Industry Surveys

Asset Management & Custody Banks

AUGUST 2022

Catherine Seifert
Equity Analyst

Siti Salbiah
Industry Analyst

CONTENTS

Contacts

Sales Inquires & Client Support
800.220.0502
cservices@cfraresearch.com

Media Inquiries
press@cfraresearch.com

CFRA
977 Seminole Trail, PMB 230
Charlottesville, VA 22901

Contributors

Raymond Jarvis
Senior Editor

Atifi Kuddus, Geraldine Tan
Associate Editors

Marc Bastow
Contributing Editor

CHARTS & FIGURES

NEW THEMES

What's Changed: Year-to-date through June 2022, ETF fund flow trends have regained their positive momentum and are poised to be the second highest on record. Check out the ETF fund flow chart on page 12.

What's Changed: The Inflation Reduction Act 2022 has several tax implications for corporations, but CFRA thinks the Act will have a limited impact on most traditional asset managers and custody banks. Read more on page 26.

EXECUTIVE SUMMARY

CFRA has a neutral fundamental outlook on the Asset Management and Custody Banks sub-industry, amid our view that secular challenges in this industry will persist and be exacerbated by a more challenging operating environment in 2022 amid more muted market returns. Below we outline our thoughts on several trends that will impact the industry in the latter part of 2022 and into 2023.

Demand for Exchange Traded Funds Remains Remarkably Robust

Coming off a record year in 2021, ETF fund flow trends were expected to be under pressure in 2022 amid a market selloff. However, inflows for the first six months of 2022 topped $342 billion, greater than all previous annual inflow volumes with the exception of 2021's. The record-setting demand for these low-cost investment vehicles has been remarkable, particularly amid the correction in both equity and fixed income markets that persisted for much of the first half of 2022. Market leaders Vanguard and BlackRock accounted for the majority of the inflow volume, though a number of smaller, specialized ETF providers have also gained traction. While these record-setting inflow trends bode well for the handful of leading ETF providers, they also represent a continuation of the trend toward lower-cost passive investment strategies that exert downward pressure on active asset managers' business models.

Traditional Asset Managers Have Been Diversifying Their Asset Mixes Via Acquisitions

Merger and acquisition (M&A) activity in the asset management pace remained relatively brisk, year to date through August 11, 2022, with 144 announced transactions valued at $2.9 billion. Some of the more notable transactions involved traditional asset managers (like AllianceBernstein and Franklin Resources) acquiring assets in the private credit and/or alternative space as a way to diversify, a trend we see accelerating in coming periods, particularly among asset managers without a significant presence in passive investments (like ETFs).

Private Equity Business Models Continue to Evolve Amid Favorable Long Term Secular Trends

CFRA has a positive fundamental outlook on the private equity subset of the asset management industry, driven by favorable demand trends that will likely remain largely intact, despite the rise in interest rates, as many institutional investors continue to increase their exposure to alternative investments, including those in private equity. Fundraising remains very strong and with an estimated $1.9 trillion of "dry powder" or capital available to be deployed, we expect private equity deal-making to remain active in 2022. However, many top private equity firms have also shifted their business mixes to include business with recurring revenue streams (like insurance and more traditional asset management) as a way of diversifying and increasing levels of permanent capital.

Demand for Socially Responsible Investment Products Will Continue to Accelerate in 2022, but so Will the Lines Between ESG and "Regular" Investments

CFRA estimates that professionally managed assets employing environment, social, and governance – or ESG – guidelines grew at a compound annual growth rate (CAGR) of 14% over the last 20 years, to reach more than $30 trillion at the start of 2022. We expect growth to accelerate to more than 20% annually over the next several years, fueled by demographics, as younger investors seek out investments with sound climate change and sustainability practices. As socially responsible investing (SRI) emerges as a "must-have" investment component, so do the lines between SRI and "regular" asset management – potentially diluting the value proposition of ESG-labeled investment products.

