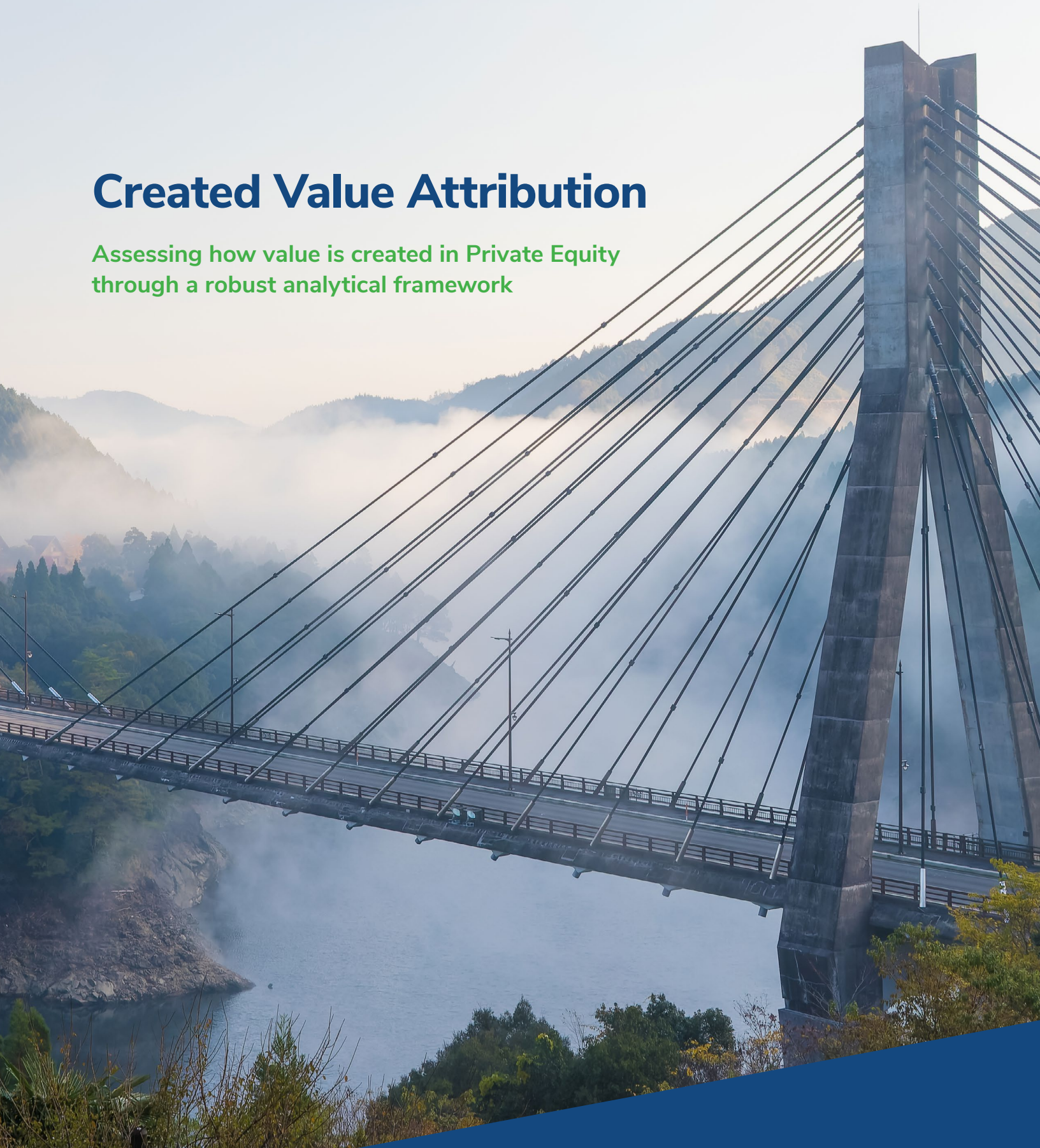
KROLL

Created Value Attribution

Assessing how value is created in Private Equity through a robust analytical framework



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Abstract

In response to the increasing need for investors to ascertain how value is created in private equity (PE) investments and, ultimately, to identify general partners that create sustainable value-add and "build better businesses," Kroll has developed a robust conceptual and analytical framework to measure and to attribute created value to its sources. The Kroll Created Value Attribution framework (the Kroll CVA Framework or the Framework, and fka The Duff & Phelps CVA Framework) builds on the historical approach (also known as the value bridge or industry convention) used by the PE industry. While the Framework was created for the analysis of PE investments, it is suitable for analyzing value creation for various asset classes and strategies, including activist investing and public companies. The Framework expands on the historical approach by drilling down to fundamental market-, industry- and company-specific value-change factors, both organic and acquired, and then quantitatively mapping created value to four fundamental sources: industry/sector, capital markets (beta), deleveraging and unique (alpha). The evidence to date suggests that the Kroll CVA Framework represents a dramatic improvement over the historical approach in the identification of alpha.

– By P.J. Viscio and George Pushner, Ph.D.

Introduction

How a general partner (GP) creates value has become increasingly important as limited partners (LPs) have grown more sophisticated and demanding. To provide real insight into how value is created, the attribution of created value needs to go beyond the historical approach of analyzing changes in earnings before interest, taxes, depreciation, and amortization (EBITDA), multiples and net debt.

Investments with strong returns are sometimes just the result of timing and market movements, and sometimes weak investment returns hide value creation or value preservation in difficult environments. To identify the portfolio companies (and their GPs) that have truly excelled, it is necessary to isolate or separate value creation that comes from industry, capital market and deleveraging factors from those that are derived from unique company-specific initiatives. By isolating unique value creation across multiple portfolio investments, the Kroll Created Value Attribution Framework (the Kroll CVA Framework[1] or the Framework) can reveal patterns of value creation which identify GPs that have repeatedly built better businesses and created value through operational or strategic value-add.

The key to the Framework is to isolate unique company-specific returns by quantitatively attributing value creation to numerous measurable factors. We present here the full technical detail of the Framework to demonstrate why the company-specific factors that are isolated are meaningful indications of unique value creation that suggest the ability to create alpha on the part of GPs or portfolio-company management. In our presentation of the technical details, we use an illustrative example based on an actual case study. Finally, we provide evidence from our CVA studies to date regarding the ability of the historical approach and the Kroll CVA Framework to identify alpha and patterns of value creation, with the Framework showing significant improvement over the historical approach.

Our experience has identified three critical analytical steps for analyzing value creation:

1. Deconstruction of the apparent value-change drivers (i.e., changes in EBITDA, multiple and net debt) into their primary components: changes in revenue, margin, cost of capital and growth profile, as well as a number of capital structure and balance sheet items.
2. Integration of portfolio-company performance benchmarking analysis to separate the effects of industry- and company-specific, value-change drivers.
3. Analysis of value-change driver impacts stemming from add-on acquisitions.

[1] *fka the Duff & Phelps CVA Framework.*

Background

PE net returns have been and will remain the single most important criterion in evaluating fund performance, whether for manager selection, subsequent fund investments or ongoing monitoring with respect to existing commitments. However, the attribution of these returns—i.e., how the returns are created—is becoming increasingly important to investors.

There are several reasons for the new focus on CVA. One is value for fees. If returns are created through selection, execution and leverage, one may argue that such returns are replicable, to a large extent, using synthetic portfolios with underlying liquid securities, which can be done at costs that are significantly less than fees typically paid to PE managers.

The focus on value creation also reflects the evolution of the PE industry. In the early days of PE, excess returns were often, if not almost entirely, achieved through the exploitation of market inefficiencies. Over the last several decades, as the number of PE investors has increased and their corresponding levels of expertise and sophistication have matured, opportunities for hefty returns based on capitalizing on market inefficiencies have all but disappeared. While deal sourcing and access to debt financing will continue to be essential, it is unlikely that proprietary deals and financial engineering will be the major drivers of excess returns in the future.

Excess returns are now expected to be driven primarily through strategic and operational expertise, as well as GP leadership. Whether through the operating partner, senior advisor or other operations-focused models, a large and increasing number of PE firms are bringing operational expertise to improve the businesses of their portfolio companies. In addition to operational value-add, PE firms may also increase the value of a portfolio company through strategic value-add, often taking the form of add-on acquisitions and integration of the acquired businesses with the platform portfolio company.

In addition, investment returns and impacts have taken on new meaning as environmental, social and governance (ESG) aspects of investing have become increasingly important to investors. The basic thrust of ESG as it relates to value creation is that LPs are looking to GPs to 'build better businesses,' including sustainable and environmentally friendly operational improvements and initiatives. ESG considerations address both the notions of sustainability and contributions to the development of the global economy, as well as numerous other factors.

A wealth of ESG metrics and data have proliferated from well-known nongovernmental organizations (NGOs) and commercial data providers. Many widely utilized metrics attempt to measure value to society and are inherently nonfinancial, but as investors seek to determine whether ESG activities have enhanced financial returns, a number of financial measures are now included.

According to Prequin, $3.1 trillion of private capital assets are managed by firms that are committed to ESG investing.[2] While European investors have been at the forefront of the ESG movement, a growing number of U.S.-based institutional investors (e.g., pension funds, endowments and foundations) are including ESG factors in their investment allocation calculus.

[2] "*ESG in Alternatives: Navigating the Climate Crisis*," *Prequin Ltd., October 2021.*

The historical approach

For many portfolio companies with sustainable operations, the PE industry has historically assessed pricing and valuation in terms of a multiple of EBITDAs. Based on an informal survey, the industry's approach to attributing created value has employed a similar approach. The historical approach for attributing value creation (or perhaps destruction) is to ascribe changes in value to the change in EBITDA, change in the EBITDA multiple and change in net debt.

