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EFCG REFLECTS ON TECHNOLOGY TRENDS AND FORECAST SCENARIOS FOR 2019

Environmental Financial Consulting Group (EFCG) *conducts a detailed annual CEO survey of environmental and infrastructure engineering/consulting companies every year in advance of its October CEO conference. Below are some of the 2018 results and comments by Andreas Georgoulias, Director at EFCG. EFCG offers financial and strategic advisory, benchmarking and valuation services, annual C-level executive conferences, internal ownership transition advice, and buy-side and sell-side M&A services*

EBJ: We have seen some engineering consulting and construction firms acquiring information technology or software to either broaden their service platform or else to make it more efficient. Do we see acquiring or owning specific information technologies as increasingly a differentiator and increasing an acquisition strategy in our industry?

EFCG: Indeed, our historical analysis shows that over the last 20 years, annual OPEX and CAPEX IT spending has almost doubled from 2% of net revenue in the mid 1990s, to 3.7% today, highlighting that firms increasingly focus on acquiring or developing IT. While IT spending continues to increase, according to EFCG's 2018 CFO Conference survey, 77% of firms believe that IT is a differentiator to win projects. EFCG does not have historical responses to this question, but it can be assumed that far fewer firms would have regarded IT as a differentiator in the past.

Today, technology generates around 0.5% to 3% of revenues, depending on firm size. Firms on average plan to double or triple that within the next five years. However, since IT is more likely to generate revenues for larger firms, there seems to be an advantage with larger technology budgets. Yet, if IT does provide a competitive advantage for larger firms, it does not have apparent effects on relative profitability, at least so far.

Notably, firms with less than $50M of revenues were less likely to see IT as a differentiator (67%), while 100% of $1B+ revenue firms believe IT is a differentiator. It is not clear why larger firms are more likely to regard IT as a differentiator; it may be due to the greater complexity and number of projects they work on, or to cover the need for connecting employees and enabling more efficient collaboration, as larger companies have multiple offices across states, countries and continents.

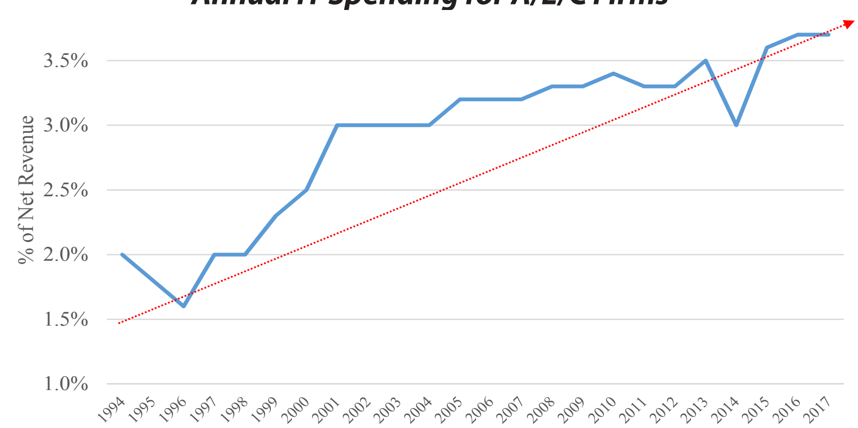
EBJ: What do you believe the consensus in our industry is for the potential of advanced information technology, machine learning, artificial intelligence and similar developments in reducing employment costs, increasing productivity or even metrics like revenue per employee in a consulting engineering or project management company?

EFCG: It is difficult to evaluate the potential long-term impacts of innovation IT on the industry. Nonetheless, in our view, the proliferation of IT could not only improve operating efficiency, but also potentially disrupt the industry's economics. Two notable aspects where innovation in IT can have a significant impact include:

Economies of Scale / Reduced Marginal Costs. A major challenge in our industry is that there are limited economies of scale when it comes to billable hours. An engineer work-hour costs the same regardless of whether the engineer works for a 10-person or a 100,000-person firm. However, larger firms are more likely to achieve economies of scale on overhead. Yet, if IT enables firms to develop a product and/or service with a lower marginal cost, there should be substantial economies of scale that could lead to higher profit margins, particularly for larger firms.

Human Capital: CEOs consistently report that finding qualified employees is a major challenge, given the perceived "war for talent." IT could reduce the amount of routine work that engineers need to do, and may reduce the pressure firms face to find more engineers to complete projects, and free up engineers to focus on added

Annual IT Spending for A/E/C Firms



Source: EFCG annual CEO Conference Surveys; IT Spending is all costs associated with MIS, communication, IT, including "data center," data & voice connects, ERP development + support, "applications development & support," help desk / desktop support, intranet, telephone, outside services, computer, equipment and software costs & depreciation.

