



Sustainable free cash flow analysis: A better measure for resource equities

Executive summary

The resource sector presents unique challenges for asset managers and owners looking to invest in the space. Its capital-intensive nature makes conventional valuation measures, such as price-to-earnings, price-to-cash-flow or net asset value, less effective in generating alpha. We believe resource companies with sustainable business models and a disciplined approach to capital allocation are likely to offer higher return potential.



Introduction.

In this paper, we will examine the advantages of focusing on sustainable free cash flow (FCF) yield — our proprietary valuation approach for identifying resource companies with high intrinsic value. Our analysis finds a statistically significant relationship between higher sustainable FCF yield and superior portfolio returns.

While the focus of this paper is on the return component driven by sustainable FCF yield, our overall portfolio construction balances this approach with solid risk management and consideration of macroeconomic cycles and ESG impact, to ensure a robust investment strategy.

Defining our philosophy

The Mackenzie Resource Team's investment philosophy rests on three pillars:

- 1. Investment performance:** Focus on strong sustainable free cash flows, using our proprietary valuation approach.
- 2. Sustainability:** Focus on best-in-class companies as well as those that are actively improving their practices from an ESG perspective.
- 3. Risk management:** Focus on short-term volatility risk management and long-term business risk management.

Common valuation approaches and superiority of cash flow based approaches

Analysts use different valuation approaches to generate buy, hold or sell recommendations. In practice, analysts frequently use more than one approach to estimate the value of a company or its common stock.¹ This section presents an overview of the commonly used valuation techniques. These techniques include relative valuation (market multiples) or absolute valuation methods like net asset value, earnings-based approaches and cash flow approaches.

Relative valuation (market multiples)

Price multiples (e.g., price to earnings or price to book) or enterprise multiples (e.g., enterprise value to EBITDA) of the considered company's stock are compared to those

of peer companies or industry benchmarks, to determine if it is undervalued or overvalued. It has the merit of being simple, however, it ignores intrinsic value, and it can be difficult to find truly comparable companies. In particular, the high capital intensity of the resource sector amplifies the difficulty of comparing companies.

Asset-based valuation

This method is commonly used in the resource sector. A company is valued based on the value of its assets such as mineral reserves, oil and gas reserves, and other physical assets. An accurate valuation of these assets can be challenging. In addition, NAV assumes no reinvestment over the long term.

Earnings-based approaches

These approaches rely on using the company's earnings to estimate its intrinsic value (e.g., P/E ratio). Earnings can be subject to inaccurate estimations or accounting manipulations. Accounting depreciation and accruals are generally open to subjective estimates. This is especially true within the resource sector, in which productive assets tend to have longer lives, initial capital intensity is high, and margins are deeply cyclical. This means there is a greater chance that accounting depreciation estimates could be inaccurate. Moreover, depreciation charges tend to be a poor proxy for the future capital needs of resource companies.²

Cash flow approaches

From Stern's seminal 1974 paper "Earnings per Share Don't Count", through numerous studies like Sloan (1996), Hackel et al. (2000), Richardson et al. (2005), and Foerster et al. (2017), to the 2024 reflection "Earnings per Share Don't Count at 50", extensive research has consistently shown that cash flow-based measures are better predictors of stock return than earnings-based measures.

Cash components of earnings are more persistent in the future than accrual components. Consequently, firms with relatively high (low) levels of accruals experience negative (positive) abnormal stock returns.³ Foerster et al. (2017) note that a company can report positive income over many years while experiencing negative cash flows, as demonstrated by the Enron and WorldCom bankruptcies. The authors believe that current accounting standards allow too much discretion for financial statements to be distorted by company management, making it difficult for investors to weigh the true economic value of a company. "The farther down the income statement one goes, the more 'polluted' profitability measures become."⁴

