William Blair

Equity Research

March 1, 2024
Special Report

John Kreger
Director of Research
jkreger@williamblair.com

Scott Hansen
Associate Director of Research
shansen@williamblair.com

Richard de Chazal
Macro Analyst
rdechazal@williamblair.com

Griffin Soriano
Associate Product Manager
gsoriano@williamblair.com

Quality Growth Stock Research & Investing Strategy

Revisiting Five Decades of Current Better Values

Please refer to important disclosures on pages 18 and 19.

Contents

Foreword

In 1935, in the midst of the Great Depression and the fallout from the stock market crash of 1929, William McCormick Blair co-founded a full-service investment firm with a focus on emerging growth companies. Blair often summarized his philosophy by stating:

"When our clients succeed, the firm's success will follow."

This focus on emerging, quality growth companies and the goal of delivering superior results for our clients have been guiding principles at William Blair for the past 88 years. Our hypothesis is that focusing on high-quality business models and identifying them in their emerging growth phase—when revenue, cash flow, and valuation often inflect positively—should deliver superior investment returns over the long term.

This investment strategy was further codified in 1970 with the establishment of William Blair's formal equity research department and in 1976 with the creation of our Current Better Values (CBV) List. The CBV is a selection of typically 10-15 top picks by our research department published every two months and running unaltered for the subsequent two years. The CBV has been published by our research department uninterrupted for the past 47 years, providing a useful dataset to test this strategy.

In this report, we revisit our research and investment strategy and examine how the approach has fared during the capital market corrections and dramatic technological changes of the past two decades. To summarize, we can draw three conclusions from our CBV performance data. First, our strategy has continued to deliver longer-term performance above that of broader market indices. Second, our approach tends to underperform during periods of macro uncertainty such as rising interest rates or unemployment, and/or narrowing market breadth, as seen over the last two years. And third, such periods when our strategy underperforms tend to be followed by recovery in higher-beta and smaller-capitalization stocks favored by our approach. Given this, we believe now is a useful time to revisit our approach.

Introduction

William Blair established a formal equity research department in 1970 under the leadership of Conrad Fischer. Our initial staff included four publishing analysts with a focus on quality growth companies generally located in the Midwest region of the United States. Today our research department spans 35 analyst teams and 100-plus professionals, covering 650 companies across seven industry verticals. Our initial Midwest regional focus has evolved into a more global geographic perspective, but our focus on emerging quality growth has not wavered over the past five decades. In this report we revisit how we strive to produce differentiated research and compelling investment ideas for our clients.

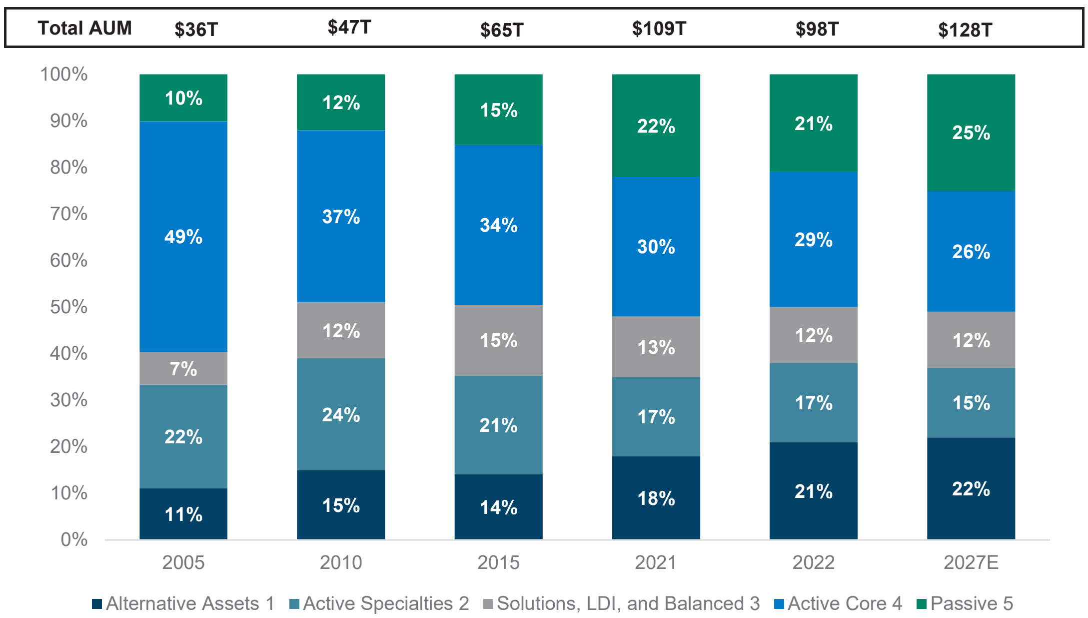
Our research mission can be summarized as follows: *Generate superior investment ideas and value-added insights through independent, in-depth research of quality business models with a focus on emerging growth (typically small- and midcap names) across a longer-term orientation.*

The asset management and investment banking industries have undergone dramatic change over the past two decades since we last published our philosophy on growth stock investing in 2003 (link to Bob Newman Report PDF). For example:

- the pace of innovation has accelerated with exponential improvement in computing speed and storage, impacting every sector of the economy;
- consolidation and fierce competition have continuously altered the brokerage industry landscape; and
- rapid dissemination and more uniform access to information have prompted a continuing shift to passive and alternative investment strategies.

In exhibit 1, we detail the significant changes seen in the asset management industry. We note the rise in passive's share of global assets under management (AUM), going from 10% in 2005 to 21% in 2022, accompanied by active core's (traditional long-only strategies) share loss from 49% to 26% over the same period. Further, we highlight alternative assets, which gained 10 points of share over the period. Inside the alternative asset class, global hedge fund AUM have grown at a 10% compound annual rate over the last 20 years, to more than $5 trillion (subscription required).

