DUFF & PHELPS

Protect, Restore and Maximize Value

M&A INSIGHTS

The Robustness of Returns to Private Equity Investors

April 3, 2020

Analysis #1: Private Equity Can Likely Preserve ROI by Extending Holding Period

NEW ENVIRONMENT: Due to the recent worldwide spread of COVID-19 and resulting sharp decline in economic conditions, private equity investors and family offices have been forced to re-evaluate their current positions to better understand the broader impact of the outbreak on the financial performance of their investments and on their expected returns.

QUESTION: What will private equity investors do with their current investments in this uncertain and challenging environment?

HYPOTHESIS: **Private equity sponsors will be able to extend holding periods to preserve cash-on-cash return on investment ("ROI").**
Potentially obvious to some, private equity sponsors are already considering how long to extend the holding periods on their portfolios given the downturn to allow time for performance to stabilize before exiting.

ANALYSIS: To test this hypothesis, Duff & Phelps performed a scenario analysis for a hypothetical company to illustrate the impact that the spread of COVID-19 could have on a private equity sponsor's ROIs and internal rates of return ("IRRs") in the new environment relative to "pre-COVID-19" return expectations. A summary of the scenarios and results are presented on the following pages.

ANSWER: **Our results validate our hypothesis. ROIs can be preserved–even when IRRs fall–by extending hold periods until the financial performance of portfolio companies stabilizes and market conditions return to "normalcy".**

Summary of Scenarios Tested – U, V, L, V+

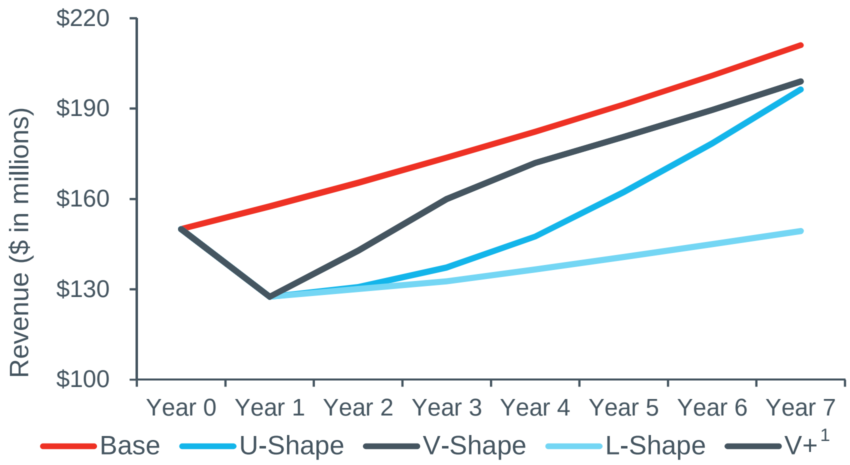
- The following scenarios relate to a hypothetical investment in 2019 (Year 0) by a private equity sponsor at a valuation of 9.0x EBITDA with leverage of 5.0x.
- The scenarios vary primarily by projected revenue growth assumptions designed to represent potential economic recovery trajectories following a significant decline in Year 1 (i.e. 2020) prompted by COVID-19 and the impending economic slowdown.
  – Due to the expected loss in operating leverage, EBITDA margins were also assumed to decline in Year 1 and recover at speeds which vary by scenario.
- The four recovery scenarios tested were U-Shaped, V-Shaped, L-Shaped and V-Shaped with a Leveraged Dividend (V+)

Base Case	U-Shaped	V-Shaped[1]	L-Shaped	V-Shaped Leveraged Dividend (V+)[1]
Assumes steady 5% revenue growth year-over-year with no economic downturn in Year 1	Assumes a 15% revenue decline in Year 1 followed by a gradual recovery	Assumes a 15% revenue decline in Year 1 followed by a more rapid recovery	Assumes a 15% revenue decline in Year 1 followed by a slow recovery	Assumes the same as the V-Shape but also models in a ~1.5x leveraged dividend transaction in Year 3
7-Year Revenue CAGR[2]: 5.0%	**7-Year Revenue CAGR[2]: 3.9%**	**7-Year Revenue CAGR[2]: 4.1%**	**7-Year Revenue CAGR[2]: -0.1%**	**7-Year Revenue CAGR[2]: 4.1%**