Shares of Publicly Traded Asset Managers Have Remained Under Pressure

The decline in asset values brought on by rising inflation and the Fed's aggressive tightening actions have pressured shares of most publicly traded assets managers***.*** Year to date through August 5, 2022, the S&P Asset Management and Custody Bank sub-industry index declined by 23.5%, versus the 13% decline in the S&P 500 during the same period. This downward pressure on revenue levels from the drop in asset values adds added pressure to an industry already pressured by secular changes. However, any sustained recovery in asset values will likely provide a catalyst for most asset managers' shares.

ASSET MANAGEMENT & CUSTODY BANKS

Outlook: Neutral

MARKET CAP BREAKDOWN*

(as of August 18, 2022)

RANK NO.	COMPANY NAME	MARKET CAP ($ billion)
1	BlackRock	112.1
2	Blackstone	74.7
3	KKR & Co.	48.6
4	BNY Mellon	36.2
5	Apollo	33.8
	Others†	173.4

Source: CFRA, S&P Global Market Intelligence.
*Companies included in the S&P 1500 index.
†Refer to the Comparative Company Analysis section of this survey for other companies in the industry.

ETF FOCUS

XLF Financial Select Sector SPDR	AUM ($M) 34,869.1	Expense Ratio 0.12
VFH Vanguard Financials	AUM ($B) 9,710.4	Expense Ratio 0.10
IYF iShares U.S. Financials	AUM ($B) 2,181.2	Expense Ratio 0.42
IYG iShares U.S. Financial Services	AUM ($B) 1,740.4	Expense Ratio 0.42
FNCL Fidelity MSCI Financials Index	AUM ($B) 1,661.5	Expense Ratio 0.08

BY THE NUMBERS

$7.2 trillion U.S ETF Assets in 2021

$22.3 trillion U.S. Mutual Fund Assets as of June 2022

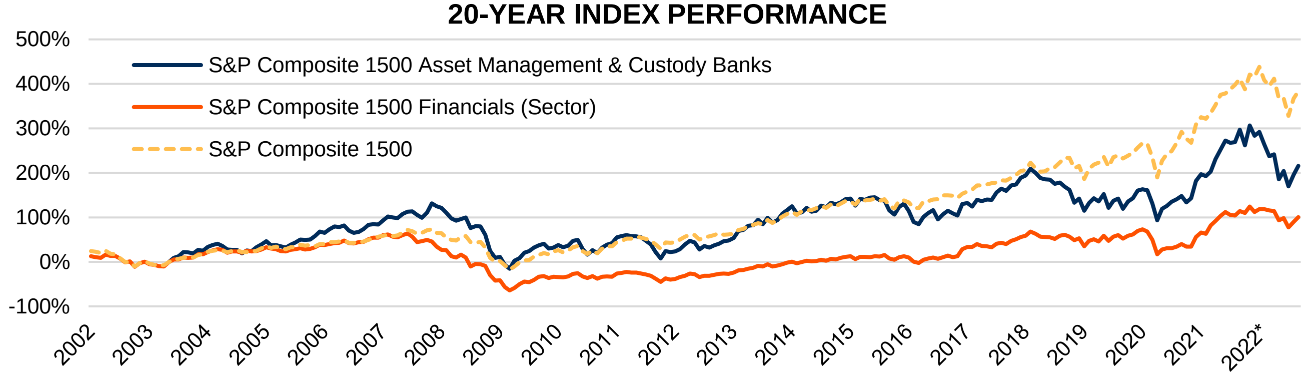
97% Share of ETF Assets held by the top five ETF providers as of August 2022

$39.4 trillion U.S. Retirement Market Assets in 2021

63% U.S. households with tax-advantaged retirement savings

$129,157 Average 401(k) balance in 2021

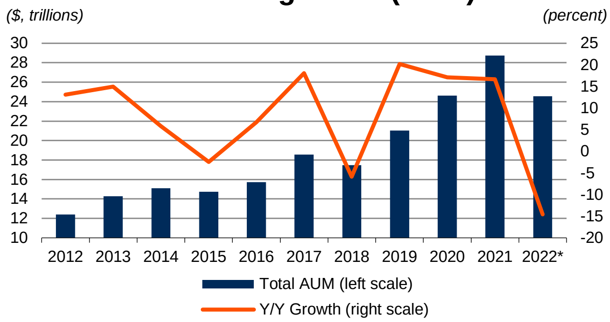
20-YEAR INDEX PERFORMANCE



*Data through August 18, 2022.
Source: S&P Global Market Intelligence.

