels, effectively bouncing off the bottom for the past three years. Specifically, since June 30, 2012, EBIT margins have moved within a range of roughly 3 percent to 4% (i.e., significantly lower than pre-recession levels).

There are a number of theories as to why margins have failed to recover. One possibility is that it is just a natural part of the construction cycle. Pre-recession, the U.S. construction market was firing on all cylinders, fueled by low interest rates, unsustainable lending practices and investor speculation. Between 2002 and 2006, the U.S. construction market grew by 35%, (i.e., an average annual growth rate

Margins have remained at reduced levels, effectively bouncing off the bottom for the past three years.

EXHIBIT 3 | S&P500 vs. CONTRACTOR INDEX POST RECESSION

JUNE 30, 2010–JUNE 30, 2015



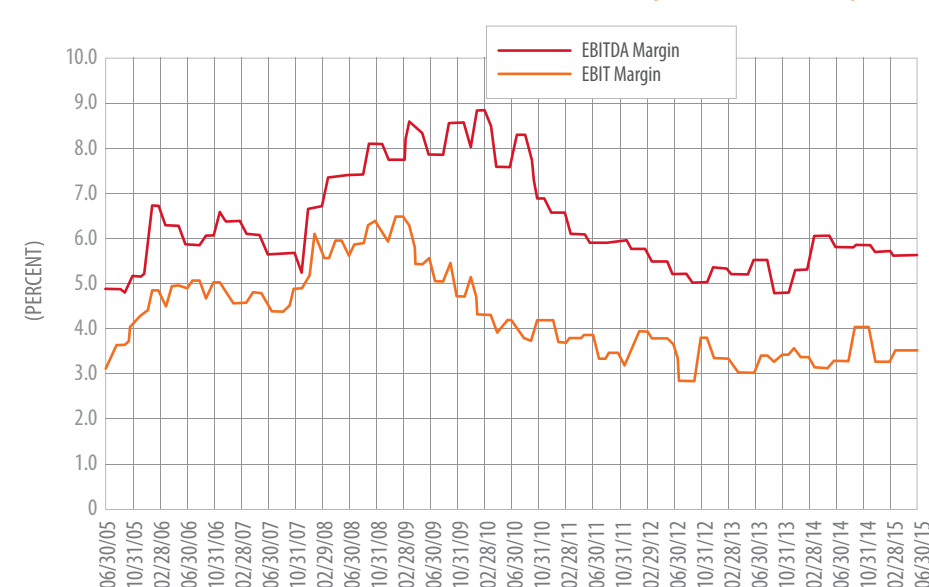
* Comprised of 37 publicly traded firms (weighted by market capitalization)
Source: Capital IQ

of 8.3%), far exceeding its long-term growth rate of 3.4%. Notably, certain segments of the market — housing, for example — experienced much more rampant growth during this period. With the industry on an upswing and opportunity abundant, contractors made substantial investments in people, equipment and systems in order to meet demand. As a result of such investments, there was a large gap created between supply and demand when the market turned. Instead of acting brashly and dramatically trimming overhead, many contractors kept their overhead structures largely intact. With cost structures failing to adjust to market conditions, margins dropped substantially. Even with the construction industry a few years into a new growth cycle, capacity continues to outweigh demand in many market segments and geographic areas. To restore balance, continued growth will be necessary.

Another theory suggests a more permanent shift in the construction industry. Over the last several years, the industry has become increasingly sophisticated. Technology and general advancements have enabled owners to become more knowledgeable about the construction process and, thereby pierce profit pockets and squeeze profit margins. Labor challenges, precipitated by both the downturn in the market and an aging workforce, have further pressured margins, with employers being forced to increase their payroll per capita. If such trends continue, and with evidence suggesting that they will, the margins that we think are low today may just be the new norm.

EXHIBIT 4 | PUBLICLY TRADED CONSTRUCTION CONTRACTORS MEDIAN EARNINGS MARGINS

JUNE 30, 2005–JUNE 30, 2015



Source: Capital IQ

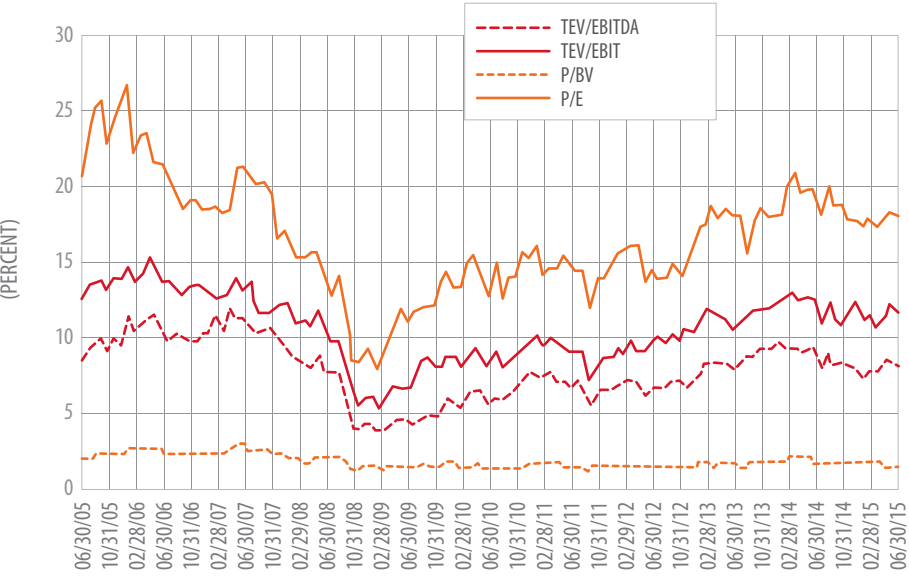
Valuation Multiples Trend Upward

Despite the downturn in performance levels, valuation multiples have been trending upward. Exhibit 5 displays median valuation multiples, on a monthly basis, for publicly traded construction contractors between June 30, 2005, and June 30, 2015. The multiples displayed are total enterprise value (TEV) to operating cash flow (EBITDA), TEV to operating earnings (EBIT), price to historical book value (P/BV) and price to earnings (P/E). As shown, valuation multiples, excluding P/BV, plummeted in the latter half of the 2000s, ultimately bottoming in late 2008/early 2009. Since then, multiples have been on the rise, suggesting that investors believe that stronger earnings performance is likely in the relative near term. However, over the last couple of years, publicly traded contractors have failed to deliver on such expectations, repeatedly missing earnings estimates. In 2014, for example, Aecon Group, Inc. missed earnings per share (EPS) estimates each quarter, the largest, occurring in the quarter ending June 2014, was \$0.38 below estimates, or a 319.78% surprise. A number of other contractors have missed earnings estimates in recent periods as well. For example, Tutor Perini's EPS during the fourth quarter of 2014 was \$0.56, registering \$0.15 below estimates. Further, Primoris Services' EPS during the same period came in at \$0.17, thereby missing estimates by \$0.32.¹

Many of the publicly traded contractors included in FMI's contractor

EXHIBIT 5 PUBLICLY TRADED CONSTRUCTION CONTRACTORS
MEDIAN VALUATION MULTIPLES

JUNE 30, 2005–JUNE 30, 2015



Median Valuation Multiples (as of June 30, 2015)		Median Valuation Multiples (June 30, 2005–June 30, 2015)		
TEV/EBITDA	8.3	TEV/EBITDA	Range 3.8 - 11.8	Median 8.2
TEV/EBIT	12.2	TEV/EBIT	5.2 - 15.2	10.8
P/BV	1.4	P/BV	1.1 - 2.9	1.6
P/E	18.3	P/E	7.7 - 26.7	17.4

Source: Capital IQ
Enterprise Value/EBITDA > 20.0 not used in median or average; no median or average computed if more than 25% of the companies have multiple outside the limit
Enterprise Value/EBIT > 20.0 not used in median or average; no median or average computed if more than 25% of the companies have multiple outside the limit
Price/Book Value > 5.0 or < 0.5 not used in median or average; no median or average computed if more than 25% of the companies have multiple outside the limit
Price/Earnings > 40.0 not used in median or average; no median or average computed if more than 25% of the companies have multiple outside the limit

index are foreign-owned and have significant exposure to international markets. Thirty or 40 years ago, little construction in the U.S. was performed by foreign-owned firms. Further, relatively few U.S.-based contractors had operations in foreign markets. Today, circumstances are quite different, whereby the largest contractors in the U.S. are performing work on a much more global scale. In fact, the top-20 general contractors in the U.S. derived nearly 40% of their revenue from international activity in 2014, based on information obtained from Engineering News-Record. The U.S. construction market continues to be highly attractive, given its enormous size and relatively strong growth prospects and stability. In recent years, a common theme in the E&C space has been foreign companies penetrating the U.S. market through mergers and acquisitions.

Here are a few notable transactions:

WSP Global Inc. acquired **Parsons Brinckerhoff Group Inc.** from **Balfour Beatty plc** for approximately \$1.4 billion in cash on September 3, 2014. Parsons Brinckerhoff is a global consulting firm for various infrastructure projects for both public and private clients. In 2013 Parsons Brinckerhoff generated just under £1.6 billion in revenue.

Obayashi USA, LLC acquired **Kraemer North America, LLC** on November 12, 2014. Obayashi USA, a member of Obayashi Group, headquartered in Tokyo, Japan, agreed to terms to acquire a controlling ownership interest in Kraemer North America. Headquartered in Plain, Wisconsin, Kraemer North America provides heavy civil and industrial construction services.

Andrade Gutierrez of America, Inc. acquired **The Dennis Group, Inc.** on July 2, 2015. Andrade Gutierrez, headquartered in Brazil, agreed to terms to acquire a controlling interest in The Dennis Group. The Dennis Group offers a wide array of engineering and construction services to food and beverage industries throughout North and Central America as well as Europe.

The U.S. vs. Other Countries

While the U.S. has recovered meaningfully in the wake of the Great Recession, foreign economies have been much less fortunate. Exhibit 6 contrasts the performance of the S&P 500 versus the FTSE 100. Comprising the 100 most highly capitalized companies listed on the London Stock Exchange, the FTSE

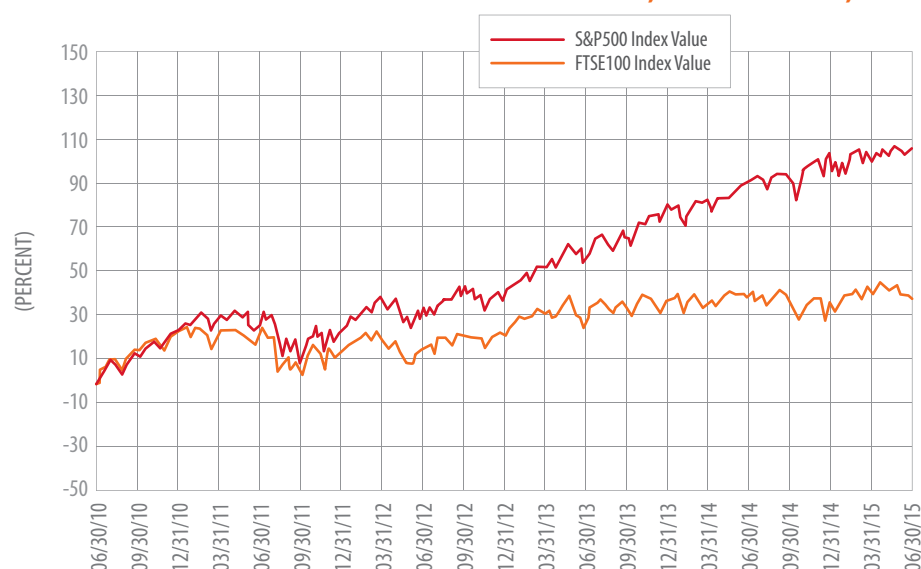
100 is generally considered to be reflective of the financial health of the European Union. Historically, it has trended in conjunction with the S&P 500, indicating relatively high levels of correlation between the economies of Europe and the U.S. However, that trend has not followed suit over the last few years, as the European economy has lagged that of the U.S. For example, Germany, which is widely considered the driving country in the Eurozone, had annual GDP growth of 0.4%, 0.1% and 1.6% in 2012, 2013 and 2014, respectively. By comparison, the United States experienced GDP growth of 2.3%, 2.2% and 2.4% over the same period. The lagging European economy can be attributed to a number of factors. Many point out geopolitical pressure, specifically the Ukraine conflict, as well as the European debt crisis as the main drivers behind the sluggish economy.

