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n addition to posing a serious health risk, COVID-19 has wreaked economic havoc. To curtail the spread of the virus, governments across the world have encouraged self-isolation by mandating the temporary shutdown of business in many sectors and imposing limitations on travel and size and duration of group meetings. Most industries are experiencing disruption to business operations and the impact of reduced consumer spending. There is unprecedented uncertainty surrounding the duration of the pandemic, its potential economic ramifications, and any government actions to mitigate them.

These events impact the value of businesses. While many businesses will decrease in value, some will become more valuable, and others

will remain relatively unaffected. This discussion addresses the value drivers in the construction industry and how those drivers may be affected by COVID-19.

Recent economic developments are unprecedented. Few people could have anticipated the current course of events. The future is equally uncertain. Accordingly, this discussion does not make definitive claims as to the magnitude of value fluctuation among construction companies. Rather, this problem is approached like a puzzle: sorting it out one piece at a time.

Economic and industry analysis

Valuation reports of private businesses almost always have an economic overview

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and industry analysis included in the report. This analysis is required under Revenue Ruling 59-60, a cornerstone of valuation, which prescribes a "careful analysis" of "the economic outlook in general and the condition and outlook of the specific industry in particular."

Unfortunately — particularly during times of economic stability — users of valuation reports may view these sections as unimportant, when they are an integral part of all valuations. Their importance is highlighted through occurrences like the COVID-19 outbreak. An economic overview and industry analysis contain the clues necessary to understand how business value may change in times of economic uncertainty.

Think of the economic overview as the "edge pieces" of the valuation puzzle — the overall economy frames the valuation discussion. The first step in solving a puzzle is to find and connect those edge pieces. If one wants to know how COVID-19 will affect company value, start with an economic overview.

The next step, an industry analysis, draws the connection between the industry conditions more relevant to the subject company and the overall economy. One assesses the recent and projected performance of relevant underlying drivers as an indicator of the likely performance of the subject company. This projected performance is considered when valuing the subject company. The best practices for the industry analysis and economic analysis are presented in the following sections of this discussion.

Economic analysis

Analysts should select an appropriate market area based on where the subject company offers its products and services and where its suppliers are located. Often, an analyst will perform an analysis of the national economy, the regional economy (e.g., the state in which the subject company operates as well as adjacent states), and the statewide or local economy. The availability of data often diminishes as one narrows the geographic focus.

In the economic analysis, focus on economic factors relevant to the subject company. For the valuation of construction companies (residential, commercial, industrial, or road and highway construction),

an economic analysis may consider the following factors.

- Housing starts: Housing starts dropped 22 percent from February 2020 to March 2020 and may continue to decline as individuals' personal financial situations suffer.
- Number of households: The number of households is unlikely to be immediately affected by COVID-19 and the lockdown.
- Mortgage rates: Economic uncertainty increased the risk for lenders, positively influencing mortgage rates. In response, the Federal Reserve attempted to decrease lending rates by lowering the target for the federal funds rate and purchasing mortgage-backed securities. These factors have contributed to volatility in interest rates.
- Unemployment rate: The unemployment rate has risen since the lockdown, and may continue to remain elevated for some time.
- Office rental vacancies: Office rental vacancies may be higher from economic fallout of the lockdown.
- Corporate profits: Corporate profits have been strained by supply chain difficulties, personnel limitations, mandatory facility closures, and many other factors. It is unlikely that corporate profits rebound quickly.
- Consumer spending: Consumer spending has been (and may continue to be) negatively affected, mitigated by government intervention.
- Government consumption and investment: This factor is projected to remain elevated through government spending and stimulus packages designed to alleviate economic strain.
- Private investment in manufacturing: Private investment in manufacturing may remain depressed due to a reduction in demand for goods and services from the COVID-19 outbreak.
- Input prices: Construction input prices may rise as a result of reduced production capacity.

Industry analysis

After identifying the economic "edge pieces," an analyst should then look for the



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EXHIBIT 1 Key External Drivers Identified by IBISWorld

	Home Building	Commercial	Industrial	Road and Highway
Housing starts	х			
Number of households	х			
Mortgage rates	х			
Unemployment rate	х			
Office rental vacancy		х		
Corporate profit		х		
Consumer spending		х		
Government consumption and investment			х	х
Private investment in manufacturing			х	
Price of inputs		х		х

connecting pieces by performing an industry analysis.