Internal Historic Annual Growth in A/E/C Firms: Median

Source: EFCG 2018. Comments: AEC is a growing industry, even in recessionary times and attractive for public & private equity investors clamoring for consistent growth. Note the "band" of 4-6% internal growth from 2012 to 2017; so with 2018 and 2019 expected to be above the "band" - is the band wider than we thought? Will this hold true going forward?

value tasks. Yet IT might also automate and/or replace jobs, and thus there may be fewer, but perhaps better paying, jobs overall. This might ultimately help our industry compete with other industries for the best technical talent.

EBJ: We have seen the environmental management information software business as generally distinctively different from the environmental consulting and engineering business and indeed the business seems to have evolved that way with companies selling software or software as a service contracts, separate from their consulting engineering partners that often act as business development partners. Do you think that will continue or do you think there is interest amongst the larger global players to own and manage these digital compliance and information management platforms?

EFCG: In the last years we have seen a number of large environmental consulting firms either acquiring or developing internally new IT platforms. Given that large firms in general are more likely to see IT as a differentiator in winning new work, we also expect large environmental consulting firms to focus more strongly on acquiring or developing internally new IT platforms. This was highlighted in our 2018 CFO conference, where 58% of CFOs reported that their firm has acquired or plans to acquire new IT, while 37% reported that they are developing new IT internally.

EBJ: What is the general feel for the business outlook now at the end of 2018?

EFCG: It appears that the outlook for the a/e/c industry is good, as it has been since the 2008 recession. Growth appears to be accelerating as the median internal growth rate for 2017 was 5.8%, while in the 2018 CEO survey, CEOs estimated 2018 growth at 7%. Growth projections for 2019 are similar to 2018, at 7%. Overall, we saw a "band" of 4-6% internal growth from 2012 to 2017, while 2018 and 2019 are expected to surpass that "band", making the a/e/c industry an attractive industry for public and private equity investors looking for consistent growth. The question is whether the band is wider than expected and if this hold true going forward.

Generally, we have observed that firms often over-forecast growth rates by 1% – 2%, which might possibly mean that the actual 2018 and 2019 growth rates would be closer to the 5.8% growth that was achieved in 2017. Yet, firms reported a median backlog figure that is up 10% over the last year, which supports the stronger projections up to 2019, and suggests that the industry may finally surpass the 4% - 6% growth band that it has been "stuck" in since the last recession.

Among other factors, we believe the optimism in the industry is driven by near record high stock prices, continued low interest rates, tax reform, including lower rates and immediate expensing of capital expenditures, and the optimistic outlook for the US economy.

EBJ: How seriously or how much uncertainty or even trepidation in management teams and boards of directors is there surrounding the potential for a downturn or recession of some duration?

EFCG: While the general outlook for the industry is good, we believe that reces-

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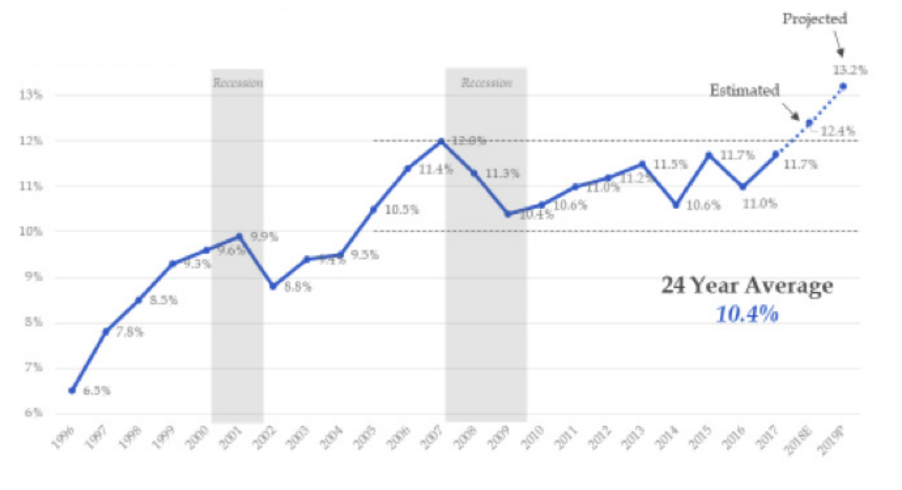
Historic Profitability: Median EBIBT / Net Revenues



Source: EFCG 2018. Comments: Significant improvement over 20 years, and profit margins only decline slightly during recessions:This is a resilient industry! 2018 and 2019 profitability estimated to be higher than 12% for the first time since 1996.Why? 1) Seeing the benefits of consolidation after a few years of significant M&A activity? 2) Positive impact of taking on risky projects? (or companies that negatively impacted - out of business?) 3) Increased focus on profitability and efficiency? E.g. better cost management or able to take higher prices?

sionary risk should be taken into account. Considering the history of economic cycles in the US, a recessionary period might be approaching, as the ongoing 9-year economic expansion is approaching the longest ever cycle, which was 10 years. Recently there have been some inversions of the yield curve (i.e. some short-term bonds are yielding less than longer term bonds). The past is not necessarily a predictor of the future, but it is useful in providing some perspective.