While the U.S. has recovered meaningfully in the wake of the Great Recession, foreign economies have been much less fortunate.

EXHIBIT 6

S&P500 vs. FTSE100

JUNE 30, 2010–JUNE 30, 2015



Source: Capital IQ

Regardless of the reasons behind the delayed recovery, both foreign companies and U.S. companies with material international exposure, are being adversely affected. Nearly half of the firms in FMI's contractor-index are headquartered abroad or have significant operations outside of the U.S. Such exposure significantly influences the performance of the publicly traded contractor group as a whole.

While the U.S. has emerged from the recession in better shape than most countries, conditions remain far from ideal. Activity in certain segments is substantially constrained by anemic public funding levels. Federal construction put in place has fallen for each of the last three years, dropping from \$31.7 billion in 2011 to \$22.7 billion in 2014. This reduction generally stems from budget issues, increased deficits and surging debt levels. For example, between 2008 and 2014, the U.S. has run deficits ranging from \$458.6 billion to \$1.4 trillion. Although, the annual deficit has been on a downward trend, dropping from \$1.4 trillion in 2009 to \$484.6 billion in 2014. Nevertheless, running such deficits, which have driven national debt over \$18 trillion, has had an impact on the country's appetite for continued spending. State and local agencies have also suffered from funding concerns. As an example, California's budget has been stressed in recent years, with one outcome being the underfunding of its highway/road system, among other issues. In fact, in its five-year budget that was prepared in 2014, California estimates that the total deferred maintenance for roads is \$59 billion.

The Oil Factor

A more recent phenomenon attributing to the underperformance of contracting companies is the steep decline in oil prices. According to Nicole Friedman of the Wall Street Journal, "Brent crude oil and gasoline futures both posted 48% losses in 2014."² Oil prices are not expected to bounce back any time soon, given the current coupling of strong supply level with lackluster demand.

Prior to the downfall, publicly traded E&C firms had become much more immersed in the oil and gas sector, given the level of opportunity, marked by countless projects relating to the extraction, transportation and refinement of oil. Several publicly traded firms had made it an initiative, both through organic and inorganic efforts, to increase their exposure to serve the oil and gas market. Some of the larger transactions that have occurred recently follow.

Amec Plc acquired **Foster Wheeler AG** for approximately \$3.1 billion in cash and stock on January 13, 2014. Foster Wheeler is a worldwide engineering and construction company specializing in oil and energy.

For the year ended December 31, 2013, Foster Wheeler had revenues of approximately \$3.3 billion.

SNC-Lavalin Group Inc. acquired **Kentz Corporation Ltd.** for roughly £1.1 billion in cash on June 23, 2014. Kentz Corporation provides engineering and construction services to oil and gas, petrochemical, and mining and metals companies. Kentz Corporation had revenue of \$1.7 billion for the year ended December 31, 2013.

URS Corporation acquired **Flint Energy Services Limited** on May 16, 2012, for C\$1.25 billion in cash and the absorption of C\$225 million of Flint's debt. Through roughly 80 locations in North

America, Flint provides construction services to several companies in the oil and gas sector. At the time of the transaction, Flint generated roughly 80% of its revenue in Canada, with the remaining 20% attributable to the United States.

As result of such activity, the performance of publicly traded contractors has become more intertwined with the movement of the oil and gas sector. The steep drop in the price of oil has led to a curtailing of capital expenditures

While the U.S. has emerged from the recession in better shape than most countries, conditions remain far from ideal. Activity in certain segments is substantially constrained by anemic public funding levels.

and a postponement/cancellation of projects. For example, according to Carolyn King and Chester Dawson of the Wall Street Journal, “Suncor Energy Inc. said it would cut its 2015 capital spending program by 1 billion Canadian dollars,” and Canadian Natural Resources Ltd., said “that it would trim its 2015 spending budget by C\$2.4 billion to C\$6.2 billion, citing the recent drop in oil price.”³ With companies worldwide cutting projects, there is a heightened sense of concern for engineering and construction companies with exposure to the oil and gas industry.

Summary

Historically, the stock prices of publicly traded E&C firms have trended with the market, albeit with more amplified movement. This trend stopped after the Great Recession, as publicly traded contractors continue to underperform the market during a period of expansion. Key factors behind this phenomenon are the continued depression of margins, global economic weakness, inadequate funding levels and the contraction of oil prices. Only time will tell whether the divergence is temporary or more lasting in nature. **Q**

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¹ Reuters

² Friedman, Nicole. “U.S. Oil Prices Fall 46% This Year, Steepest Loss Since 2008.” Wall Street Journal. December 31, 2014. Web.

³ King, Carolyn, and Chester Dawson. “Suncor Cuts Capital Spending Due to Low Oil Prices.” Wall Street Journal. January 13, 2015. Web.

Shorts



Will the Federal Reserve's Actions Affect the E&C Industry?

LEE SMITHER, JOEL STINSON AND PAUL TROMBITAS

An in-depth look at how the Federal Reserve could impact the engineering and construction industry.

The engineering and construction industry has always kept a close eye on interest rate fluctuations and the potential impact of those movements. Most assume that higher interest rates lead to reduced levels of investment in capital projects. For the past two years, business publications have been obsessively monitoring the Federal Reserve ("The Fed") — watching every word and hanging on every sentence to see actions it may eventually take regarding the federal funds rate (a primary influence on interest rates).

The Fed recently indicated that the first rate hike in almost a decade is likely to happen this year. And while the economy is steadily recovering, it is still fragile, and Federal Reserve Board Chair Janet Yellen, indicated that the Fed would move cautiously. "Economic conditions are currently anticipated to evolve in a manner that will warrant only gradual increases in the target federal funds rate."

Driving monetary policy are the Fed's goals of 2% inflation and maximum employment (See Exhibits 1 and 2 for unemployment rates and inflation of personal consumption expenditures). "The Committee continues to see the

EXHIBIT 1 UNEMPLOYMENT RATE

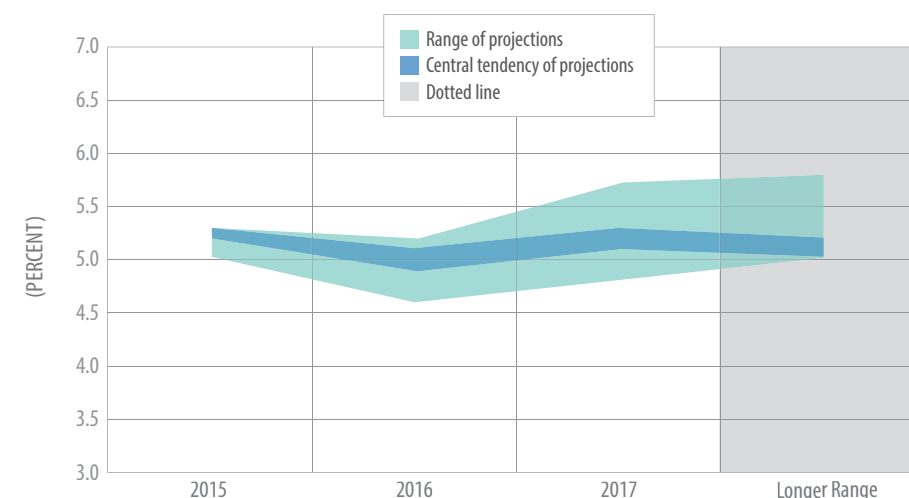
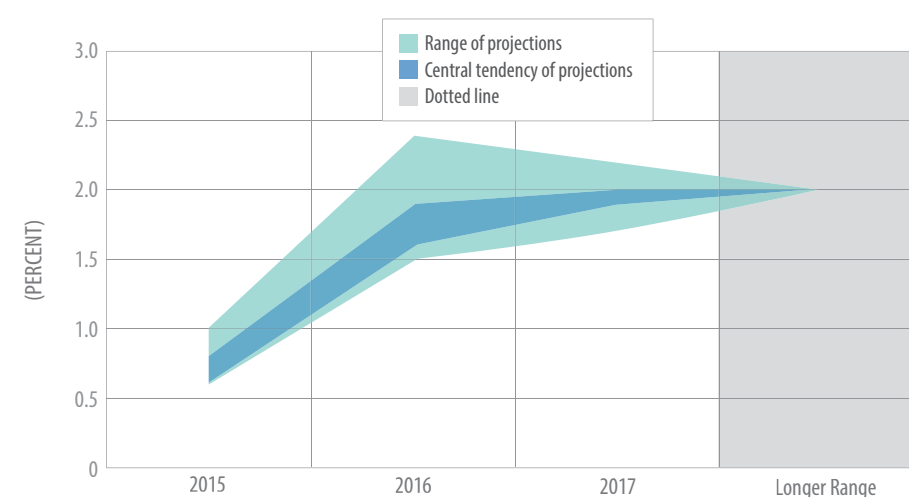


EXHIBIT 2 PERSONAL CONSUMPTION EXPENDITURES INFLATION



risks to the outlook for economic activity and the labor as nearly balanced. Inflation is anticipated to remain near its recent low level in the near term, but the Committee expects inflation to rise gradually toward 2% over the medium term as the labor market improves further and the transitory effects of earlier declines in energy and import prices dissipate."

The Fed signaled that rates might only go up one-quarter of a percentage point in 2015. Moving forward, the median projection is 1.625% for 2016 and 2.875% for 2017. Interest rates around the world — both short-term and long-term — have remained low, and right now the U.S. government can borrow for 10 years at less than 2%. It's also interesting to note that low interest rates are not an aberration, but rather a longer-term trend. In the 1960s, interest rates were relatively low, then rose above 15% in 1981 and have been in decline ever since. Interest rates follow the rise and fall of inflation, which makes sense as investors demand higher yields when inflation

is high to offset the decline in purchasing power of the dollars with which they expect to be repaid.

While the federal funds rate is important to watch, FMI contends that small, incremental increases in the federal funds rate is not cause for concern. What matters most for the economy is the real, or inflation adjusted, interest rate.

Impacts on E&C

So what does all of this mean for the E&C industry?

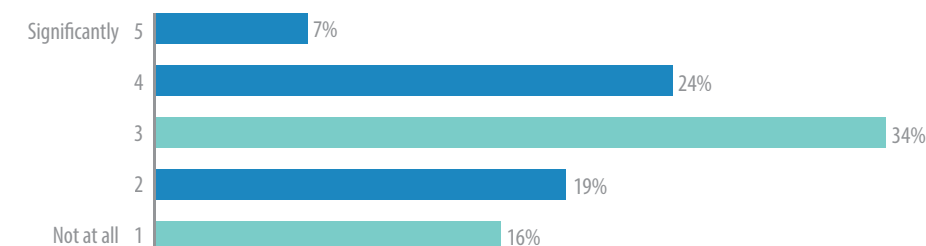
The overall economy has benefited from low borrowing costs, which in turn have led to growth in construction markets. But what happens when rates start moving in the other direction? According to a recent FMI survey, a majority of respondents believe that rate increases will have some impact on their businesses (see Exhibit 3).

While the federal funds rate is important to watch, FMI contends that small, incremental increases in the federal funds rate are not cause for concern. What matters most for the economy is the real, or inflation adjusted, interest rate.

The real interest rate is the most relevant for capital investment decisions. The Fed's ability to impact real rates of return, especially longer-term real rates, is limited at best. Except for the short term, real interest rates are determined not by the Fed, but by a wide range of economic factors, including the components of economic growth. Interest rates are only one part of the equation; the overall health of the economy is a larger driver of engineering and construction spending. In fact, it is actually worse if the Fed is not comfortable raising rates due to a fragile economy. Instead of solely focusing on the federal funds rate, keep an eye on GDP, inflation, unemployment and residential construction.

EXHIBIT 3 RATE INCREASE IMPACT ON BUSINESS

Do you believe rising borrowing costs will directly impact your company/organization's performance in the next three years?



