Limitations of the Value Bridge and How LPs can Better Assess Value Creation

THE ILPA WHITE PAPER SERIES



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FOREWORD

With increased competition for access to best-in-class managers, LPs must continue to sharpen their evaluations of GP track-records to ensure they're partnering with managers that can meet their investment goals. The conventional Value Bridge, while efficient to utilize during these evaluations, has its limitations. In this (inaugural) installment of the ILPA White Paper Series, we hope to spotlight these limitations and provide clear, actionable ways for LPs to mitigate them.

I'd like to thank the authors, PJ and George, as well as their colleagues from Duff & Phelps, for producing this outstanding content, exclusively for ILPA members. They've been thoughtful and collaborative partners during the development of this project. I'd also like to thank the ILPA Research & Benchmarking Committee for their comprehensive feedback and guidance.

For any questions about this paper, or to suggest future papers, please don't hesitate to contact me.

Sincerely,
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DISCLAIMER

This installment of the ILPA White Paper Series (Paper) reflects the views of the participants involved in regards to certain fund diligence and GP track-record analysis best practices. No limited partner should utilize this Paper as a substitute for its own determination as to what information such limited partner will need or desire with respect to any particular investment.

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OVERVIEW

ATTRIBUTION: ASSIGNMENT TO A CAUSE OR SOURCE

Superabundant capital and a multitude of choices among fund managers have brought a critical need for limited partners ("LPs") to better assess value creation and ultimately identify those general partners ("GPs") who provide sustainable value-add through building better businesses. Attribution analysis addresses this issue by assessing how value is created.

In this paper, we discuss (1) the purpose and importance of attribution analysis, (also referred to as "created value attribution,"); (2) the Value Bridge, or historic industry convention for attributing created value; (3) the limitations of the conventional framework and its traditional application; and (4) the steps that may be taken in order to address the limitations and flaws of the conventional approach.

By understanding the limitations of the Value Bridge and its potential enhancements, we hope that LPs will better apply and interpret attribution analysis in order to identify private equity GP's with a record of persistent value-add, and in doing so ultimately make better allocation decisions that improve their portfolio performance.

Attribution analysis is closely related to the search for Alpha, i.e. consistent outperformance by GP's, but the industry convention for attribution does not really identify Alpha. Our objective here is to highlight for LP's a more useful application of attribution analysis, including steps toward identifying Alpha, by understanding the limitations of the conventional framework and by considering and implementing enhancements to the framework. These enhancements include:

- Benchmarking of market / industry / sector performance
- Segregation of organic growth from that attributable to add-on acquisitions
- Understanding deleveraging vs. The change in net debt
- Understanding the context of changes in value drivers
- Utilizing value attribution in conjunction with other analytics and data

PURPOSE AND IMPORTANCE OF CREATED VALUE ATTRIBUTION

While overall returns may be expected to remain the primary criteria for manager evaluation, how those returns are achieved has become and will continue to become more critically important in manager selection, "re-up" decisions, and overall allocation decisions. Investors expect value beyond financial engineering and market returns for fees paid to managers. The crucial question is whether a GP has been accretive to returns through operational and/or strategic value-add.

A GP's ability to source, structure and execute transactions is considered essential to creating value but is increasingly viewed as insufficient on its own to justify private equity fees. Investors seek additional value creation on a post-acquisition basis – that is – value creation through "building better businesses." Hence, the concept of "operational value-add" has come to fore. Operational and/or strategic value-add that is derived through a GP's institutional core competencies, represents a component of value creation that is sustainable over industry and capital market cycles and is, at least in theory, replicable with respect to future investments.

PRIOR STUDIES IN CREATED VALUE ATTRIBUTION

Prior studies in enterprise-level created value attribution include INSEAD [1] and Duff & Phelps [2]. INSEAD refers to and discusses a number of other academic studies but makes the observation that while these other studies highlight drivers of value change in private equity investments, none provide a comprehensive attribution of created value at the enterprise level.