To evaluate this, in the 29th EFCG CEO Conference, the participating CEOs were asked to comment on whether they expect a recession within the next twenty-four months. The perspectives were split 50 / 50, highlighting the general uncertainty that there is around the timing of the next recession.

Yet, it is also important to consider that profitability in the industry over the last 22 years doubled from 6% to 12% and median internal growth has been positive every year, even during recessions. Therefore, although there always remains a legitimate recessionary risk that has to be taken into account, this does not necessarily mean that in recessionary periods internal growth and profitability in the industry should be expected to decrease.

EBJ: You have often counseled firms to plan and staff for slower growth scenarios and then use contract employment to fill the gap if growth is at or above average. Does this still hold true and does the still persistent challenge to find qualified personnel render this approach too difficult?

EFCG: When looking for patterns in profitability projections reported by CEOs in our annual surveys over the last years, we observe that over the last 17 years, actual profitability has surpassed CEO projections only in three years. This means that projections are challenging, though at the same time over-forecasting can have a substantial impact on performance. For example, an unanticipated revenue shortfall of 5% could lead to a profit shortfall of up to 50%. The lack of inventory in the industry and its thin margins make profitability very vulnerable to revenue shortfalls.

In today's business environment we continue to counsel firms to be cautiously optimistic, and suggest that firms do not staff for growth until projects are in hand and are prepared to cope with less revenue than they think they'll achieve, as underutilized staff can have a very negative impact on profit margins. We believe this is a viable strategy as employees can always be incentivized to be more productive, and the cost for "over working" (overtime) is lower than "under working" (undertime).

EBJ: Larger firms seemed to be back on the growth path a little bit more in the last couple of years, but seemed to be challenged by margins and profitability. Do you see this as a trend of any merit or is it more related to the cycles of acquisitions that the bigger players in our industry have undertaken?

EFCG: Our historical analysis shows that profitability in the a/e/c industry has increased significantly over the last 20 years, but not much over the last 10 years. Profit margins seem to be leveling off at 10%-12% without a big difference by size of firm.

In our view, this happens because despite strong consolidation efforts, the industry remains fragmented and competitive, with multiple firms providing similar services and competing on price. Therefore, even though larger firms build up strong capabilities and reputations, and aim to consistently improve operating efficiency, there is a limit on how much firms can improve profit margins in a competitive industry.

Larger firms also focus more strongly on "growth through acquisitions" to improve profit margins. Yet, acquisitions often lower internal growth and margins in the short term as it can be challenging to sustain or enhance growth rates while implementing efforts to merge and integrate large firms with diverse service offerings in a new single entity.

Larger firms are also more diversified and exposed to slower energy and mining markets and non-U.S. geographies that have low or negative growth rates and generally develop more slowly, thereby affecting profit margins and growth rates. On the other hand, smaller firms are more likely to be involved in the US, which has a very strong a/e/c market that surpasses the growth of the US national economy.

Finally, larger firms find it harder to grow fully-diversified business and sustain high margins across all business sectors in the firm. While service diversification has its benefits, some smaller, niche-firms also provide very specialized services and become price-setters rather than price-takers, which boosts profitability levels in specific market segments.

EBJ: Retention rates and employee turnover have been key statistics you've tracked in recent years. Is there a meaningful trend there?