GDP

GDP is a measure of the total output (goods and services) that a country produces. A nation's prosperity is directly linked to the amount of goods and services that it produces, and construction expenditures are a significant part of our national output (see Exhibit 4). Traditionally, our national output has averaged between 7-8% with a peak of almost 9% just before the Great Recession. Additionally, Exhibit 5 shows the historical relationship between construction spending and GDP and further forecasts continued growth through 2019. Based upon historical performance, U.S. construction spending has room to grow and could once again align with or possibly even surpass nominal GDP. This obviously assumes a healthy return to late 1990s economic activity levels.

A nation's prosperity is directly linked to the amount of goods and services that it produces, and construction expenditures are a significant part of our national output.

Inflation

The Fed's policies are another primary determinant of inflation and related expectations over the longer term. The Federal Open Market Committee (FOMC) judges that inflation of 2% (as measured by the annual change in the price index for personal consumption expenditures, or PCE) is most consistent over the longer run with the Fed's mandate for price stability and maximum employment.

Over time, a higher inflation rate would reduce the public's ability to make accurate longer-term economic and financial decisions. On the other

EXHIBIT 4 CONSTRUCTION AS A PERCENTAGE OF GDP

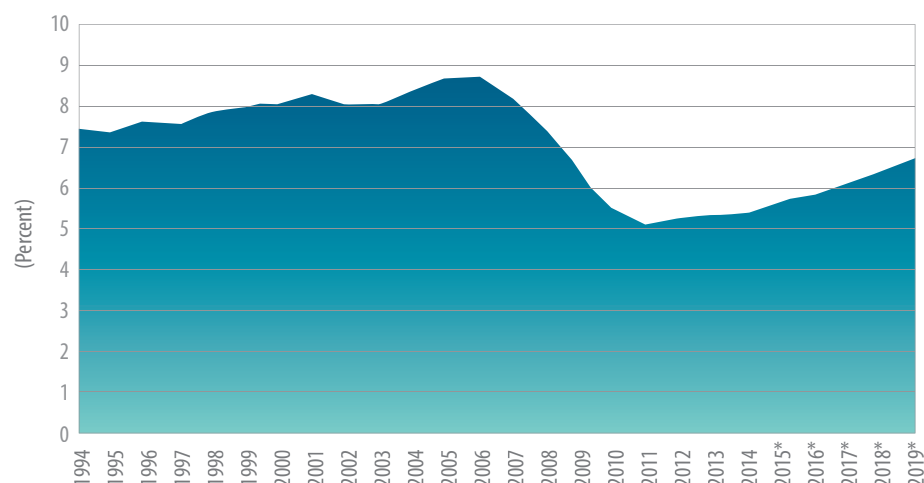
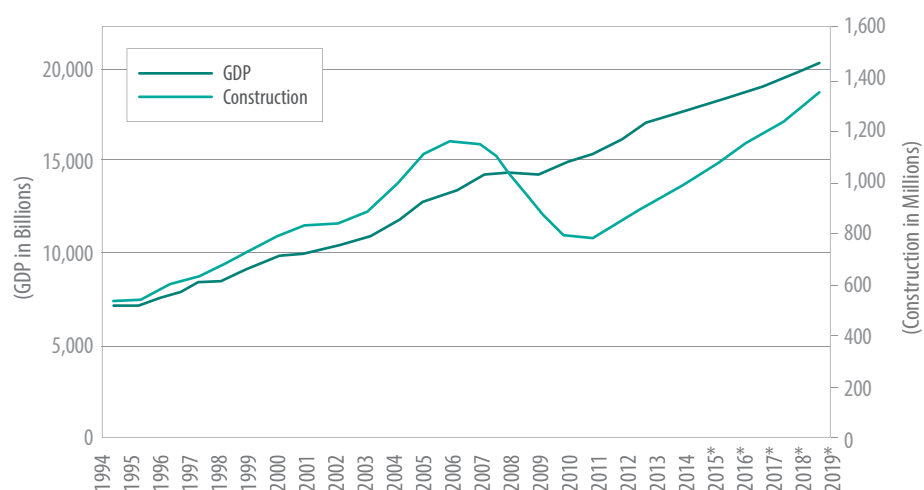


EXHIBIT 5 CONSTRUCTION PUT IN PLACE AND NOMINAL GDP



hand, a lower inflation rate would be associated with an elevated probability of falling into deflation, which means prices (and perhaps wages), on average, are falling — a phenomenon associated with very weak economic conditions. Having at least a small level of inflation makes it less likely that the economy will experience harmful deflation if economic conditions weaken. (federalreserve.gov)

In other words, some inflation is good for an economy. When prices are increasing, consumers will “buy now” instead of later, thus increasing demand for goods and services. Stores sell more goods, and production facilities are busy. In turn, businesses increase hiring to meet demand, and a positive economic cycle is created.

Unemployment rate

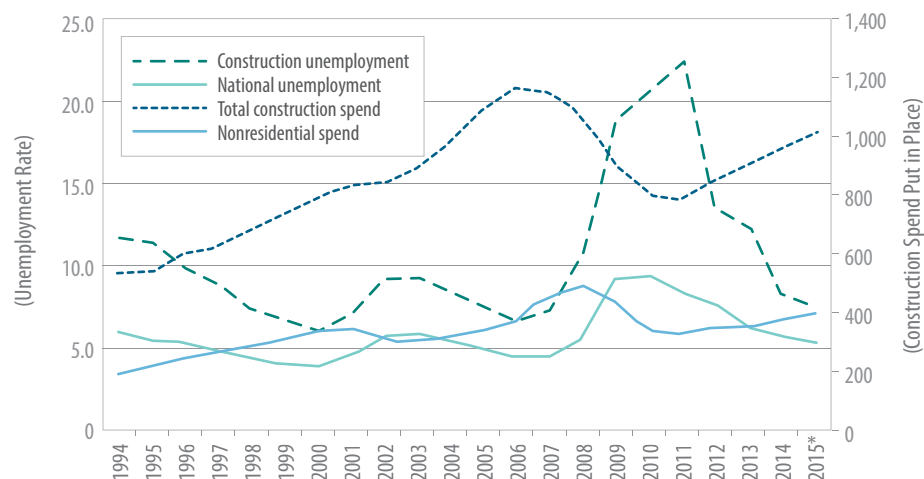
Since 2010, the national unemployment rate has dropped from 9.8% to just above 5%, while construction put in place has experienced a 5% compound annual growth rate (CAGR). Exhibit 6 depicts the strong inverse correlation between national unemployment and construction put-in-place spending. A strong job market is crucial to the E&C industry. Unemployed or underemployed people do not build homes, and that acts as a drag on homebuilding as a leading indicator of certain sectors of nonresidential construction, such as retail, water and sewer and streets. Looking forward, indications of full-time, non-farm job growth can likely be translated into increased construction spending. Job formation is a leading indicator for homebuilding. A healthy employment picture also increases consumer confidence, which causes increased spending in housing and durable goods, which drives more construction activity.

Residential Construction

While many construction firms do not work on single-family residential projects, housing is a key part of the U.S. economy and has a direct impact on many other industries, including commercial construction, manufacturing, banking and many more. Housing starts are defined as the number of new residential construction units (single-family and multifamily) that have begun during a month. Generally, the figures are seasonally adjusted and statistically smoothed to adjust for weather-related impacts. Housing starts in the U.S. averaged 1,446,000 from 1959 until 2015, reaching an all-time

While many construction firms do not work on single-family residential projects, housing is a key part of the U.S. economy and has a direct impact on many other industries, including commercial construction, manufacturing, banking and many more.

EXHIBIT 6 INVERSE CORRELATION: NATIONAL UNEMPLOYMENT RATE AND CONSTRUCTION PUT-IN-PLACE SPENDING



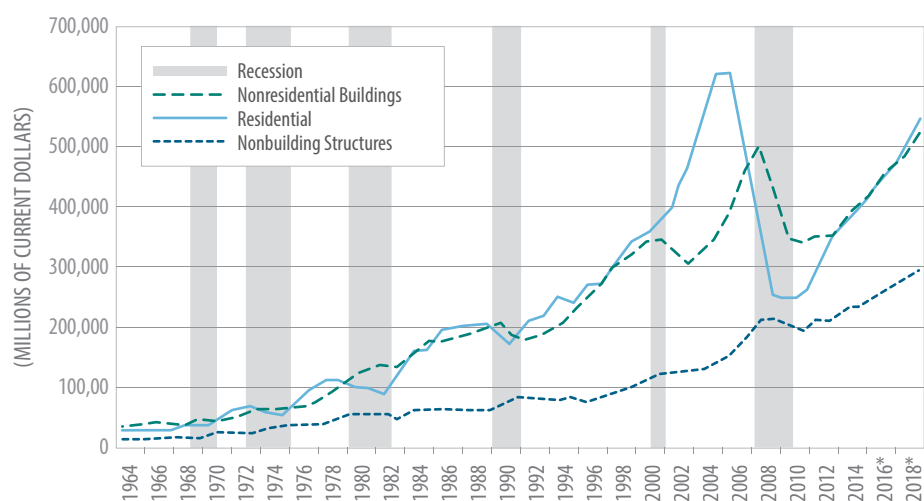
Conclusion

It is likely that the Fed will begin to raise rates this year. Once the initial rate increase happens, periodic increases are expected. Aggressive increases are unlikely, as the Fed has indicated a cautious approach. In the short term, we expect minimal impact on the E&C industry. For many firms, improvement in the economy and increases in backlogs due to owners advancing projects to lock in lower rates will offset any negative impact stemming from modest rate increases.

In the longer term, inflation and the unemployment rate will continue to drive monetary policy. Although higher than expected inflation and lower than expected unemployment are not considered likely, these events would lead to more aggressive rate increases. While the impact to the E&C industry would not be felt immediately, a delayed effect on firms' backlogs could be expected. The state of the economy — not the Fed — will be the ultimate determinant in the sustainable level of real returns and, thus, the growth of the E&C industry as well. [Q](#)

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EXHIBIT 7 CONSTRUCTION PUT IN PLACE



high of 2,494,000 in January of 1972 and a record low of 478,000 in April of 2009. Typically, in a strong economy, people are more likely to buy new homes than existing homes and vice versa in a down economy. The data in Exhibit 7 depicts the residential construction market as a leading indicator for nonresidential construction. Historically, strong housing starts indicate demand for infrastructure, retail and office space.

The Capitalization of Earnings Method for Construction Firms

JOE KAESNER

Leverage the right metrics to better support and justify your company's value.

Construction firm owners are no different from any other business owner when it comes to wanting to know their business's value. Because there are many reasons why a formal business valuation might be needed — from contemplating a sale of the business to establishing a value for gift and estate taxes — understanding of the value of your business is critical. In this article, we'll discuss one of the most common methods for determining value and discuss some of the financial and nonfinancial factors that have real and measurable impacts on the value of your business.

But first, let's get a few terms straight. The first term is market value. Think of market value as analogous to the quoted price of a share of publicly traded stock. It is a value that represents the price at which two unrelated parties would be willing to exchange a good. In our analogy, the market value of a share of publicly traded stock is the last price at which a transaction involving that stock took place. The second term is enterprise value, or the market value of a company's equity and debt less the company's cash. It is important to be mindful of these terms as we discuss business valuation because there is often a difference between enterprise value and the value that an owner would receive when selling his or her ownership interest.

It's All Relative

C.S. Lewis once said, "The architects tell us that nothing is great or small save by position." I don't think Lewis was talking about business valuation or even about our kind of architects when he said this, but he makes an important point. What better way to find the value of a thing than to compare and contrast it with the value of another similar thing? To that end, we have what is known as the Capitalization of Earnings Method of valuation. The basic mechanics of the capitalization of earnings method are very simple:

- 1) Determine a financial metric,
- 2) Determine a suitable market-based multiple, 3) Multiply the metric and multiple together, and
- 4) Give yourself a high-five for valuing your business in less than 10 seconds. Sounds simple enough, right? Well, if it really were that simple, I probably wouldn't need to write an entire article about it (you can still give yourself a high-five for making it this far though).