Exhibit 1
Global Assets Under Management by Product



Notes: (1) Includes hedge funds, private equity, real estate, infrastructure, commodities, private debt, and liquid alternative mutual funds; (2) Includes equity specialties (such as global and emerging-market active equity, developed-market small cap and midcap, and themes) and fixed-income specialties (such as emerging markets, high-yield, flexible, and inflation linked); (3) Includes target date, target maturity, liability driven, outsourced chief investment officer, multi-asset balanced, and multi-asset allocation; (4) includes actively managed developed-market large-cap equity, developed-market government and corporate debt, money market, and structured products

Source: Boston Consulting Group Financial Institutions Report, *The Tide Has Turned*; published 5/15/23

Even against this ever-changing investing backdrop, we believe our approach is still useful and relevant. This is perhaps because our smid-capitalization focus does not lend itself as well to passive strategies. Or perhaps it is because market inefficiencies tend to be more abundant in the smaller-capitalization component of the investing landscape, where research coverage is less prevalent.

William Blair's equity research mission has remained largely unchanged since the department's formation in 1970: find the best disruptive growth companies—preferably during their emerging growth phase—and then analyze them over the long term, often as they move from private to public markets. But given the occasional capital market corrections of the past two decades and the notable underperformance during the last two years of small- and midcap equities upon which we focus, we believe now is a useful time to revisit our approach.

For this analysis, we use our CBV Lists as a proxy to assess performance. If we find that our approach does not still work in an environment where public-company data is disseminated broadly and virtually instantaneously, then we will review our research process at William Blair.

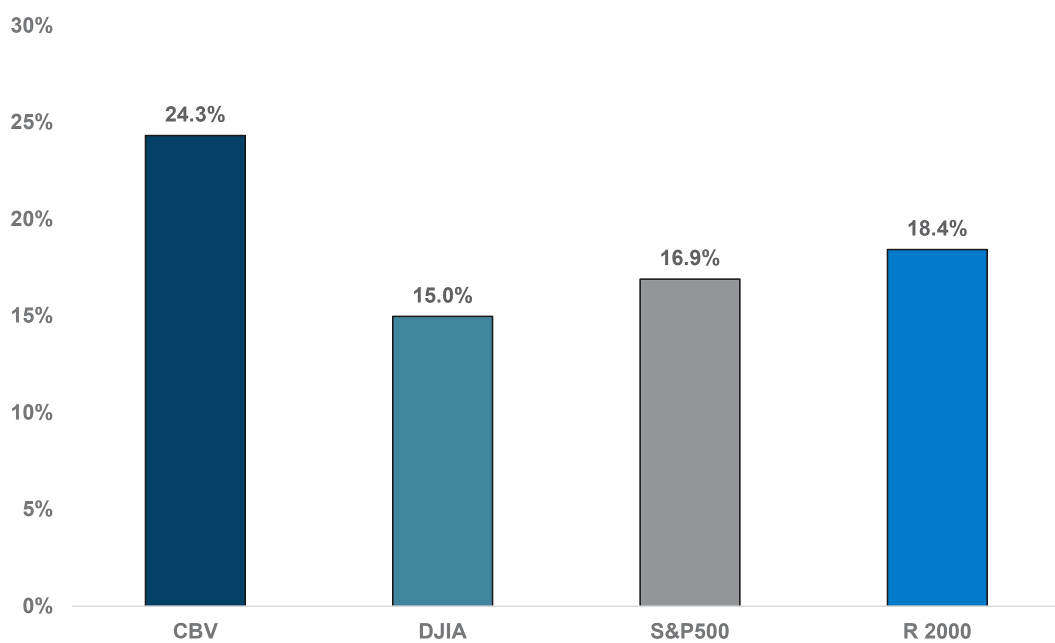
Current Better Values: 47 Years of Select Growth Stock Performance

Then-Director of Research Ned Hoban created the Current Better Values (CBV) List 47 years ago to provide our clients with the best longer-term investment ideas across our research universe (the 1977 Hoban report is included in the 1987 report linked below, starting on page 15). We have looked back on the performance of this list a couple times: in 1987 (link to 1987 Harvey Bundy report PDF) and 2003 (link to 2003 Bob Newman report PDF). Each CBV List typically consists of 10 to 15 stocks curated by our research analysts every two months. Each list continues unchanged for two years. Our research department publishes six CBV lists each year. In total we have published 288 lists since 1976. Of these lists, 276 are now "closed," meaning their two-year periods have ended, and 12 lists are still "open," meaning their performance is still being measured relative to the broader market.

As shown in exhibit 2, William Blair's CBV strategy has yielded enviable returns over time versus the broader market. For example, over the past two decades since we last wrote about our investing philosophy, the average CBV List return (which is measured over a 24-month period) has outpaced the S&P 500 and the smaller-cap Russell 2000 indices (over the same 24-month periods) by roughly 740 and 590 basis points, respectively.

Note: The CBV List performance referred to below assumes an equal investment in each of the stocks included in each CBV List since inception of the publication of the list, without regard to the payment of dividends, where the investment in the stocks included on each published list is held for the applicable 24-month period.

