Corporate Insights Fall 2022



Portfolio Optimization: linking performance to value



Introduction

"Wide diversification is only required when investors don't understand what they are doing". Legendary investor Warren Buffet refers to the fact that, if an investor has conviction in a company's business model and its ability to create value, then wide diversification of that investor's portfolio is no longer necessary. Conventionally, investors should not want companies to diversify their own businesses; a company that is a pure play should be a more attractive asset for an investor to consider. Therefore "pure plays" should – in theory – trade at a premium in the market relative to more diversified portfolio companies. After all, pure plays give the investor the best opportunity to diversify his or her own portfolio and get closer to the efficient frontier of capital deployment. This logic lies at the heart of the often-discussed "conglomerate discount". Diversification of investment should be the responsibility of shareholders, not of management teams.

In this paper, the latest in our ongoing series of **Credit Suisse Corporate Insights**, we explore whether the discount investors apply to large collections of business segments is as pervasive as we are led to believe. Is every form of diversification bad for investors, or might there be such a thing as **good** diversification too? Will investors perhaps even pay a premium for a certain combination of businesses that offer them efficiencies the investors cannot achieve in the market? Nobel Laureate Ronald Coase pointed out in his seminal paper "The Nature of the Firm" that markets can impose transaction costs which firms can avoid by acquiring diverse sets of businesses, whether adjacencies or vertically-aligned.

All companies consist of an assortment of business lines or projects. Some will be great, some good, some may be operationally challenged. But are there insights or metrics that can shed light on when and how the market might pay a conglomerate **premium**, as opposed to a

conglomerate discount? To figure this out, in this paper we evaluate companies that are collections of businesses or segments (which - for simplicity - we will call "portfolio companies"4). We evaluate them by measuring returns on capital⁵, growth and industry risk and compare those results to current market valuations. We find that the composition and characteristics of the constituents of a business matter, particularly when it comes to their profitability (return on capital). With these tools, we can help management teams analyze the composition and characteristics of their portfolio and make the best capital allocation choices to maximize market value even for a portfolio company. This paper provides guidance for managing - and allocating capital to - the right mix of business segments in order to maximize the market value of each company overall. Our work suggests that collections of business segments will not inevitably be subject to a discount. Let's see how.



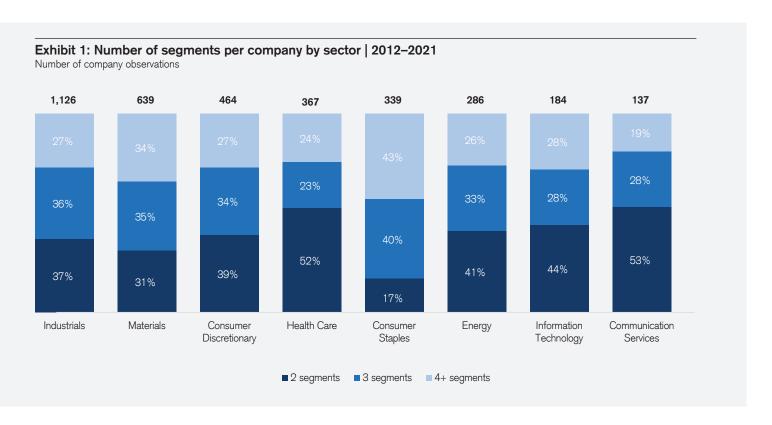
Laying out the portfolio landscape

This paper looks at the optimization of business segments – understanding which kinds of businesses succumb to portfolio company discounts and which seem to overcome that notion and trade at or even above the intrinsic value of the sum of their parts. In order to do so, we focused our analysis on what we consider "portfolio companies". These portfolio companies are the universe of public companies that disclose financial information about their distinct business segments – at least revenue, operating income, D&A and assets. We can compare that data – which reveals the composition and characteristics of their business segments – with the value the market ascribes to the business overall.

These portfolio companies constitute about 20% of total public companies in the US and Europe⁶. Companies which report less segment

information – perhaps on a geographic basis or only revenue numbers (but not enough for us to discern a segment's profitability) – are excluded from this study. This leaves us with a sample of over 3,000 observations⁷ (based on 200 - 400 companies over each of the last ten years) which is a sample size sufficiently large enough to draw conclusions about market sentiment.