The first step in the Capitalization of Earnings Method is to determine an appropriate financial metric to use. The most common metrics are revenue or sales, operating income and a frightfully named abstraction known as EBITDA which stands for earnings before interest, taxes, depreciation and amortization.

More simply, EBITDA is used as a proxy for your business's cash flow generation. Just how asset-intensive your business is generally determines which of these financial metrics is the most meaningful for valuation purposes. Of course, no business valuation would be complete without a good, long discussion about what actually constitutes operating earnings or EBITDA. Believe it or not, there are almost as many answers to this question as there are people discussing the matter.

Once you have your financial metric, it's time to determine a suitable market-based multiple. Depending on the purpose of your business valuation, there are a few different sources of market data from which to derive a suitable multiple. The two sources of market data that are widely available are public company financial data and public transaction data. In either case, the end

Because there are many reasons why a formal business valuation might be needed—from contemplating a sale of the business to establishing a value for gift and estate taxes—understanding of the value of your business is critical.

goal is to isolate a list of public companies or transactions that are similar to yours from an operational, geographic, business risk and size perspective.

Using publicly available valuation figures and financial metrics (generally from public filing documents, press releases and public markets data), we can derive a multiple for each public company or transaction which represents a ratio of enterprise value (remember what this means?) to financial metric. From the range of multiples we've derived, select an average or median multiple and then make adjustments based on company-specific operational or market factors (we'll discuss a few of these below). Once you've selected the multiple, you can calculate enterprise value using a simple multiplication. Now, give yourself another high-five! Isn't valuation fun?

Giveth and Taketh Away

Arguably, the most difficult part of this valuation exercise is the selection, adjustment — and most importantly — justification of the suitable market multiple to apply to your company's financial metric. In many instances, there is a counterparty (i.e., a potential buyer or seller, the IRS or an attorney) involved in your company valuation. These counterparties will expect you to logically justify and support your valuation analysis. From the explanation in the previous section, the process is speciously simple. However, a great deal of consideration and thought should be given to each adjustment that you make regarding the selected market multiple. Generally, adjustments are made based on a combination of financial and nonfinancial factors in the form of value adders and detractors. We'll discuss these from a high level so that you can consider how your own business factors might impact value.

Even though the Capitalization of Earnings Method only uses a single financial metric to determine enterprise value, there are financial considerations present in a business that can be used to justify a higher or lower market multiple. They are:

Value Adders

- **Financial** — The two most common financial value adders are relative profitability and growth. Depending on how your company's profitability and growth compare to the average profitability and growth of other similar companies, upward adjustments to the market multiple can be applied.
- **Nonfinancial** — For companies in the construction industry, there are several factors which can be used to justify an upward adjustment in the market multiple. Self-perform capabilities, project size capabilities, project pipeline, backlog, flexibility (ability to travel), special relationships with suppliers or customers, integration across multiple disciplines (if applicable) and the depth of company management could all support a higher company valuation.

Value Detractors

- **Financial** — Excessive use of financial leverage (i.e., high relative debt levels), excessive use of operating leverage (i.e., inefficient capital program), and below-average margin or growth figures can all contribute to a downward adjustment to the market multiple.
- **Nonfinancial** — For companies in the construction industry, there are several factors which can be used to justify a downward adjustment in the market multiple. These factors include concentration of risk in certain key segments, customers or geographies, backlog and lack of integration or capabilities compared to peer companies. A significant value detractor can also come in the form of a lack of organizational depth. With closely held private companies, there can often be a tendency to fail in developing a successor management team with the knowledge and experience to grow the business once the founder or longtime owner decides to retire.

If you were paying attention, you might have noticed that backlog was listed as both a value adder and a value detractor (and, no, that was not an error on my part). Backlog is an interesting factor that can be both helpful and harmful. On a positive side, backlog represents revenue that your business will likely earn. On the negative side, the terms of the contract that gave rise to that backlog are set, and profitability depends on efficient project completion. The nature of backlog is different for each company, so it's important to consider which specific projects are in backlog to determine how they impact value.

You might have noticed that backlog was listed as both a value adder and a value detractor. Backlog is an interesting factor that can be both helpful and harmful.

I Was Told There Would Be No Math

As an example of the Capitalization of Earnings Method we've been discussing, consider the following. We are engaged to value a privately held industrial contractor called Best Construction, Inc., which reported 2014 EBITDA of \$500. Based on a company search, we identify three public companies that perform that same mix of work and operate in the same geographic region as Best. Using public filing data, we derive 2014 EBITDA multiples for each of those companies as shown below:

For our valuation, we select the average multiple of 5.6x as a starting

EXHIBIT 1

Selected Public Companies	EBITDA Multiple
Contractors-R-Us	5.5x
Pretty Good Builder & Sons Corp.	6.3x
OK Construction Co.	4.9x
Average of selected public companies	
	5.6x

EXHIBIT 2

Adjustments	
Best Construction is much smaller than the similar public companies	-2.0x
Best Construction has a history of stronger profitability than the similar public companies	1.0x
Best Construction has extensive self-perform capabilities and the ability to travel easily	0.5x
Best Construction earns the majority of its revenue from three large, key clients	-0.3x
Adjusted Market Multiple 4.8x	

EXHIBIT 3

Adjusted Market Multiple	4.8x
Best Construction's 2014 EBITDA	\$500
<i>Indicated Enterprise Value of Best Construction (rounded)</i> \$2,400	

place. We then consider the financial and operation characteristics of Best Construction. Based on our assessment of some of the value adders and detractors, we make the adjustments as shown in Exhibit 2 to arrive at our market multiple.

Lastly, we multiply our suitable market multiple by Best Construction’s financial metric to arrive at an estimate of Enterprise Value.

Of course, this is a simplified example, and considerably more analysis can be performed to support the selected public companies and the adjustments made to the market multiple.

More Art than Science

At the end of the day, business valuation is more an art than a science. However, if you have some familiarity with the “science” aspect discussed in this article, you will be better prepared to support and justify your company’s maximum value. **Q**

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Building the Talent Pipeline for Long-term Success

KEN WILSON

Examining the importance of solid development and succession planning to the construction industry.

Talent development and succession planning are critical to the future growth of all construction companies. i+iconUSA saw that need and two years ago began focusing on building upon the talented workforce already on its teams. FdG Associates, a private equity firm, is the major investor in i+iconUSA, which is a conglomerate of heavy civil construction companies. Two of these, Joseph B. Fay Company and i+iconSOUTHEAST (formerly Waterfront Marine Construction, Inc.), were previously family-owned businesses. The third subsidiary, i+iconENERGY, was an organic effort. The greater sophistication associated with equity firm ownership, along with a decreasing labor pool, caused formalized talent development to become a more critical issue for the entire i+iconUSA family of companies.

The efforts were led by Ann Michalski, director of program development and implementation, who has a 20-year background in providing talent development for construction-related companies, as well as Les Snyder, CEO and president of i+iconUSA, a visionary leader and a third-generation construction professional. Snyder indicated that “Developing talent at all levels is what ultimately makes i+iconUSA a high-performing company. And

as confirmed by our core values, makes us the preference for both employees and business partners. i+iconUSA identifies, invests in and nurtures potential while rewarding entrepreneurship. I truly believe that talent must be developed to increase employee participation and engagement in the expanding growth of our company.” Michalski added, “We know that our talent development initiatives will differentiate us and support our strategic objective of retaining and attracting top talent.”

Future Growth

In order to accomplish their strategic objectives, Snyder and Michalski realized they would need to enhance the skills and effectiveness of their management team at all levels. Specifically, they recognized a gap in employee development in middle management, where the ranks needed to accomplish short-term goals as well as plan for succession as senior management retires over the next several years. “We now have a heavy focus on employee development,” says Ryan Surrena, senior project manager, “and we recognize our need to transfer knowledge and experience throughout the organization.”

Knowing that they could not overcome this shortage overnight, Snyder and Michalski created a five-year development plan that would steadily upgrade the skills and capabilities of people across the entire firm. They chose to begin with their critical middle management group at Fay and then extend the process throughout the field operations team, eventually engaging project managers, superintendents, general superintendents and project engineers across all i+iconUSA companies. They included functional managers as well in order to create a cohesive culture and enhance performance across the company.

Key Objectives

To address the obvious talent gaps, i+iconUSA committed itself to providing training to enhance the leadership, management and business skills of its middle managers. At the heart of its efforts was the creation of a pool of capable managers who will ultimately lead the business and drive sustainable and profitable growth across the companies. It also gave these emerging leaders additional responsibilities that would stretch them beyond their current roles.

Although the participants were all well-established and had demonstrated their capabilities through their successful careers in managing various projects and functions, each would be required to take on new responsibilities and expand his or her skills to include a broader understanding of the complexities of managing a construction company.

Senior leaders willingly provided support throughout the process and contributed to the curriculum, launched and participated in training sessions, and refined their skills as mentors and coaches to the program participants. All took a real interest in the careers of the participants and formed natural bonds.

Several members of the first leadership development program have now developed the confidence to tackle real-world problems and implemented changes that have improved overall company performance. “I get a lot of support and can speak directly with our leadership team to get what we need,” says Tyson Hicks, project director. “The LDP (Leadership Development Program) could not have come at a better time and has redefined me as a person and a leader.”

Leading a Global Business

Effective project management requires short-term attention to detail and the ability to react quickly when anticipating and solving problems in the field. By contrast, leading a business demands a global view of enterprisewide risk and a longer time horizon to plan for the strategic direction of the business. Rather than just shifting labor, equipment and materials to meet daily or weekly schedule needs, company leaders must analyze external market factors against midterm and longer-term demand to project organizational resources across future business cycles. Clint Filges, operations director, describes how “Global financial understanding — or why we bid what we bid and how to choose jobs — is the area I need to continue to refine. Being assigned to a task force to work on business plans is another way that I can improve my skills.”

The i+iconUSA and Fay leadership teams worked with the Talent Development Group at FMI Corporation to develop a draft curriculum designed to build skills in these three major areas:

- Management
- Leadership
- Business acumen

Our joint team a phased developmental structure that included these components:

- Individual and team assessment and interviews
- Curriculum design
- Customized development

Effective project management requires short-term attention to detail and the ability to react quickly when anticipating and solving problems in the field.

- Program delivery
- Team project development
- Reinforcement and implementation
- Feedback and improvement

After compiling the feedback for each LDP member, we jointly designed a curriculum to address a broad range of skills, including:

- Management and leadership
- Financial management and cash flow
- Presentation skills
- Client relations and business development
- Strategic thinking and problem-solving
- Negotiating skills and conflict resolution
- Ethics and integrity
- Feedback and team motivation
- Emotional Intelligence
- Risk management
- FMI Construction ProfitAbility©

The resulting curriculum was then translated into a series of seven, two-day training modules, scheduled every 60-90 days over a period of about one year. Each session included basic skills development and was customized to incorporate Fay's specific processes and procedures to facilitate the transition from the classroom to apply these new skills while addressing practical challenges when they got back on the job.

Mike Trettel, business development director, describes the benefits to his evolving career: "As we began the LDP process, I had just started in the role of business development, so learning the new role along with the new skills has been a great opportunity. Improving both hard-edged and soft skills has helped me as I work with our executive team. I'm learning to lead without being in charge by effectively leading resources that don't report to me directly."

After the classroom training, the participants were asked to take on a group assignment to identify real-world opportunities for organizational process improvements. This self-managed team identified a need to challenge how projects were managed on a day-to-day basis across the company. Utilizing their new skills of collaboration and team problem-solving, the group identified inefficiencies and internal obstacles and thus developed new processes to manage projects more effectively and efficiently across Fay. Brian Carr, project director, described his own experience: "I have gained new opportunities to implement the company business plan and drive our strategy for more work with private sector clients. The challenge for me personally is to learn to lead as well as to manage depending on a particular situation."

Phase Two: Expanding the Culture

After the initial group of participants had been implementing its new skills for about a year and building a solid foundation of success in the process, the company expanded the process and trained a much larger group to extend the commitment to future growth further into the organization.