Exhibit 2
Closed CBV Average Performance Versus Indices (July 16, 2003–January 10, 2024)



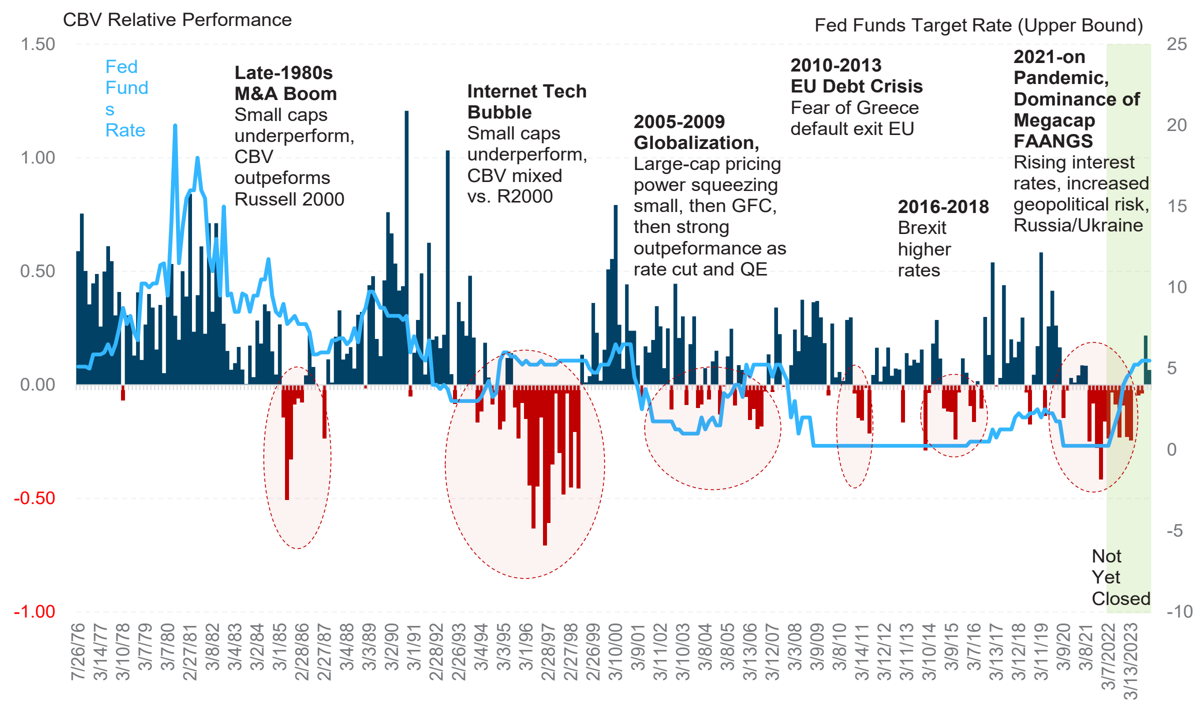
Note: Depicts 24-month return
Sources: FactSet and William Blair Equity Research

There have, of course, been periods when the CBV strategy has performed better and other periods when it has struggled, such as the last two years. While it is easy to oversimply when our emerging quality growth framework excels and when it struggles, our observations suggest that much like smaller-capitalization stocks in general, our CBV Lists tend to do well when investors' appetite for risk is increasing, and interest rates have plateaued or are declining. Conversely, our CBV Lists tend to perform relatively poorly when investors' risk appetite falls with rising macro uncertainty.

Current Better Value List Performance Observations

Over the last 47 years, performance of the CBV has been strong in aggregate, but the pattern has not necessarily been linear or consistent across all macro backdrops. As illustrated in exhibit 3, there are five notable periods when our CBV strategy—and our smid-cap quality growth focus in general—has lagged. However, we note that the subsequent three- to five-year periods following an underperforming phase have tended to be excellent for our smid-cap, quality growth approach.

Exhibit 3
Relative Performance CBV vs. S&P 500 Index



Sources: Bloomberg and William Blair Equity Research

1. ***Leveraged Buyout Boom of the Late 1980s:*** The late 1980s was characterized by a wave of high-profile corporate takeovers (e.g., RJR Nabisco and Southland Corporation/7-Eleven) using high levels of debt to finance the transactions. Interest rates had fallen materially over the preceding five years, but the M&A wave drove large-cap names to outpace smaller caps. This period ended abruptly with 1987's stock market crash, resulting in further small-cap pressure as investors became more risk averse.

2. ***Internet Bubble of the Late 1990s:*** A decade later, the 1990s marked a period of economic expansion that culminated in surging investor interest in internet-driven business models (e.g., AOL, Akamai, and Yahoo!) and ultimately the bursting of the internet bubble in 2000. Over this time, interest rates were relatively low and stable, leading to large caps outperforming small

caps, and growth (especially technology) outperforming value factors. Similar to the investment landscape of 2023, market leadership was highly concentrated among only a few large-cap technology names driving overall market performance.

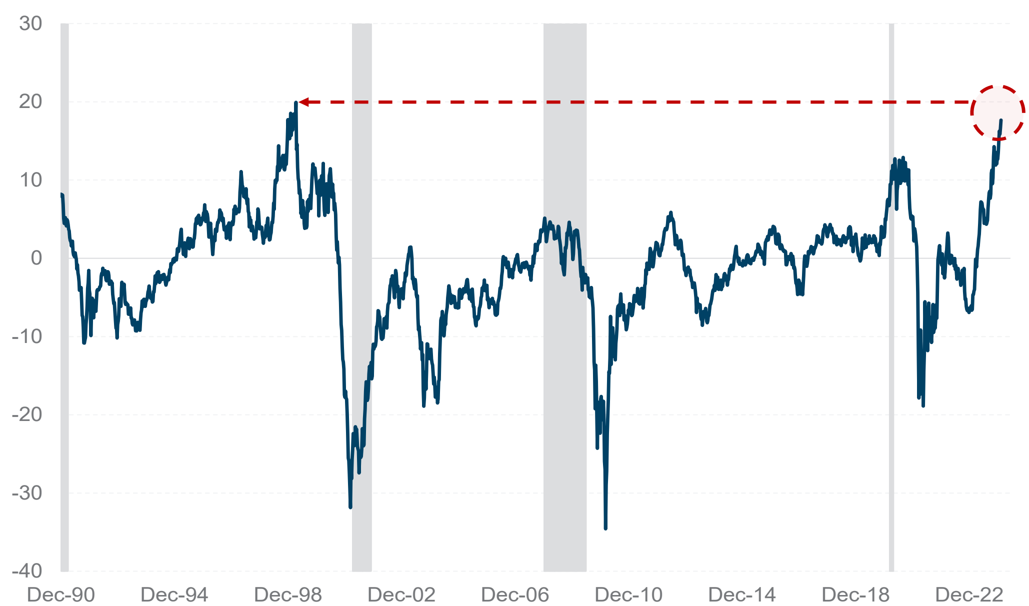
3. ***Globalization Wave of 2005-2009:*** Free trade, lower tariffs, and China's admission into the World Trade Organization in 2001 helped power a wave of globalization in the mid-2000s. This environment favored larger-cap multinationals that had superior pricing power and global supply chains over smaller-cap companies that tend to be more regional or national in scope. Rising interest rates during this period also favored larger-cap multinationals, as did investors' elevated risk aversion.