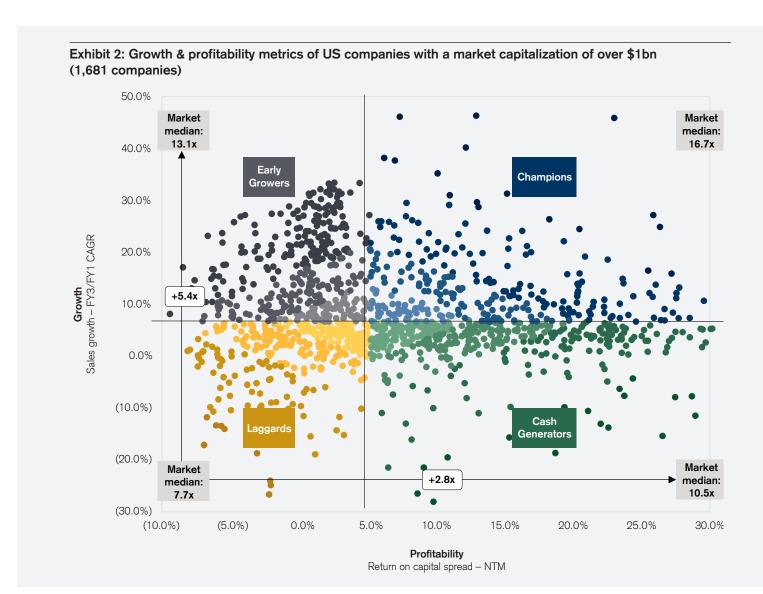
Portfolio companies can be found across all industries, but there are some interesting differences across industrial sectors⁸ (Exhibit 1). Industrials and Materials are the two sectors with the highest number of portfolio companies. Of all the sectors we looked at, Consumer Staples companies tend to have the most complexity, with more than 40% of Consumer Staples companies running four or more segments.



How are portfolio companies valued?

Does a company that owns multiple businesses perform operationally better or worse relative to their industry and what are the consequences for that company's valuation? Let's compare the returns, growth and risk profiles of our portfolio companies' business segments to the market.

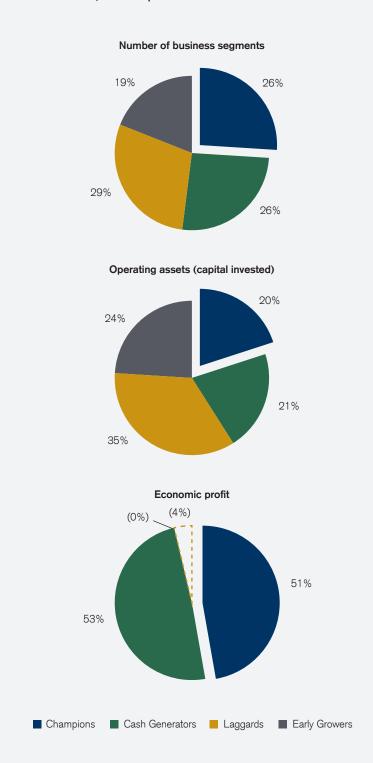
The market rewards excellence in risk-adjusted returns⁹ and growth with higher multiples,¹⁰ as observed from the difference in valuation multiples between the "Laggards" and "Champions" in Exhibit 2.



We can apply this quadrant concept¹¹ to the underlying operating segments of our portfolio companies by replicating the comparison of risk-adjusted returns on capital vs. growth on an industry basis. This allows us to place our approximately 11,000 segment observations into one of these buckets – Laggards, Early Growers, Cash Generators or Champions.

There is a stark difference between where capital has been invested and where economic profit has been generated. While only 20% of total capital was invested in segments that are considered Champions, these segments generated more than half of total cumulative economic profit. Laggards, by contrast, represent the largest amount of capital invested (35%) while in aggregate they do not even earn positive economic profit. In aggregate, the economic profit for portfolio companies is earned almost exclusively by segments that have above industry average returns on capital — Champions and Cash Generators.