The goal of an industry analysis is to identify the underlying value drivers of the industry and then understand the subject company's sensitivity to these factors.

For example, when valuing a home builder, an analyst would look to the residential construction industry, and find that the unemployment rate is a driver of home ownership, and therefore residential construction. The analyst should then assess how the subject company responds to this driver. The responsiveness to the unemployment rate may be different for a high-end home builder compared to a low-income multifamily housing builder.

As part of the industry analysis, one should study:

- recent industry performance and developments;
- regulatory environment;
- competitive landscape and major players;
- industry life cycle;
- products and services offered;

- major markets and supply chain considerations;
- capital intensity;
- technological considerations;
- external drivers; and
- differentiating factors.

External drivers are the factors that affect the industry that are external to the subject company.

IBISWorld is a leading source of information prepared on an industry-by-industry basis. IBISWorld identified the key external drivers (shown in Exhibit 1) for the home building, commercial building construction, industrial building construction, and road and highway construction industries.

Impact on value

The capital markets reflect a drop in value for publicly traded construction companies. Out of the nineteen construction companies listed in Exhibit 2, only one reported an increase in share price from December 31, 2019 to May 11, 2020. The average drop in share price during this period was 25.7 percent.

EXHIBIT 2 Decrease in Share Price for Publicly Traded Construction Companies

Company	Industry	Stock Price at Dec 31, 2019 (\$)	Stock Price at May 11, 2020 (\$)	Change (%)
Hovnanian Enterprises, Inc.	R	20.87	11.82	-43.4%
LGI Homes, Inc.	R	70.65	72.22	2.2%
M/I Homes, Inc.	R	39.35	27.16	-31.0%
NVR, Inc.	R	3,808.41	3,055.83	-19.8%
Toll Brothers, Inc.	R	39.51	26.99	-31.7%
The New Home Company Inc.	R	4.66	2.97	-36.3%
PulteGroup, Inc.	R	38.80	29.42	-24.2%
KB Home	R	34.27	28.10	-18.0%
Century Communities, Inc.	R	27.35	23.31	-14.8%
D.R. Horton, Inc.	R	52.75	48.53	-8.0%
Lennar Corporation	R	55.79	53.00	-5.0%
Hill International, Inc.	C, I, T	3.16	1.45	-54.1%
Jacobs Engineering Group Inc.	C, I, T	89.83	78.57	-12.5%
Tutor Perini Corporation	C, I, T	12.86	8.00	-37.8%
AECOM	C, I, T	43.13	34.98	-18.9%
Fluor Corporation	I, T	18.88	10.44	-44.7%
Construction Partners, Inc.	Т	16.87	16.09	-4.6%
Granite Construction Incorporated	Т	27.67	15.26	-44.9%
Sterling Construction Company, Inc.	Т	14.08	8.21	-41.7%
			Average	-25.7%
			Median	-24.2%

R = Residential, C = Commercial, I = Industrial, T = Transportation

The stability of a company's revenue sources may preserve value in the current economic climate. Home builders rely on individuals, many of whom may delay home building until more stable economic conditions arise. Commercial, industrial, and road and highway construction companies often serve corporations and government entities. These funding sources may be better insulated against volatility. Corporations typically have larger projects that are planned out in advance, providing stability to construction companies. Government-funded projects may increase due to the infusion of government funding and infrastructure spending packages.

Construction companies may also be better insulated if they maintain a healthy backlog.

Often, commercial and industrial construction companies have backlogs of two years or more. This may flatten, delay, or eliminate the effect on value for this sector.

Another factor that may preserve value is access to cash reserves or lines of credit to act as a liquidity buffer during difficult times. Diversification across industries served may also benefit construction companies by reducing losses from heavily affected industries such as retail.

Private companies may not necessarily have the same swings in value as public companies. Public companies are publicly traded. Information is readily available and transactions costs are low. When bad news surfaces, it is cheaper to move shares of these public companies. The same fact

pattern does not hold for private companies. Rather than stock being priced multiple times per hour, it may be priced annually. The immediacy that drives swings in public companies is largely absent for private companies. The difference in measurement periods dampens the volatility. It also leads to a difference in perspective. Private companies typically don't issue quarterly guidance and are more inclined to focus on a multiyear path.