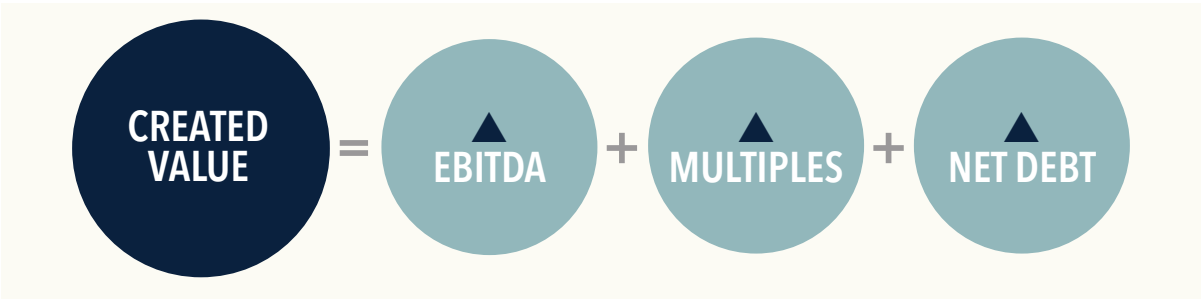
[1] Value Creation 2.0: A Framework for Measuring Value Creation in Private Equity Investment, INSEAD Global Private Equity Initiative, February 2016.

[2] Created Value Attribution: Assessing How Value Is Created in Private Equity Investments, Duff & Phelps Whitepaper, P.J. Viscio and George Pushner, May 2014.

The Conventional Framework

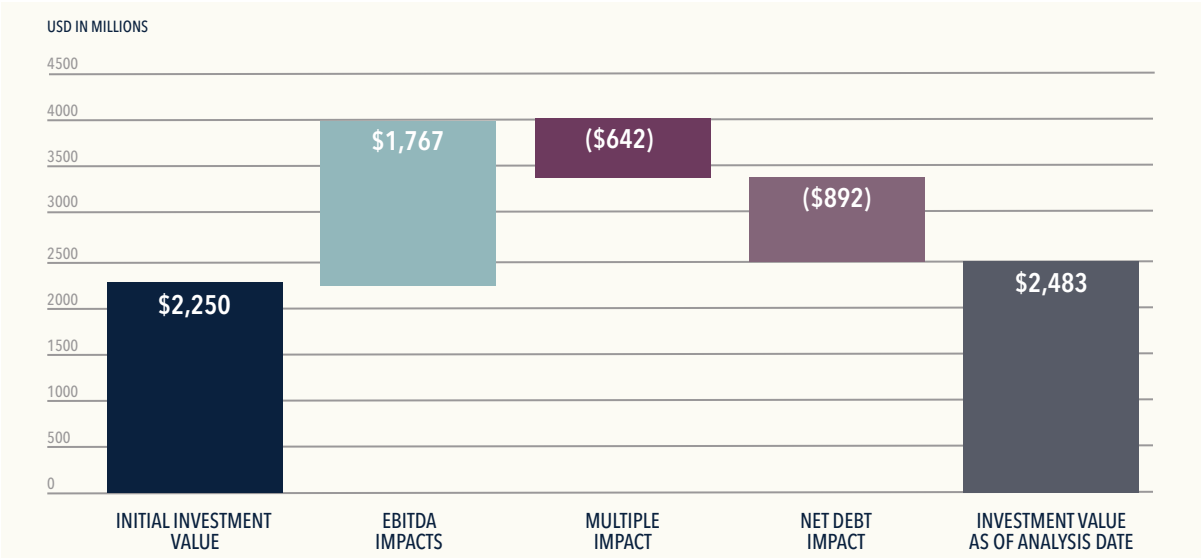
The private equity industry generally employs a fairly simplistic approach in assessing the attribution of created value. The conventional framework, also referred to as the "Value Bridge," attributes changes in value to three "drivers:" the change in EBITDA, the change in the multiple, and the change in "net debt."

Figure 1: Private Equity Industry Convention for Attributing Created Value



The methodology of the conventional framework is to calculate the contribution to value change for each "driver" by changing just one variable, i.e. "driver," at a time while holding the others constant. The results are typically presented in a bridge diagram.

Figure 2: Illustrative Example of Conventional Framework



Here we see an increase in EBITDA, a decrease in the EBITDA multiple, and an increase in net debt, which combined have a net positive contribution to value change. The "conventional wisdom," which we understand to be frequently but not necessarily universally applied to the Value Bridge framework, is that value creation through increases in EBITDA are better indications of GP value-add than those derived through multiple expansion as (1) increases in EBITDA are believed to be reflective of operational improvements at the portfolio company, and (2) multiple expansion is essentially considered to be a "macro" effect, driven in large part by industry and capital market factors. Without further detail, decreases in net debt would generally be considered as pay down of debt (a component of financial engineering).