Exhibit 3: The breakdown of portfolio companies by number of business segments, operating assets¹² and economic profits¹³ | 2012–2021



Solving the valuation puzzle

Now we get to the heart of the question, which is valuation. Doing a sum-of-the-parts (SOTP) valuation is notoriously difficult for any outside investor or sell-side research analyst with access to only public information. Ideally, we approach that problem using a discounted cash flow (DCF) methodology with perfect information around the correct forecasts to use and discount those at a business line-specific cost of capital to arrive at an intrinsic value for the consolidated firm. However, management teams themselves often struggle with estimating these inputs accurately.

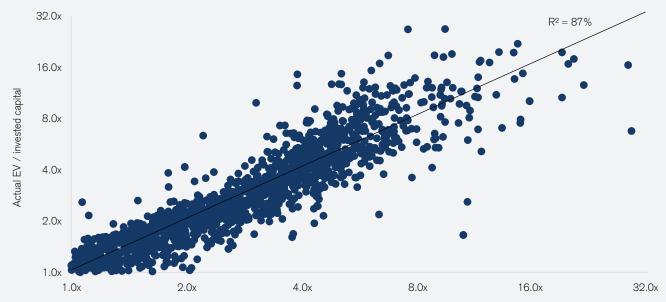
Another approach – commonly used by sell-side research analysts is a multiples-based calculation, where each segment gets awarded a valuation multiple based on the average of a group of companies similar in nature and in operating characteristics in order to arrive at an approximate intrinsic value for the consolidated company. But

this multiples-based approach suffers since it is often very difficult to find relevant public comparables and this approach pre-supposes that the market fully understands the investment story of every segment and – therefore – that every segment is "fairly valued".

So, for us to arrive at an intrinsic valuation for each of our portfolio companies, we deployed an approach that derives a valuation multiple (EV to invested capital)¹⁴ through a multivariate regression that uses each segment's own return on capital (CFROI), growth and a discount rate that is unique to each segment's relevant industry cohort. This discount rate is based on the forward-looking discount rate that is necessary to arrive at a fair value for each industry using Credit Suisse's proprietary HOLT framework. Using this approach, our model produces an 87% correlation for the market as a whole.



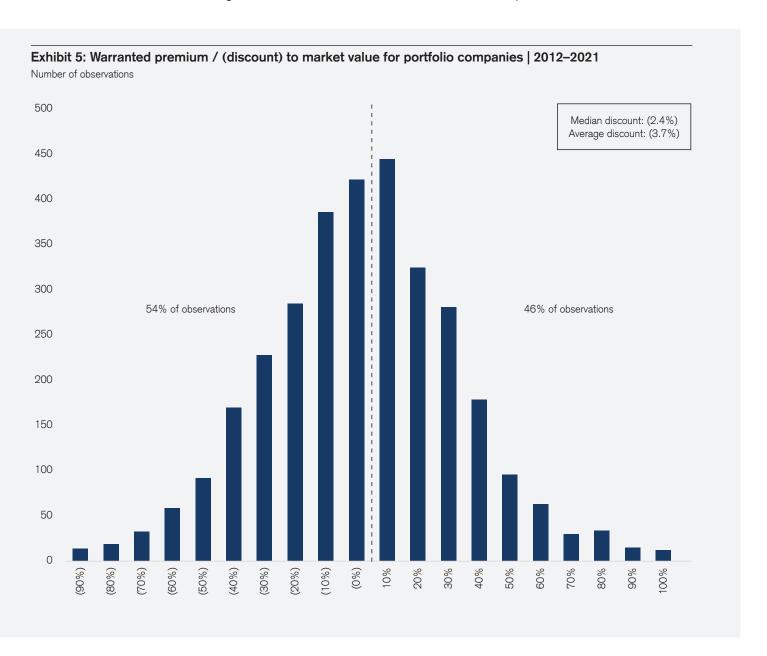
Universe includes all companies in North America and Europe excluding Financials, Real Estate and Utilities (by GICS classification) with market capitalization over \$1bn (2,333 companies)