4. ***2010-2013 and 2016-2018:*** The European Union's debt crisis in the early 2010s kept investor concerns elevated over excess leverage. Austerity measures imposed on heavily indebted countries such as Greece pressured the European economic region. And a wave of regulations following the Global Financial Crisis (GFC), such as Dodd–Frank, created advantages for larger-cap companies with greater regulatory influence. By the late 2010s, a better global economic climate began to drive interest rates higher, and a number of larger-cap pseudo-monopolies drove investor appetite away from smaller caps (Facebook/Meta, Amazon, Apple, Netflix, and Google).

5. ***2021 to Present:*** The post-pandemic investing landscape experienced over the past two years has been dominated by surging inflation that provoked the fastest pace of central bank tightening since the early 1970s. The resulting interest rate shock disproportionately impacted the valuation of smaller-cap and higher-growth companies that are earlier in their lifecycles. The strength of the FAANG stocks and Magnificent Seven mega-cap tech stocks also powered a shift in investor sentiment toward large-cap stocks.

The result in 2023 was the largest gap we have seen since 1998 between the market-cap-weighted S&P 500 index and its equal-weighted peer, with the market-cap-weighted index outperforming the equal-weighted index by roughly 1,250 basis points.

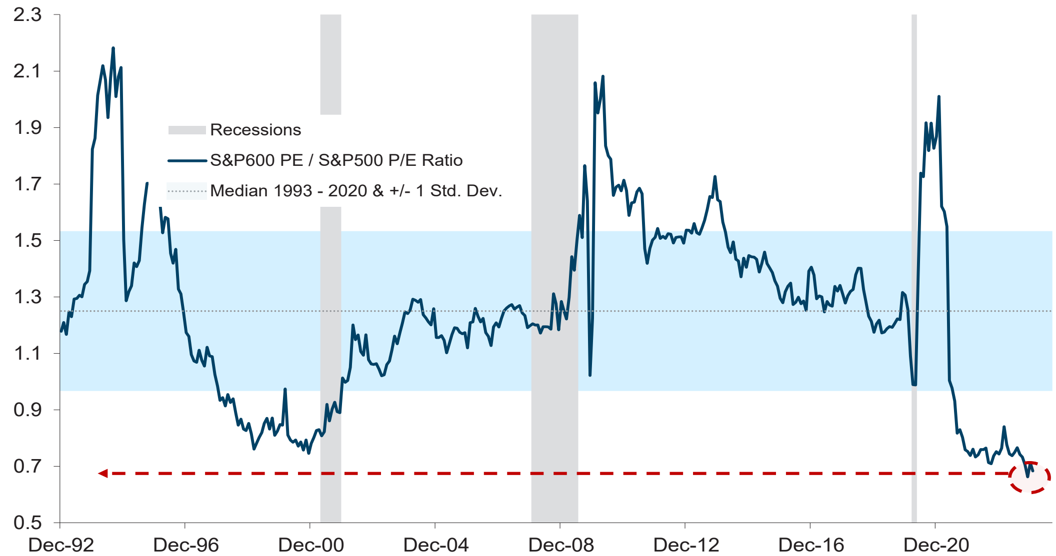
Exhibit 4
Relative Performance of S&P 500 vs. S&P 500 Equally Weighted Index
(Percentage Point Difference in Annual Rates of Change)



Sources: Bloomberg and William Blair Equity Research

As shown in exhibit 5, 2023's large-cap outperformance has also resulted in a valuation gap between large- and small-cap stocks that is the largest we have seen since the late 1990s, even after a smaller-cap rally in November and December of last year.

Exhibit 5
Relative P/E Ratios: S&P 600 / S&P 500
Based on 12-Month Trailing EPS



Sources: Bloomberg, Capital IQ, and William Blair Equity Research

While these five periods of CBV relative underperformance have each been challenging for our clients, we are reassured that our approach has continued to outpace broader market indices on a cumulative basis over the past five decades and, more recently, over the past two decades (see exhibit 2, on page 6).

Quality, Emerging Growth and the Durable Business Franchise

To better understand the source and durability of the CBV's attractive longer-term performance versus the broader market, let's review the investment philosophy of William Blair's research department. Our equity research mission has remained largely unchanged over the past five decades. Our 35 analyst teams endeavor to find the best disruptive growth companies in their respective industries and ideally identify them early, when the companies are in their emerging growth phase that often produces positive inflection points in sales, profitability, cash flow, and valuation.

Given the abundance and institutionalization of private capital, our research efforts now must encompass the period before innovators reach the public markets to spot emerging trends and the entrepreneurs trying to capitalize on them.

Farming in Fertile Small-Cap Soil

Our long-term-oriented focus on typically small- and midcap companies has provided fertile soil for our research process.

As shown in exhibit 6, performance of the Russell 2000 (which we will use as a small-cap proxy) has been quite favorable compared with the S&P 500 for a majority of the last 45 years. Despite notable underperformance of smaller-cap stocks versus the broader market in the last two years, the CAGR for the Russell 2000 index over this period was 9.10%, versus 9.06% of the S&P 500.