Limitations of the Conventional Framework and Flaws in its Common Application

The conventional framework does provide some information regarding the relative contribution of changes in value due to changes in EBITDA, changes in the multiple, and changes in net debt. However, it does not provide any real insight as to how value is being created, i.e. through operational improvements, strategic value-add, industry/sector exposure, or "macro factors."

EBITDA IMPACTS

While increases in EBITDA may often be the result of operational improvements, other factors not related to operational improvements can also lead to increases, or decreases, in EBITDA.

Changes in EBITDA often reflect factors relating to industry/sector events, trends and cycles. Such factors include changes in aggregate demand, changes in market size, changes in the competitive environment, changes in the cost of inputs (labor, materials, etc.), changes in the regulatory environment, as well as changes in the overall economic environment. While these factors impact the operations of a portfolio company, they are not in the direct control of the GP. However, how the company responds to such factors is.

Another factor is add-on acquisitions. Provided that the acquired business is EBITDA-positive, an add-on acquisition may appear to result in increased value based on the addition of incremental EBITDA of the acquired business. However, in such case, EBITDA is being purchased, not created organically, and thus no value is necessarily created as cash is being exchanged (i.e. through an increase in net debt) for revenue, margin, and future growth.

Add-on acquisitions can be complex to analyze. The key aspect is to identify the impact of the add-on to EBITDA and the multiple at the acquisition date, so that subsequent changes to EBITDA and the multiple, including those contributed by the acquired business as well as synergies associated with any acquisition, can then be identified as organic in nature.

Generally, we would assume that add-on transactions are consummated at fair value, and, while we recognize that there is incremental value creation through setting the stage for the realization of expected and potential synergies (some or all of which may or not be reflected in the transaction price), we would assume there is no instantaneous measurable value creation from the transaction itself. But post-acquisition, we would expect to see incremental value created, reflected in subsequent fair value estimates, with successful integration and realization of synergies beyond those reflected in the deal price.

Additionally, where it is possible to create value in an add-on by purchasing the add-on business for less than fair value (i.e. a bargain purchase), such a gain, that is, the difference between the purchase price and fair value, should be reflected in an attribution analysis.

MULTIPLE IMPACTS

In regards to changes in the multiple, the key drivers of such changes are (1) changes in the cost of capital or required rates of return, which are a function of capital market factors; and (2) changes in growth profile, i.e. the trajectory of expected future cash flows.

Growth profile changes are in turn a function of both industry/sector and company-specific factors. Without separating the multiple into cost of capital, and industry and company specific growth profile components, it is difficult to judge whether multiple expansion represents value creation, or if multiple contraction is really a negative. A change in the multiple can be driven by "macro" factors, but we have also frequently observed instances where the underlying business of the portfolio company has been transformed, resulting in unique multiple expansion, while the overall industry multiples have contracted.

As discussed above, acquisitions may also complicate the analysis with respect to looking at the change in multiple. For example, is not unusual for lower-multiple businesses to be acquired by higher-multiple businesses. And there may be various reasons why the acquired business was acquired at a lower multiple relative to the acquiring company, including lower growth and a higher risk profile. Assuming the acquired business was acquired at fair value, the add-on of a low multiple business would result in an overall contracted multiple for the overall business. Likewise, the acquisition of a higher multiple business would result in an apparent multiple expansion. Without taking these potential factors into account, any inferences or conclusions as to changes in growth profile may be misleading.

NET DEBT IMPACTS

Simplistically looking at changes in net debt can also mislead investors using the conventional framework. While this whitepaper is predominantly focused on value change at the enterprise level, we also note that a number of factors other than the pay down of debt can impact the change in net debt and should be reflected appropriately in any attribution analysis. For example, in leveraged buyout investments, the primary driver of net debt change would usually be deleveraging. Absolute organic deleveraging is a function of operational cash flow and investments in fixed and working capital over the interim investment period, and has a direct contribution to value creation. In contrast, relative deleveraging, such as a decrease in leverage ratios due to an increase in EBITDA, does not have a direct impact on value creation.