Predicted EV / invested capital (based on NTM, CFROI, discount rate and forward sales growth)

Deriving Cash Flow Return On Investment, or "CFROI", and growth trends of the segments of each portfolio company in our analysis, we can plot them on a regression such as Exhibit 4 and derive each segment's intrinsic EV / invested capital multiple. That gives us an intrinsic Enterprise Value for each segment by finding the implied multiple based on the regression, relative to each

segment's asset base. The sum of the segment Enterprise Values results in an intrinsic Enterprise Value of the portfolio company. When we compare this value to the observable market value of each parent portfolio company, we now have a robust view of whether the portfolio company trades at a premium¹⁶ or discount to our derived intrinsic value of the sum of its parts (Exhibit 5).



Across our universe of 400 portfolio companies over the last ten years, we see a relatively normal distribution where the median portfolio company over the last ten years has a modest discount to intrinsic value of 2.4%. This is probably a much smaller discount than the material "conglomerate discount" many people believe exists, but we

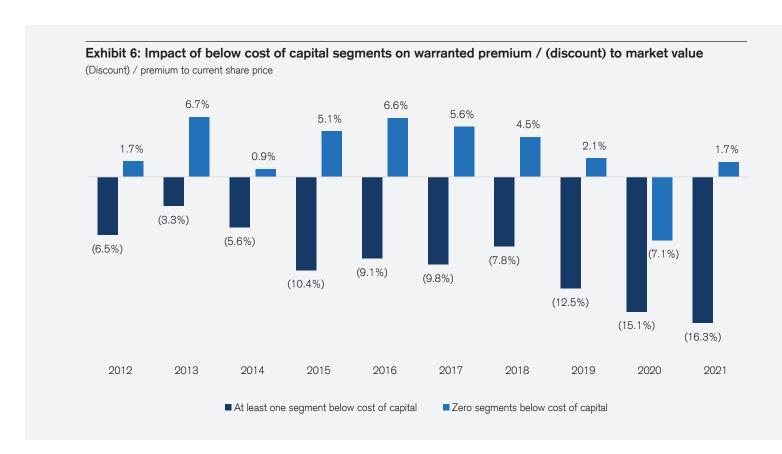
think that in efficient markets this result does not come as a surprise. Systematic mis-pricing is unlikely as investors should recognize and reward well-operated, well-managed businesses. In fact, a notably large cohort of portfolio companies – 46% – trade at an apparent premium to their intrinsic value.

The fundamentals of underlying segments drive the consolidated value

So, what is driving the difference in our intrinsic valuation estimates and the observed market values? These differences don't necessarily mean that these companies are over- or undervalued. It could also be that our regression-based valuation model – which focuses on profitability, growth and risk – doesn't capture an additional factor specific to portfolio companies, that investors are willing to pay up for or apply a discount to. Synergies across operating segments are often quoted as a source of value. To the extent that these aren't fully fleshed out in the underlying financials, any unquantified synergies could also be a source of mis-pricing.

Let's test our data set of portfolio companies to see if we can tease out some intuitive themes about our conclusions.

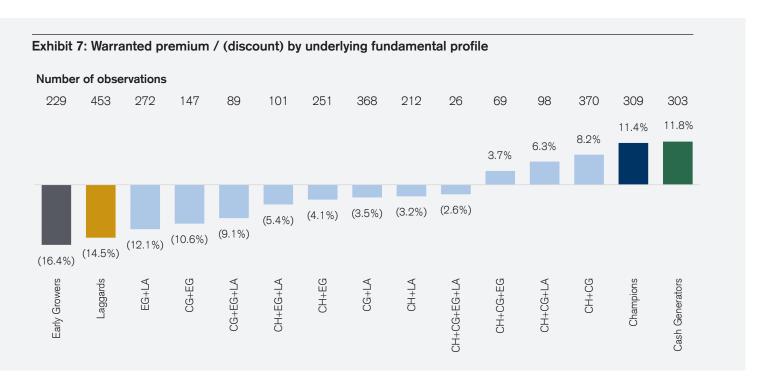
We will start by looking at portfolio companies that contain at least one segment that doesn't earn ROIC above its cost of capital – a value destructive business (Exhibit 6). To check on the market sentiment of companies that own such "bad" segments, we split our universe of portfolio companies into two buckets; companies where all segments generate returns in excess of the cost of capital... and those companies that operate at least one "negative spread" business segment.