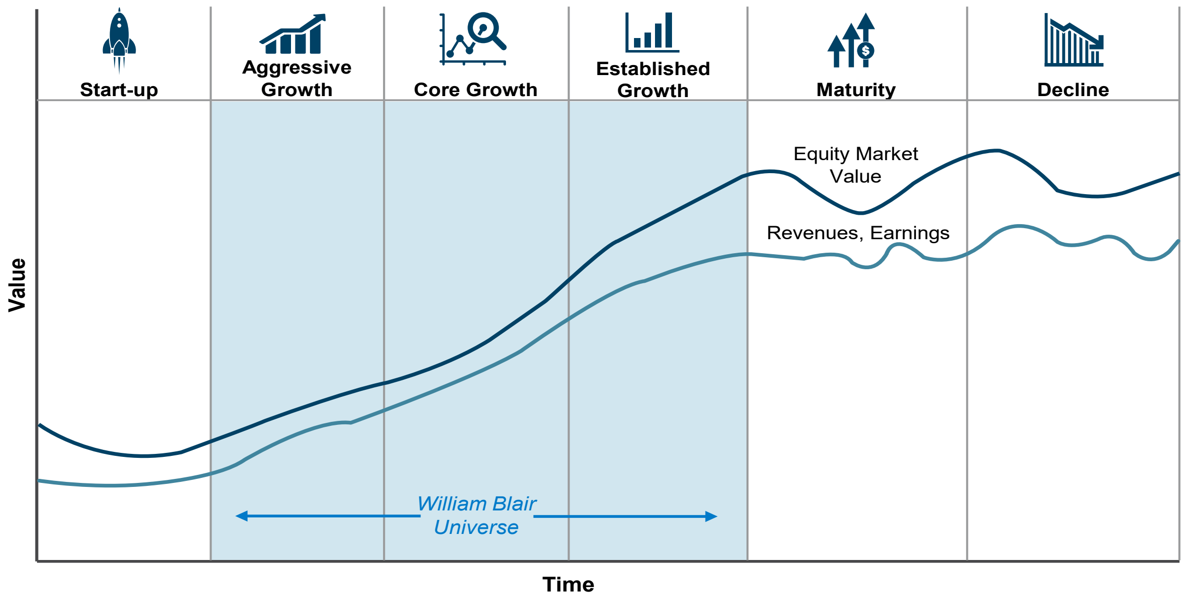
Exhibit 6
S&P 500 vs. Russell 2000
(rebased to 100 December 1978)

Sources: Bloomberg and William Blair Equity Research

Quality Growth and the Durable Business Franchise

Exhibit 7 illustrates the theoretical lifecycle of a company from start-up, through growth, to maturity and decline. Ideally, we strive to identify emerging winners in their aggressive growth phase when revenues, profits, and cash flows are inflecting positively. The compounding impact of cash flow growth, coupled with valuation expansion as the companies are more broadly discovered, can produce superior investment performance over the long term.

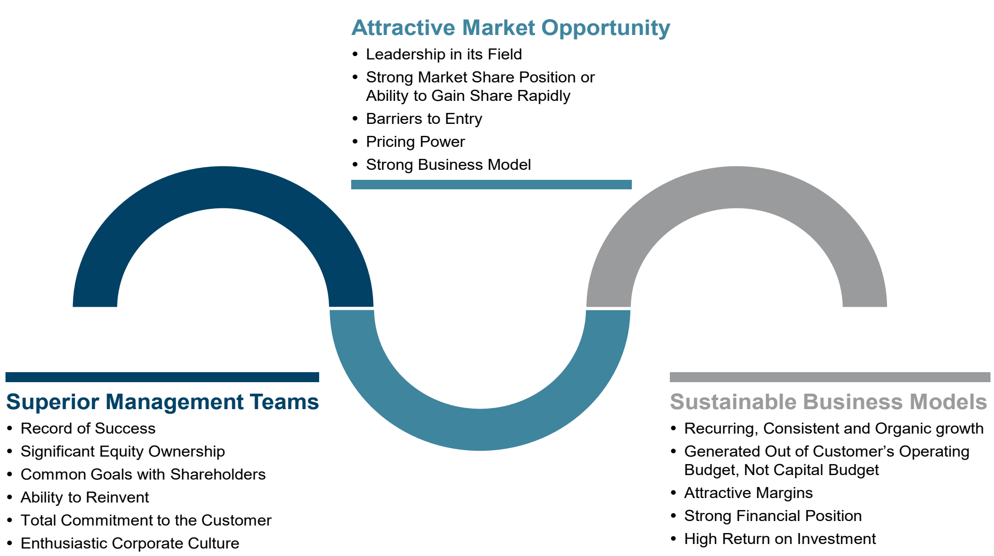
Exhibit 7
The Growth Company Lifecycle



Source: William Blair Equity Research

Our goal is to identify a growing stable of *quality growth* companies in their emerging phase that have durable business models that can stand the test of time. We define *quality growth* as sustainability of a company's business model in both duration and consistency. This can lead to superior cash flow growth over time through the power of compounding. We look for above-average growth, typically more than 10% annually, that is sustainable and relatively consistent. As illustrated in exhibit 8, our criteria can be broken down into three main buckets: market opportunity, business model, and leadership.

Exhibit 8
William Blair Investment Criteria



Source: William Blair Equity Research

Attractive Market Opportunity
Our favorite investment ideas stem from structural rather than cyclical themes that often unfold over a decade or more. A few recent examples of compelling structural trends for the coming decade are artificial intelligence, EROI approach to energy investment, open-source software, embedded finance, and consumer-centric healthcare. Below are some of William Blair's in-depth reports on these trends.