Other components of the change in net debt can include acquisition funding, dividends, and additional debt and equity financings. Given the variety of balance sheet changes that can occur there is not always a direct impact on value creation as these changes can offset each other. For example, the new issuance of equity, representing a "capital infusion" (i.e. as a necessary result of negative operational cash flow), would initially result in a decrease in net debt stemming from the cash proceeds from new equity. While this does reduce leverage, it would have no direct effect on value creation as the increase in cash would equal the increase in equity. Similarly, if the cash is used to retire debt, this will also reduce leverage but is again not directly creating value. And if the cash is deployed or invested in capital expenditures, net debt and leverage would then increase, but we still see no direct impact on value at the time of deployment or investment. While these examples would technically result in a change in leverage, we consider them to be inorganic, i.e. transactional, in nature as they are not derived from operational cash flow and do not result in immediate value creation at the investment level.

In summary, the limitations of the conventional Value Bridge and pitfalls in the its application are (1) a reliance on changes in EBITDA as a measure operational improvement when not adjusted for acquisition and industry/sector impacts; (2) the discounting of multiple expansion (and, perhaps, contraction), as an entirely "macro," non-company-specific contribution to value change; and (3) the variety of value impacts that can derive from balance sheet impacts.

Alpha vs. EBITDA Improvement

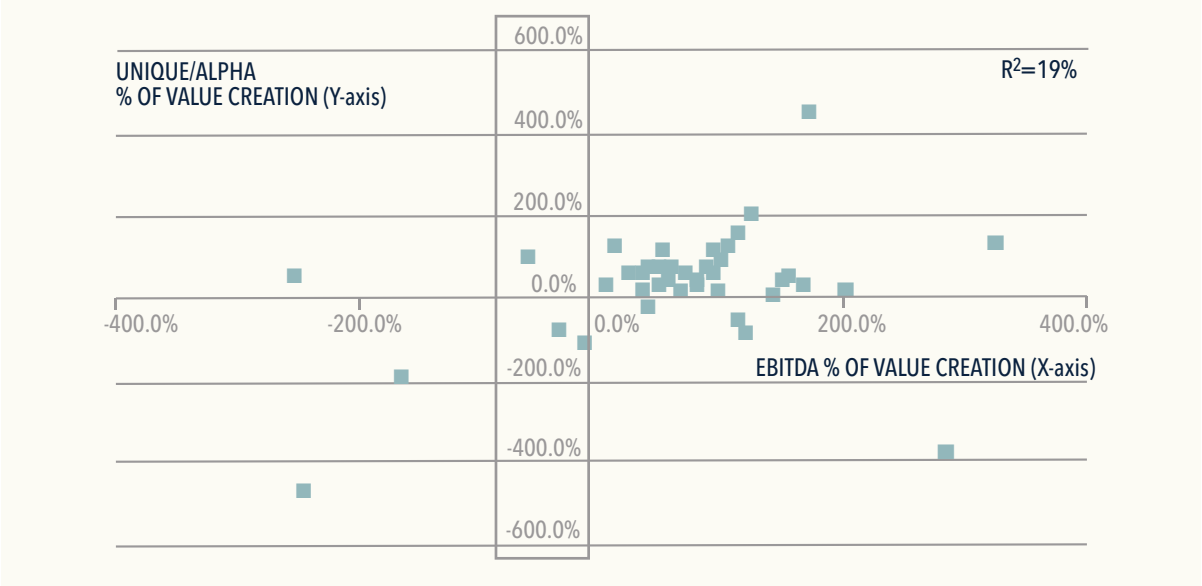
DEFINING ALPHA

In regards to fund manager evaluation, the concept of alpha ("Alpha") is central. We define value creation Alpha as organic value creation on an outperformance basis relative to an appropriate industry benchmark. If the aim is to assess GP value-add (in the form of operational value-add, strategic value-add, or some combination thereof), the benchmark would be industry-based, relative to the portfolio company, and applied to changes in the value at the enterprise level and the underlying drivers of those changes. Overall increases in value, and those derived from increases in EBITDA, are not necessarily, and are even unlikely, to be equivalent to Alpha.

DOES THE VALUE BRIDGE MEASURE ALPHA?