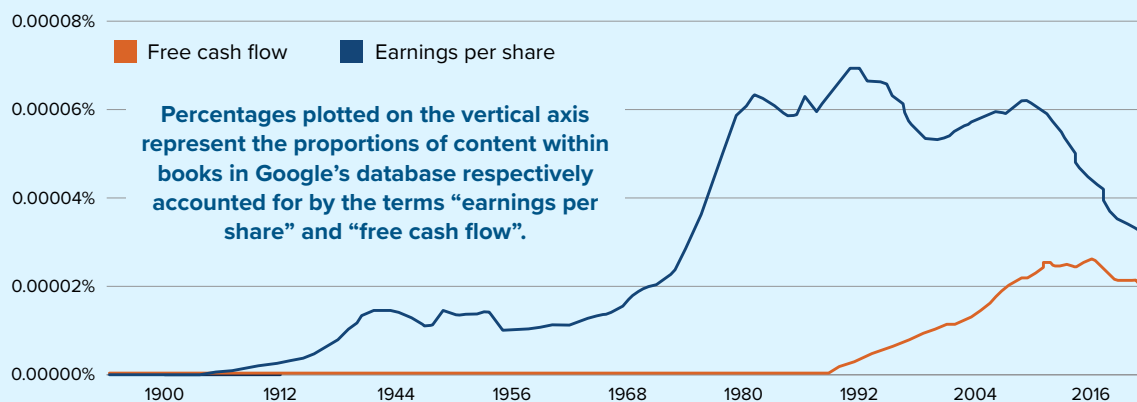
In the cash flow valuation framework, the value of a company's stock is based on the present value of expected future cash flows. Cash flows can be represented by dividends, operating cash flows (OCF) or free cash flows. Free cash flows are often considered superior because they more accurately reflect "the cash flow available to the company's holders of common equity after all operating expenses, interest, and principal payments have been paid and necessary investments in working and fixed capital have been made. Free Cash Flow to Equity holders (FCFE) is the cash flow from operations minus capital expenditures minus payments to (plus receipts from) debtholders".⁵

This has led to an increasing use of FCF valuation. Pinto (2024) states that "free cash flow analysis is in near universal use". Also: "A study of professional analysts substantiates the importance of free cash flow valuation (Pinto, Robinson, Stowe 2019). When valuing individual equities, 92.8% of analysts use market multiples and 78.8% use a discounted cash flow approach. When using discounted cash flow analysis, 20.5% of analysts use a residual income approach, 35.1% use a dividend discount model, and 86.9% use a discounted free cash flow model." Fridson (2024) indicates that "Over time, the number of references to FCF in books within Google's database has grown relative to EPS references. In 2019, the most recent year for which these statistics are available, FCF received 63% as many mentions as EPS. Twenty years earlier, that ratio was just 24%."

However, forecasting future free cash flows is complex, and demands a deep understanding of financial statements, company operations, financing and industry dynamics.⁶

FIGURE 1. GROWING PROMINENCE OF FCF VS EPS

Comparative frequency of mentions



Source: Google N-

Mackenzie sustainable free cash flow approach

The Mackenzie Resource Team uses a sustainable FCF framework incorporating financial statements, economic indicators, and industry trends, along with qualitative factors like management quality, business and reinvestment risks. In addition, sensitivity and scenario analyses are conducted to assess the impact of different assumptions on valuation.

Defining sustainable free cash flow

Sustainable FCF is defined as OCF minus sustaining capital expenditures. Unlike the traditional definition of FCF that simply uses capital expenditures, derived from a company's financial statements, our proprietary sustainable FCF measure uses sustaining capital expenditures. They differ from the narrow definition of maintenance capital expenditures because they include not only the investments required to keep production facilities in working order, but also the investment required to keep a company's assets competitive.

Sustaining capex calculation

It is a complex task that involves detailed and rigorous analysis of financial statements with reclassification of productive capital expenditures, a thorough

understanding of incremental investment opportunities, an assessment of the competitive forces in the industry, and a comprehensive knowledge of the company and its treatment of stranded assets. In the context of a resource company, sustaining capex includes many activities. These include:

- Additional reserve development to offset declining ore grades (e.g., larger copper mills to treat lower-grade ore)
- Drilling new oil or gas wells in response to declining production rates from aging wells in a known resource area (e.g., US onshore shale)
- Replacing or rebuilding equipment at the end of its useful life (e.g., blast furnaces in the steel industry, boilers in paper mills)
- Generating new product lines to preserve a company's competitive advantage (e.g., exploration, or R&D and associated capital expenditures to retool a plant)
- Environmental compliance capex and investments in emission reduction strategies, such as renewable energy (wind, solar, batteries) and electrification of transport (e.g., trucks) and processing plants.