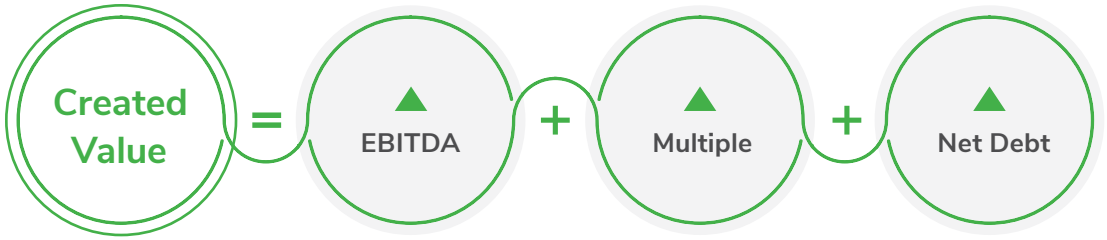


Figure 1: PE Historical Approach for Attributing Created Value

This approach quantifies the effect of the change in each of these variables while holding each of the other two factors constant. While we have identified a few firms that perform more sophisticated analyses, based on our discussion with a number of GPs and LPs, we believe that an all-too-significant number of industry participants use this convention.

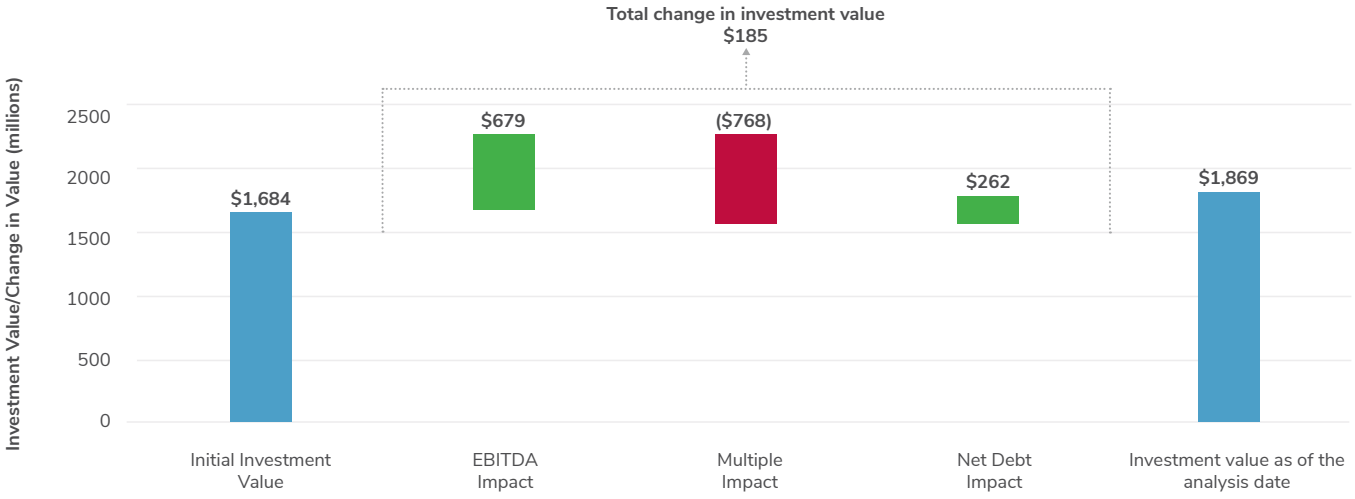


Figure 2: Illustrative Example of the Historical Approach

To focus on the changes in value and not have the changes obscured by the starting and ending values, the changes in value can also be presented using a tornado diagram, as shown in Figure 3.

Change in investment value

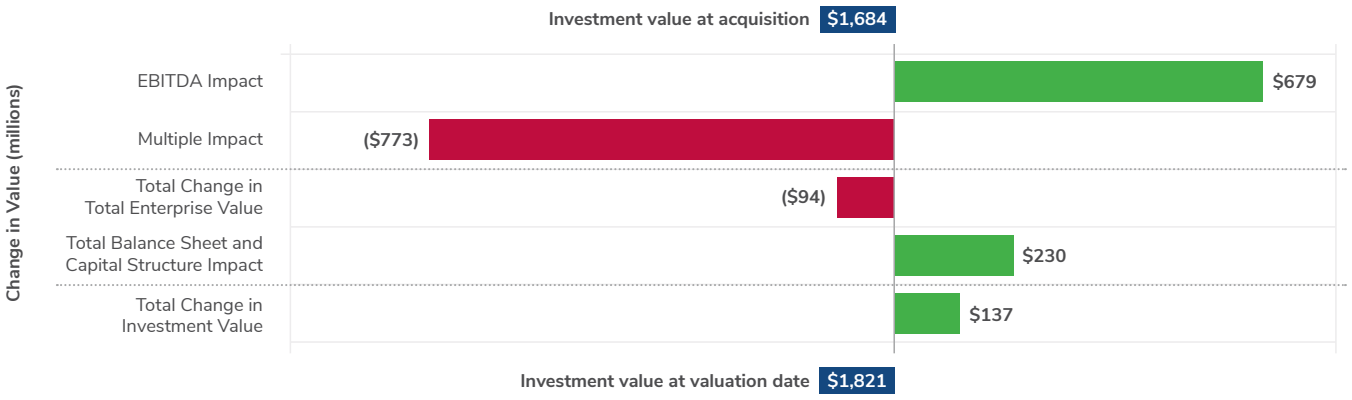


Figure 3: Same Example of the Historical Approach Using a Tornado Diagram

Analyzing these factors can be useful in assessing what apparently[3] drives changes in value from one time period to another. In fact, this historical approach can be an essential tool in assessing how and why a fair-value estimate has changed from the prior period, thus serving as a reasonableness check for fair-value estimates for unrealized investments. While such analysis of the aforementioned three drivers of value change is useful in identifying, from a mathematical perspective, components of value change, these value drivers alone do not provide much transparency into how value is being created.

In the earlier example, the change in EBITDA provides a positive contribution to value change, while significant negative effect from the change in EBITDA multiples more than offsets it, resulting in a slight decline in enterprise value. Further, the decline in net debt provides a positive contribution to value change, resulting in an overall increase in the reported fair value. However, each of these factors may or may not actually reflect value creation, as explained next.

Increases in EBITDA, for example, would suggest a positive result, as this increase is typically viewed as representing an improvement in the operations of a business. However, if EBITDA increases solely as a result of an acquisition, the increase in value was not created, but rather purchased. In fact, there could be, at least in theory, situations where increases in EBITDA are a detriment to value as a result of the buyer paying too much (e.g., for overstated expectations and synergies). Changes in EBITDA may point to where and how value change takes place, but they do not provide direct evidence of value creation.

[3] *We use the word "apparently" as this conventional analysis suggests areas of value creation and destruction, but may obscure actual value creation and destruction, as explained further in this paper.*

With respect to EBITDA multiple expansion, increases in value that are manifested through an increase in the multiple are typically viewed as value creation driven by market, industry or other macro factors and thus may be viewed with at least some level of skepticism by investors with respect to assertions of GP value-add. Ascertaining any insight into the value creation process based on movement of the valuation multiple is difficult, as multiples increase and decrease for reasons that may be positive, negative or neither. In addition, changes in multiples may be related or unrelated to the subject company. Multiple expansion in the context of a broad bull market, for example, is often not seen as justifying a 'two-and-twenty' type fee structure and illiquidity associated with PE investment. Multiples can change because of movement in the numerator (level of risk or expected growth) or the denominator (cash flow or earnings) and therefore can reflect both changes in expectations and past performance.

An increase in the multiple can reflect higher market or company expectations, or reflect reduced trailing performance.[4] Similarly, a lower multiple can reflect good or bad news—for instance, as market expectations decline, or as trailing performance improves. In addition to macro factors beyond the control or influence of the GP or the portfolio-company management team, a decline in the multiple could result from declining growth prospects or from a successful execution of a growth strategy implemented at acquisition, in addition to other potential causes. Without detail and context, changes in the multiple provide very little, if any, insight into how value is created and whether the factors are industry or sector driven, company specific, or related to changing capital market rates of return or some combination thereof.

Similarly, changes in net debt can reflect positive and negative cash flows from operations, but historical cash flows can also be obscured by the financing of acquisitions or by financial engineering such as leveraged recapitalizations.

We conclude that the historical approach of looking simply at changes in EBITDA, the EBITDA multiple and net debt to assess and attribute value creation is inadequate to effectively identify evidence of operational or strategic value-add that results from GP competencies and leadership.

[4] *Company-specific reasons leading to an increase in the multiple could stem from many factors, such as an increase in expected growth stemming from new market initiatives or poor recent performance (but with the expectation of recovery).*

The historical approach does not identify alpha

While the historical approach is thought by many to identify operational value-add, it fails by definition to measure alpha. We define Created Value Alpha here in the context of PE investments as organic value creation on a company-specific outperformance basis relative to an appropriate industry benchmark. Because the historical approach makes no attempt to separate or attribute industry or sector performance or add-on acquisitions, it cannot identify Created Value Alpha.

To quantify Created Value Alpha appropriately, attribution analysis must measure performance of the portfolio company relative to that of an appropriate industry benchmark, separate the effect of add-on acquisitions and address potential balance sheet effects on value creation.

The Kroll CVA Framework

Responding to the need to better assess how value is created, Kroll has developed a more robust attribution framework based on discussions with clients and others in the GP and LP communities, as well as our own experience and core competencies in the valuation of PE portfolio companies. While we concluded that the conventional approach to value attribution was inadequate, we also determined that given the familiarity that GPs and LPs have with it, it was a logical and practical starting point. In addition, it aligns with the multiple-based approach to valuation has been a staple of the PE industry.

The Kroll CVA Framework builds on the conventional approach and consists of three essential components:

- Primary deconstruction (of the components of the conventional analysis)
- Integration of portfolio-company–level performance benchmarking
- Isolation and segregation of acquisition-related transaction impacts

After drilling down to fundamental market-, industry- and company-specific factors, including both organic and acquired growth, we then map the ensuing value-change drivers to four fundamental sources: industry/sector, capital markets (beta), deleveraging and unique (alpha).

Primary deconstruction

Primary deconstruction involves disaggregating the value-change effect of each of the factors of the conventional approach (EBITDA, multiples and net debt) into its primary constituents.

EBITDA

The effect of the change in EBITDA is deconstructed into the component attributable to the change in revenue and the component attributable to the change in margin. This first level of deconstruction of the change in EBITDA can add some clearly meaningful information. Specifically identified is value creation attributable to top-line revenue growth vs. that attributable to improved profitability. Likewise, decreases in value may be quantified and attributed to revenue or profitability declines. Changes in value can also represent a mix of positive and negative changes in revenue and margin.