Research by Duff & Phelps based on the application of its created value attribution framework indicates a very weak relationship between increases in EBITDA and Alpha value creation, defined as organic and on an outperformance basis. Based on a sample of 45 investments analyzed across several sponsors [3], the correlation - between EBITDA-driven value change and Alpha is very low (R^2 = 0.19). The distribution is plotted below, and while there is a positive relationship, the majority of differences in Alpha creation are not explained by differences in EBITDA improvement. Or more simply, there is little relationship between the magnitude of EBITDA-driven value change and levels of Alpha. Other factors drive EBITDA besides Alpha and other factors drive Alpha besides EBITDA.

Figure 3: Correlation of Alpha % of Value Creation and EBITDA % of Value Creation Based on Duff & Phelps Created Value Attribution Analyses



Adjusting EBITDA-driven value change for add-on acquisitions only improves the correlation modestly (R^2 = 0.39), which suggests again that EBITDA improvement, in and of itself, is unlikely to be a reliable indication of 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 Alpha provides evidence of the limitations discussed above and raises a red flag with respect to utilizing EBITDA increases as a primary factor in the evaluation of a fund manager without a more comprehensive understanding of value creation.

So we see both in theory and practice that the Value Bridge is generally not effective at identifying Alpha. But with some additional steps and refinement, an enhanced Value Bridge can potentially provide some useful indication of Alpha and insight into value creation.

[3] Based on Created Value Attribution analyses completed by Duff & Phelps since 2012.

Practical Steps to Address the Limitations of the Conventional Framework

While the conventional framework may provide little or no insight into whether or not there is Alpha value creation and is therefore of limited utility in and of itself, it does represent the first step to more comprehensive and meaningful evaluation of value creation, and there are a number of ways to make the results of the analysis more insightful.

A more robust attribution analysis should seek to quantify Alpha value creation by measuring performance of the portfolio company relative to that of an appropriate industry benchmark, separating the impact of add-on acquisitions, focusing on more specific value change drivers, and examining actual organic deleveraging.

BENCHMARKING

Alpha value creation, as defined herein, is organic in nature on an outperformance basis. A key step is to compare the enterprise level value change for the portfolio company to that of an industry benchmark (again, assessing value change at the enterprise level). The appropriate comparison is to assess how much value would have been created if the changes in revenue, EBITDA, and multiple of the portfolio company had tracked those of its industry.

For example, if the subject company grew its EBITDA from $100m to $200m and industry data suggests that peer companies increased EBITDA by 25% over the same period, one could say that 25% of EBITDA-based value creation came from industry or market movement and 75% was unique or likely to contribute to Alpha.

A similar analysis can look at the impact of market multiples vs. the implied multiples based on performance of the subject company. For example, if peer companies had an increase in multiples of 2x over the investment period and the subject company realized a 3x improvement over its ownership period, then approximately 33% of the value creation due to multiple expansion appears to be unique or Alpha.

Developing benchmarks for comparison purposes is often challenging, particularly with respect to small, niche businesses, and is a somewhat subjective exercise. It is not dissimilar to a valuation analysis, as it requires judgement with respect to the selection of the benchmark(s).

As a practical matter, we would recommend utilizing a set of publicly-traded market comparable companies. First, information on those companies is readily available. Second, such companies would in theory, have comparable risk and return profiles and can be utilized to estimate the relative value of the portfolio company essentially through benchmarking value and performance, including expectations of future performance. Third, should an investor desire to have exposure to the same type of opportunity and risk as that of the particular portfolio company, a market comparable set represents a readily investible alternative or the opportunity cost of the private investment. And lastly, such comparable companies have often been identified already for use in the manager's quarterly valuation process.

Utilizing a comparable public company benchmarking analysis will indicate the amount of portfolio company value that would have been created based upon the performance of the industry. Differences between actual portfolio company performance and the benchmark performance would then represent outperformance, or underperformance.

INSEAD notes that such benchmarking utilizing a group of comparable companies, rather than employing broad metrics of industry performance or a single operating company, is in line with corporate finance valuation best practice [4]. Such benchmarking can also be thought of as a specialized, highly bespoke public market equivalent ("PME") analysis.

In developing and applying such analyses, there are additional considerations. First it should be kept in mind that value changes for both the portfolio company and the industry benchmark include asset inflation or deflation as market rates of return go up or down over the interim period. We refer to these as "capital market effects" or "Beta."