- ***AI:*** The Generative AI Toolchain: How Enterprises Turn Hype Into Reality; Generative AI: The New Frontier of Automation; Putting the Tech in Biotech: A Deep Dive on AI in the Sector
- ***Energy investment:*** The Red Pill
- ***Open source:*** From Experimentation to Standardization: Open Source Software Comes of Age
- ***Embedded finance:*** A New Wave of Financial Services: How Open Banking and BaaS Are Fueling Embedded Finance
- ***Consumer-centric healthcare:*** Consumer-Centric Healthcare: 2024 Update

Sustainable Business Models
Large addressable markets are, of course, important, but so is the company's source of competitive differentiation to drive share gains and eventual leadership. Our favorite business models have competitive moats stemming from continuing innovation rather than a commodity product or service that could be easily emulated. Pricing power and a large and diverse customer base are also important factors, in our view. In addition, we gravitate toward conservative capital structures with relatively low debt and attractive return on investment characteristics that can enable self-financing with scale.

Superior Management Teams
Lastly, and perhaps most importantly, we look for companies with strong leadership. These include those teams with successful track records, significant equity ownership in the business, and compensation structures that are aligned with common shareholders.

Once our analysts find a new quality growth idea, we strive to provide insightful analysis with a long-term horizon. We point to our latest CBV edition published January 9 and our annual outlook and top stock recommendations, last published on December 8.

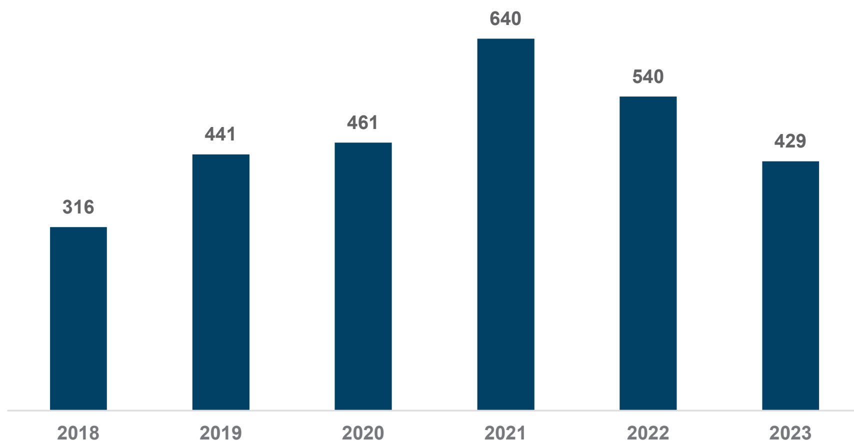
Private Capital Overlay

As noted, our 35 analyst teams endeavor to identify and follow the best emerging growth companies in their coverage verticals. Our teams research and publish reports on key structural themes, and how those forces may impact the competitive landscape in the coming decade, with the goal of becoming thought leaders in their respective industries. They invest in building relationships with companies that are early in their lifecycle to help spot when the best business models are emerging toward periods of growth inflection.

As private capital markets have grown and become more institutionalized in the past few decades, we are redoubling our efforts to track private capital flows to improve our ability to find compelling business models early—years before they might be traded publicly. All of our analysts track emerging capital flows and potential disruptive new entrants in their respective vertical markets, and thus an increasing portion of our publications are focused in part on the private markets. For example, see the most recent editions of our healthcare team's Private Market Checkup and technology team's Private Market Pulse.

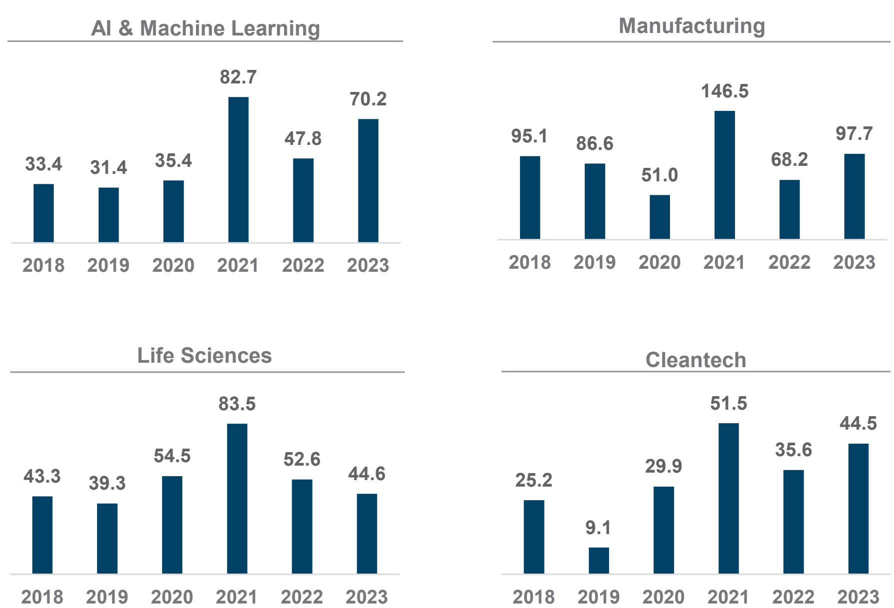
As illustrated in exhibit 9, private equity funding peaked in 2021 and has slowed notably over the past two years given a much more challenging environment for new company formation, capital market activity, and M&A flow. We expect a rebound in activity in the next few years as the cost of capital stabilizes or declines. Even in a leaner environment for new company funding, we continue to see very active subverticals, such as artificial intelligence, cleantech, life sciences/biotech, as well as manufacturing, as shown in exhibit 10.

Exhibit 9
U.S. Venture Capital and Private Equity Funds Raised ($ billions)



Source: PitchBook Data, Inc.

Exhibit 10
U.S. Venture Capital and Private Equity Capital Invested by Vertical ($ billions)



Source: PitchBook Data, Inc.