Multiples

Similarly, the value-change impact resulting from a change in the multiple can be deconstructed into the impact from the change in the cost of capital (i.e., required market rates of return at the enterprise level) and the changes of market expectations relative to past performance, or what we refer to as growth profile. The term growth profile refers to the overall expectations of growth in terms of the rate, extent and timing of expected cash flows that are reflected in the valuation multiple.[5]

Net Debt

In addition to the pay-down of debt or a buildup of cash, the change in net debt may also reflect changes in a number of balance sheet and capital structure items that are often not separately identified. These include dilution resulting from stock and option issuance related to equity plan management, as well as other transactions. Other potential items in the category include the capital structure effects of platform acquisitions and divestitures, dividends and capital infusions.

Primary deconstruction results in identifying and measuring the effects of at least five separate value-creation drivers:

1. Change in revenue
2. Change in margin
3. Change in cost of capital
4. Change in growth profile
5. Change in capital structure and balance sheet items

[5] *The change in multiples can be calculated either on an industry- or company-specific basis, and we believe that it is important to calculate and understand the change in multiples both ways, as explained in the next section, which discusses integration industry benchmarking. As a result, we also ultimately calculate growth profile on both an industry- and company-specific basis.*

The breakout of these factors is diagrammed in Figure 4.

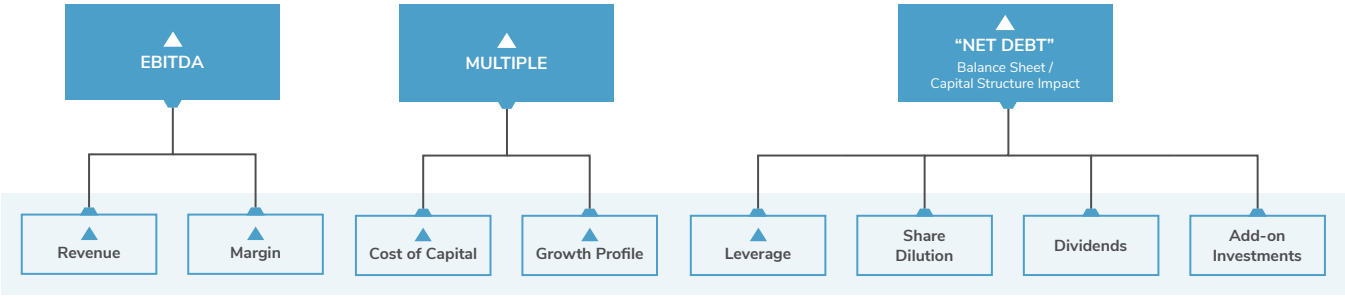


Figure 4: Primary Deconstruction

After applying primary deconstruction to our previously introduced illustrative example (see Figure 5), more detail emerges. In this example, the most significant positive contributing factor to value change is the effect attributable to the change in margin, followed by a relatively modest contribution from capital structure/balance sheet impacts (of which the change in net debt is one factor—a more detailed discussion follows next). All other value-change drivers contribute negatively to value change.

Change in investment value

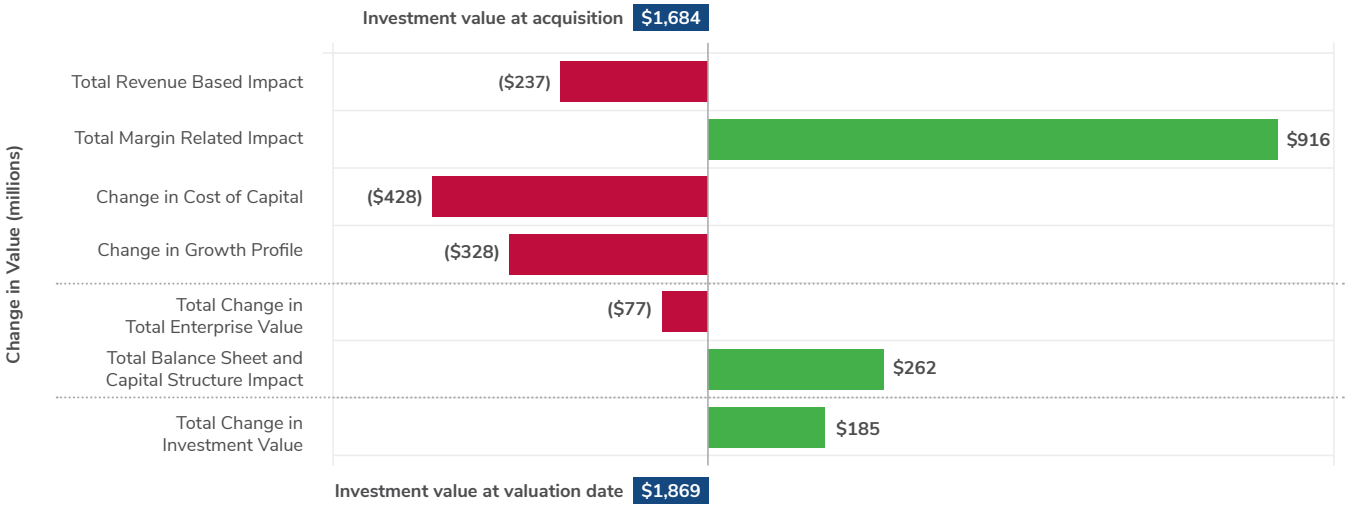


Figure 5: Illustrative Example: Attribution Analysis Based on Primary Deconstruction

In assessing the potential contributions, if any, to value creation (or destruction) attributable to GP actions and decisions, it is then logical to examine the portion of the specific impacts noted earlier that is driven by industry/sector factors vs. the portion that is company specific. In the case of our illustrative example, the primary questions to ask and answer are, "How much of the margin improvement can be explained by industry/sector trends, and how much is specific to the portfolio company?" The next step or component of the Kroll CVA Framework analysis therefore provides a standardized framework with which to answer these questions.

Integration of portfolio company-level performance benchmarking analysis

While attribution based on primary deconstruction provides significantly more detail than does the conventional framework, it may still be insufficient to provide insight as to whether there is significant value-add, whether operational or strategic, that may have stemmed from GP actions. As in our illustrative example, suppose that a significant level of value creation is attributed to increased margins. Is the increase in margin being driven primarily at the industry level (e.g., resulting from an industry or secular trend, or from an industry cycle) or at the enterprise level relative to the industry as a whole? Value creation driven by enhanced profitability at the enterprise level in excess of that achieved from the overall industry level indicates, all else being equal, outperformance that could provide evidence of GP value-add (i.e., resulting from GP-driven initiatives). This value creation attributable to GP actions would not be available through making a benchmark or industry-based investment consisting of a basket of public securities representative of the industry (e.g., an industry exchange traded fund (ETF)).

The integration of performance benchmarking into the analysis of value created results in further deconstruction. In a finer level of detail, it provides visibility into a number of industry-, sector- and company-specific value-change drivers. Specifically:

1. The change in revenue is deconstructed into (a) the change in market size and (b) the change in market share.
2. The change in margin is deconstructed into (c) the change in industry margin and (d) the change in the company-specific margin, incremental to the change in the industry margin (indicative of outperformance/ underperformance relative to the industry benchmark).
3. The change in growth profile is deconstructed in (e) the change in the industry growth profile and (f) the change in the incremental (i.e., relative to the industry benchmark) company-specific growth profile.
4. The change in the cost of capital can be deconstructed in (g) the change of industry cost of capital and (h) the change in the incremental company-specific cost of capital.