Beta represents a source of value change clearly not attributable to the fund manager, and ideally, the Beta can be separately quantified and removed from the market and company specific multiple impacts. But in our experience, Beta is not a major driver of value change in the overwhelming majority of cases that we have observed to date.

[4] Value Creation 2.0, p. 16.

Another consideration in benchmark development is that some of the public companies that would comprise an industry benchmark themselves have add-on acquisitions, which would overstate industry performance in terms of revenue and EBITDA growth, as well as value change (depending on how they are financed). If possible, adjustments should be made, utilizing the company's disclosures on acquisitions, to remove estimated impacts of the acquisitions. If a company has grown through acquisition of very small businesses (e.g. "mom & pops") it is typically not possible to obtain sufficient details to make such adjustments. In these cases, we would recommend utilizing other data sources to estimate the industry revenue impacts, (e.g. using industry market size data to substitute for overstated industry benchmark revenue).

SEPARATING ORGANIC VALUE CREATION

Though sometimes challenging, it is also important to estimate organic value creation after adjusting for add-on acquisitions. As a starting point in estimating the value change from add-on acquisitions of the subject portfolio company, we would recommend beginning with an estimation of the total enterprise value from all acquisitions and deducting it from total value change to arrive at organic value creation at the enterprise level (and making a similar adjustment to net debt to reflect the cost of the add-ons). As a result, the acquisition is initially neutral in terms of value creation (the gains in revenue, margin and growth are normally offset by the acquisition cost) but any subsequent improvements, including "multiple arbitrage" and synergies beyond those reflected in the acquisition price, are reflected as organic value creation. And this resulting organic value creation is then easily compared to that of the benchmark to measure outperformance or underperformance.

UNDERSTANDING VALUE DRIVER DETAIL AND CONTEXT

Quantifying the amount of value change contributed by individual drivers such as industry and company specific revenue growth or industry and company specific margin change requires not only more effort but considerably more information. Assuming sufficient information is available, the methodology should comport to the general approach of attribution analysis, i.e. changing one variable at a time. For overviews of created value attribution based on more detailed assessments of value drivers, see INSEAD[5] and Duff & Phelps[6].

A better understanding of value creation can also result from proper interpretation of the changes in the value drivers. This is especially important in understanding industry and company specific multiple expansion. For example, the execution of a successful growth strategy would result in significant EBITDA expansion. But as growth has been achieved, growth profile often returns to a more "normalized" level, resulting in multiple contraction. Similarly, multiple expansion may occur with compressed margins (with expected recovery) as well as with increases in growth profile resulting from growth initiatives, which often have an initial negative impact on EBITDA. To better understand multiple impacts, it is important to examine whether the changes in multiples reflect changes in enterprise values, performance (revenue or EBITDA), or both.

[5] Value Creation 2.0: A Framework for Measuring Value Creation in Private Equity Investment, INSEAD Global Private Equity Initiative, February 2016.

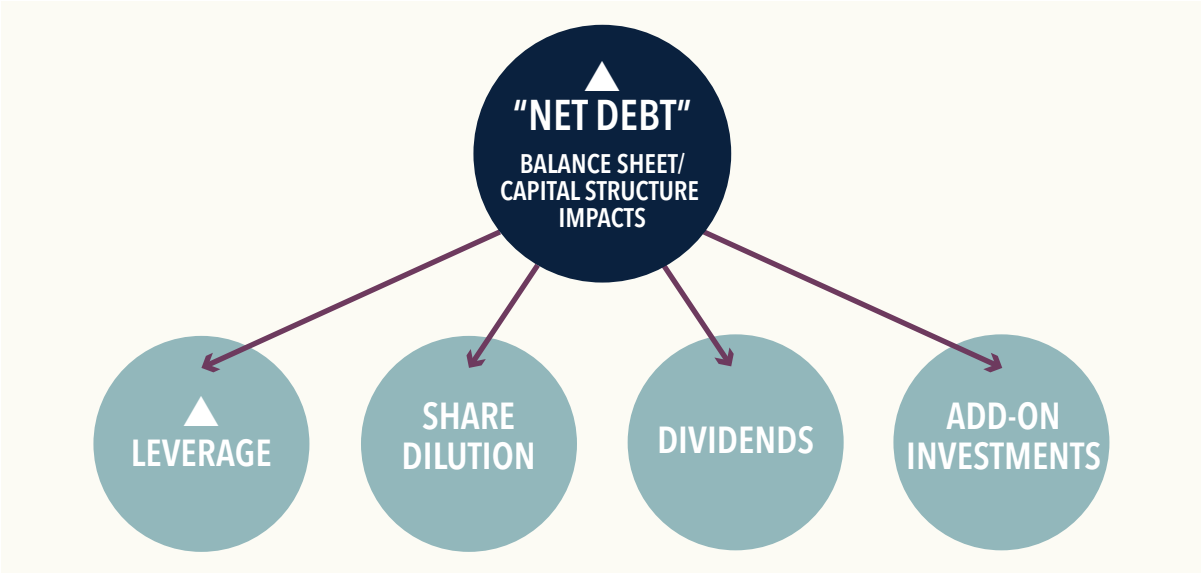
[6] Created Value Attribution: Assessing How Value Is Created in Private Equity Investments, Duff & Phelps Whitepaper, PJ Viscio and George Pushner, May 2014.