We gathered the alumni of phase one and members of senior leadership together to solicit input for designing a modified curriculum for this next larger group. This group includes about 40 superintendents, general superintendents, foremen, project managers, project engineers, safety coordinators and IT and finance personnel from all i+iconUSA companies. Divided into two groups of 20 each, and using input from the alumni group, the team prioritized course materials to create a series of six, one-day modules. Each module would be

delivered for the two groups on two consecutive days every 30-60 days, with a break during the busy summer construction months.

This series would also include FMI's two-day Construction Profitability business simulation for each group to facilitate the practical application of the skills and make the transition from the classroom to field implementation. This process was also accelerated by the hands-on participation of the alumni group, which sat in on the classroom sessions and offered insights into

There are intangible benefits to bringing people together across various companies and locations.

how the skills can be applied in the field. Alumni also provided guidance as each module was developed to make sure that a consistent message was being communicated to this broad group of program participants.

In addition, feedback is collected through a customized online survey immediately after the delivery of each training module. This feedback is analyzed to make changes to future modules to accommodate participants' needs. The learnings from each module are also reinforced through a series of tailored one-page reminders that are sent to all participants between sessions to create a link from the classroom to the real world of field operations.

Outcomes and Benefits

Besides the inherent benefits of training for a broad group of people across the organization, there are intangible benefits to bringing people together across various companies and locations. Some of the participants don't encounter each other during their normal workflow, so this platform results in a more cohesive and collaborative culture as well as a vehicle for sharing best

practices across the various operating divisions. Although they deliver different kinds of contracted services, there is the common thread of heavy civil construction. This helps to create a synergy for problem-solving and leveraging operational excellence.

This facilitated interaction has created a pipeline to support future growth in both geographic and targeted market sectors. Ryan Surrena describes his relocation from Maryland to Pittsburgh as the biggest opportunity: “Through my involvement in the leadership development program, I was able to see past the actual construction of the projects and start to see the big picture and how the company is truly evolving. Relocating back to the Pittsburgh area was not only ideal for my family, but also provided me the opportunity to use the skills that I learned to lead and manage much larger projects.”

It will take a while for i+iconUSA to reap the long-term benefits of its investment, but individuals like Hicks are already seeing a difference. “We have always treated employees well, but over the past few years, the company has become more attractive and more people desire to join us based on the perception in the market of how well people are treated and the time and effort placed on employee development and growth,” he says. This culture will help i+iconUSA achieve its objectives of becoming a best-of-class employer of the future. [Q](#)

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Five Reasons Why Millennials Are Great for the Construction Industry

SABINE HOOVER

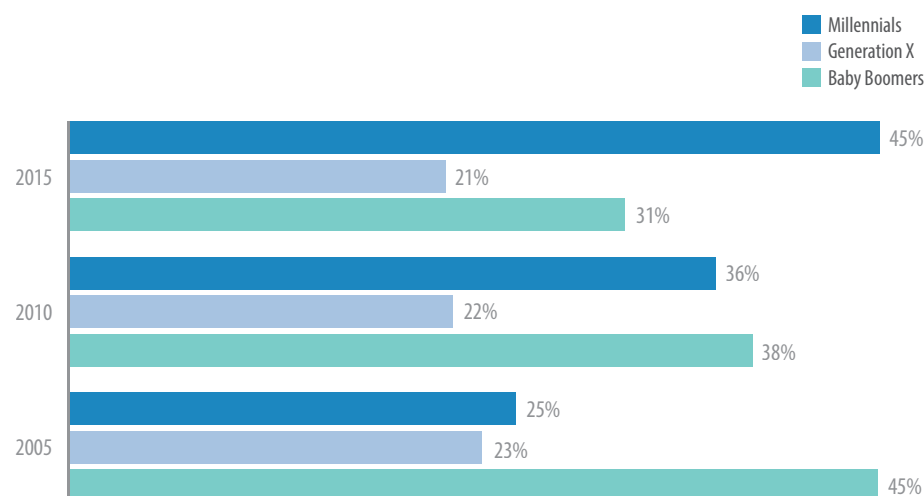
Now is the time to start incorporating a millennial-focused recruitment strategy for the workplace.

2015 represents a milestone in the U.S. labor market. For the first time, millennials (individuals born between 1980 and 2000) will become the majority in the workforce. This is a significant shift for companies that now have to figure out how to most effectively attract, recruit and retain these younger workers — not all of whom are following in their parents’ footsteps when it comes to job selection, company loyalty and opportunity.

Much has been written about the millennials and how they differ from previous generations in their approach to work — and careers in general. Indeed, millennials are often unfairly saddled with the dubious reputation for being entitled, disloyal, self-centered or optimistic go-getters, but it turns out that they’re actually not that different from their older work colleagues. In fact, Chuck Underwood, a pioneering and longtime authority on generations, pointed out that, “Millennials are idealistic; they are demanding; they will insist that their employers are good corporate citizens, environmentally green and ethical. In many ways, they are exactly like the baby boomers and that’s not an accident. Most have boomers for parents, and they absorbed their parents’ values.”¹

EXHIBIT 1 MILLENNIALS BECOME THE MAJORITY OF ALL EMPLOYEES IN 2015

GENERATIONS IN THE WORKPLACE: 2015 IS THE YEAR MILLENNIALS BECOME THE MAJORITY IN THE U.S. WORKFORCE



Source: Bureau of Labor Statistics Employment Projections

Underwood's notion was confirmed in a recent study conducted by the IBM Institute for Business Value, where the authors stated that the differences among millennials, Gen X and baby boomer employees have been grossly exaggerated.² According to the survey findings, baby boomers, Gen Xers and millennials share similar values, aspirations, attitudes and goals when it comes to work. The survey also found that some of the more common assumptions regarding millennials could actually be incorrect.

FMI has observed similar misconceptions about millennials in the construction industry. In a recent study, FMI surveyed more than 200 millennials in the industry to measure their level of engagement and to explore what this generation of workers is looking for in an employer. Following are preliminary survey statistics³ — some of which dispel widespread millennial stigmas:

- 74% of survey respondents expect to remain more than five years with their company.
- 96% of survey respondents are willing to work beyond what is required of them to help the business succeed.
- 93% of survey respondents feel proud to be part of their company.
- 98% of survey respondents stated that it was important for them to understand their career path and opportunities within their company.
- The following criteria ranked highest for millennials in construction: 1) Competitive pay 2) Work-life balance and 3) Personal development.

Based on the above excerpt of findings and additional conversations with industry stakeholders, we have identified the following five key areas that make millennials a force to be reckoned with in the construction industry:

1. Loyalty and dedication. The majority of our survey participants want to stay more than five years with their company, as opposed to jumping ship in the near term. Given good opportunities for career advancement, support for education, a collaborative culture, and competitive pay and benefits, this group of workers will go above and beyond to drive organizational success.

2. Innovative thinking. In an industry that is changing dramatically through emerging technologies and new delivery systems, millennials welcome the opportunity to provide input and new ideas that promote corporate innovation. As one survey participant stated, "I'm free to be creative and try new things." Progressive companies like DPR Construction, for example, encourage employees to use a special website to submit ideas for improvements, which can be related to software, tools or company protocols, among other things.

3. Tech savvy with a personal touch. It is true that many millennials adopt new technologies and gravitate toward digital media more easily than do their older colleagues. However, when it comes to learning new skills at work, research shows that millennials prioritize face-to-face contact over digital options. FMI's survey also confirmed that 86% of respondents favored face-to-face feedback rather than a digital setting. This mix of tech savvy, combined with a need for personal interaction, can help companies drive change across multiple generations while infusing the industry with a fresh new perspective.

When it comes to learning new skills at work, research shows that millennials prioritize face-to-face contact over digital options.

4. Balance. Millennials are looking for a healthy work-life blend. This can be difficult to attain in the construction industry, which often requires long hours, remote work or challenging work conditions. However, if employers want to recruit and retain star talent, they will need to reconsider some of their traditional corporate policies and practices and find new ways to create a healthy work-life blend for their employees. For example, offering a paid sabbatical can help give

employees a break and a fresh outlook without losing them for good. This will not only help workers across multiple generations, but will also improve the negative image that the industry has suffered for decades.

5. Collaboration and communication. According to Underwood, many millennials grew up with parents, teachers and counselors who were their best friends and role models. “They not only need a mentor, but also a buddy. They are excellent team players. They will care about the entire organization, not just their own jobs,” stated Underwood.⁴ Indeed, the timing is perfect. New virtual design and construction tools and integrated project delivery methods will all require higher levels of collaboration within and among project teams. Having these young people focused on a common purpose, effective processes, excellent communication and solid relationships will help transform the industry over time.

While managers often perceive millennials as entitled, disloyal and lazy, it appears that they really aren’t. As shown in FMI’s recent construction industry survey, millennials are ambitious and eager to make a big impact in their careers early on, which sometimes can be misread as entitlement.

Not unlike other generations that enter the workplace, millennials have new perspectives to share, new ideas about getting things done and new ways of tackling problems. They were literally born with technology in their hands and see it as a critical part of the workplace and their interactions with others. Long thought to be “behind the curve” when it comes to technology adoption, the construction industry desperately needs this new perspective.

This new perspective is critical, because it’s what can push all of us forward (whether we want to be pushed or not). So, rather than focusing on outdated stereotypes, employers in the construction industry should start building comprehensive human capital programs that will benefit workers across all generations. Now is the time to capitalize on each other’s strengths instead of focusing on stigmas. [Q](#)

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¹ “The Millennials: Who They Are, And Why They Are a Force to be Reckoned With.” Judy Schriener. ENR. 02/23/2011.

² “Myths, exaggerations and uncomfortable truths. The real story behind millennials in the workplace.” IBM Institute for Business Value. January 2015.

³ Final results and interpretations will be released in fall 2015.

⁴ “Millennials Bring New Attitudes.” Luke Abaffy. ENR. 02/23/2011.

Navigating the Winds of Social Economic Changes

PAUL GIOVANNONI, PRENTISS DOUGLASS AND CYNTHIA PAUL

Understand the changing dynamics of social economic factors like income inequality to be proactive in shifting markets.

Sailing versus boating can be likened to how companies view their markets when planning for their futures. To a sailor, an open body of water represents freedom. It is open space, a time to apply the skills learned to achieve the goal. Captains set their destinations, trim the sails and plot their courses toward those destinations. Their routes rarely follow straight lines. Currents and wind directions determine their tacks. While their general direction is strategic, their interim steps are tactical in response to their environments.

Boaters, on the other hand, are propelled by mechanics and engines and think about their journeys a bit differently. Where sailors crisscross the winds to maintain forward momentum, boaters can take a straighter path from their point of launch to the destination. Sailors and boaters make adjustments based on current flow, but power boaters have less concern about current than do sailors. Both can decide to explore the backwaters, eddies and natural beauty along their routes. Sailors and boaters share many of the same planning elements that go into a successful day on the water; they simply have different ways to achieve their goals.

Companies chart their courses for the future like skippers. Some will choose to venture far, while others will stay on the shore or in the harbor. Some are more interested in the journey, and others are more fascinated by the destination. Some will be propelled on the mechanics of wind, while some use fossil fuels, electronics and gears to enable their journey. But both need to deal effectively with the wind and waters in order to be successful and safe. The water is the market that companies face in their journey toward their futures.

Your geographic market or market segment is your waterscape. You can choose to stay where you are, venture a little ways beyond the harbor, or set sail for distant shores. Just like sailors and boaters, you have to understand and interact effectively with the forces of nature to gain a safe passage across the water. After all, who would intentionally set sail in a small boat against gale-force winds when going a bit earlier or waiting an hour would dramatically change the height of the waves? If speed to destination were the intent, who would choose to sail versus powering up the engines?

Grab Hold of the Helm — Let's Go

Skippers stand at the helm and guide their craft safely forward much like companies that use economic dashboards to help them judge the waters ahead and prepare for changing conditions. Many, if not most, successful industry firms use economic dashboards as early warning tools to changing markets, competitive positions and economic fluctuations. Like the label suggests, economic dashboards are heavily focused on the fiscal economics impacting markets — e.g., GDP growth, interest rates, employment/unemployment levels, per capita income, housing starts, etc.