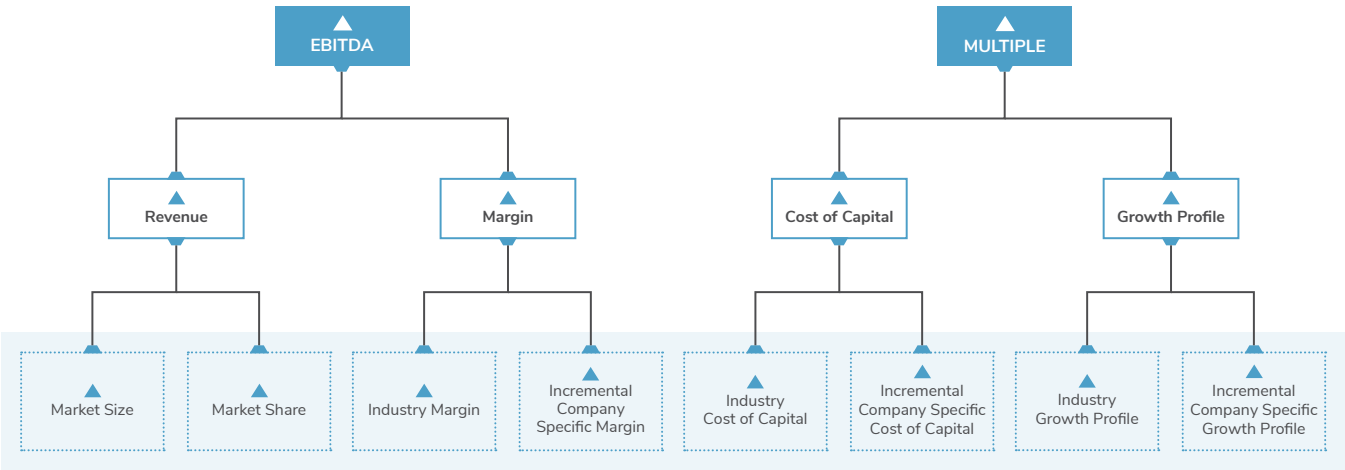


Figure 6: Primary Deconstruction and Integration of Performance Benchmarking

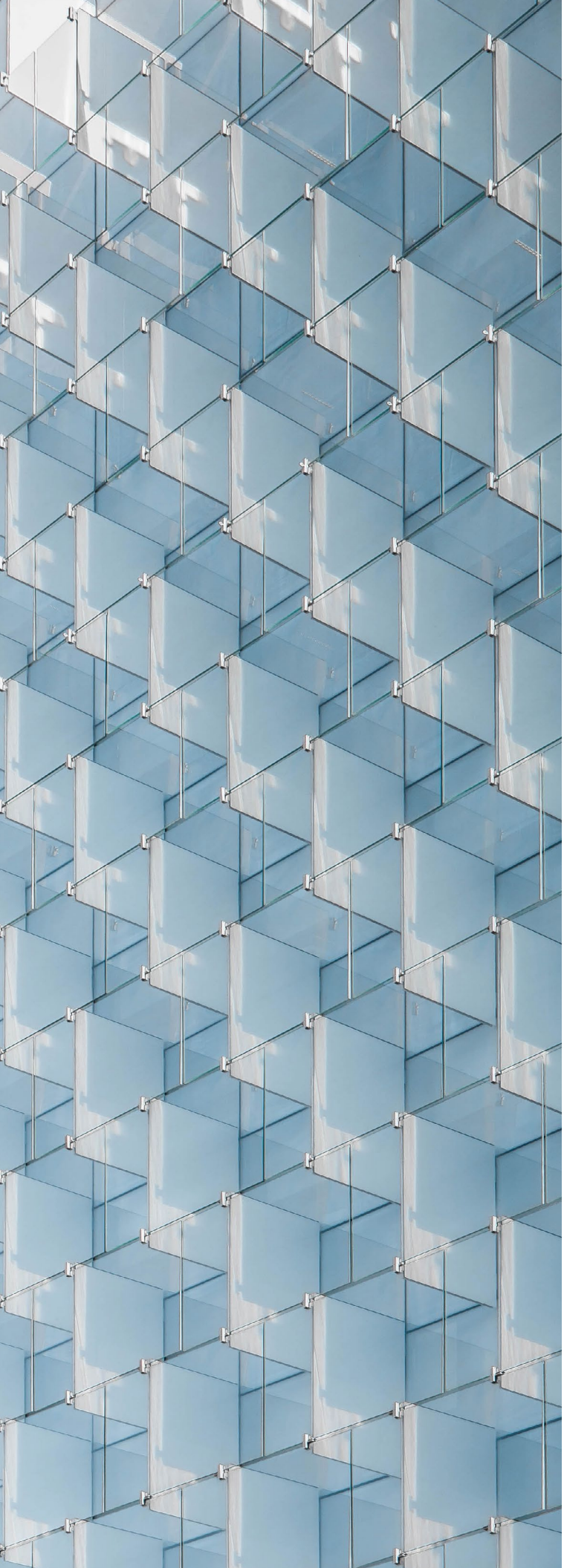
Revenue Impacts

We first examine the revenue growth rate exhibited by the portfolio company relative to that of an industry benchmark.[6] This analysis separates the created value resulting from the change in market size from the created value caused by the change in market share. In most cases, one would consider the change in market size to be the result of macro factors, as opposed to enterprise-level factors. In contrast, the change in market share speaks to the performance of the enterprise.

Margin Impacts

Similarly, the change in margin can be separated into the change in industry margin and the change in the portfolio company's margin relative to that of the industry (i.e., the incremental company-specific change in margin).

[6] *Note that the industry benchmark (explained further below) is a portfolio-company benchmark of firms operating in the same industry. It is not a benchmark of PE performance or returns.*



Growth Profile Impacts

Just as the change in the portfolio company's growth profile can be derived from the change in the company's implied valuation multiple, the change in the industry's growth profile can be ascertained from the change in the industry benchmark multiple (e.g., the weighted-average multiple of comparable companies). This analysis allows the effect from the change in growth profile to be deconstructed into the change in the industry growth profile and the change in the incremental company-specific growth profile.

Cost of Capital impacts

The cost of capital impacts can also be separated into industry- and company-specific components. GPs often maintain that as a portfolio company grows or becomes more diversified in its product and customers, the portfolio company's cost of capital decreases relative to what it otherwise would have been. In cases like these, it may be appropriate to give credit to the GP for value created as a result of lowering the riskiness of the business, resulting in a lower cost of capital. The Kroll CVA Framework can address this by deconstructing the change in the cost of capital to arrive at an industry change in the cost of capital and the change attributable to the portfolio company on an incremental basis. In more practical terms, however, our preference is to calculate industry cost of capital impacts as a macro factor and to reflect any change in company-specific cost of capital to be embedded in the risk-adjusted company-specific growth profile.

Determining industry benchmarks

A critical component of the integration of performance benchmarking is the determination of the industry benchmark, and there is no simple one-size-fits-all method to benchmark industry performance. Sometimes a single proxy or group of publicly traded competitors is used for benchmarking, but this approach often suffers from pure-play and size issues. Therefore, it may present a very limited or distorted view of the industry. In addition, a single proxy is not necessarily representative of the industry as a whole. We believe that it is preferable to utilize comparable company groups to benchmark industry performance as they essentially benchmark risk and opportunity, similar to their role in estimating fair value under the market approach.

In the valuation process, the comparable company group is used to benchmark value based on historical and expected performance while normalizing exposure to comparable risk and opportunity. Within the Framework, a comparable company group can be used as a proxy for the industry or that part of the industry in which the portfolio company operates to assess relative performance. To reflect the contribution of all the comparable factors to industry performance, a weighted average of the performance of the comparable companies is used rather than relying on a median or mean figure.

A weighted comparable company group can also be thought of as a readily investable alternative to the portfolio company and thus represents an investable measure of industry performance. The comparable group, therefore, provides a real view of the opportunity cost of investing in the portfolio company rather than an industry index of public comparable companies. While it can be outright challenging to identify a group of public comparable companies, particularly for niche portfolio companies, a market-comparable group represents, in theory, a readily investable alternative to the specific portfolio company, reflecting industry risk and return profiles, thus serving as a logical benchmark of performance.

Additionally, comparable company groups as industry benchmarks can be refined. This approach takes comparable public company performance data and combines them, if available, with private company performance data. Additionally, adjustment factors to reflect the degree of product/service relevancy, as well as geographic relevancy, may be applied to each individual company within the benchmark. The adjusted results would then be weighted based on relative contribution. While even more subjective than merely utilizing a comparable company group, it may in theory provide a more complete and refined view of industry performance.

Returning to our illustrative example, the integration of performance benchmarking reveals significant additional detail into the value-creation process.

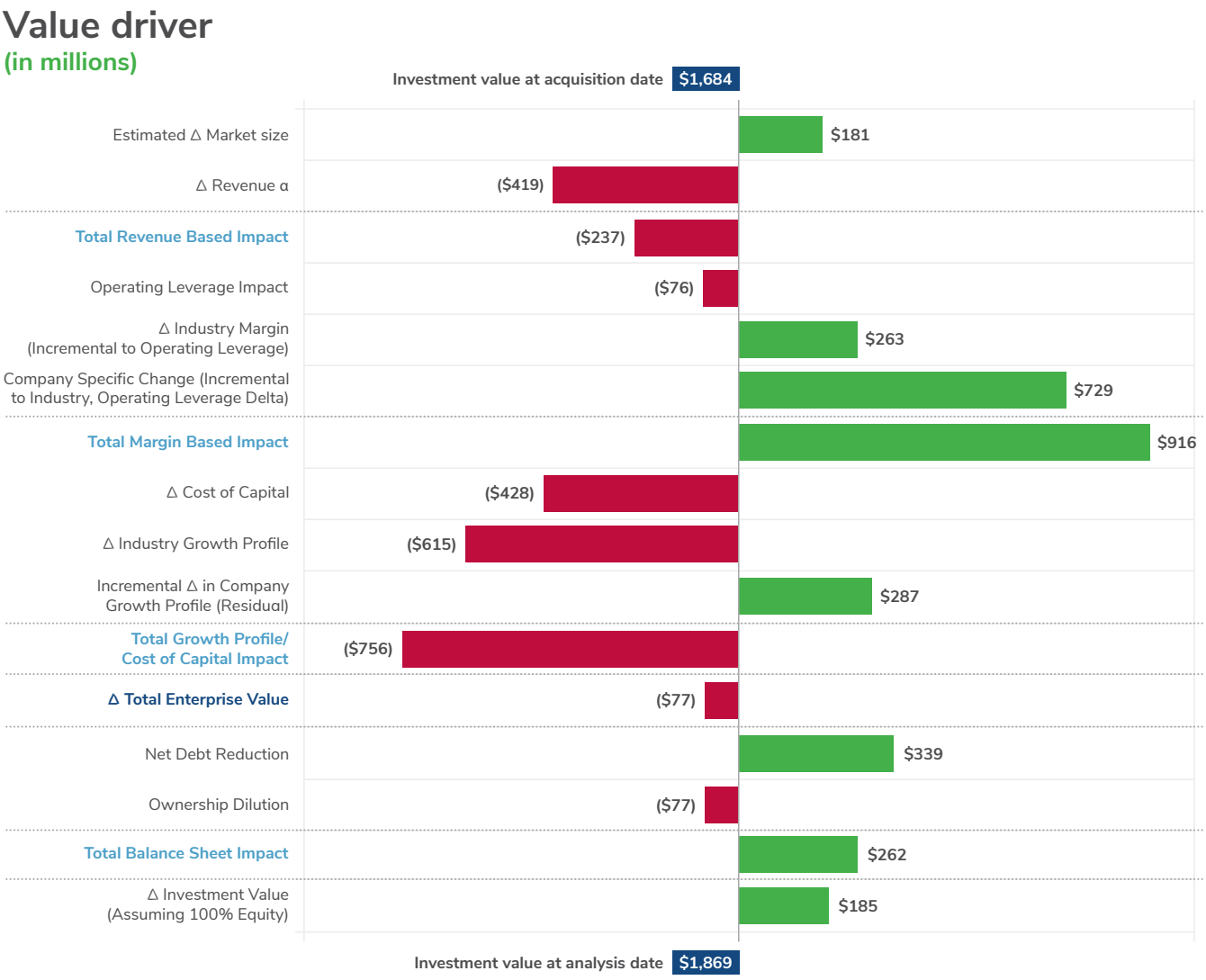


Figure 7: Illustrative Example: Attribution Analysis Based on Primary Deconstruction and Integration of Performance Benchmarking

In this example, the negative contribution to value stemming from the loss of revenue was essentially driven by the loss of market share, partially offset by an increase in market size. The company had fewer customers as of the analysis date than it did as of the date the investment was made. While the change in the industry margin provided a positive contribution to value, incremental company-specific margin improvement drove the majority of overall value creation and more than offset the value eroded from the loss of market share.