UNDERSTANDING DELEVERAGING

With respect to changes in net debt, all balance sheet and capital structure changes impacting net debt should be taken into account in order to determine or estimate the amount of organic deleveraging.

Deleveraging should represent investment level value creation, such as a pay down of debt through cash flow from operations, in contrast to components of net debt changes that are "transactional" in nature and do not contribute to value creation. For example, a "transactional" change such as a leveraged recapitalization, where additional debt is offset by a cash dividend, does not really represent deleveraging, as described herein, or value creation. Another similar example would be additional debt issued to finance an add-on acquisition. In that case, cash is exchanged for EBITDA and expected growth. While the new debt in this case does impact the change in net debt, it should have no impact on actual deleveraging, as described herein. But if we fail to separate the debt or cash used to finance an acquisition, we may grossly understate the true organic deleveraging.

Figure 4: Breakout of Potential Balance Sheet and Capital Structure Impacts



INTERPRETATION

It is also important to interpret the results of both the conventional framework and more advanced analyses carefully. We discussed earlier the common biases in interpreting EBITDA and multiple impacts in the conventional framework.

It is especially helpful to understand whether industry and company multiple expansion is actually the result of positive developments (or if multiple contraction is the result of negative ones). It is also important to avoid a narrow interpretation in understanding Alpha value creation. Note that any Alpha value creation is positive as it represents value creation on an outperform basis. In certain instances, value creation can be logically sacrificed in one area to increase global value, such as in giving up unprofitable customers and market share to improve margins, or sacrificing a significant amount of margin to achieve transformational growth.

USE IN CONJUNCTION WITH OTHER ANALYTICS AND DATA

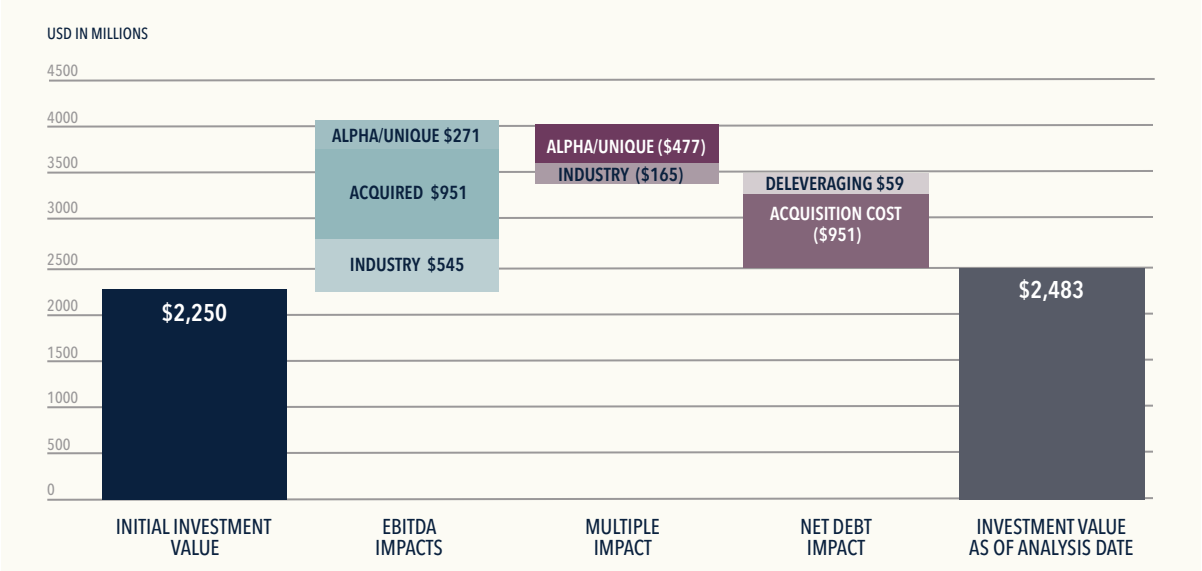
It is also important to interpret created value data in the context of other data, both qualitative and quantitative. Returns are often paramount in the investment world, and combining created value analysis with other performance analytics such as the Internal Rate of Returns ("IRR") and Multiple of Invested Capital ("MOIC") can add critical context and color.