Maintenance capex versus sustainable capex

While sustaining capex appears to be a superior metric in evaluating a resource company’s potential to create future value, it is difficult to capture. The reason is that most companies only report a narrow definition of maintenance capex. In doing so, they tend to under-report the true capital needs of the business.

We examined BHP’s capital allocation history from 2016 to 2024, which is shown in Figure 2. Historically, BHP has earmarked a minor portion of its total capex as maintenance capital. The company has also reported capital earmarked for major projects which target production growth.

The capital expenditures that are implied from BHP’s reporting suggest that the company’s definition of maintenance capital substantially underreports the firm’s capital requirements for sustaining its production and income stream: The company reported insignificant production growth (i.e., <1% per annum) for its core

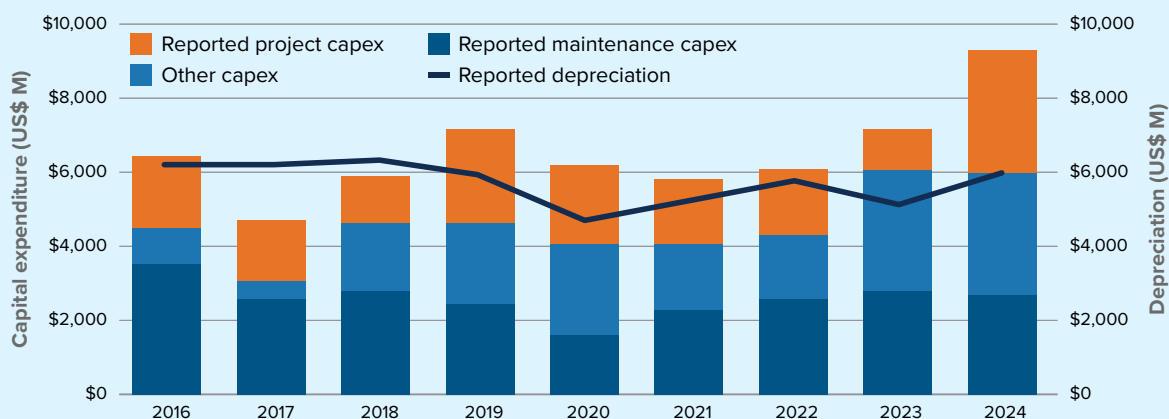
commodities of copper and iron ore over the FY2018-2024 period and a decline (and divestment) of coal and oil production. Thus, reported “improvement capex” and “project capex” appear to be required to offset the natural decline of core assets, and aggregate capex runs above the accounting measure of depreciation.

This example also shows the difficulty of establishing relevant depreciation charges in the capital-intensive and long-life resource sector. It calls into question, once again, the reliability of earnings-based analysis.

Importantly, emission abatement capex is essential to meet decarbonization targets and will be required to sustain future income streams. As an example, BHP’s capex requirements might have to increase by another 10-20% to meet long-term carbon abatement targets and match the emission intensity trajectory of comparable iron ore producers.

FIGURE 2: BHP’S CAPITAL ALLOCATION (FY2016–2024)

Divergence in total capex and maintenance capex suggests substantial sustaining capital requirements to support BHP’s income.



Source: BHP company reports; Mackenzie Investments estimates.