Based on a real-life case study, a number of GP-led initiatives resulted in the margin improvement outperformance in this illustrative example, including those relating to cost savings and changes in customer and product mix. In fact, the company terminated relationships with unprofitable customers, which reduced market share. However, the company more than made up for this by the value created through improved profitability.

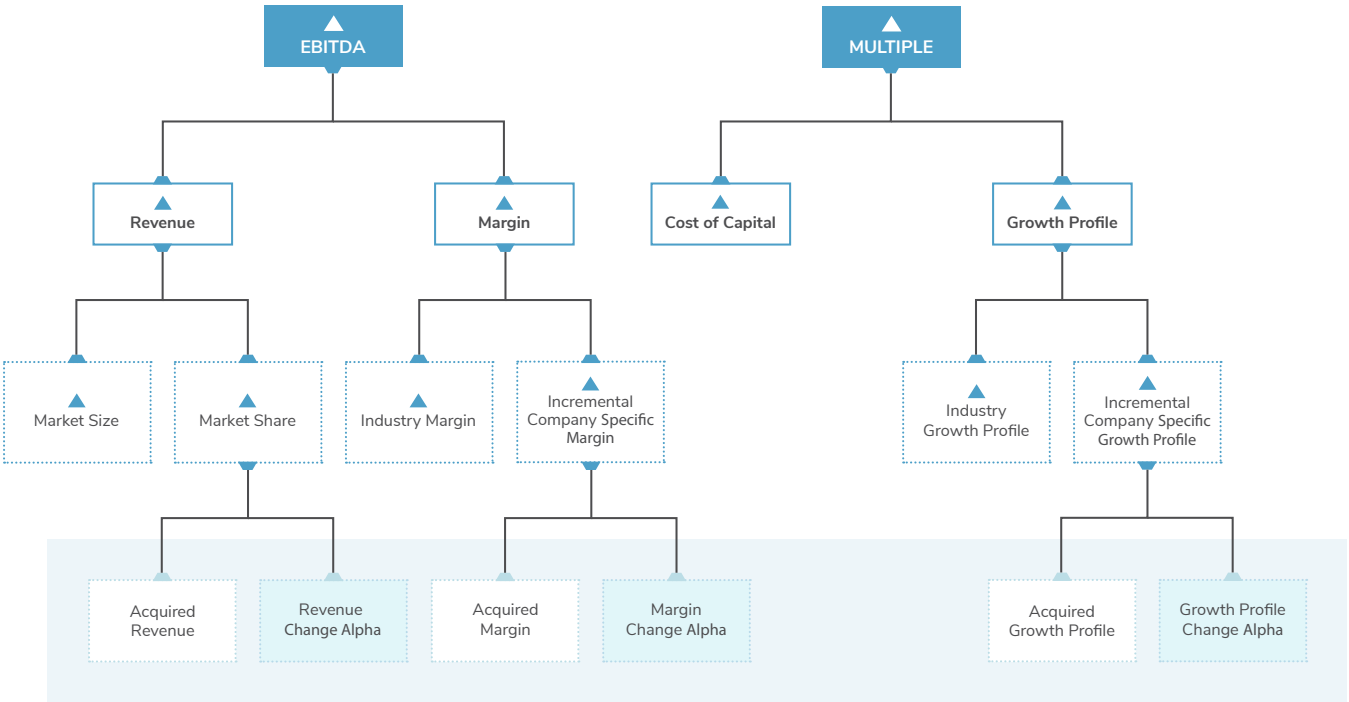
Purchased Vs. Created Value

As mentioned earlier, EBITDA increases are generally seen as a positive, but a question arises as to how much of the increase is organic in nature (i.e., created) vs. how much was obtained through acquisitions (i.e., purchased). If a follow-on acquisition is purchased at fair value, there is no real value created at the time of acquisition. But, as the follow-on acquisition is integrated onto the platform and revenue, margin and other synergies are obtained, there is potential for significant value creation to occur. To measure this value creation, it is necessary to pull out what had been actually acquired at the time of the follow-on acquisition, as well as how much additional capital was required to complete the transaction.

Segregating the effect of acquisitions can be difficult, but the Framework addresses this bought-vs.-built EBITDA question through a similar approach to the attribution methodology described earlier. It uses an algorithm that identifies, for each material acquisition, how much revenue, margin and growth were acquired. Using the portfolio company's valuation metrics as of the date of the add-on acquisition as benchmarks, the initial value impacts for each acquisition can be identified and segregated. Any subsequent or post-acquisition growth of the combined entity is then represented in the Framework as true organic value creation.

We label this total organic company-specific value creation as:

- Revenue-Change Alpha.
- Margin-Change Alpha.
- Growth-Profile-Change Alpha.



Note: Cost of capital impacts can also be segregated into industry, acquisition and alpha impacts.

Figure 8: Full Framework With Primary Deconstruction, Benchmarking and Isolation and Segregation of Acquisition-Related Impacts

As an example, consider value created under arbitrage strategies. A GP may seek to acquire targets with a lower margin than the platform company and then, through any number of initiatives, bring the margins of the acquired businesses more in line with those of the platform company. Value may not be created at the time of each follow-on acquisition, but it is created if the margins move toward that of the platform company.

For the acquisition of a business with a margin less than that of the platform, although the revenue would be reflected as positive value purchased, the margin impact would reflect an offset to purchased value within the Framework. While this may not necessarily appear intuitive, without representing a lower margin of the acquired business as an offset, the lower margin would obscure, at least in part, any actual organic change in margin and would therefore serve to understate or even hide any real improvement in margin. Without separation of the acquisition impacts, it might appear that there is weak or even negative margin growth, but if we fully reflect the lower margins of the added business, the true value creation can be revealed.

Once the value-change impacts attributable to acquisitions are quantified, the true amounts of organic value change or created value can be determined.

It is also important to re-emphasize that within the Framework, value created through successful acquisitions (e.g., postacquisition growth, realization of synergies or other increases in the value of the combined entity after acquisition) is considered organic value change (i.e., created value).

Returning again to our illustrative example, the full Framework with acquisition impacts reveals additional detail into the value-creation process.

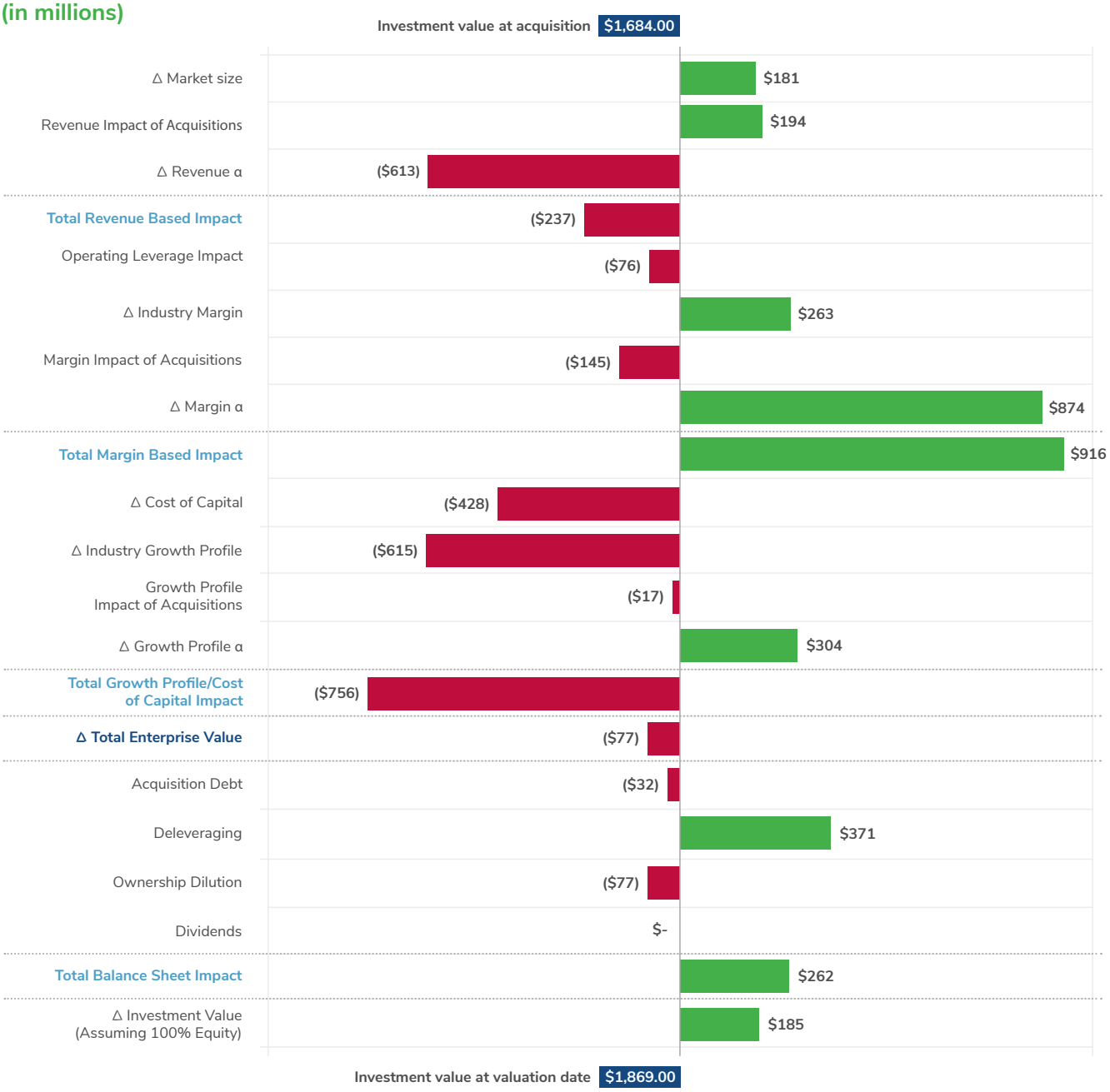


Figure 9: Illustrative Example: Attribution Analysis Based on Primary Deconstruction, Integration of Performance Benchmarking and Isolation and Segregation of Acquisition-Related Impacts

As seen in Figure 9, the separation of acquisition impacts reveals an even more granular level of detail. The value created from margin improvement outperformance, for example, is more pronounced because the acquisition of a lower margin business had obscured some of the margin improvement. Similar refinement of the other estimates of company-specific value creation can be observed, including a lower revenue-change alpha relative to the previous company-specific revenue value change, in addition to a higher growth-profile-change alpha relative to the company-specific growth profile change.