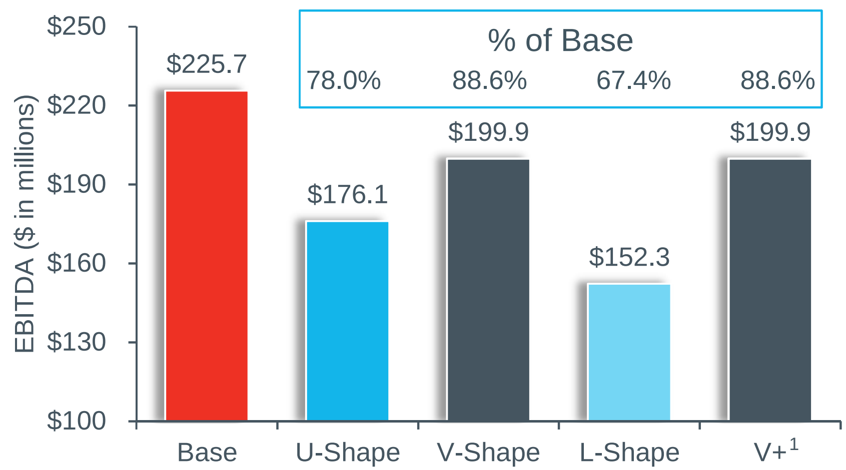
[1] The V-Shape and Leveraged Dividend ("V+") scenarios result in the same revenue, cumulative EBITDA and free cash flow charts.
[2] Compound annual growth rate.

Summary of Scenarios Tested (continued)

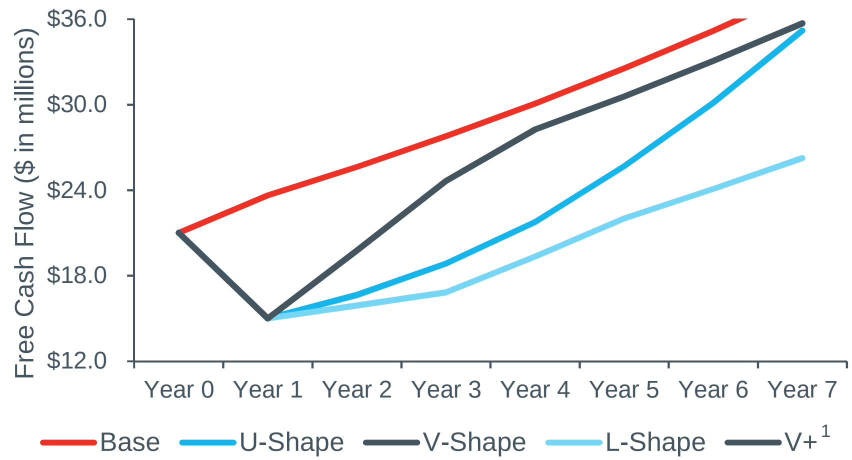
Revenue Trajectories by Scenario



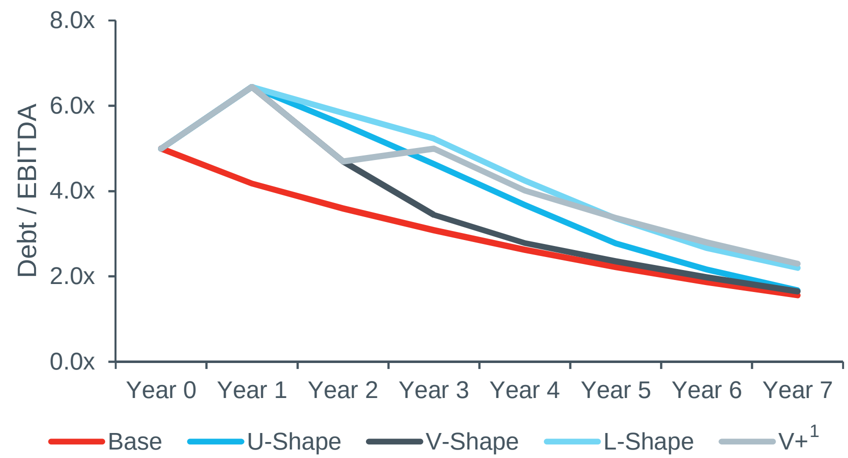
Cumulative 7-Year EBITDA by Scenario



Free Cash Flow (FCF)[2] Trajectories by Scenario



Leverage Multiples by Scenario



[1] The V-Shape and Leveraged Dividend scenarios result in the same revenue, cumulative EBITDA and free cash flow charts.
[2] Free Cash Flow = EBITDA – Capital expenditures