FINANCIAL METRICS

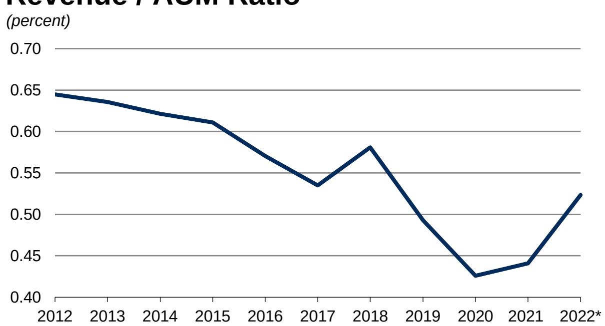
Assets Under Management (AUM) Growth



*Data through Q2.
Source: CFRA, S&P Global Market Intelligence.

- Growth in AUM, coupled with the mix of those assets (and their related fee structures), is a primary driver of revenue gains for the asset management industry.
- CFRA expects a pullback in the first half of 2022 will likely limit full-year 2022 growth to around 5%. This fallback in asset values portrays some secular challenges for this industry. The continued downward pressure on asset management fees, amid an ongoing and accelerating shift to passive and money market investments (both of which generate lower fees), will dampen the growth in asset management fees – a key revenue source.

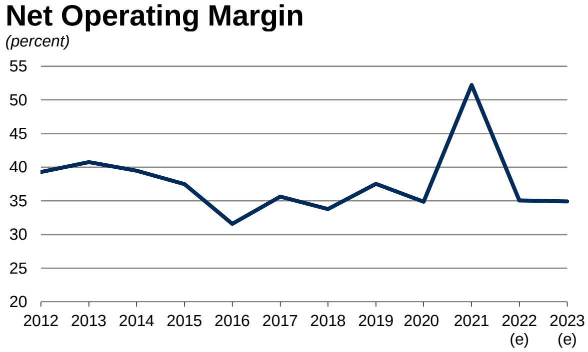
Revenue / AUM Ratio



*Latest available data through Q1.
Source: CFRA, S&P Global Market Intelligence.

- The ratio of revenue to AUM is a good metric to assess the profitability and mix shift of a particular firm compared to the broader industry.
- Passive investment fees have recently undercut those of actively managed funds. A new wave of price competition is emerging in the active investment management space, including the introduction of no-fee ETFs, leading to a downward trend in the past few years. However, we expect an upward trajectory in the revenue/AUM ratio and see a leveling off in the coming periods.

Net Operating Margin

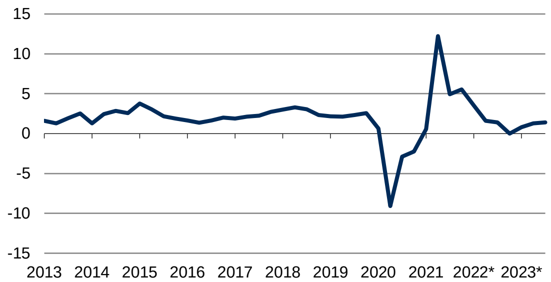


Source: CFRA, S&P Global Market Intelligence.

- A combination of a deceleration in AUM growth and downward pressure on fees has pressured the margins of most asset managers and custody banks in the past few years.
- Some firms have responded by embracing technology to cut costs and enhance client engagement, while others have struggled with high levels of fixed costs that continued to pressure margins. We anticipate several firm-wide cost-cutting and restructuring initiatives undertaken in recent years will help stabilize operating margins.
- We forecast the operating margin to reach 35% in 2022 and 34.9% in 2023.

