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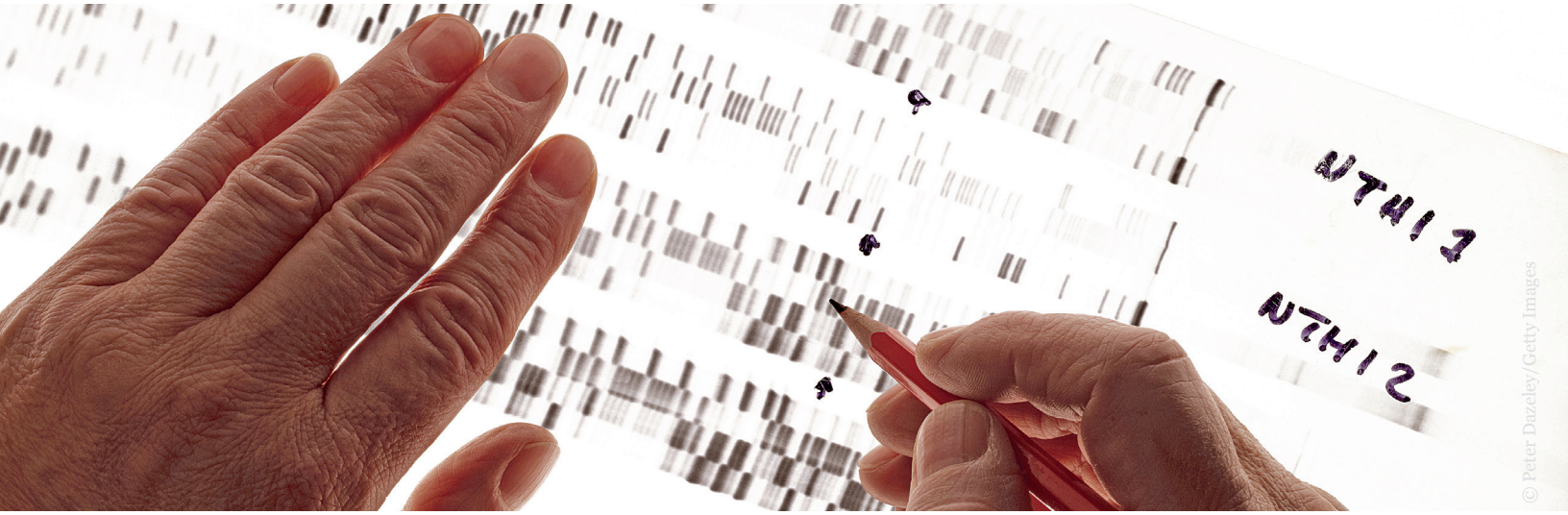

CORPORATE FINANCE PRACTICE

A better way to understand internal rate of return

Investments can have the same internal rate of return for different reasons. A breakdown of this metric in private equity shows why it matters.

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Executives, analysts, and investors often rely on internal-rate-of-return (IRR) calculations as one measure of a project's yield. Private-equity firms and oil and gas companies, among others, commonly use it as a shorthand benchmark to compare the relative attractiveness of diverse investments. Projects with the highest IRRs are considered the most attractive and are given a higher priority.

But not all IRRs are created equal. They're a complex mix of components that can affect both a project's value and its comparability to other projects. In addition to the portion of the metric that reflects momentum in the markets or the strength of the economy, other factors—including a project's strategic positioning, its business performance, and its level of debt and leverage—also contribute to its IRR. As a result, multiple projects can have the same IRRs for very different reasons. Disaggregating what actually propels them can help managers better assess a project's genuine value in light of its risk as well as its returns—and shape more realistic expectations among investors.

Since the headline performance of private equity, for example, is typically measured by the IRR of different funds, it's instructive to examine those funds' performance. What sometimes escapes scrutiny is how much of their performance is due to each of the factors that contribute to IRR above a

baseline of what a business would generate without any improvements—including business performance and strategic repositioning but also debt and leveraging. Armed with those insights, investors are better able to compare funds more meaningfully than by merely looking at the bottom line.

Insights from disaggregating the IRR

Although IRR is the single most important performance benchmark for private-equity investments, disaggregating it and examining the factors above can provide an additional level of insight into the sources of performance. This can give investors in private-equity funds a deeper understanding when making general-partner investment decisions.

Baseline return. Part of an investment's IRR comes from the cash flow that the business was expected to generate without any improvements after acquisition. To ensure accurate allocation of the other drivers of IRR, it is necessary to calculate and report the contribution from this baseline of cash flows.

Consider a hypothetical investment in a business acquired at an equity value of $55 and divested two years later at a value of $100 (Exhibit 1). The business's operating cash flow in the year before acquisition was $10. At unchanged performance, the investment's cash return in year two, compounded at the unlevered IRR, would have been $23.30. In other words, the return from buying and holding the investment without further changes contributed ten percentage points of the 58 percent IRR. Strong performance on this measure could be an indicator of skill in acquiring companies at attractive terms.