The results are clear; companies that own value-destructive assets trade at a consistent and material discount to their intrinsic value, whereas companies that don't own value-destructive assets often trade at a premium.

We can take this analysis a step further by applying the quadrant concept we brought up earlier – Laggards, Early Growers, Cash Generators or Champions. What can we learn from the interaction between underlying business segments and these operating profiles? Is there a secret sauce of segment composition within a portfolio company that investors might either favor or shy away from?

Applying our quadrant approach to potential permutations of business segments produces 15 possible combinations (e.g. Laggards plus Champions, Cash Generators plus Early Growers, etc.) To explain this logic, there is only one possible combination of a portfolio company that has at least one segment in each of the quadrants but there are four possible combinations where each of a portfolio company's segments fall in the same quadrant, with eight different other possible combinations. The results are shown in Exhibit 7.



Portfolio companies with only best-in-class businesses trade at the biggest premium... and those with only Early Growers trade at the largest discount.

Champions and Cash Generators

Our key insight here is that if we know that profitability matters for all public companies in the market today, *it matters even more for portfolio companies*. Since profitability tends to be stickier than growth¹⁷, having Champions and/or Cash Generators businesses as the majority of the portfolio tends to be rewarded by investors and command premium valuations. These types of portfolio companies tend to be able to weather economic downturns and periods

of uncertainty better since a bigger portion of their value is derived from near-term cash flows as opposed to Early Growers, whose implied value is derived from cash flows much further out in the future.

Our analysis reveals that investors are willing to pay a premium for companies that have multiple businesses generating high returns on capital, an indication that they have large moats or other competitive advantages ¹⁸. This is **good diversification**. It's not surprising to see that same positive effect for companies that operate multiple Champion segments. This is a cohort of best-inclass businesses that can provide investors with exposure to very high levels of profitable growth. Investors appear to be willing to pay up for that.

Early Growers and Laggards

The most surprising result was the valuation discount we observe for Early Growers. These are often early life cycle companies that can also be described as high-risk and high-reward. Early life cycle companies have been the darlings of investors willing to pay high multiples for promises of future profitable market share capture during the almost ten years run up in the global equity markets that we experienced pre-Covid. For a hypothetical, mono-line Early Grower company, investors may be willing to apply a revenue multiple or price a company off of cash flows not expected to be generated for several more years. The archetype of a startup business is "burning" cash to capture market share before driving shifts toward profitability and a move into the Cash Generators quadrant as their growth moderates and they achieve scale. Alternatively, they could turn into Champions if they manage to continue maintaining high growth and deliver strong profitability simultaneously. When those companies have a single focus, or a single business segment, investors have an easier time understanding their value proposition and can make a focused decision about its probability of success.

Yet portfolio companies that contain an Early Grower segment do not seem to receive the same credit as our hypothetical single-line Early Grower above. We can think of several reasons why. First, the often-negative cash flow profile of these segments presents a drag on the company's (or portfolio company's) other more well-established

businesses and will make the company look worse compared to its key peers. In that case, it is difficult for investors to see the exact impact of the Early Grower segment on the consolidated company. Second, it can be difficult for investors to understand the story of an Early Grower. Some investors may understand it and appreciate its full worth, but others may not. In that case, we may never see the valuation uplift until the fate of the Early Grower becomes clearer. Finally, having multiple Early Growers in a portfolio may also present its own challenges. Early Growers are risky – cash flows are expected to be generated in the future, while often requiring significant capital to support growth. Having one of the Early Grower segments underperform can create a strain on the capital available to fund the future growth of the other Early Grower segments and may make it difficult to secure further financing at an attractive cost.

It's too simple to say that investors don't like diversification. Our analysis reveals that it may be the type of diversification that matters.