KEY INDUSTRY DRIVERS

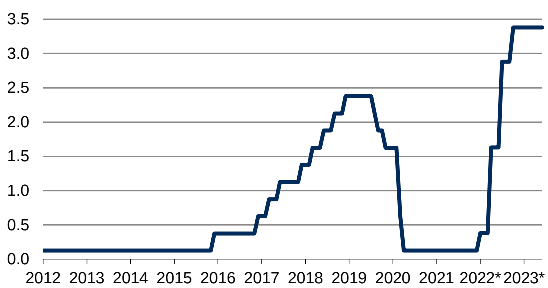
U.S. Real GDP Growth
(percent change, Y/Y)



*Actual data through Q2 2022, projected data by Action Economics.
Source: Bureau of Economic Analysis, Action Economics.

- In June 2022, the Federal Open Market Committee updated its forecasts for U.S. real GDP growth, where it is expected to reach 1.7% growth in 2022 (versus an earlier prediction of a 2.8% growth), a 1.7% growth in 2023 (versus earlier forecast of 2.2%), and an estimate of 1.9% real GDP growth in 2024 (versus earlier prediction of 2.0%). This compares with the forecast from Action Economics, which sees a flat real GDP growth of 0% in 2022.
- The World Bank projected global GDP to decline reaching 3.0% in 2022 and 2023, reflecting a potential global economic downturn. This is factored by inflationary pressures, coupled with bottlenecks in global supply chains due to the Russia/Ukraine crisis.

U.S. Interest Rates
(target midpoint, percent)

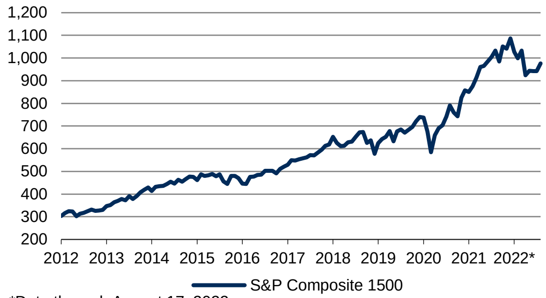


*Actual data through Q2 2022, projected data by Action Economics.
Source: U.S. Federal Reserve, Action Economics.

- Action Economics expects the Fed Funds Rate to average 1.71% in 2022 versus 0.13% in 2021.
- The yield curve (usually the 10-year versus the 2-year Treasury Spread) is expected to remain positively sloped through 2023, though the yield on the 2-year Treasury note is expected to average 2.64% in 2022, 3.28% in 2023, and 3.45% in 2024. The yield on the 10-year Treasury is forecasted to average 2.74% in 2022, 3.31% in 2023, and 3.48% in 2024.
- From an investment perspective, a persistently and historically high interest rate environment tends to increase the number of catalysts for financial services stocks. Investors are wary on the deterioration in asset values and negative year-to-year growth expected in 2022. This is evidenced by the 4.7% decrease in the S&P financial sector versus the 2.9% decline in the broader S&P 500 Index, year-to-date through August 17, 2022.

Stock Market Performance

(index value)