Sustainable free cash flow capture rate and the riskiness of a company

Investors can evaluate the riskiness of a company's cash flow by looking at its sustainable FCF capture rate. This is the percentage of pre-tax OCF remaining after deducting all required sustaining capital investments. It simply describes the amount of cash flow a company keeps after reinvestment. Companies with lower capture rates are highly sensitive to changes in assumptions, making them inherently riskier than their counterparts with higher capture rates. A resource company with mature assets that is struggling to maintain its income stream from current operations would have a low capture rate (we estimate in the range of 0% to 25%), indicating that nearly all cash flow from operations is being consumed just to sustain the firm's OCF. This leaves little room for future growth or shareholder returns. We believe investors should instead look for a higher sustainable FCF capture rate, which, for superior resource companies, we believe should exceed 50%, indicating that there is a lot more cash available for reinvestment in growth opportunities or to reward shareholders. Identifying companies with high sustainable FCF capture rates is not sufficient to identify long-term outperformers.

Empirical evidence

In this section, we outline some empirical evidence from our work to show that the companies in our Global Resource portfolio tend to have a higher sustainable FCF yields than the benchmark and they tend to outperform the benchmark in the following quarter, over an 11-year period.⁷

Our analysis focused on the top 10 holdings for each quarter during the period Q1 2013 to Q1 2024. For both the portfolio and the benchmark, we selected the top 10 names based on their weight in the portfolio and the benchmark, each quarter, allowing a dynamic allocation. These included the top five names from each sector – energy and materials. Focusing on these names allowed us to target the largest and most influential contributors in both the portfolio and the benchmark, to capture the essence of our strategy, reducing noise from smaller and less impactful

Our analysis indicates that companies with high sustainable FCF yields tend to provide better returns.

Management discipline and reinvestment

High sustainable FCF yield is a useful criterion but raises important questions: How will the excess free cash be spent, and will it be deployed effectively? Management's ability to create or destroy value from future surplus cash flows is a factor often overlooked in regular NAV-based valuation methods. The sum of discounted future cash flows does not adequately address the timing or magnitude of the reinvestment required. What is the solution? We believe resource investors need to spend time critically assessing management's opportunities for reinvestment, as well as its discipline in allocating any surplus capital to growth projects or returning capital to shareholders. With the average resource company struggling to beat the cost of capital, one could infer that better business acumen should be used to handle surplus FCF in this capital-intensive sector. For this reason, companies that capture relatively high sustainable FCF, and ones with management teams that allocate capital efficiently, could be expected to outperform.

holdings.⁸ We then equal-weighted those quarterly top 10 holdings to arrive at the "Top 10 Portfolio" and the "Top 10 Benchmark".⁹

As shown in Exhibit 1, we found that the median¹⁰ sustainable FCF yield of our Top 10 Portfolio was consistently higher than that of the Top 10 Benchmark in 93% of the periods. This finding highlights our strategy's emphasis on selecting resource companies with typically superior sustainable FCF yields.

In terms of performance, our Top 10 Portfolio delivered an average performance that exceeded the Top 10 Benchmark by more than 3%, and exceeded the entire benchmark, by more than 5% as indicated in Exhibit 2.

To analyze further the impact of sustainable FCF yield, we split the time periods into high and low sustainable FCF yield periods;¹¹ we found that the differences



between average returns were statistically significant at the 10% significance level, and the difference in returns was substantial, as shown in Exhibit 3.

The univariate regression analysis using the excess sustainable FCF yield as the independent variable indicated that it is a statistically significant predictor of excess returns, as shown in Exhibit 4. This suggests that companies with higher sustainable FCF yield tend to exhibit stronger performance.

Adding the Fama-French five factors after finding this significant univariate relationship controls for these common risk factors (market, size, value, profitability and investment). The fact that the excess sustainable FCF yield remained statistically significant with almost the same coefficient while the Fama-French

factors are not significant, as shown in Exhibit 5, strengthens the conclusion that it is a primary driver of excess performance.

In this Top 10 Portfolio subset, the objective was to focus specifically on the return component, highlighting how sustainable FCF yield, a critical metric in our stock selection process, contributes to outperformance, even after controlling for traditional risk factors. However, we are aware that the sustainable FCF yield is not the only driver of this performance. For the entire portfolio, our construction process carefully covers multiple considerations, including macro environments and risk management, to ensure a consistent risk-adjusted performance over time.