Social economics are driving markets in increasingly obvious ways. They impact how markets grow and decline, the availability and quality of talent, and, in many cases, the severity of economic changes that will be felt in times of expansion and recession.

White Caps and Rogue Waves — Reading the Gauges

Those who track fiscal economic indicators attempt to predict the next recession or “rogue wave.” However, many tend to ignore the socioeconomic factors or “white caps” that affect their companies’ competitive positions on a day-to-day basis. Social economics impacts the way firms stay competitive and engage human capital.

Consider, for example, the socioeconomic metric of income disparity. Income disparity is a measure of the gap between the very rich and the very poor in a geography. A recent article by The Brookings Institution examined income disparity in 50 of the largest United States cities and found the disparity in many of the cities, like Atlanta, San Francisco and Miami, had a significant increase in income inequality from 2007-2012. Though these three

cities had increasing levels of inequality, it occurred through different means. In San Francisco, for example, the wealthiest households saw an approximately \$27,800 increase in income, while the poorest households had an approximately \$4,300 decrease in household income. The rich got richer, and the poor became poorer there. The scenario was different in Miami and Atlanta, where the poor saw a decrease in household income, and the rich did as well, but to a lesser proportionate extent.

Income inequality is a broad look at the social economic environment within a specific geography. To create an actionable plan based upon fluctuation in this metric, one must look to the individual variables that show correlation to the broader metric. Individual variables such as education attainment, housing-to-income ratio, population density and commuting time all have statistically significant correlations to income inequality, and, as such, variations in income inequality can be explained to varying degrees by these individual metrics. For example, 32.5% of the variation in income inequality can be explained by variation in population density. What this suggests is that, as population density within a geography increases, a negative effect on income equality would likely result. This correlation coefficient may not seem high when comparing it to one expected in a laboratory environment; but when the subject matter involves the unpredictability of human behavior and outcomes, the correlation is high. When a metric, such as population density is observed to be increasing, a proactive firm may react by adjusting its compensation plan to retain existing talent or be more attentive to its pursuit of new talent.

The ability to track individual metrics, such as those listed above, provides the opportunity to focus efforts on one or more socioeconomic factors that is affecting the broader external environment. This allows the opportunity to react quicker and more efficiently to the changing dynamics at hand and ultimately create competitive advantages over competitors within your geography.

The ability to track individual metrics provides the opportunity to focus efforts on one or more socioeconomic factors that is affecting the broader external environment.

Charting Your Course — Why Does It Matter?

So why should individuals or companies care about rising income inequality or other socioeconomic metrics, especially if it is an issue that might primarily be dealt with at agency levels (local, state and federal

government)? Does it actually have a material impact on firms, and, if so, how can firms react? Leaders and managers should care and monitor these metrics within their individual geographies because they provide a strong measure of how they need to think about their talent pipeline. If you are located in a market with rising income inequality, you should expect to see increasing salary expectations coinciding with decreasing availability of talent. Companies should think harder about cultivating the talent they need internally rather than expecting to find it in the marketplace at a bargain price. Company “universities,” internships and apprenticeships through high schools, technical colleges and co-ops are several examples of how some firms are succeeding at the talent challenge.

As a socioeconomic metric, income inequality is simply a number that compares the spread between the highest- and lowest-earning households. When this ratio gets larger over time, several factors come into play, including decreased social mobility, high and persistent unemployment, and lower economic utility (the value of an additional unit of service or good). For example, with decreased social mobility, it becomes more difficult for someone to migrate from the lower to the middle class. Fallout from these issues can take the form of additional health and social challenges such as obesity, crime rates, substance abuse, unrest, waste of resources and so forth. When these factors persist over time, geographic regions begin to experience an erosion of the middle class as consumers struggle to afford essential goods and services.

Over time, income inequality dampens economic growth. This erosion presents a tremendous struggle for construction firms because most of the industry’s production and entry-level jobs exist within the middle market. This is one of several reasons why hiring staff has become so challenging over the last several years. Find a city in the U.S. where construction is happening at a torrid pace, and the talent supply-demand relationship will likely be heavily weighted in favor of the talent. Companies are running at capacity, have good backlog, enjoy healthy margins and cannot find enough people to fill their current staffing needs. Compounding this issue is the fact that many people left the construction industry as a result of the recession and housing market bust. If firms are unable to hire for open positions, then the discussion of talent development must be the next piece of the puzzle.

If you are located in a market with rising income inequality, you should expect to see increasing salary expectations coinciding with decreasing availability of talent.

Connecting the dots, rising income inequality leads to a diminished middle class and ultimately a constrained talent pipeline for companies. Income inequality impacts education, commute times, availability of talent (and therefore the cost of talent) and so forth. It also has a dramatic impact on the attractiveness of the area, thus limiting the number of people from outside of the area who wish to move into the area and make it their home.

Given the context of a diminishing talent supply, a market that is unattractive to new recruits, and increasing project complexity, how will your company confront the challenge? Just as companies develop a strategy for market entry, companies also need to prepare a talent strategy for their own staff by assessing the external dynamics, taking stock of internal capacity and committing resources toward objectives. Proactive firms come up with creative solutions to these challenges, such as intern and co-op programs to cultivate younger staff. With the higher starting salaries expected in a geography with rising income inequality, allocating resources to develop the staff that is already a good cultural fit within your company may prove to be a better value compared to the costs associated with recruiting, interviewing and hiring new talent at competitive market salaries. Training and development yields the greatest dividend when it is tied to the company’s overall strategy.

Income inequality and other socioeconomic metrics like GDP growth and unemployment levels are the dashboard tools that help leaders understand what opportunities and dangers lie ahead.

The successful skipper ensures that his boat is seaworthy. He or she has the appropriate crew for the planned adventure and pursues an appropriate strategy with tactics that will achieve the destination. Successful leaders fill similar roles. As the skipper stands at the helm, the instruments provide signals for tactical shifts. Similarly, income inequality and other socioeconomic metrics, like GDP growth and unemployment levels, are the dashboard tools that help leaders understand what opportunities and dangers lie ahead.

Conclusion

The construction industry environment has changed significantly in many regions over the past five to seven years and should continue to change nationwide for the foreseeable future. The contractor selection process is

changing from one based primarily on price — a residue of the recession — to a process that considers the total value that a contractor brings to the project. Though this trend is not consistent across the country, many cities and regions have already made the shift as the war for talent has allowed contractors to get more selective on the customers and projects they pursue.

This shift towards selection based on value creates an opportunity for contractors to leverage competitive advantages that are not cost-related. Competitive advantages in value selection projects stem from experience, unique systems, depth of process or client knowledge, and capabilities of staff and project teams. A contractor that is operating in these value-based procurement environments must act upon the external, socioeconomic metrics that directly influence its ability to retain and attract top-tiered talent. [Q](#)

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Pricing for Profit

TYLER PARE AND KEN ROPER

Exploring common challenges in overhead allocation/recovery in the construction industry.

“**W**e lost a little bit, but the job still made money.” If you are a construction business owner, and you have heard similar words from your employees in the past, you may be reaching for an antacid right now. As a business owner, you know that “making money” at the project level does not necessarily equate to a profit on the project after overhead allocation. Projects must generate marginal contributions in excess of total selling, general and administrative (overhead) costs in order for the business to generate an operating profit and produce a positive return on investment.

Contribution Margin = (Project Revenue - Project Direct Costs) / Project Revenue

*Contribution Margin is also commonly referred to as Operating Gross Margin or, simply, Gross Margin

Creating the Right Pricing Balance

Intuitively, all contractors understand that they have to cover overhead costs for the business to break even. Operating costs, costs beyond those charged to the projects, are realities. However, how much overhead cost should

you budget for at the project level? Budgeting for too much overhead can result in noncompetitive pricing. This could prove problematic for a business model that relies on continuously adding volume to an ever-evaporating backlog of work. Budgeting for too little overhead can result in negative operating profit — i.e., the marginal contribution from project revenue is less than the overhead costs of running the business. In this latter scenario, the contractor is essentially donating its equity to finance the construction project.

The question remains, “what is the right amount of overhead to allocate to each job?” Most methods of overhead allocation are based upon some relationship of overhead costs to direct costs. Theoretically, the more direct costs incurred by the project, the greater overhead resources required, and,

therefore, more overhead costs are allocable to that specific project. For this article, the assumption is that contractors are accurate in their direct cost estimates, quantitative takeoffs are precise, and accurate information on production rates is readily available. If direct costs are inaccurately estimated, any application of overhead based on direct costs will be similarly inaccurate.

Many contractors “mark up” direct cost to compute the final contract amount. This markup

ratio accounts for both project overhead and profit expectations. Commingling overhead and profit expectations into a single ratio is a very crude and dangerous approach. Because each project incurs overhead at a different rate, applying a single markup ratio will result in variable profit expectations to the extent that the true application of overhead varies from job to job. Profit expectations should be developed with a strategic view of the project opportunity incorporating customer relationships, competitive landscape, project risks and expected return on investment. Assume that overhead and profit are decoupled in your pricing model. At a minimum, projects must contribute enough margin to cover overhead — i.e., breakeven. Beyond covering overhead costs, projects must return operating profit to the business in order to:

- Service debt obligations and provide an acceptable equity return to investors.
- Build retained earnings to finance future growth and protect against recessionary cycles that occur in the construction industry.

The subjective portion of operating profit expectation is your anticipated equity return. Ask yourself, what is an acceptable return on my equity investment in the business? Due to the risks associated with construction, FMI argues that contractors should expect 25% to 40% returns on their investments. Think about the expected returns to alternative investments:

- Five-year average total returns for retail investments (Morningstar.com, 8/26/2015)
 - DJIA 13.12%
 - S&P 500 13.13%
 - NASDAQ 17.26%

You can calculate your company’s return on equity by dividing net income by total net worth. Is your business realizing an acceptable return on equity? If not, you may need to consider raising your prices.

Many contractors assume that accounting for all overhead costs and acceptable profit on certain jobs will price them out of the market and that there is a certain price “that the work will go for,” regardless of margin. If the goal of the business is solely to win work and execute projects, this philosophy is sound. However, if the business truly exists to generate profits, then overhead and profitably must be stringently considered on every project opportunity. If you cannot win work at acceptable margins in your current market, you may need to consider:

- Shifting strategy and pursuing other markets
- Increasing customer selectivity within core markets
- Improving project execution
- Rightsizing the organization and reducing overhead

If the business truly exists to generate profits, then overhead and profitably must be stringently considered on every project opportunity.

Another common mistake in the industry is using the terms “markup” and “margin” synonymously. Markup is the ratio of contribution margin to direct costs, while margin is the ratio of contribution margin to revenue. Because overhead costs are viewed as a percentage of revenue on common-size profit and loss statements, companies should consistently view project contribution margin as a percentage of project revenue. This means reviewing project pricing and identifying the overhead as a percentage of contract revenue. At the

point of pricing work, the estimated direct costs are known, yet the intended revenue has yet to be determined. Using the income statement ratios of margin and applying those to the direct costs of the job being priced will lead to substantial underpricing of the project. For example, if a contractor has annual overhead totaling 15% of annual revenue and marks up estimated direct costs at 15% in order to break even, the contractor is only allocating 13% margin as a percentage of project revenue. This pricing approach is fundamentally structured to incur an operating loss of 2% before any profit is added to the overall price.

Overhead recovery is not optional. Overhead represents costs that are generated by the contracting process. Ideally, every single overhead expense account is individually allocable to the projects executed during the period.

Contractors must also demonstrate consistency in their costing philosophy — i.e., which costs are to be charged “above the line” (to the job) and which costs are to be charged “below the line” (to overhead). The most

commonly debated cost is project management salaries. Should project manager salaries be charged to the job, or should they be considered part of overhead? Most importantly, costs should be accounted for consistently. If not, contractors run the risk of budgeting for project management wages in the direct costs and then applying an overhead rate that accounts for project management wages — essentially double counting the cost of project

management for the project. This is true for all costs that lend themselves to ambiguous categorization, including estimating, engineering, purchasing, hauling and so forth. Wherever possible, FMI recommends charging costs to the project. This ensures accounting for costs in the sales/bidding process and recovering those directly through project execution. What is not acceptable is to attempt to recover those costs through overhead allocation on some jobs and through direct cost estimates on other jobs. Such lack of discipline will lead to both confusion and disappointing profit results.