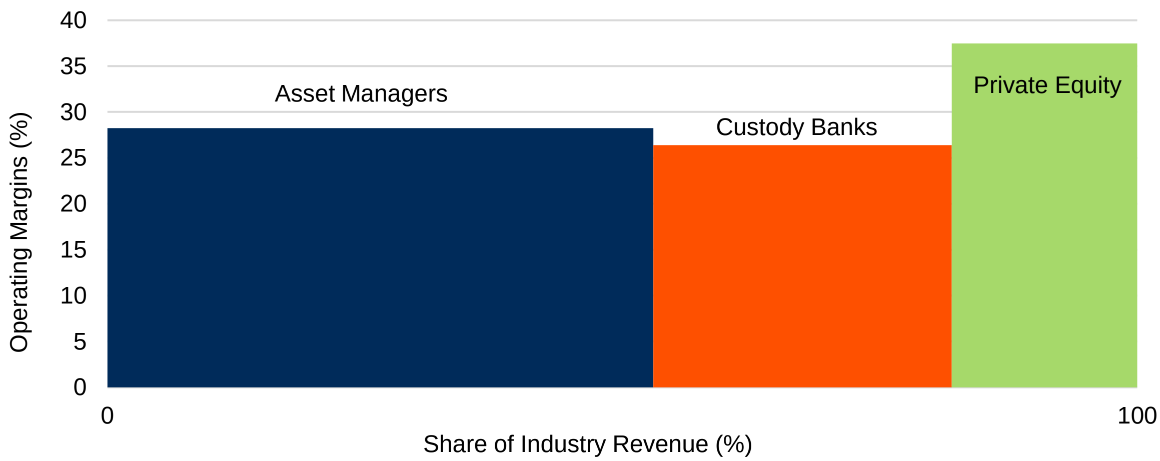
*Data through August 17, 2022.
Source: S&P Global Market Intelligence.

- Despite outflows, equity strategies still represent nearly half of the asset management industry's AUM base. Hence, the direction of these assets is an important driver to overall results, particularly as fees come under pressure.
- CFRA's 12-month forward S&P 500 target is 4,675 (as of August 17, 2022).

INDUSTRY TRENDS

Asset managers are heading into 2023 without the tailwind of a recovery in asset values that drove results in 2021, though asset values have started to recover. Moreover, many of the secular challenges facing traditional asset managers still remain. However, demand for saving and investment products is being buoyed by demographics and a labor market recovery. Government actions taken in the last several years to address the retirement crisis, masked by the effects of the pandemic, may also soon enhance the long-term demand for savings and retirement products as an aging population needs to save for retirement. CFRA has a neutral fundamental outlook on the Asset Management and Custody Banks sub-industry, based on our view that favorable demographic trends are being offset by a secular shift to passive investing, coupled with heightened technological challenges, that have threatened the very existence of some asset managers. This group contains three main sub-sets – asset managers, custody banks, and private equity firms. Highlighted below is CFRA's overview of each group, as well as legislative and regulatory issues that impact the entire industry.

PROFIT SHARE MAP OF ASSET MANAGEMENT & CUSTODY BANKS SUB-INDUSTRY
(As of the second quarter of 2022)



Source: CFRA, S&P Global Market Intelligence.

Competitive Environment

ASSET MANAGEMENT SUB-INDUSTRIES PORTER'S COMPETITIVE MATRIX				
	COMPETITIVE RIVALRY AMONG EXISTING FIRMS	CUSTOMER BARGAINING POWER	THREAT OF SUBSTITUTION	THREAT OF NEW ENTRY
ASSET MANAGERS	Driven by performance and cost. Can be mitigated by superior performance and ease of transacting	Strong among institutional clients, mitigated by regulatory constraints	Threat is high and driven by growing popularity of ETFs	Threat still exists, but changing nature of distribution has limited the "shelf space" at large advisors and brokers, creating a greater moat around top tier products
CUSTODY BANKS	Limited by concentrated nature of this business. Increasingly being driven by tech and breadth of capabilities	Limited by concentrated number of industry participants, influenced by suite of capabilities offered by each firm	Threat is very low, given the complex nature of the custody and clearing business	Threat is low, but if incumbents stumble in their technology initiatives, the threat could rise
PRIVATE EQUITY	Limited by industry's high capital requirements, heightened by threat from other sources of capital (hedge funds, sovereign wealth funds, insurers, investment banks)	Impacted by the concentration of clients within a particular firm, mitigated by a private equity firm's specialization of in-demand capability	Driven by competing investment vehicles and their respective performance and returns, can be mitigated by strong performance	Threat is low, though capital required limits new entrants