Balance sheet and capital structure impacts (including deleveraging)

At this point, we have addressed the value-change drivers at the enterprise (i.e., operations) level. To attribute value creation fully and appropriately at the investment/security level, changes in what is referred to as change in net debt in the conventional attribution framework need to be taken into account. Going from the conventional framework to the Kroll CVA Framework, change in net debt is deconstructed into a number of changes in capital structure and balance sheet impacts.

In line with what may be expected, the most significant capital structure/balance sheet impact is that of deleveraging. The Kroll CVA Framework quantifies actual deleveraging in contrast to just changes in net debt. Deleveraging is a function of cash flow generated by the enterprise in the period between measurement dates. In addition to deleveraging, other factors that determine the amount of net debt include newly issued or assumed debt related to add-on acquisitions, borrowings related to new capital investments and new debt related to dividend/recapitalization transactions. For example, in a dividend/recapitalization transaction, the newly issued debt increases the net debt, and therefore, releveraging may obscure actual deleveraging.

Similarly, the amount of newly added debt used to finance add-on acquisitions is identified and separately considered in the Kroll CVA Framework so that actual deleveraging can be identified. Likewise, additional equity investments may result in a decrease in net debt but not in deleveraging and thus also should be considered separately.

Is it possible to have deleveraging even when there is no debt? The answer is yes. The Kroll CVA Framework defines deleveraging as organic net-debt reduction resulting from cash flow generated between the acquisition date and the exit or analysis date. When cash is generated and there is no debt, there is either a cash buildup, representing a decrease in net debt (which was negative to begin with and then becomes more negative), or a distribution as a dividend to investors, which is separately accounted for, as discussed earlier.

If additional equity investments are made by new investors, ownership dilution could result and must be reflected in the analysis. Assuming the investment is made at a price equivalent to fair value, we normally assume that there is no value change for the original investors at the onset, as dilution would be offset by the decrease in net debt (e.g., increase in cash).[7] After a period of time during which the value of the enterprise is expected to increase, the original investors would get a smaller piece of a larger pie, with the difference represented by the quantified amount of dilution stemming from the equity infusion.

Ownership dilution also frequently results from equity provided to portfolio-company management to align the interests of management investors. The cost of incentivizing management with stocks or options represents an offset to created value, as the equity-based compensation plan reflects a cost of 'building a better business' or value creation.

[7] *It is possible, especially in the venture capital arena, for a new investor to provide stability and recognition to the portfolio company that is more than the sum of the premoney value and the new investment. Where appropriate, this can be reflected in the analysis.*

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Fundamental sources of value creation

Figure 9 illustrates the effect of 16 value-change drivers. This detail provides a useful communication and discussion tool to potentially illustrate and validate GP influences, particularly where those impacts can be tied to specific initiatives and core competencies of the GP.

Some of these value-change drivers are distinct (i.e., capital markets and deleveraging), while others can be grouped based on their nature (i.e., those that are industry/sector based and the value-change alphas, which we label as unique).

To understand and appreciate the results of our detailed attribution Framework better at a higher, but still meaningful, level, the various value-change drivers are mapped into four categories:

1. Industry/sector
2. Capital markets or beta
3. Deleveraging
4. Unique, or alpha

These four categories of value-change drivers are what we refer to as the fundamental sources of value creation.

It can also be helpful to present up front the results of the aggregation into fundamental sources and then back up the summary analysis with full details. We have presented here the full details first so that the reader can follow the aggregation, but the actual analysis typically presents the attribution by fundamental sources first, followed by the detailed results.

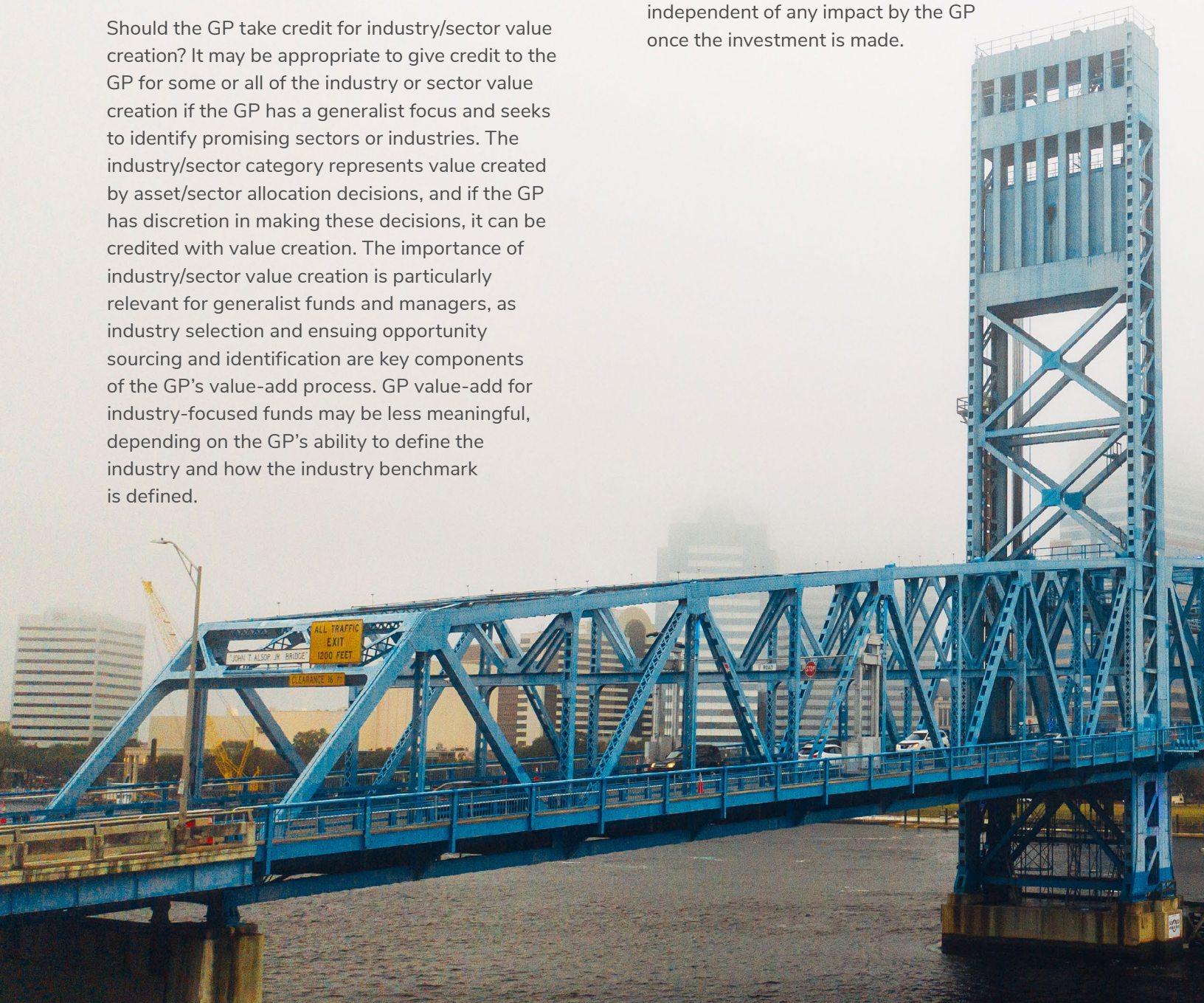
Industry/Sector

Industry/sector value creation consists of those value-change drivers attributable to the performance of the portfolio-company industry benchmark. In total, the industry/sector category reflects the change in value that would have been achieved through investment in the industry benchmark used (i.e., in the underlying companies comprising the benchmark on a weighted-average basis).

Should the GP take credit for industry/sector value creation? It may be appropriate to give credit to the GP for some or all of the industry or sector value creation if the GP has a generalist focus and seeks to identify promising sectors or industries. The industry/sector category represents value created by asset/sector allocation decisions, and if the GP has discretion in making these decisions, it can be credited with value creation. The importance of industry/sector value creation is particularly relevant for generalist funds and managers, as industry selection and ensuing opportunity sourcing and identification are key components of the GP's value-add process. GP value-add for industry-focused funds may be less meaningful, depending on the GP's ability to define the industry and how the industry benchmark is defined.

Capital Markets

Capital markets, or beta, denotes the change in value stemming from the change in the required market rate of return at the enterprise level. Beta here represents asset inflation or deflation as the market-based cost of capital for the industry increases or decreases. While the GP has at least some control of the timing of investments, the value created or destroyed related to capital markets is driven by market conditions independent of any impact by the GP once the investment is made.



Deleveraging

Deleveraging is a very important source of returns. As noted earlier, deleveraging is a function of cash flow generation during the interim period. Deleveraging is manifested through a reduction in debt, an increase in cash balances or some combination thereof.

The performance of the portfolio company in the interim period is unequivocally the ultimate determining factor in deleveraging and can take different paths between the dates when created value is being measured and analyzed. In addition to cash flow from operations, excess working capital reductions and other asset utilization efficiency improvements, as well as the sale of assets (including liquidations), would be expected to contribute to interim cash flows.

Deleveraging does not inherently stem from financial engineering and often simply represents the buildup of cash or reduction of debt because of cash from operations. But, to the extent that financial engineering does create value (e.g., by reducing the company-specific cost of capital), it may be reflected both in past and future results, and could therefore be captured both in deleveraging and in the unique category, discussed next.

Unique/Alpha

Unique, or alpha, value creation represents the aggregate of the several value-change alphas discussed earlier. Alpha here is thus value creation unique to the three aforementioned value-creation sources. We believe that a key aspect of this source of value creation is that it is not derived from interim cash flows (i.e., deleveraging) and is a function of the beginning and ending enterprise values. Thus, the source of value creation actually addresses the question of whether a better business has been built. Alpha here represents value created organically through company-specific factors on an outperformance basis and may very well be indicative of the fundamental GP value-add, which is operational or strategic in nature. Depending on how broadly or narrowly the benchmark industry is defined, the unique or alpha value creation may also reflect the ability of the company or GP to identify and target specific industry segments within a given industry that represent exceptional opportunities.