Summary of Leveraged Buyout Results and ROI Conclusions

- By varying growth rates in Year 1 (i.e. 2020) and beyond and making logical revisions to exit assumptions for each scenario, we were able to analyze the impacts to IRRs and ROIs for different holding periods (5, 6 and 7 years) under each scenario.
  – In all of the "post-COVID-19" scenarios, exit multiples were modeled to be lower than entry by 1.0x (8.0x EBITDA at exit vs. 9.0x EBITDA at entry) given the deterioration in market conditions and likely impact on business valuations.
- IRRs were negatively impacted no matter the time horizon, but ROIs for the U-Shaped, V-Shaped and V+ scenarios projected robust results, comparable to the pre-COVID-19 Base Case.
  – The L-Shaped scenario would require a holding period of 8 years to match pre-COVID-19 ROI.

LBO Results Summary

	Base Case Scenario [1]	Post COVID-19 U-Shaped Recovery			Post COVID-19 V-Shaped Recovery			Post COVID-19 L-Shaped Recovery			Post COVID-19 V-Shaped Recovery with Leveraged Dividend [2]		
Holding Period	3 Years	5 Years	6 Years	7 Years	5 Years	6 Years	7 Years	5 Years	6 Years	7 Years	5 Years	6 Years	7 Years
Exit Multiple	9.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x	8.0x
IRR	26.3%	9.3%	13.3%	15.7%	16.4%	16.9%	17.0%	3.5%	7.0%	9.2%	17.7%	18.6%	18.9%
ROI	**2.0x**	**1.6x**	**2.1x**	**2.8x**	**2.1x**	**2.6x**	**3.0x**	**1.2x**	**1.5x**	**1.8x**	**2.1x**	**2.5x**	**2.9x**

Universal Assumptions	
Entry Multiple	9.0x
Entry Year	2019
Total Leverage	5.0x
Senior Debt	3.5x
Subordinated Debt	1.5x

✓ **ROI Preserved** ✓ **ROI Preserved** X **ROI not met until Year 8** ✓ **ROI Preserved**

Despite drops in IRR, longer hold periods can preserve cash-on-cash ROI

[1] The hold period for the Base Case scenario is 3 years, given the market environment remains healthy (i.e. no economic downturn) and growth/margins are consistently attractive.
[2] Assumes 1.5x leveraged dividend transaction in Year 3 after recovery (leverage is brought back up to 5.0x in Year 3 and dividend is paid).

Summary of Leveraged Buyout Results and IRR Conclusions

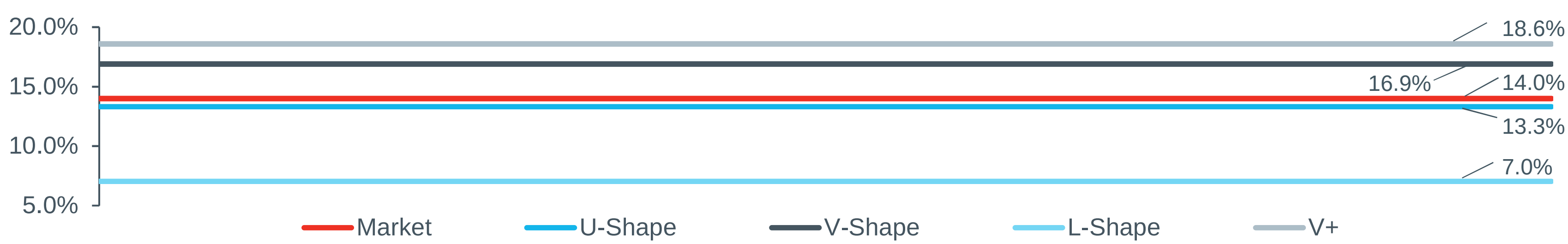
- The post-COVID-19 scenarios after 5, 6 and 7 year holding periods result in lower IRRs compared to the pre-COVID-19 base case IRR after three years.
- However, the IRRs observed in the U, V and V+ scenarios approach and in some cases exceed the returns to be expected from a market index of similarly-sized hypothetical public companies.