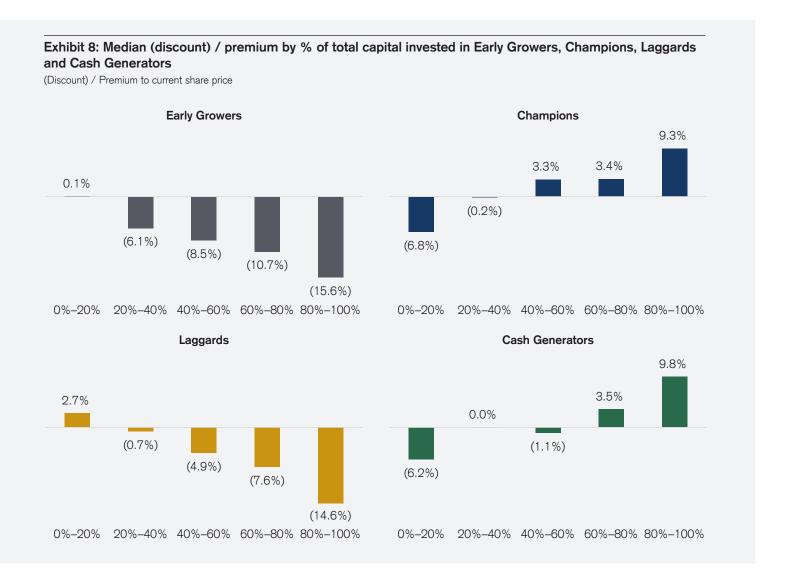
Combining highly profitable businesses with each other seems to be a formula that investors are willing to pay a premium for.

But including an underperforming business can drag the portfolio company's valuation down below intrinsic value. This scenario raises the related question of how big an underperformer has to be in order to represent a discernable drag on valuation. Likewise, how relatively big does a Champion have to be to see a valuation premium?

Inflection points for portfolio optimization

To answer this question, we looked at how much exposure a portfolio company has to each of our four categories. Then we determined the

valuation impact as a result of the share of exposure to each of these categories (Exhibit 8).



These graphs represent the share (or proportion) each company has invested in one of our four operational quadrants. We see a distinct and intuitive pattern.

For companies with Champion segments, those segments need to represent more than 40% of capital invested in order to begin to generate a portfolio premium. That premium stays around 3.5% until the total capital invested exceeds more than 80%, where we observe a much larger premium of about 10%. Keep in mind, however, that the median of all companies is a 2.4% discount and that should be the baseline of which to compare these premiums to.

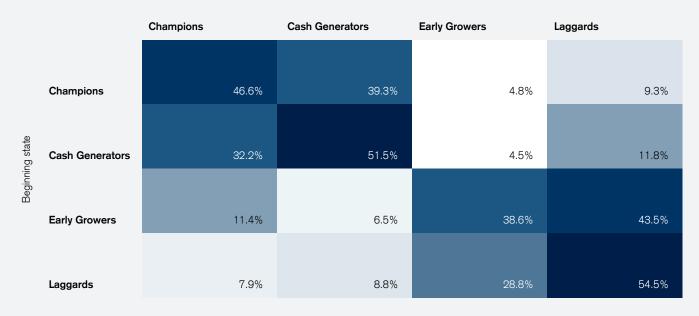
For companies with investment in Laggards and Early Growers alike, there is not a discernable discount for companies that have less than 20% of their assets exposed. Once that exposure

rises, the discount gradually gets bigger and ends up at a rather steep discount in the mid-teens for both.

All of this discussion of operationally driven profiles and how they relate to the corporate life cycle should be considered through a lens of movement or transition from one profile to another. An Early Grower can become a Champion, for example. Or a Champion can remain so. The corporate life cycle embeds the fundamental assumption that, over time, businesses cannot earn high returns, nor can they grow indefinitely. Thus, businesses should not remain in one bucket or another forever. How often do business segments transition over this 10-year period and should managers expect that their businesses will change their stripes? Exhibit 9 shows just that.