Value creation by fundamental source
(in millions)

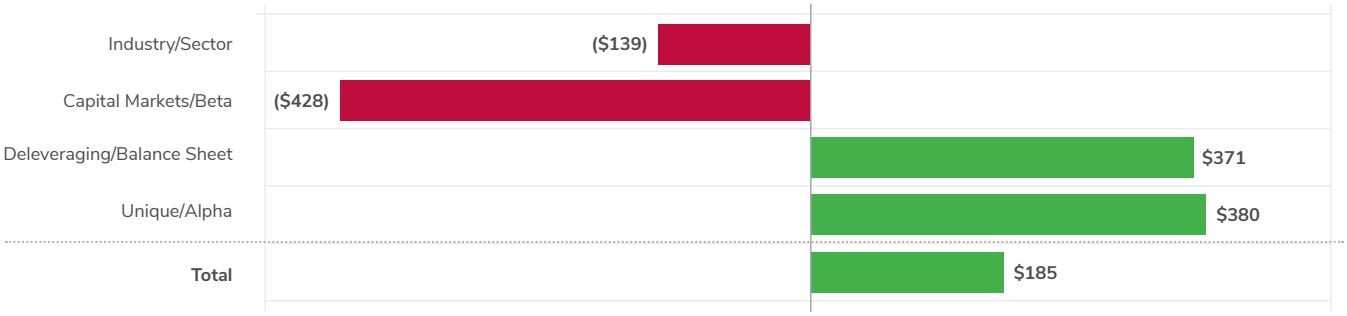


Figure 10: Illustrative Example: Created Value Attributed to Fundamental Sources

Returning to our illustrative example in Figure 10, we observe large negative impacts from industry and capital market factors and positive impacts from deleveraging and unique/alpha factors.

Industry/sector and capital market trends had a clear negative effect on value over this period, reducing value by $139 million and $428 million, respectively. Other than selecting the initial timing of the investment and the industry of the portfolio company, the GP had no effect on the change in value related to these components. Yet, significant value was created through both deleveraging ($371 million) and unique company-specific factors ($380 million), which managed to turn the overall investment slightly positive over a rather challenging time frame.

Thus, when we aggregate the created value in our example, we see a simple but compelling picture of value creation, as well as preservation, during a difficult market period. Unlike the conventional framework, which showed value creation from EBITDA growth and value destruction from lower multiples but offered no way to provide insight as to how much, if any, was related to outperformance or underperformance, the Kroll CVA Framework does provide a clear indication that value creation was far ahead of industry performance and primarily and equally attributable to both deleveraging and initiatives under GP leadership.

Interplay between Industry/Sector and Unique/Alpha value creation

Depending on how the industry is defined, there is clearly interplay between industry and unique value creation. After segregating any transaction-related impacts, the sum of the portfolio-company industry and unique value creation is fixed. If the selected benchmark suggests higher industry value creation than another benchmark does, the unique value creation will be correspondingly lower.

For example, if the industry is very narrowly defined based on the absolute closest comparable companies, we are likely to see less unique value creation as the portfolio company makes up more of the industry. And, where the portfolio company is expanding and taking market share from companies in the same and closely related industries, a broader or more complete measure of the industry should properly identify more of the subject company growth as unique.

There is no "magic bullet" with respect to benchmarking at the portfolio-company level. Often, as in selecting a market-comparable group, developing meaningful benchmarks can be challenging, particularly when it comes to small niche businesses. It is imperative that the benchmark be clearly defined in terms of industry definition. In addition, the use of more than one benchmark (e.g., narrow vs. broad definition of the relevant industry) may provide additional insight into value creation.

Flexibility in segmentation of the analysis

The Framework is also flexible for use with other measures or components of value creation. For example, if the subject company had initiatives to change its customer and product mix and has data to track revenue or margins by segment, the value impacts can be identified individually and then any residual value creation can be distinguished from other factors. The Framework has been used to identify value from many unique value drivers, including postacquisition synergies, new product introductions, changes in customer mix and marketing programs and initiatives. Given the limited granularity of most public data, however, it is often not possible to separate these customized factors into industry- and company-specific components.

This flexibility in segmentation can also be used to break out the value creation from specific ESG initiatives where the data is available. We believe that this type of analysis may be particularly applicable to initiatives related to energy reduction, water conservation, recycling, paper and packaging reduction and employee retention. As with broader value-creation analysis, measuring ESG value creation necessitates the quantification of the financial impacts of ESG efforts in terms of current and future revenue growth, margin improvement, risk and the cost of capital and the full cost of the efforts.

Time frame of the analysis

It would be expected that, at the very least, a CVA analysis would encompass the time period spanning the date from the initial investment to that of either the exit (for realized investments) or a current analysis date (for unrealized investments using a contemporaneous estimate of fair value). For unrealized investment, this may also be performed on a periodic (e.g., annual, semiannual) basis. Because CVA is cumulative in nature, the incremental value changes reflected in the updated attribution analysis (if again performed since inception) must reflect the interim period. Alternatively, the update could encompass the period from the prior analysis date to the current analysis date, and adding the results can provide an attribution analysis from inception to the current analysis date. Last, the analysis can be performed over a discrete time period (i.e., on a before-and-after basis). Using this type of time frame lends itself to situations where certain significant events (such as restructuring, changes in strategy and changes in the management team) represent clear lines of demarcation of how value was created before vs. how it was created after and may provide important insights and additional transparency.

Aggregating across the fund or GP

The CVA results for individual portfolio companies can also be easily aggregated across a fund, GP or in other ways. The sample fund presentation in Figure 11 shows that patterns of GP influence emerge. Just as we saw at the portfolio-company level, the summary of fundamental sources separates the effects of industry and capital markets, which are often beyond the GP's control, from the deleveraging and unique impacts that the GP is quite likely to influence and potentially enhance.

As we saw earlier, the aggregate view can show a respective GP's relative strength across a portfolio of companies (but in other cases, the view may show that value creation is not consistent).

	Created Value from Acquisition Date as Reported (millions)				
	Portfolio Co. A	Portfolio Co. B	Portfolio Co. C	Portfolio Co. D	Total Fund
Industry/Sector	($139)	$88	$106	($253)	($198)
Capital Market/Beta	($428)	($33)	($54)	($121)	**($636)**
Deleveraging	$371	$52	($10)	($3)	$410
Unique/Alpha	$380	$188	$96	$58	**$722**
Total Value Creation	**$185**	**$295**	**$138**	**($319)**	**$299**

Figure 11: Aggregating CVA Results by Fund

CVA Vs. other performance analytics

CVA analysis is complementary to other performance analytics. Returns are generally foremost to investors, and our CVA Framework provides insight into how the returns are obtained. This can be helpful for both successful and less-than-successful investments. In the former case, the Framework can help distinguish between a home run driven mostly by macro factors and one driven more by company-specific performance and GP initiatives. Similarly, a weak return or loss can be the product of negative industry and capital market factors, and company or GP initiative may preserve or further destroy value on top of that. Measures such as an internal rate of return (IRR) or multiple of invested capital (MOIC) may be unrelated to the amounts of unique value created over the investment period, and this is an example of why it is useful to examine multiple metrics.

Unlike an IRR, the CVA results are not time dependent. They show absolute levels of value creation over the analysis period (typically over the investment holding period). And while the CVA results do show whether operational performance was above or below industry achievement, they do not reveal relative investment performance. To see the latter investment performance, we would suggest a public market equivalent analysis, or an analysis of the excess returns of the investment (often referred to as alpha) created on a leverage-adjusted basis.

Like other metrics and analytical tools, the CVA results require careful interpretation and should not be viewed in isolation. Together with other metrics and an examination of the efforts and initiatives of the GP, we believe the CVA results help to further quantify the investment and fund performance of the portfolio company and the GP.

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Observations from CVA analyses to date

As of June 2022, we have completed CVA analyses of 92 PE investments and have made a number of interesting observations from this sample. While we recognize that this is a small sample and that the results reflect both positive and negative self-selection, the observations from our analyses to date provide some interesting insights into certain value creation in PE.

- The sample contains a diverse group of investments representing various time periods, sectors, sizes and regions.
- **74** of 92 investments had overall alpha value creation:
  - Of the 18 with negative alpha value creation, 9 occurred in investments with positive total value creation.
  - Of the 10 investments with negative total value creation, 2 still had positive alpha value creation.
- **Ninety-nine percent** of the investments had some type (revenue change, margin change or growth profile change) of positive alpha.
- **24** investments showed alpha from unique revenue growth, margin improvement and growth profile.
- **43** investments showed alpha from two of these areas.
- **24** investments showed alpha from one of these areas.
- High-growth companies typically have a positive revenue-growth alpha and a negative margin alpha.

The historical approach does not identify alpha

As we explained earlier, the historical approach does not identify alpha, and this is confirmed by the observations to date. Based on a sample of the 92 investments analyzed, the correlation between EBITDA-driven value change and Created Value Alpha is very low (R^2 = 0.10). The distribution is plotted in Figure 12, and there is almost no relationship between the magnitude of EBITDA-driven value change and levels of Created Value Alpha. Other factors drive EBITDA besides alpha, and other factors drive alpha besides EBITDA.