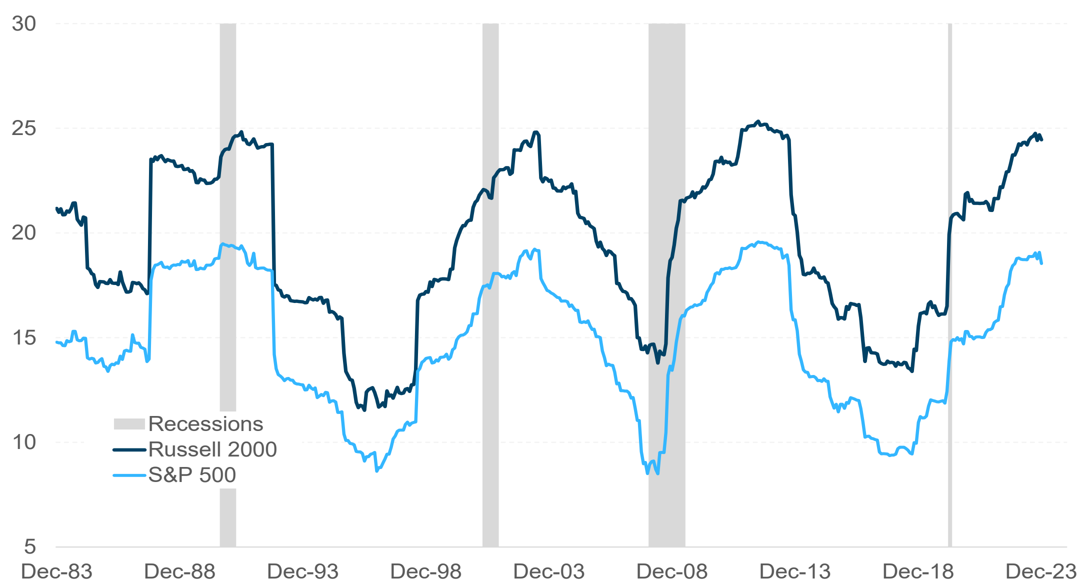
Strategy Shortcomings
Our strategy of focusing on emerging, quality growth has limitations. Simply put, investing in the emerging growth phase rather than during the more established portion of a company's lifecycle results in greater risk and volatility.

Valuation Compression
Our higher-growth universe tends to be valued above that of broader market indices, relying on projected cash flows further into the future. These estimated future cash flows, when discounted back to a valuation today, are far more sensitive to rising interest rates than more mature stocks. Thus, valuation compression in small- and midcap growth stocks during periods of rising cost of capital tends to be greater than the broader market, just as we experienced during the past one to two years.

Fundamental Volatility
Our focus on companies that are in what we perceive to be the emerging growth phase of development also yields greater volatility in fundamentals. Disruptive innovations often fail. And even when they succeed, management teams then must attempt to scale and fund operations, evolve the leadership skills, and anticipate competitive and regulatory responses. When inevitable setbacks occur, our research analysts must determine if the hurdles are either temporary growing pains or indications that the odds of longer-term success are deteriorating.

Ultimately, the elevated likelihood of valuation compression and fundamental volatility culminates in higher volatility of returns. As shown in exhibit 11, the volatility of annualized returns for the Russell 2000 is meaningfully higher than that for the S&P 500, demonstrating the added risk of our strategy.

Exhibit 11
Volatility of Annualized Returns: S&P 500 vs. Russell 2000
Five-Year Trailing Standard Deviations of Annualized Monthly Return



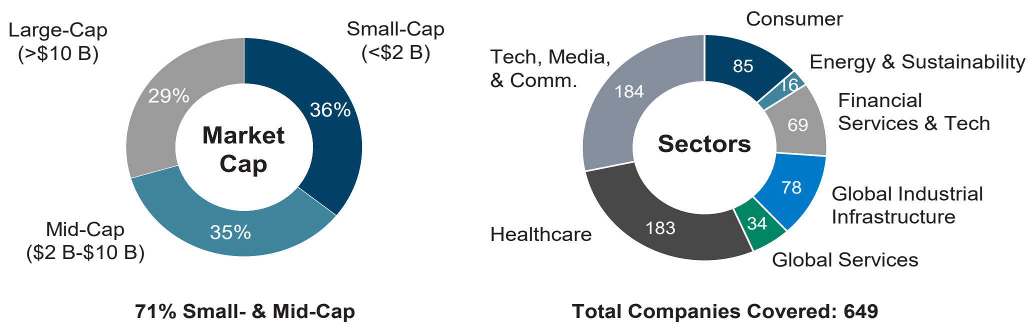
Sources: Bloomberg and William Blair Equity Research

William Blair's Equity Research Universe

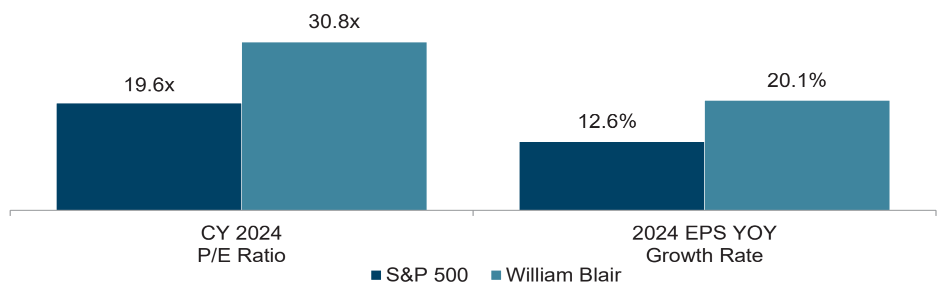
Our research department today consists of 35 analyst teams across 7 industry verticals: technology, healthcare and biotechnology, consumer, financials, industrials, energy and sustainability, and global services. Additional details of our research coverage are outlined in exhibit 12.