Improvements to business performance. The best private-equity managers create value by rigorously improving business performance: growing the business, improving its margins, and/or increasing its capital efficiency.[1]

In the hypothetical investment, revenue growth and margin improvement generated additional earnings in years one and two, amounting to a compounded cash-flow return of $3.30. In addition, earnings improvement in year two translated into a capital gain of $20, bringing the cash return for business-performance improvements to $23.30 and its IRR contribution to ten percentage points. This is an important measure of a private-equity firm's capacity to not only choose attractive investments but also add to their value during the ownership period.

Strategic repositioning. Repositioning an investment strategically also offers an important source of value creation for private-equity managers. Increasing the opportunities for future growth and returns through, for example, investments in innovation, new-product launches, and market entries can be a powerful boost to the value of a business.

Consider, for example, the impact of the change in the ratio of enterprise value (EV) to earnings before interest, taxes, depreciation, and amortization (EBITDA) for our hypothetical investment. The business was acquired at an EV/EBITDA multiple of 10 and divested at a multiple of 12.5—which generated a cash return of $30. This translates into 13 percentage points of the project's 58 percent IRR. This measure could indicate a firm's ability to transform a portfolio company's strategy to capture future growth and return opportunities.

Effect of leverage. Private-equity investments typically rely on high amounts of debt funding—much higher than for otherwise comparable public companies. Understanding what part of an investment's IRR is driven by leverage is important as an element of assessing risk-adjusted returns.

In our hypothetical example, the acquisition was partly funded with debt—and debt also increased

Exhibit 1

Disaggregating returns reveals how much of the internal rate of return is attributable to different sources.

Investment financials	Year 0	1	2	
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	10.0	11.0	12.0	Constant revenues, no taxes, no capital expenditures
Enterprise value (EV)	100.0		150.0	Acquisition per end of year 0
Net debt	(45.0)		(50.0)	Without interest
Equity value	55.0		100.0	
EV/EBITDA	10.0		12.5	

Levered and unlevered internal rate of return (IRR)	Year 0	1	2	IRR
Operating cash flow		11.0	12.0	
Cash flow on exit/acquisition	(100.0)		150.0	
Unlevered cash flow	(100.0)	11.0	162.0	33%
Cash flow from debt	45.0	5.0	(50.0)	
Levered cash flow	55.0	16.0	112.0	58%

Decomposition of IRR from:		Year 0	1	2	Present value (PV) of year 2[1]	Fraction	Contribution to IRR[2]
Baseline	Cash flow		10.0	10.0	23.3	0.30	10%
Business performance	Cash flow		1.0	2.0	3.3	0.04	10%
	Capital gain[3]			20.0	20.0	0.26	
Strategic repositioning	Capital gain[4]			30.0	30.0	0.39	13%
Unlevered return			11.0	62.0	76.6	1.00	**33%**
Leverage[5]							25%
Levered return							**58%**

[1] Cash flows compounded at unlevered IRR to year 2.
[2] Calculated as each lever's PV (year 2)/total PV (year 2) × unlevered IRR.
[3] Calculated as [EBITDA (entry) – EBITDA (exit)] × EV multiple (entry).
[4] Calculated as [EV multiple (exit) – EV multiple (entry)] × EBITDA (exit).
[5] Calculated as residual between unlevered and levered return.

over the next two years. In that time frame, earnings increased by 20 percent and the company's EV-to-EBITDA ratio rose by more than two percentage points. The IRR of the acquisition, derived from the investment's cash flows, would be 58 percent.

How much does the company's debt affect its IRR? Adding back the cash flows for debt financing and interest payments allows us to estimate the company's cash flows as if the business had been acquired with equity and no debt. That results in an unlevered IRR of 33 percent—which means leverage from debt financing contributed 25 percentage points, about half of the investment's total levered IRR. Whether these returns represent value creation for investors on a risk-adjusted basis is questionable, since leverage also adds risk.

The disaggregation shown in Exhibit 1 can be expanded to include additional subcomponents of performance or to accommodate more complex funding and transaction structures.[2] Managers may, for example, find it useful to further disaggregate business performance to break out the effects of operating-cash-flow changes from revenue growth, margin expansion, and improvements in capital efficiency. They could also separate the effects of sector-wide changes in valuation from the portion of IRR attributed to strategic repositioning. Moreover, if our hypothetical investment had involved mergers, acquisitions, or large capital investments, further disaggregation could separate the cash flows related to those activities from the cash flows due to business-performance improvements—as well as strategic repositioning.