Exhibit 1:

Quarterly data - 2013 Q1 - 2024 Q1	Average excess "sustainable" FCF yield medians	# periods	% periods
All periods	3.0%	45	100%
Periods where excess median "sustainable" FCF yield is positive	3.3%	42	93%
Periods where excess median "sustainable" FCF yield is negative	-1.5%	3	7%

FIGURE 3: SUSTAINABLE FCF YIELD MEDIANS

Top 10 Portfolio vs Top 10 Benchmark

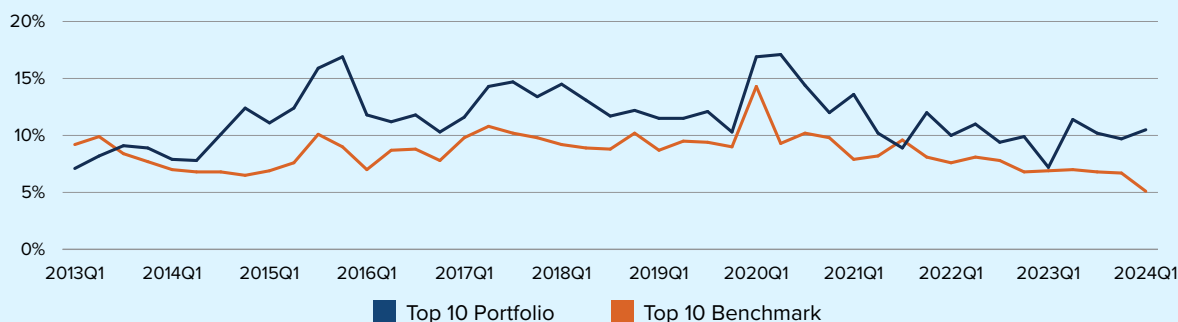


FIGURE 4: EXCESS SUSTAINABLE FCF YIELD MEDIANS

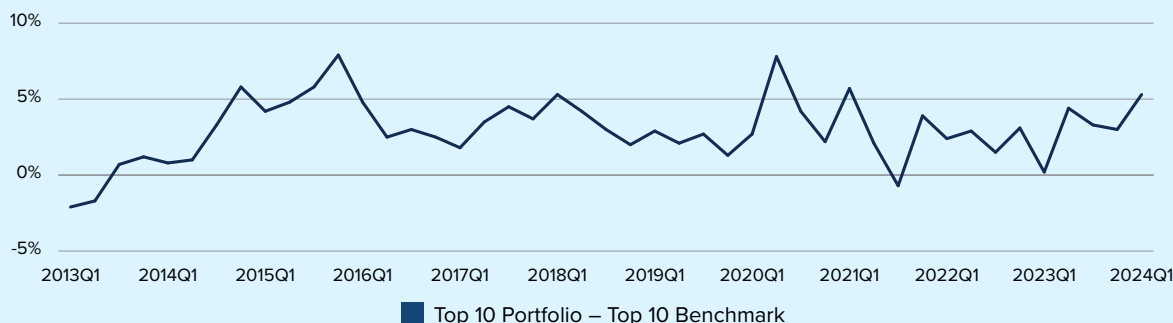


Exhibit 2:

Quarterly data - 2013 Q1 - 2024 Q1	Annualized average excess subsequent 1-quarter total returns*	Annualized average active subsequent 1-quarter total returns**	# periods
All periods	3.3%	5.3%	45

* Differences between Top 10 Portfolio and Top 10 Benchmark returns are averaged and annualized
 ** Top 10 Portfolio active returns = Top 10 Portfolio returns - benchmark returns

Exhibit 3:

Time period: 2013 Q1 - 2024 Q1	Annualized average Top 10 Portfolio returns	Annualized average Top 10 portfolio active returns
All periods	13.7%	5.3%
High sustainable FCF periods	27.9%	14.3%
Low sustainable FCF periods	-1.1%	-4.2%
t-statistic	1.80	1.98
p-value	0.079	0.056

Exhibit 4:

REGRESSION OF EXCESS TOP 10 PORTFOLIO RETURNS ON EXCESS “SUSTAINABLE” FCF YIELD MEDIANS

Statistic	Coefficient	p-value*	R-squared	Correlation
Value	1.69	.003	18.7%	43.3%

*p-value of less than 5% indicates statistical significance

FIGURE 5: TOP 10 PORTFOLIO RETURNS

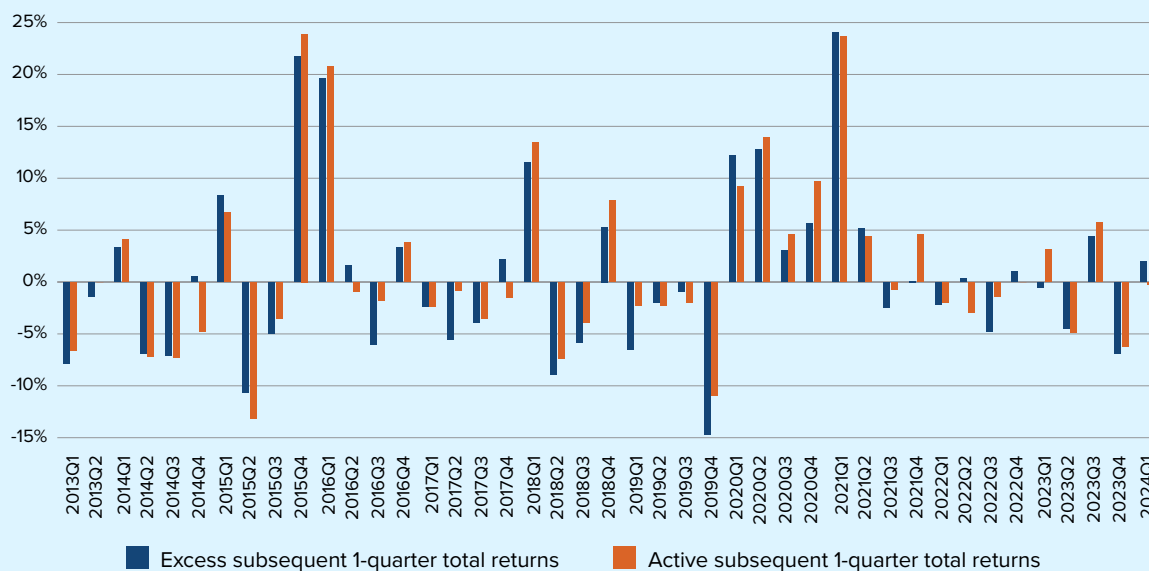


Exhibit 5:

MULTIVARIATE REGRESSION OF EXCESS TOP 10 PORTFOLIO RETURNS ON EXCESS “SUSTAINABLE” FCF YIELD MEDIANS AND THE FAMA-FRENCH 5-FACTORS*

	Coefficients	Standard errors	t-values	p-values
const	0.05	0.02	2.38	0.023
Excess “sustainable” FCF yield medians	1.68	0.51	3.26	0.002
Mkt-RF	0.25	0.18	1.38	0.177
SMB	0.43	0.34	1.26	0.214
HML	0.04	0.31	0.11	0.911
RMW	0.23	0.40	0.56	0.580
CMA	0.00	0.45	0.00	0.996
	R-squared	Adjusted R-squared	F-statistic	Prob (F-statistic)
Model statistics	36%	26%	3.53	0.007

*North American Fama-French 5-Factors: Mkt - RF, SMB, HML, RMW and CMA reflect the broad market risk, the size effect, the value premium profitability and investment behaviour respectively.
Kenneth R. French - Description of Fama/French Factors (dartmouth.edu)



Conclusion

In this paper, we have examined the strengths of cash flow-based valuation approaches over traditional approaches. We argued that our proprietary sustainable FCF yield methodology provides superior insights for investment decision-making, especially in the capital-intensive resource sectors.