Exhibit 12
William Blair Equity Research Coverage Statistics

Coverage Core Statistics



Valuation and Growth Profile



Note: data as of 12/31/23; valuation and growth profile excludes companies with losses per share
Sources: FactSet and William Blair Equity Research

Conclusion

William Blair's equity research mission has remained largely unchanged over the past several decades even as our tactics evolve with new investment technologies and client needs. We strive to identify the best disruptive business models that have the potential to thrive over the long term. Our research analysts work hard to identify these companies before they are investable from a public standpoint and thus widely discovered by investors. And as a result, our analysts often become thought leaders in their industry verticals, spotting and articulating key trends that will shape the investing landscape for the coming decade.

While the brokerage and asset management industries have undergone tremendous change over the past few decades, we believe our approach and our focus on emerging, quality growth stocks at the smaller end of the capitalization spectrum can and does yield attractive investment ideas for our clients. Our strategy can fall out of favor at times, as has been the case over the past few years, but 47 years of CBV results indicate that the approach works for patient investors. We are heartened to see that our approach has yielded superior investment returns over the long term. As our founder William McCormick Blair said 88 years ago:

"When our clients succeed, the firm's success will follow."

The prices of the common stock of public companies mentioned in this report follow:

Akamai Technologies, Inc. (Outperform)	$110.92
Alphabet, Inc (Outperform)	$139.78
Amazon.com, Inc. (Outperform)	$176.76
Apple Inc.	$180.75
Meta Platforms, Inc. (Outperform)	$490.13
Seven and I Holdings	$22.50

IMPORTANT DISCLOSURES

This report is available in electronic form to registered users via R*Docs™ at https://williamblair-library.bluematrix.com or www.williamblair.com.

Please contact us at +1 800 621 0687 or consult https://www.williamblair.com/equity-research/coverage for all disclosures.

Additional information is available upon request.

Current Rating Distribution (as of February 29, 2024):

Coverage Universe	Percent	Inv. Banking Relationships*	Percent
Outperform (Buy)	70	Outperform (Buy)	8
Market Perform (Hold)	30	Market Perform (Hold)	2
Underperform (Sell)	1	Underperform (Sell)	0

*Percentage of companies in each rating category that are investment banking clients, defined as companies for which William Blair has received compensation for investment banking services within the past 12 months.

The compensation of the research analyst is based on a variety of factors, including performance of his or her stock recommendations; contributions to all of the firm's departments, including asset management, corporate finance, institutional sales, and retail brokerage; firm profitability; and competitive factors.

OTHER IMPORTANT DISCLOSURES

Stock ratings and valuation methodologies: William Blair & Company, L.L.C. uses a three-point system to rate stocks. Individual ratings reflect the expected performance of the stock relative to the broader market (generally the S&P 500, unless otherwise indicated) over the next 12 months. The assessment of expected performance is a function of near-, intermediate-, and long-term company fundamentals, industry outlook, confidence in earnings estimates, valuation (and our valuation methodology), and other factors. Outperform (O) - stock expected to outperform the broader market over the next 12 months; Market Perform (M) - stock expected to perform approximately in line with the broader market over the next 12 months; Underperform (U) - stock expected to underperform the broader market over the next 12 months; not rated (NR) - the stock is not currently rated. The valuation methodologies include (but are not limited to) price-to-earnings multiple (P/E), relative P/E (compared with the relevant market), P/E-to-growth-rate (PEG) ratio, market capitalization/revenue multiple, enterprise value/EBITDA ratio, discounted cash flow, and others. Stock ratings and valuation methodologies should not be used or relied upon as investment advice. Past performance is not necessarily a guide to future performance.

The ratings and valuation methodologies reflect the opinion of the individual analyst and are subject to change at any time.

Our salespeople, traders, and other professionals may provide oral or written market commentary, short-term trade ideas, or trading strategies-to our clients, prospective clients, and our trading desks-that are contrary to opinions expressed in this research report. Certain outstanding research reports may contain discussions or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent report on a company or issuer. Our asset management and trading desks may make investment decisions that are inconsistent with recommendations or views expressed in this report. We will from time to time have long or short positions in, act as principal in, and buy or sell the securities referred to in this report. Our research is disseminated primarily electronically, and in some instances in printed form. Research is simultaneously available to all clients. This research report is for our clients only. No part of this material may be copied or duplicated in any form by any means or redistributed without the prior written consent of William Blair & Company, L.L.C.

This is not in any sense an offer or solicitation for the purchase or sale of a security or financial instrument. The factual statements herein have been taken from sources we believe to be reliable, but such statements are made without any representation as to accuracy or completeness or otherwise, except with respect to any disclosures relative to William Blair or its research analysts. Opinions expressed are our own unless otherwise stated and are subject to change without notice. Prices shown are approximate.

If the recipient received this research report pursuant to terms of service for, or a contract with William Blair for, the provision of research services for a separate fee, and in connection with the delivery of such research services we may be deemed to be acting as an investmentadviser, then such investment adviser status relates, if at all, only to the recipient with whom we have contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing). If such recipient uses these research services in connection with the sale or purchase of a security referred to herein, William Blair may act as principal for our own account or as riskless principal or agent for another party. William Blair is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

This material is distributed in the United Kingdom and the European Economic Area (EEA) by William Blair International, Ltd., authorised and regulated by the Financial Conduct Authority (FCA). William Blair International, Limited is a limited liability company registered in England and Wales with company number 03619027. This material is only directed and issued to persons regarded as Professional investors or equivalent in their home jurisdiction, or persons falling within articles 19 (5), 38, 47, and 49 of the Financial Services and Markets Act of 2000 (Financial Promotion) Order 2005 (all such persons being referred to as “relevant persons”). This document must not be acted on or relied on by persons who are not “relevant persons.”

William Blair & Company, L.L.C. licenses and applies the SASB Materiality Map® and SICSTM in our work.