Considering more qualitative data such as narratives addressing the initiatives of the subject portfolio company may also provide critical context to interpret and confirm results of the attribution analysis.

Sample Results With Some Enhancements

Building upon Figure 2, but with some of the enhancements mentioned in the prior section, we start to see some real transparency into value creation (and destruction).

Figure 5: Illustrative Example of Conventional Framework with Enhancements



A conventional Value Bridge analysis would suggest a good story, with EBITDA impacts almost as large as the initial investment value, but offset somewhat by multiple contraction and an increase in net debt. But when benchmarking and the impact of acquisitions, including the cost of the acquisitions, are considered, we see a very different story: Alpha on an organic, outperform basis is actually negative (sum of $271M and ($477M)), although it is offset slightly by some positive deleveraging after we recognize the acquisition cost. So we observe directly here an example of how the conventional application of the Value Bridge can fail when EBITDA improvement is significantly driven by an add-on acquisition.

Other Considerations

It is also important to note that even with enhancements, value attribution has limitations. It does not typically identify, for example, what individual or group is responsible for value creation. The value creation identified may be due to efforts of the portfolio company management or the GP or both or neither. And attribution analysis is usually of limited, if any, value in evaluating early-stage venture companies, particularly before there is any revenue. And, of course, the analysis of one or just a few investments for any GP does not necessarily imply consistent value creation that can be repeated in future investments.

Conclusions

Attribution analysis addresses the critical question of how value is created and can ultimately help identify GP's who provide sustainable value-add through "building better businesses." Unfortunately, the conventional framework for value attribution provides a very narrow view of how value is created, as it is limited by a lack of quantification of industry performance and acquisition inputs. The conventional framework does not measure Alpha, as defined as organic value creation on an outperformance basis, and is therefore of limited value in identifying GP's that consistently provide operational and/or strategic value-add.

Ideally, created value attribution should be based on a detailed value driver analysis that ultimately quantifies Alpha as defined herein. While data limitations often prevent LPs from directly calculating such an attribution, one can improve upon the conventional framework with several key steps:

1) Benchmark market / industry / sector performance: based on the performance of a group of comparable companies or a broader index or ETF, one can estimate the share of value creation that represents Beta or industry performance.

2) Segregate growth from add-on acquisitions: starting with an estimation of the total enterprise value from all acquisitions and deducting it from total value change one can arrive at organic value creation at the enterprise level (and making a similar adjustment to capital structure changes to reflect the cost and financing of add-on acquisitions). The resulting organic value creation can then be compared to that of the benchmark to measure outperformance or underperformance.

3) Estimate deleveraging, as described herein, rather than the change in net debt: all balance sheet and capital structure changes impacting net debt should be taken into account in order to determine or estimate the amount of actual deleveraging. Deleveraging should represent investment level value creation, in contrast to components of net debt changes that are "transactional" in nature and do no contribute to value creation.

4) Interpret the attribution results carefully and understand the context of changes in value drivers.

5) Utilize in conjunction with other analytics and data: it is important to interpret the results of created value attribution analysis in the context of both qualitative and quantitative data. Other performance analytics such as IRRs and MOICs can add critical context and color, and looking at more qualitative information such as the initiatives at the subject portfolio company may also provide important context to interpret and confirm the results of the attribution analysis.

The conventional framework is an important first step in value attribution, but it may very well lead the user astray. The conventional framework can be significantly improved by utilizing the concepts above, and thereby providing LPs with greater transparency, visibility and insight into value creation.



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