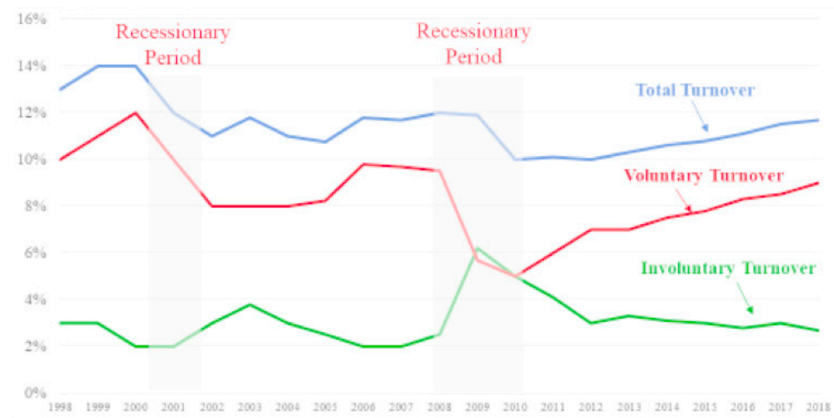
EFCG: Retention rates are frequently among the most significant factors for ensuring sustainable long-term growth, since the key assets of a firm are its people. Retention rates are also consistently reported by CEOs among the top factors for successful M&As. Again, people are the key assets firms acquire in M&As, therefore, cultural fit and management retention is most important.

For employee turnover, through our historical analysis we have observed that during recessions involuntary turnover increases as more employees are laid off and voluntary turnover decreases as it becomes harder for employees to find other jobs. Our historical analysis shows that since 2010, voluntary turnover has been increasing while involuntary turnover has been decreasing, which underscores that the a/e/c industry has been in an optimistic state ever since. When we evaluate firms by ownership, we observe that over the last 12 months, public firms have higher voluntary and involuntary turnover rates than private firms. Overall, turnover is highest among publicly traded and PE-owned firms.

EBJ: Any other shift in internal management metric that merits CEO or board level attention?

EFCG: We have observed a clear trend on firms increasingly getting involved with higher risk projects, yet without being paid commensurately for accepting such risks. Through our CEO survey data compiled for our 29th CEO conference in 2018, we observed that CEOs expect revenues from alternative delivery (higher risk projects) to increase in the next five years, with design-build being the most common and increasing. Moreover, in the 2018 CFO conference, almost half of CFOs reported that their firms are doing higher risk projects today than five years ago, and expect to do higher risk projects in the next five years as compared to today. However, only half of firms reported that they get paid commensurately for such added risk.

Historical Employee Turnover Analysis: Median



Source: EFCG 2018. Impact of economic sycles: during recessions, involuntary turnover increases (more employees are laid off) and voluntary turnover decreases (harder for employees to find other jobs). Since 2010, vountary turnover has been increasing, and involuntary turnover decreasing.

Overall, the industry is becoming more exposed to fixed-price risk, design-build projects, and construction risk, which poses challenging questions to CEOs. Risks and rewards in alternative delivery projects have to be reviewed carefully, and firms need to assess their downside exposure and ensure they can afford delivering such projects. Currently, there is an imbalance of risk and reward that poses significant threats to our industry. In fact, several firms have faced existential threats from higher risk projects and have been forced to seek acquisitions.

EBJ: Last from an acquisition standpoint we have seen valuations remain pretty high and seemingly at the top end likely to remain so. Do you agree or do you see any fluctuation in the supply and demand balance in buyers and sellers in our industry?

EFCG: Indeed, according to EFCG's historical analysis, M&A valuations for targets (sellers) trended up from 2013 – 2015, and have been holding at near record high levels. As a result, higher M&A multiples are causing some firms to think about selling, many of which otherwise would not have considered it, so we expect to see continued high levels of M&A activity in the near future.

We believe that high M&A valuations are driven by several factors, including:

10-year high valuations for publicly-traded firms, who are often the most active acquirers;

low interest rates / high borrowing capacity make debt financing inexpensive and along with high earnings and flexible underwriting standards facilitate high availability of debt financing;

and lack of internal growth for larger firms, with $1B + revenue firms that are often publicly-traded focusing on acquisitions to achieve growth.

EBJ: And from a small company standpoint we have to believe from a demographic view that there are hundreds and possibly thousands of companies owned by small ownership groups that started business in the seventies and eighties that will likely retire or sell. Does this create some kind of bubble in the market or lump in the snake, and what business strategies may squeeze this out?

EFCG: Internal ownership transitions (IOT) continue to be a major challenge for employee-owned firms. In fact, EFCG's historical analysis shows that the biggest reason firms are sold is because they do not have a sufficient IOT strategy, and thus are not able to fund their transition.

Firms can develop an IOT strategy and plan an effective ownership transition, through a combination of key steps:

- Focus on achieving and maintaining peer top quartile profitability (or at least above median).
- Encourage younger employees to buy stock (help finance it, provide consistently strong returns).
- Minimize Working Capital (both reducing AR/WIP but also maximizing Payables or "free capital") to reduce cost of growth.
- Manage internal stock valuation strategically to find the right approach for your firm's strategy.
- Use IOT Planning Tool: Capital Flow Model to ensure Capital Sources cover Capital Uses. ◻