While the decrease in the value of public companies is directly observable from capital markets, valuing private companies is more complicated. Valuation analysts commonly use three approaches to value private construction companies: the market approach, the income approach, and the asset approach. This discussion focuses on how the market approach and income approach are affected by COVID-19 and the lockdown.



The market approach is grounded in a direct comparison of the subject entity to the market transactions of similar companies. The two primary market approach methods are:

- 1. the guideline completed transaction (GCT) method, which uses prices of recently sold similar companies, and
- 2. the guideline public company (GPC) method, which uses prices of similar publicly traded companies.

Both methods are conceptually similar to a real estate appraisal in which an appraiser looks at similar houses, estimates a price per square foot, and uses this price per square foot to estimate the value of the subject property.

Both the GCT method and the GPC method derive multiples (e.g., an EBITDA — earnings before interest, taxes, depreciation, and amortization — multiple) from transactions of interest in companies engaged in the same (or similar) lines of business. Analysts select a multiple(s) and apply it to the subject company's financial metrics to arrive at an indication of value.

Multiples in the GCT method often lag current market conditions. As of May 26, 2020, DealStats (a database of sales of businesses) reported that just 99 of its 39,190 transactions were completed in 2020. Transactional information in databases such as DealStats is submitted by the parties involved in the sale of a business. GCT transactional data often lags current market conditions due to the time to complete a sale, submit data to databases, and publish data. Further, transactional activity may diminish given the current economic conditions. As a result of the lag between GCT multiples and current conditions, analysts may need to make an explicit adjustment to the multiple.

Because the GPC method is based on valuation multiples using publicly traded stock prices, valuation indications already reflect the results of the lockdown. The current economic crisis highlights the importance of considering the GPC method. While public companies may be quite different from private companies, the availability of current pricing data offsets this concern.

Income approach

The income approach is based on the proposition that the value of a company is a function of its future income. A commonly applied income approach method is the discounted cash flow (DCF) method. In the DCF method, valuation analysts discount projected future income from a discrete projection period to present value based on a required rate of return. This required rate of return is equal to either the cost of equity or the weighted average cost of capital (a blend of debt and equity).

The cost of equity and the cost of debt are affected by COVID-19 because they are based on underlying data from the capital markets. The impact of the lockdown may be reflected directly into the cost of capital. Depending on which models are used and how they are applied, an adjustment to the required rate of return may be warranted.

As its name suggests, the income approach is based on a company's future income. While creating projections in the current economic environment may be quite difficult, they are necessary if the DCF method is to be applied. Current projections should capture the impact of COVID-19 and the lockdown (to the best of management's ability), and therefore the



ECONOMIC CRISIS HIGHLIGHTS THE IMPORTANCE OF CONSIDERING THE GPC METHOD. income approach should produce a value that incorporates the current situation.

The income approach is particularly useful for valuations in the current economic climate because anticipated changes can be modeled into cash flows over several years. Analysts can model the projected economic recovery into the value of the subject company, explicitly accounting for the fact that it will eventually rebound. The value of private construction companies should reflect that, as with the Spanish Flu from 100 years ago, the economy will eventually recover.

Nonrecurring items

The market approach and the income approach both typically consider the income generated by a company. Because economic stimulus funds received (such as forgivable loans through the Paycheck Protection Program) affect the income of a company, one question being asked now is how this income affects the value of a company.

When valuing a business, analysts remove unusual and nonrecurring income and expenses because a potential buyer of the business should only consider income to be received on a forward-looking basis. These economic stimulus funds likely meet the definition of unusual and nonrecurring, so valuations should exclude these items.

Conclusion

By looking at relevant economic factors and value drivers in the construction industry, one can begin to get a picture of how company value will be affected by COVID-19 and the lockdown. Unfortunately, all the pieces of the puzzle are not available yet. New regulations, biological developments, and consumer preferences may introduce new pieces that change the valuation puzzle. Until these pieces are available, sorting out the pieces at hand and making connections where possible will provide clues to how COVID-19 and the lockdown affects the value of privately owned construction companies.