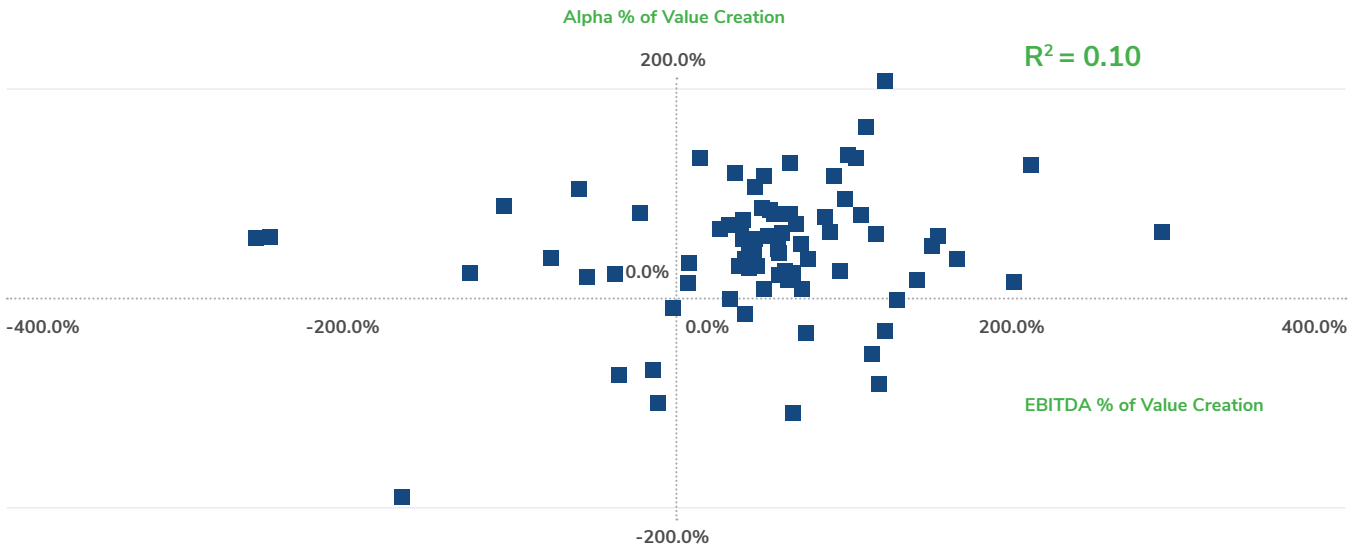

Figure 12: Correlation of Alpha % of Value Creation and EBITDA % of Value Creation

We also looked at each investment one at a time and found that for approximately 50% of the sample, EBITDA improvement as a percentage of total value creation was not predictive of Created Value Alpha, suggesting that the industry convention as applied by many investors is misleading.

Furthermore, even with the adjustment of EBITDA-driven value change for add-on acquisitions, the aforementioned correlation improves only modestly (R^2 = 0.24), which suggests again that EBITDA improvement in and of itself is unlikely to be a reliable indication of Created Value Alpha.

While the sample size of the study group is small and reflects positive and negative self-selection, the poor correlation between EBITDA-driven value change and Created Value Alpha provides further evidence of the limitations discussed earlier and raises a red flag with respect to using EBITDA improvements as a primary factor in the evaluation of a fund manager.

Alpha is independent of IRR?

We also observe that the percent of value creation from unique/alpha is uncorrelated with IRRs (R^2 of 7%). Created Value Alpha measures performance on an outperformance basis, and an investment can have high alpha (excess returns) with high or low returns depending on industry or benchmark performance. This confirms that alpha can be independent of market performance, and that neither industry performance nor deleveraging likely reflects the ability of the GP to build a better business.

While a good measure of total returns, the IRR in and of itself is not necessarily indicative of GP value-add, which can exist in both up and down markets. But, while not correlated with alpha, the investments with top IRRs frequently have significant Created Value Alpha. The highest quartile IRR investments in our sample showed strong alpha and moderate industry performance.

This data was not normalized for vintage or industry, however, and we would expect to see some correlation of IRR and alpha if we controlled for those factors.

Better, not bigger

If we look at our analyses to date in the aggregate, the results (see Figure 13) suggest that the largest value drivers are the margin change alpha, the change in market size (industry revenue growth) and the change in growth profile alpha (representing multiple improvement in excess of the industry benchmark).

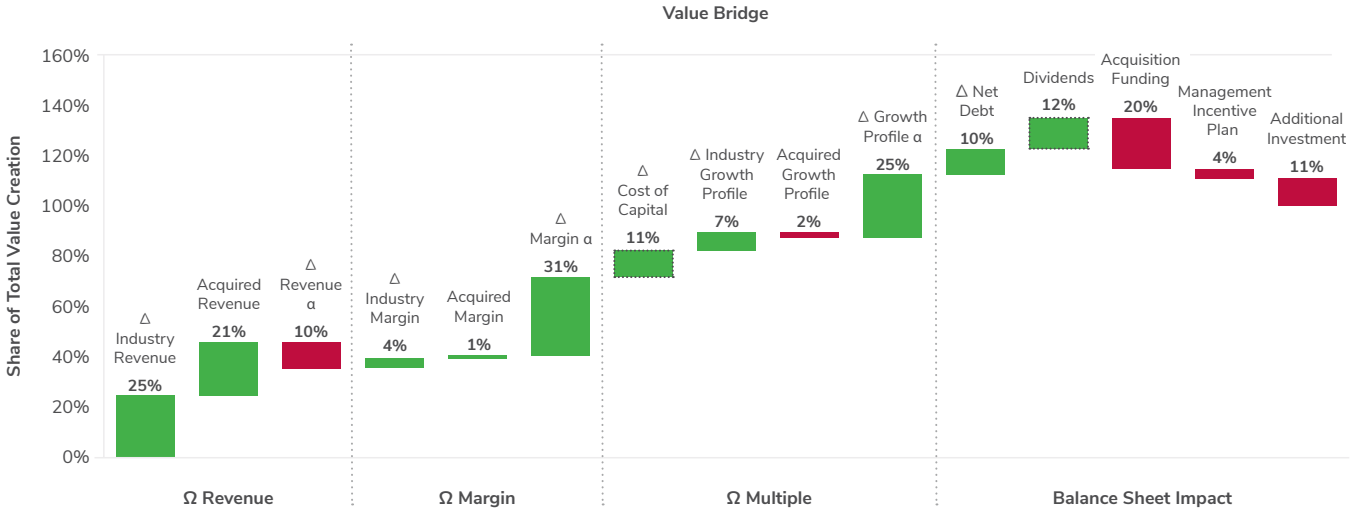

Figure 13: Attribution Detail for Aggregate of Studies to Date

These aggregate results suggest that the GPs represented in our sample appear, for the most part, focused on building better businesses rather than building bigger businesses, and the better businesses are often the result of business transformations that result in dramatic multiple improvement.

While the sample does include growth investments, these do not dominate the aggregate results.

Rather, the deals that dominate our sample seem to target the quality of revenue, including the effects on margins and future growth.

If we aggregate the results into our four fundamental sources, the largest value drivers are unique/alpha and industry/sector factors, and the magnitudes of these two categories are similar (see Figure 14).

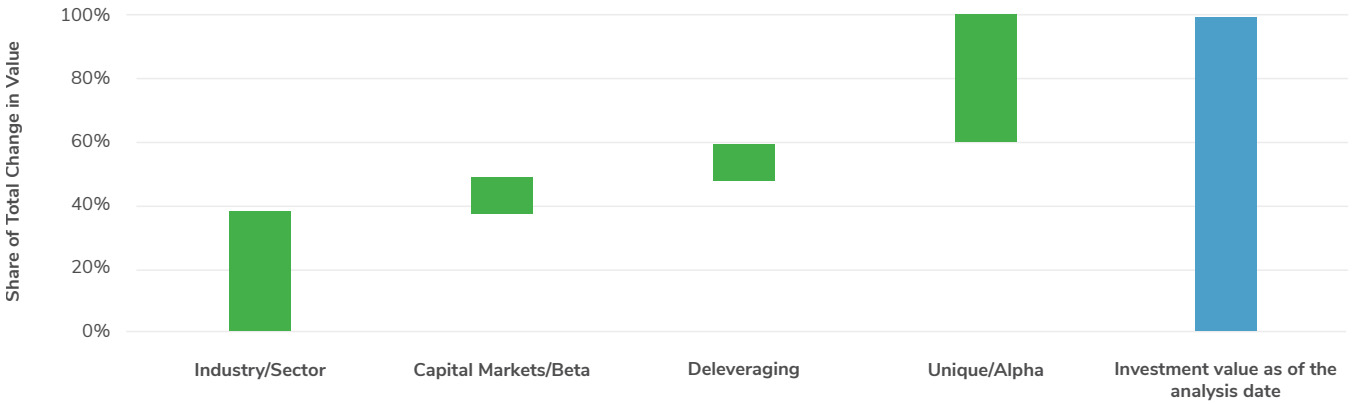

Figure 14: Fundamental Sources of Value Creation for Aggregate of Studies to Date

Headwinds often spotlight alpha

We also observe that investments with the highest percentage of alpha often show weak industry performance. This often reflects industry headwinds, which is why EBITDA can be a weak indicator of alpha. In circumstances of poor industry performance, the Created Value Alpha often represents preservation of value and is likely to be a larger percentage of the total value creation.

The size of the deal matters

Ranking our sample by deal size, we observe that the smaller deals are often the most driven by unique value drivers, while the larger deals tend to show major influences from both industry and unique factors.

The smaller deals often excel in gaining share, but at the expense of margins, while large firms more often improve margins at the expense of share. Investments in small companies also appear most likely to exceed industry growth profile movement, which probably reflects a greater propensity to improve the multiple via a transformation of the business.

Overall, we observe that value is created in different ways in small and large investments, and the historical approach does not address these different modes of value creation.

Conclusion

CVA sits in the nexus between GP and LP interests. GPs need to demonstrate how their proven capabilities differentiate them in the market. On the other hand, LPs need a transparent framework and methodology to evaluate how returns are generated. While aggregate returns are, and undoubtedly will continue to be, of primary concern for investors, how a GP creates value is increasingly important. Generation of returns through leverage is, for all practical purposes, expected by investors and is not viewed as a differentiating factor. In contrast, the creation of value through building better businesses is a widely recognized and expected differentiating factor in making capital allocation decisions.

Attributing value creation with sufficient granularity to support the existence of GP value-add (operational or strategic) is not a simple exercise and needs to go beyond the historical approach of merely looking at changes in EBITDA, multiples and net debt. CVA complements more traditional PE fund and investment analytics. It extends the quantitative aspect of fund manager evaluation by enhancing transparency to address key issues, including the following:

- Sources of value creation: macro vs. investment specific
- Effect on value creation from initiatives driven by GP leadership
- GP strengths and weaknesses related to industry, geography and deal teams, regardless of vintage

Observations from our CVA analyses to date confirm that the historical approach does not identify alpha and should be substituted for a more robust analysis that includes benchmarking and segregation of add-on acquisitions.

Attribution analysis is not simplistic, and it requires effort. However, if done properly, it can substantially enhance transparency with the value-creation process and as a result can be a highly effective due diligence and communication tool.

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