The four critical factors to consider when developing a practical, usable overhead application method are as follows:

- The method should be based on a relationship among direct cost items. A direct cost is determined in the estimating process and directly charged to a project as incurred over the project’s life.

Overhead recovery is not optional. Overhead represents costs that are generated by the contracting process.

- The method should accurately match overhead costs that are incurred over the life of the project. This requires a comprehensive budgeting process to determine the overhead that will be applied to future projects.
- The method should properly match the risks and overhead costs associated with managing labor.
- The method should minimize clerical effort and other computational costs.

Dual-Overhead Rates

For construction companies that employ direct labor as “self-performing” contractors, special attention should be focused on the overhead markup and recovery process. A total direct-cost overhead recovery method or a labor-cost, markup-only process are both ineffective ways to cost and price jobs. The most accurate method of overhead recovery is the dual-overhead rate method. With this method, different markup rates for materials and direct labor are based on the company’s current operating budget. Labor represents the single largest component of risk and opportunity for profit on most construction projects. Labor will also generate the greatest amount of overhead and, accordingly, should receive the largest allocation of that overhead.

Based on many years of research on the behavior of overhead costs, the dual-rate method reflects the finding that overhead costs vary as the ratio of materials and subcontracts to labor varies. This method supports the basic theory that overhead (as a percent of total direct cost) goes down as ratio of material and subcontractors to labor goes up. The formulas for determining the dual-overhead rates are given in Exhibit 1.

The dual-overhead-rate method is so named because two different markup percentages are applied to recover overhead — one rate on labor and a separate rate on materials and subcontracts. Labor is a significant driver of overhead costs. Intuitively, this makes sense when you consider that labor requires more management time and attention than procurement of materials and subcontracts. In addition, labor management generates significant

EXHIBIT

1

FORMULAS
FOR DETERMINING DUAL OVERHEAD

Rate on Materials and Subcontracts

=

Overhead

[(X) Labor] + Materials and Subcontracts

Rate on Labor

=

(X) Overhead

[(X) Labor] + Materials and Subcontracts

additional costs. This dual method applies one percentage markup on materials and subcontracts costs and a significantly higher markup on labor costs.

The need for such a dual rate results from the fact that different jobs use different proportions of materials and subcontracts and of labor. Jobs with low materials and subcontract-to-labor ratios have relatively low materials and

The dual-rate method of overhead recovery has proven to be more accurate than any other method.

subcontracts costs and, therefore, relatively high labor costs. A special condition exists with equipment-intensive contractors like highway and utility contractors. They can elect to treat equipment costs similarly to labor in these calculations with the understanding that such equipment expenses tend to generate relatively high amounts of overhead similar to labor.

The dual-rate method of overhead recovery has proven to be more accurate than any other method, and many self-performing contractors across the country have switched to this method of recovering overhead. This relatively simple method is applicable for all ranges of materials and subcontract/labor ratios. The method is limiting for large general contractors that do not self-perform work or contractors that primarily use the construction manager delivery method, namely because these contractors and types of contracts lack a significant component of labor to which overhead can be allocated.

Sample Calculation

Values for X used from Exhibit 1 are determined by the materials and subcontract-to-labor ratio and are found in the table of overhead factors in Exhibit 2. Values for overhead, labor, materials and subcontracts are provided from the company’s budgeted profit and loss statement.

The dual-overhead rates for the hypothetical contractor with the budgeted income statement in Exhibit 3 are determined as follows:

Materials = \$13,590,000 Labor = \$4,860,000
Subcontracts = \$620,000 Overhead = \$5,040,000

M&S/L Ratio = $\frac{\$13,590,000 + \$620,000}{\$4,860,000}$ = $\frac{\$14,210,000}{\$4,860,000}$ = 2.92/1

EXHIBIT 2 OVERHEAD FACTORS FOR DETERMINING DUAL OVERHEAD

X = Antilog_e [2.1 – 1.5 (.8^{M&S/L})] M&S/L = Materials and Subcontractors/Labor Ratio

(1) M&S/L	(2) X	(3) M&S/L	(4) X	(5) M&S/L	(6) X	(7) M&S/L	(8) X	(9) M&S/L	(10) X
0.0	1.82	3.8	4.30	7.6	6.20	11.4	7.26	15.2	7.76
0.1	1.88	3.9	4.36	7.7	6.24	11.5	7.28	15.3	7.77
0.2	1.95	4.0	4.42	7.8	6.28	11.6	7.30	15.4	7.78
0.3	2.01	4.1	4.48	7.9	6.31	11.7	7.31	15.5	7.79
0.4	2.07	4.2	4.54	8.0	6.35	11.8	7.33	15.6	7.80
0.5	2.13	4.3	4.60	8.1	6.38	11.9	7.35	15.7	7.81
0.6	2.20	4.4	4.66	8.2	6.42	12.0	7.37	15.8	7.81
0.7	2.26	4.5	4.71	8.3	6.45	12.1	7.38	15.9	7.82
0.8	2.33	4.6	4.77	8.4	6.49	12.2	7.40	16.0	7.83
0.9	2.39	4.7	4.82	8.5	6.52	12.3	7.42	16.1	7.84
1.0	2.46	4.8	4.88	8.6	6.55	12.4	7.43	16.2	7.84
1.1	2.53	4.9	4.94	8.7	6.59	12.5	7.45	16.3	7.85
1.2	2.59	5.0	5.00	8.8	6.62	12.6	7.46	16.4	7.86
1.3	2.66	5.1	5.05	8.9	6.65	12.7	7.48	16.5	7.86
1.4	2.72	5.2	5.10	9.0	6.68	12.8	7.49	16.6	7.87
1.5	2.79	5.3	5.16	9.1	6.71	12.9	7.51	16.7	7.88
1.6	2.86	5.4	5.21	9.2	6.74	13.0	7.52	16.8	7.88
1.7	2.93	5.5	5.26	9.3	6.76	13.1	7.53	16.9	7.89
1.8	2.99	5.6	5.31	9.4	6.79	13.2	7.55	17.0	7.89
1.9	3.06	5.7	5.36	9.5	6.82	13.3	7.56	17.1	7.90
2.0	3.13	5.8	5.41	9.6	6.85	13.4	7.57	17.2	7.91
2.1	3.19	5.9	5.46	9.7	6.87	13.5	7.59	17.3	7.91
2.2	3.26	6.0	5.51	9.8	6.90	13.6	7.60	17.4	7.92
2.3	3.33	6.1	5.56	9.9	6.92	13.7	7.61	17.5	7.92
2.4	3.39	6.2	5.61	10.0	6.95	13.8	7.62	17.6	7.93
2.5	3.46	6.3	5.65	10.1	6.98	13.9	7.63	17.7	7.93
2.6	3.53	6.4	5.70	10.2	7.00	14.0	7.65	17.8	7.94
2.7	3.59	6.5	5.75	10.3	7.02	14.1	7.66	17.9	7.94
2.8	3.66	6.6	5.79	10.4	7.05	14.2	7.67	18.0	7.95
2.9	3.72	6.7	5.83	10.5	7.07	14.3	7.68	18.1	7.95
3.0	3.79	6.8	5.88	10.6	7.09	14.4	7.69	18.2	7.96
3.1	3.85	6.9	5.92	10.7	7.12	14.5	7.70	18.3	7.96
3.2	3.92	7.0	5.96	10.8	7.14	14.6	7.71	18.4	7.97
3.3	3.98	7.1	6.00	10.9	7.16	14.7	7.72	18.5	7.97
3.4	4.05	7.2	6.05	11.0	7.18	14.8	7.73	18.6	7.98
3.5	4.11	7.3	6.08	11.1	7.20	14.9	7.74	18.7	7.98
3.6	4.17	7.4	6.12	11.2	7.22	15.0	7.75	18.8	7.98
3.7	4.23	7.5	6.16	11.3	7.24	15.1	7.76	18.9	7.99
								19.0	7.99
								Over 19	8.00

Materials = \$13,590,000
Labor = \$4,860,000
Subcontracts = \$620,000
Overhead = \$5,040,000
M&S/L = $\frac{\$13,590,000 + \$620,000}{\$4,860,000}$ = $\frac{\$14,210,000}{\$4,860,000}$ = 2.921

EXHIBIT 3 BUDGETED INCOME STATEMENT SAMPLE

	AMOUNT	% OF SALES
Net Sales	\$25,000,000	100.00
Cost of Sales:		
Materials	13,590,000	54.36
Labor (Includes payroll taxes and all union fringes)	4,860,000	19.44
Subcontracts	620,000	2.48
Other Direct Costs	270,000	1.08
Total Direct Costs	\$19,340,000	77.36
Gross Profit	5,660,000	22.64
Overhead	5,040,000	20.16
Net Profit (Before Income Tax)	\$620,000	2.48

Overhead/Total Direct Costs	=	$\frac{\$5,040,000}{\$19,340,000}$	=	26.06%
Overhead/Materials and Subcontracts	=	$\frac{\$5,040,000}{\$13,590,000 + \$620,000}$	=	35.47%
Overhead/Labor	=	$\frac{\$5,040,000}{\$4,860,000}$	=	103.70%
Materials and Subcontracts/Labor Ratio	=	$\frac{\$13,590,000 + \$620,000}{\$4,860,000}$	=	2.92/1

After the materials and subcontracts-to-labor ratio (M&S/L) is calculated, the overhead factors table in Exhibit 2 is consulted to find the X value of that M&S/L. For example, an M&S/L of 0.5 yields an X of 2.13, and an M&S/L of 2.0 yields an X of 3.13.

For the hypothetical contractor’s M&S/L of 2.92, the X factor must be determined by interpolation. The X factor for 2.9 is 3.72; the X factor for 3.0 is 3.80. Since 2.92 is 20% of the difference between 3.0 and 2.9, added to 2.9, the X factor for 2.92 is 20 percent of the difference between the X factors of 3.72 and 3.80, added to 3.72.

$$\begin{aligned} .20 \times (3.80 - 3.72) + 3.72 &= X \\ (.20 \times .08) + 3.72 &= X \\ .016 + 3.72 &= X \\ 3.736 &= X \end{aligned}$$

If we round to hundredths, then the X factor for an M&S/L of 2.92 is 3.74. To determine the dual rates, we need to substitute 3.74 for X and perform

EXHIBIT 4 CALCULATING DUAL RATES

RATE ON MATERIALS AND SUBCONTRACTS		RATE ON LABOR	
=	$\frac{\text{Overhead}}{[(X) \text{ Labor}] + \text{Materials and Subcontracts}}$	=	$\frac{(X) \text{ Overhead}}{[(X) \text{ Labor}] + \text{Materials and Subcontracts}}$
=	$\frac{\$5,040,000}{(3.74 \times \$4,860,000) + (\$13,590,000 + \$620,000)}$	=	$\frac{(3.74) \times \$5,040,000}{(3.74 \times \$4,860,000) + (\$13,590,000 + \$620,000)}$
=	$\frac{\$5,040,000}{\$18,176,400 + \$14,210,000}$	=	$\frac{\$18,849,600}{\$18,176,400 + \$14,210,000}$
=	$\frac{\$5,040,000}{\$32,386,400}$	=	$\frac{\$18,849,600}{\$32,386,400}$
=	15.56% of Materials and Subcontracts Cost	=	58.2% of Labor Cost

EXHIBIT 5 ESTIMATED COST SUMMARY

DIRECT COSTS (ESTIMATE)	JOB A	JOB B	JOB C
Materials	\$180,000	\$173,367	\$120,000
Labor	60,000	81,633	150,000
Subcontracts	80,000	65,000	50,000
Other Direct Costs	5,000	5,000	5,000
Total Direct Costs	\$325,000	\$325,000	\$325,000
Overhead Applied 15.56% on Materials and Subcontracts	40,456	37,090	26,452
Overhead Applied 58.20% on Labor	34,920	47,510	87,300
Total Estimated Cost	\$400,376	\$409,600	\$438,752
Materials and Subcontracts/Labor Ratio	4.33/1	2.92/1	1.13/1

the calculations illustrated in Exhibit 4. Thus, the dual-overhead rates are 15.56 percent of materials and subcontracts cost and 58.2 percent of labor cost with the M&S/L of 2.92.