Exhibit 9: Persistence of fundamental profile - 1 year transition matrix





From one year to the next, profiles are relatively sticky. For Champions, Cash Generators, and Laggards, the most likely result was that the following year they remained as such. Interestingly, for Early Growers, it was more likely that they transitioned to the Laggards profile one year later. That means there is significant risk of rapidly growing an unprofitable business without

the benefit of it turning a profit, which may help explain why companies that own segments with Early Grower exposure trade at the steepest discounts to intrinsic value. While there are relatively high levels of stickiness, plentiful opportunities exist for managers to transition businesses and improve portfolio composition.

Conclusions

In this paper, we have looked at how the composition of a company's portfolio can impact firm value. We also question whether any systemic "conglomerate" discount exists and we've shown that – if such a discount does exist – it is not very large.

So it seems that the path to value creation does not necessarily go via a mono-line business. Companies that grow through consolidation or acquisition of other segments can be just as successful, and perhaps more so, as those that don't. It is the type of *combination* of businesses — the Champions, the Cash Generators, etc.

- the Champions, the Cash Generators, etc.
 that can drive a firm's valuation. In fact, our analysis shows that the right combination of high-performing assets can drive a valuation
- premium for a business portfolio. Therefore, we believe it is vital for corporate managers to continually diagnose, evaluate and monitor the performance both relative and absolute of the segments in their portfolio. Such a diagnosis will empower management to make better decisions about both capital allocation and buying and selling components of their portfolio. This information is the key to managing a portfolio of businesses to maximize value in the markets.

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End notes

- 1 Steven D. Price. "The Quotable Billionaire: Advice and Reflections From and for the Real, Former, Almost, and Wanna-Be Super-Rich and Others," Page 164. Skyhorse Publishing Inc., 2009.
- 2 Defined as a company that focuses solely on one type of product or service, or has one business segment.
- 3 Refers to the tendency of markets to value a consolidated company with a diversified group of business segments at less than the sum of its parts.
- 4 In this paper, a portfolio company is defined as a public company with at least two or more business segments with sufficient disclosure of business segment's balance sheet and income statement information.
- 5 Return on capital defined as HOLT CFROI.
- The universe includes companies in the U.S. and Europe with a market capitalization over \$1 billion, across all sectors, with the exception of Financials, Utilities, and Real Estate (based on GICS classification).
- We analyzed ~400 companies across a 10-year period (2012-2021). Universe includes companies within the U.S. and Europe that exist in the Credit Suisse HOLT database; all GICS sectors were included with the exception of Financials, Utilities, and Real Estate.
- 8 Sector defined per GICS classification.
- 9 Defined as HOLT CFROI less cost of capital. Cost of capital is defined as HOLT discount rate.
- 10 See Credit Suisse Corporate Insights Managing the multiple: Weighing growth against profitability.
- 11 Each quadrant represents an aggregation of companies based on their respective growth rates and levels of return on capital. In any given year, quadrant multiples represent EV/FY2 EBITDA multiples and are calculated as median multiple of all companies in the top-right quadrant and bottom-left quadrant. The top-right quadrant contains all companies with above-median NTM CFROI spread and above-median FY3/FY1 sales CAGR. The bottom-left quadrant contains all companies with below-median NTM CFROI spread and below-median FY3/FY1 sales CAGR.
- 12 Defined as Inflation-adjusted gross investment, which includes working capital, inflation-adjusted gross plant, capitalized R&D, and capitalized operating leases.
- 13 Defined as gross cash flow less capital charge.
- 14 Defined as ((market value of equity + debt) / (inflation adjusted net assets, including capitalized operating leases and R&D)).
- 15 FY3/FY1 sales CAGR is based on FactSet consensus median estimates.
- Defined as ((observed value less intrinsic value) / intrinsic value). Observed value is defined as the observable market value of each parent consolidated company. Intrinsic value is defined as the sum of the enterprise values of business segments derived from relevant industry regression implied valuation analysis.
- 17 See Credit Suisse Corporate Insights Managing the multiple: Weighing growth against profitability. "Two thirds of the high return companies are able to deliver high returns on capital in the next period. Only less than one third of the high growth companies grew at similarly high rates in the following period."
- 18 See Credit Suisse Corporate Insights Fighting the fade: Strategies for sustaining competitive advantage.

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