Build-Up to Risk-Adjusted Market Return

Expected Return - Cost of Equity

		Sources and Considerations
Risk-free Rate	3.0%	Average historical yield on Treasury
Levered Beta	1.0	Matches S&P levered beta based on comparable company leverage across investment horizon
Market Risk Premium	6.0%	Duff & Phelps study[1]
Expected Market Return	9.0%	
Small Stock Premium	5.0%	2020 CRSP Size Premia Study: 10th Decile (market cap of $2m - $230m)
Size-Adjusted Return	14.0%	

Returns Comparison Summary[2]



IRRs post-COVID-19 can still outperform risk-adjusted market returns

[1] See discussion on the following page.
[2] Returns represent the expected market return of a company with equity valued between $2m and $230m in size compared to the IRRs of each scenario assuming a six-year holding period.

Duff & Phelps Recommended U.S. Equity Risk Premium Increased from 5.0% to 6.0% Effective March 25, 2020

Increased Equity Risk Premium

- Duff & Phelps regularly reviews fluctuations in global economic and financial market conditions that warrant a periodic reassessment of the Equity Risk Premium (ERP) and accompanying risk-free rate, key inputs used to calculate the cost of equity capital in the context of the Capital Asset Pricing Model (CAPM) and other models used to develop discount rates.
- The outbreak of coronavirus (COVID-19) has generated an unprecedented reaction to a global pandemic. Government policies of social distancing have led to supply chain disruptions and the closure of many businesses, harming business confidence; this has led to job losses in several industries, in turn hurting consumer confidence. Global equity markets have collapsed at a speed faster than observed during the 2008 global financial crisis. Equity volatility has reached record highs, while corporate credit spreads have surged. Economists have slashed real economic growth projections, with several sources predicting a global recession in 2020. Major central banks have begun to implement quantitative easing and other crisis-related measures employed during the 2008 financial crisis. Some governments are also in the process of approving or have already enacted sizable fiscal stimulus packages.
- Based on current market conditions, Duff & Phelps is increasing its U.S. ERP recommendation from 5.0% to 6.0% when developing discount rates beginning on March 25, 2020 and thereafter, until further guidance is issued. To be clear, this means that for critical quarter-end valuations dated March 31, 2020, the recommended ERP is 6.0%. However, several economic and financial risk factors that we evaluate were already present during the week of March 9, 2020.
- This ERP recommendation is to be used in conjunction with a normalized risk-free rate of 3.0%, implying a base U.S. cost of equity capital of 9.0% (6.0% + 3.0%).

Analysis #2: Expected IRRs and ROIs on New Investments Can Remain Attractive (Here's How…)

- We also modeled a valuation scenario to demonstrate returns to be expected on new investments following COVID-19 ("Post COVID-19") in comparison to expected returns if COVID-19 hadn't happened ("No COVID-19").
- If COVID-19 were not currently spreading globally, forcing businesses to close and the economy to slow, valuation multiples would presumably exceed those that will likely be achieved now.
  - Debt markets are tightening and Private Equity and family office institutions will become more selective with investments they consider, two factors which will negatively impact valuation.
  - As such, the "No COVID-19" scenario includes higher entry and exit multiples, higher leverage, higher margins and higher revenue growth compared to the Post COVID-19 scenario.
- However, businesses acquired and exited at lower multiples can typically generate similar returns to businesses acquired and exited at higher multiples.

Summary of Assumptions and LBO Outputs

Scenario Specific Assumptions

	No COVID-19	*Post COVID-19*
Entry / Exit Multiple	9.0x	7.0x
5 Year CAGR[1]	5.0%	3.0%
Total Leverage	5.0x	4.0x
Senior Debt	3.5x	3.0x
Subordinated Debt	1.5x	1.0x
Total Debt / BEV %	55.6%	57.1%

	No COVID-19	Post COVID-19
Holding Period	5 Years	5 Years
IRR	23.2%	20.5%
ROI	2.8x	2.5x

✓ ✓

IRR and ROI Preserved

Returns on Businesses Acquired Post COVID-19 Can Rival Those Anticipated Before COVID-19

[1] Compound annual growth rate.

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CONTACTS

Bob Bartell, CFA
Global Head of Corporate Finance
Chicago
+1 312 697 4654
bob.bartell@duffandphelps.com

Mark Kwilosz, CFA
Managing Director, Transaction Opinions and Board Advisory
Chicago
+1 312 697 4677
mark.kwilosz@duffandphelps.com

Keith Gray
Director, Transaction Opinions and Board Advisory
Chicago
+1 312 697 4957
keith.gray@duffandphelps.com

Katie Trela
Director, M&A Advisory
Chicago
+1 312 697 4618
katie.trela@duffandphelps.com

Brandon Lam
Analyst, M&A Advisory
Chicago
+1 312 697 4525
brandon.lam@duffandphelps.com

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