Applying these rates to the job examples in Exhibit 5 produces a significant improvement over other methods in matching overhead and the risk of managing labor to each particular project, as shown in Exhibit 6. This improvement is due to the recognition inherent in the dual-rate method that

EXHIBIT

6

VARIATIONS IN OVERHEAD

	JOB A	JOB B	JOB C
26.06% of Total Direct Costs	\$84,695	\$84,695	\$84,695
103.70% of Direct Labor Costs	\$62,220	\$84,653	\$155,550
Dual Rates:			
15.56% of Materials and Subcontracts plus 58.20% of Labor	\$75,376	\$84,600	\$113,752

the creation of overhead expense is largely driven by management of labor and less so driven by material and subcontractor procurement. The other traditional allocation methods ignore this issue.

Overhead applied to Jobs A, B and C varies considerably. However, on Job B, it remains virtually the same regardless of the method. Overhead allocation to Job B remains essentially the same, because it has the same materials and subcontracts/labor ratio as the company had on its budget. Therefore, if every job had the same materials and subcontracts/labor ratio, any of these allocation methods would be accurate. Because all contractors have jobs of different materials and subcontracts/ labor ratios, the dual-rate method is more accurate than any other method in allocating overhead to these types of projects.

Using the Dual Rates

For any rate chosen, assume that the amount of overhead actually incurred in the period applies to all of the work performed in that period. Remember: Every company must calculate its own rates. Do not use any rates included in this article. Each company’s rates will be different, dependent on each company’s direct costs and overhead cost structure.

The development of an overhead rate is based on projected future costs. The best way to determine dual rates is to use a comprehensive 12-month budget tied into the fiscal year. You should recalculate rates quarterly using a 12-month rolling budget. Using a 12-month forecast minimizes seasonal influences on the cost relationships.

Whatever method you employ, a project’s risk is embedded in the additional costs it generates. Using adequate and accurate overhead recovery rates will provide a greater level of predictability for costs associated with each project. Remember that the overhead rates do not consider the desired profits, only the total cost of jobs (including overhead). Direct costs must be estimated accurately for the results of overhead application to be acceptable. However, once you are able to know these costs, you will be in a much stronger strategic pricing position and know that you are cutting into costs — instead of profits — in tight pricing situations.

Eight Steps to Apply the Dual-Overhead Rates

Applying the dual-overhead rates requires discipline and will not usually change your position in the marketplace. In addition, those idiots who do not know their costs and who insist on bidding 30% below your best price will still be in the marketplace. You cannot compete with stupid! Keep in mind that such price disparities are not always the result of stupidity but sometimes are borne of brilliance. That competitor may have actually figured out a substantially less costly way of delivering the project.

1. The first step is to make sure you are using sound estimating practices. Do your projects consistently overrun estimated direct cost amounts? Do you have margin erosion on projects? Affirmative answers to these questions may be indicative of problems with your estimating, project execution or both. Sound estimating practice is your first discipline to master.

2. The second step is to develop a budget for the coming year. Using the prior year history and forecast changes in the year ahead will provide a good start on the budget. FMI recommends updating budgets quarterly or semiannually to account for changing cost and volume levels in the company.

Using adequate and accurate overhead recovery rates will provide a greater level of predictability for costs associated with each project.

In effect, you want a rolling budget that reflects the future based on the best-known information.

3. Using the methodology described in the article, you can compute the dual-overhead rates. Apply these dual-overhead rates to a current estimate in your bid pipeline. This will determine the overhead that should be allocated to this project. The overhead allocation to this project calculates project breakeven (Direct Cost plus Company Overhead.)

4. The next step is to add a profit and arrive at a final bid price. Profit expectations may vary when considering desirability of the project and client, time of year, availability of crews, company targeted return on investment and perceived risk. You should not bid below breakeven, but it does happen for various business reasons. The reasons are usually bad and lead to the wrong focus for projects and clients.

5. DO NOT submit bids using the dua-rate method until you have reviewed the accuracy of your calculations on several “dummy bids.” Continue using your existing pricing strategy while concurrently running a dual-rate pricing strategy.

6. Compare the bidding results to your existing pricing strategy for several months and note the differences and similarities. Does the dual-rate overhead method match pricing and bidding objectives more appropriately? Would you have won more work? Would you have lost projects? You will find that all three situations occur. The ultimate test is that the dual rates create a consistent pricing methodology, matching pricing to labor risk management that is a highly desirable objective. When projects are completed, would the dual-rate method have more accurately forecast overhead costs? Once you feel confident in the dual-rate method, begin using it. Always review overhead allocation from multiple angles prior to submitting your bids to ensure that there have been no errors in your calculations or assumptions.

7. Constantly challenge costs and productivity to create a more cost-competitive business model. The construction industry is cost-based; driving costs down is good as long as the cuts do not compromise quality or customer service.

8. Adjust your dual rates quarterly or whenever significant changes in volume/overhead occur in your company to keep the overhead allocations consistent with your current cost structure.

THE DUAL-OVERHEAD RATE IN PRACTICE

F.D. Thomas, Inc. (FDT) has been using the dual-overhead-rate method for a number of years. FDT is a specialty contractor focused on waterproofing, sealants, painting, coatings and other specialty contracting services. Dan Thomas, president of FDT, sent us this note:

The use of the dual-overhead-rate method brings awareness to the relationship of your (1) backlog, (2) gross profit, (3) overhead and (4) profit. These are my four knobs of control. I review these key metrics every six months for my three divisions. We adjust our profit pricing strategy as necessary for the market. It can also lead to strategic thinking to get the team on track.

The dual rate establishes the overhead, and one can quickly decide if it is a competitive position. In addition, you can play with the volume and gross profit knobs to see how to tune them in to the sweet spot for overhead. Then a decision has to be made whether to invest in estimating, etc., to get the volume and backlog or to trim overhead. Market conditions, opportunities, bonding capacity, etc., all have to be taken into account. Making strategic adjustments to the “four knobs” of the dual-overhead method, in one case, we were able to grow one of our offices’ revenue more than six times what it had been four years ago.

Conclusion

On average, approximately 10,000 contractors each year file for bankruptcy, according to Dun & Bradstreet. Large percentages of these contractors do not know their costs and do not add sufficient profit to their project pricing. While you have to prepare accurate estimates and be able to perform the work at the production rates in the estimate, running a profitable construction business is about more than just bidding and executing work. It is about studying the economics of your business and having an uncompromising attitude toward profit. Accurately allocating your overhead costs will bring clarity to your profit expectations and allow you to make better strategic decisions in the pursuit of work acquisition opportunities, ultimately resulting in higher profits for project and company. [Q](#)

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*The ultimate success
of the deal requires*

**taking the time
and having
the patience**

**for conducting
a careful and
thorough due
diligence process.**

KAREN KENIFF

Understanding the Fundamental Risks of Mergers and Acquisitions

Every industry sector is experiencing brisk merger and acquisition activity in 2015 — from pharma and food to technology and construction. Like companies across all industries, construction firms are seeking to strategically add value to their businesses through a merger or an acquisition. The value in taking this step comes in various forms, including access to new markets, new customer relationships, geographical expansion, gaining new capabilities, talent acquisition or simply scaling up to compete on larger, more complex projects (whether domestically or globally).

For example, as the economy strengthens, some contractors are struggling to attract and retain a talented labor pool. A merger or acquisition can address this skilled labor gap. For union firms, a merger or an acquisition can also provide access to open-shop capabilities.

“Many contractors have the desire to grow but lack the resources to compete either in new markets or in new high-growth sectors,” says Karen Keniff, senior vice president of Zurich Financial Services. She notes that industrial, health care, higher education, energy and power are sectors where contractors are currently seeking attractive opportunities.

To maximize the value of the deal, Keniff encourages owners and buyers

to perform aggressive due diligence around previous and current risks. “Buying a business or merging with another company is a complicated, high-risk proposition,” Keniff says. “This is likely the largest transaction of a construction company, and the risks involved are unlike others typically faced by the owners or management.”

Beware the Speed to Deal

Mergers and acquisitions move quickly, and the risks can be high and often hidden. Unforeseen environmental liabilities, management liabilities, political risks, and fiduciary and benefits liabilities can all endanger an M&A transaction.

Keniff reminds buyers and owners that managing the appropriate level of due diligence requires time. “Often,” she says, “it takes a year or more to manage the details of the process and negotiations.”

While most owners typically think of financial documents and accounting systems as the core components of a due diligence process, a more comprehensive and suitable approach factors in company assets, contracts, labor relations, and insurance policies and coverage.

A Diligent Look at Key Risk Exposures

According to Keniff, due diligence is critical to limiting risk and liability exposures. Failing to adequately assess a company before the purchase can have significant financial consequences and destroy the value of the deal, she notes.

Based on Zurich’s experience with contractors of all sizes during M&A transactions, here are questions that should be addressed to help assess potential risks during the frenzied, fast-paced due diligence phase:

Are there any existing exposures?

With the acquisition, the parent company is picking up the new company’s exposures. Are there issues around environmental practices or workers’ compensation? What is the culture of the company being bought? Are employee relations good, or is there a risk of a lawsuit by disgruntled workers about the merger or acquisition?

What are the contractual obligations being assumed?

In most situations, getting a clean break on contracts isn’t feasible because

Failing to adequately assess a company before the purchase can have significant financial consequences and destroy the value of the deal.

work is still being performed. Companies that don’t closely examine the backlog of contracts — and that wait until after the deal is done — risk losing money during the completion process.

It’s particularly important to be aware of union contracts, as the union may need to agree to the purchase. Keep in mind that contract negotiations can be costly and complicated, especially if pension plans are involved.

What is the company’s loss history?

To avoid surprises, the buyer should ensure that its private consultant or in-house team looks as far back in loss history as possible. One area to examine closely is the statute of repose that will determine the amount of time in which a party can bring suit.

Is there synergy in risk management practices?

Buyers also need to address disparities in risk management practices and get everyone on the same page. Having a single, consistent risk management program based on best practices can ensure that the appropriate risk appetite is disseminated throughout the organization.

How does the new company manage claims?

From a claims perspective, the parent company should understand the “legacy claims and claims philosophy” of the company being acquired and the differences in how the firms manage claims. There should also be a process in place to absorb ongoing insured claims, which is something the insurance carrier can help provide.

What are the possible post-deal coverage gaps?

Keniff says that once the sale is made public, the buyers and owners should involve their insurance carrier or carriers to help determine exposures and gaps in coverage that need to be addressed, especially Directors & Officers, Employment Practices Liability and Environmental Liability.

Smoothing the Risks Post-Deal

Determining the appropriate types and levels of coverage for the new entity is critical, Keniff says, “as the past can come back to haunt the future in unexpected ways.” Below are three key types of insurance coverage that can help protect the entity:

Directors & Officers

The completion of the deal doesn’t protect you from the possibility of future litigation against directors and officers (D&O) of the acquired company. And if you sit on a board of a company that was acquired, you could be sued for actions that you took on behalf of the company before it was acquired.


If your company stopped paying annual premiums to place D&O insurance after it was acquired, you and the other directors and officers could face damaging lawsuits.

Employment Practices Liability

There are different employee-related risks in M&A transactions. These can include obligations from unsettled labor and employment law violations or ongoing litigation. Former employees can file new complaints post-deal as well. Some employee benefit-related issues can be challenging to discover, such as if the seller did not maintain benefit plans as required by compliance or if it failed to fulfill fiduciary duties.

Environmental Liability

This liability may arise in various forms, including ground contamination, water pollution or asbestos. There is an increasingly complex body of laws and regulations that dictate successor liability. It's important for a buyer to understand the acquired company's potential liability for past contamination on land owned, past noncompliance with environmental laws, and costs that may be incurred to comply with environmental obligations.

“Every buyer and seller has a different motivation for entering an M&A situation,” says Keniff. “But the same principle about risk holds true for both; the ultimate success of the deal requires taking the time and having the patience for conducting a careful and thorough due diligence process.” 

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