We presented the definition of our metric and the underlying complex task of analyzing and reclassifying capital expenditures into sustaining capital expenditures. This approach goes beyond the narrow definition of maintenance capital expenditures because it takes into consideration not only the investments required to keep production facilities in working order, but also the investments required to keep a company's assets competitive. To effectively undertake this approach requires a comprehensive knowledge of each company and the competitive forces in the industry.

Our approach is supported by empirical evidence derived from a subset of our portfolio. We conducted a detailed analysis of the top 10 names in our portfolio (ranked by weight) and compared them to the top 10 names in the benchmark over time. We found that our Top 10 Portfolio consistently exhibits higher sustainable FCF yield and these higher FCF yields are translated into better portfolio outperformance.

Although this approach focuses on driving returns, our broader portfolio construction ensures a robust well-balanced strategy that delivers both strong performance and effective risk management over the investment cycle.

1 Jerald E. Pinto, PhD, CFA, Elaine Henry, PhD, CFA, Thomas R. Robinson, PhD, CFA, CAIA, and John D. Stowe, PhD, CFA. CFA Institute Curriculum. Equity Valuation: Applications and Processes (2023).

2 Benoit Gervais, Onno Rutten, Asmaa Marrat and Mary Mathers (2014) [White Paper - Sustainable Free Cash Flow Analysis \(mackenzieinvestments.com\)](https://www.mackenzieinvestments.com).

3 Sloan (1996) and Richardson et al. (2005).

4 Foerster et al. (2017) and Davis (2017).

5 Pinto (2024).

6 Pinto (2024).

7 The benchmark of the Global Resource portfolio is a combination of MSCI World Energy and MSCI World Materials.

8 These top 10 names constitute on average of 39% and 35% of the total weight of the portfolio and the benchmark respectively.

9 We also conducted analyses on a version using rescaled portfolio weights instead of equal weights. The results were similar to the equal-weighted version hence we present solely the results of the equal-weighted version in this paper.

10 We use the median in this context as it provides a robust measure of central tendency and offers a clearer picture of the sustainable free cash flow yield of a typical Top 10 Portfolio security versus a typical Top 10 Benchmark security.

11 High (low) periods correspond to periods where the Top 10 Portfolio Sustainable FCF yield is superior (inferior) to the time series median.



References

Martin S. Fridson, Jack J. Beyda & John H. Lee (26 Jul 2024): "Earnings per Share Don't Count" at 50, *Financial Analysts Journal*, DOI: 10.1080/0015198X.2024.2375957.

Jerald E. Pinto, PhD, CFA, Elaine Henry, PhD, CFA, Thomas R. Robinson, PhD, CFA, CAIA, and John D. Stowe, PhD, CFA. CFA Institute Curriculum. *Free Cash Flow Valuation* (2024).

Jerald E. Pinto, PhD, CFA, Elaine Henry, PhD, CFA, Thomas R. Robinson, PhD, CFA, CAIA, and John D. Stowe, PhD, CFA. CFA Institute Curriculum. *Equity Valuation: Applications and Processes* (2023).

Stephen Foerster, John Tsagarelis & Grant Wang (2017) Are Cash Flows Better Stock Return Predictors Than Profits? *Financial Analysts Journal*, 73:1, 73-99, DOI: 10.2469/faj.v73.n1.2.

Follow the Cash (Summary), Phil Davis, 1 January 2017 *Financial Analysts Journal*

Benoit Gervais, Onno Rutten, Asmaa Marrat and Mary Mathers (2014) *White Paper - sustainable free cash flow Analysis* (mackenzieinvestments.com).

Richardson, Scott A., Richard G. Sloan, Mark T. Soliman, and Irem Tuna. 2005. "Accrual Reliability, Earnings Persistence and Stock Prices." *Journal of Accounting and Economics*, vol. 39, no. 3 (September): 437–485.

Kenneth S. Hackel, Joshua Livnat and Atul Rai (2000) "A Free Cash Flow Investment Anomaly." *Journal of Accounting, Auditing & Finance* 15(1): 1–24.

Richard G. Sloan (1996) "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?" *The Accounting Review* 71(3): 289–315.

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