Comparing projects beyond the bottom line

The example above illustrates the basic principles of disaggregating IRR, which ideally should be done before any comparison of different investments. Consider, for example, two investments by a large private-equity fund, both of them businesses with more than €100 million in annual revenues (Exhibit 2). Each had generated healthy bottom-line returns for investors of 20 percent or more on an annualized basis. But the sources of the returns and the extent to which these represent true value creation differed widely between the businesses.

The investment in a retail-chain company had generated a towering 71 percent IRR, with more than three-quarters the result of a very aggressive debt structure—which also carried higher risk. On an unlevered basis and excluding sector and baseline contributions, the risk-adjusted return to investors was a much lower but still impressive 21 percent. By improving margins and the capital efficiency of the individual retail locations, management had contributed around 5 percent a year to IRR from business performance. A successful strategic transformation of the company formed the

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biggest source of management contributions to IRR. Utilizing the company's real estate and infrastructure, management was able to launch additional customer services with more stable margins, which translated to a higher-valuation multiple on exit and drove 17 percent annual IRR.

Exhibit 2 **Sources of returns can differ widely among businesses.**

Internal rate of return (IRR),[1] %

[1] Figures may not sum, because of rounding.

Exhibit 3

Disaggregating internal rates of return for a portfolio of projects can reveal a fund's strength.

5-year annualized returns,[1] %

≤0% <2% <5% <10% ≥10%

	Retail (1)	Retail (2)	Retail (3)	Power (1)	Power (2)	Real estate	Power (3)	Tech (1)	Tech (2)
Organic growth	1	(1)	0	3	(1)	1	(16)	0	(9)
Margin increase	2	(4)	1	2	0	2	14	0	4
Efficiency improvement	2	6	7	N/A	(1)	(2)	N/A	3	11
Business performance	**5**	**1**	**7**	**5**	**(2)**	**1**	**(2)**	**2**	**6**
Capital investment	4	(1)	N/A	N/A	N/A	N/A	6	4	(6)
M&A	N/A	12	7	6	3	0	9	2	14
Strategic repositioning	13	2	7	4	3	1	4	0	(1)
Transformation strategy	**17**	**13**	**14**	**9**	**5**	**1**	**19**	**6**	**7**
Sector	0	(1)	13	1	(1)	0	0	0	(15)
Baseline	5	14	(2)	1	6	4	(10)	1	5
Unlevered internal rate of return (IRR)	**27**	**27**	**32**	**16**	**8**	**6**	**7**	**9**	**4**
Leverage	44	14	4	7	5	3	0	(4)	(2)
Levered IRR	**71**	**41**	**36**	**23**	**13**	**9**	**7**	**5**	**2**

[1] Figures may not sum, because of rounding.

In contrast, the equipment-rental business turned out to be one where management made more of a difference when it came to business performance and strategic transformation, which, when combined, contributed 32 percent to the business's IRR. Most of this was due to higher growth and improved margins in its core industrial-equipment segments, combined with significant divestments of its consumer-rental business. Unfortunately, nearly 14 percentage points of the overall IRR was wiped out as the credit crisis reduced opportunities across the sector for future growth and profitability. With leverage adding ten percentage points, the IRR for investors ended up at 34 percent.

Understanding the true sources of IRR provides insight not only into the evaluation of individual investments but also into collections of invest-

ments, such as within a single private-equity fund or within an investment portfolio of many different private-equity funds. Such an analysis revealed that one fund, for example, was most successful in transforming acquired businesses through rigorous divestment of noncore activities and resetting strategic priorities (Exhibit 3). As with many private-equity funds, leverage was the second-most-important driver of investor returns. From a fund-investor point of view, a high level of dependence on financial leverage for results raises questions, such as whether a firm's performance will be robust across economic scenarios—or whether it has a track record of successful interventions when high leverage becomes problematic for its portfolio companies. By contrast, reliance on business improvements is inherently more likely to be robust across scenarios.

Investors can conduct a similar analysis to identify which funds in their portfolios contribute the most to their returns and why. For example, separating leverage components reveals which funds boost their IRR by aggressive debt funding and are therefore more exposed to changes in underlying business results. Understanding where broader sector revaluations have driven IRR can help investors understand which funds rely on sector bets rather than improvements in business performance or strategy. Investors can also assess how well a general partner's stated strategy matches its results. A firm touting its ability to add value from operational improvements should get substantial portions of its IRR from managerial changes and strategic repositioning, while a firm more focused on its financial-engineering skills might be expected to benefit more from the leverage effect.[3]

IRR calculations can be useful when fully understood. Disaggregating the effect of IRR's various components can help managers and investors alike more accurately assess past results and contribute to future investment decisions.

[1] Joachim Heel and Conor Kehoe, "Why some private-equity firms do better than others," *McKinsey Quarterly*, February 2005, mckinsey.com.

[2] We have, for example, developed a decomposition approach to an investment's so-called cash multiple rather than its internal rate of return.

[3] Assuming that the higher-valuation multiple is entirely driven by repositioning the business—and not by sector-wide appreciation.

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