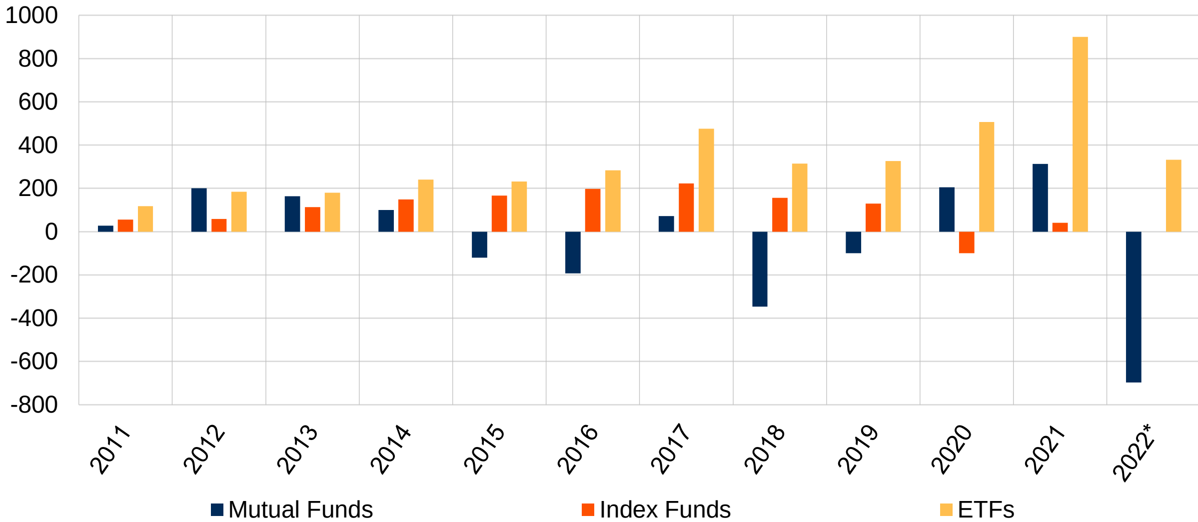
Source: CFRA Research.

Asset Managers

Recent Fund Flows Highlight Diverging Trends

The latest available asset management fund flow trends highlight the diverging trends between mutual funds (particularly equity mutual funds) and exchange traded funds (ETFs), continuing a multi-year trend. However, one shift that occurred in the first quarter of 2022 was while total mutual fund flows were positive during the quarter, the $291 billion of long-term inflows represented a marked decline from the $800 billion of long-term inflows reported in the fourth quarter of 2021. Money market flows shifted rather considerably during the first quarter of 2022, to a net outflow of $210 billion, from net inflows of $308 billion in the fourth quarter of 2021, as investors shifted to "risk-on" equity and fixed income assets. As the year progresses, we expect investors to tread back into equities and fixed income vehicles as the earlier selloff creates more attractive valuations, though we expect the ongoing shift from mutual funds to ETFs to continue. This shift will likely exert additional downward pressure on asset managers' revenue streams, since we estimate the weighted average index equity ETF expense ratio to be 0.18% to 0.20% and the average money market account expense ratio was 0.22%, versus 0.50% for the average equity mutual fund.

Fund Flows
($, in billion)



*Mutual funds and ETFs data as of H1 2022, Index Funds latest available data as of 2021.
Source: Investment Company Institute, ETF.com.

Despite this erosion in active equity assets, domestic and global equity mutual funds remain a core product for active managers, accounting for more than half of mutual fund assets under management (AUM). Because the average fee structure (about 0.58% of AUM) for equity mutual funds is one of the highest in the industry, equity mutual funds remain a key revenue source for many asset managers, but also a source of vulnerability since equity mutual funds have suffered the greatest level of net asset outflows. Note: the data in the table below is for the entire asset management industry, which includes a number of privately held firms. The discussion that follows is based on data from publicly traded asset managers in our analytical coverage universe.

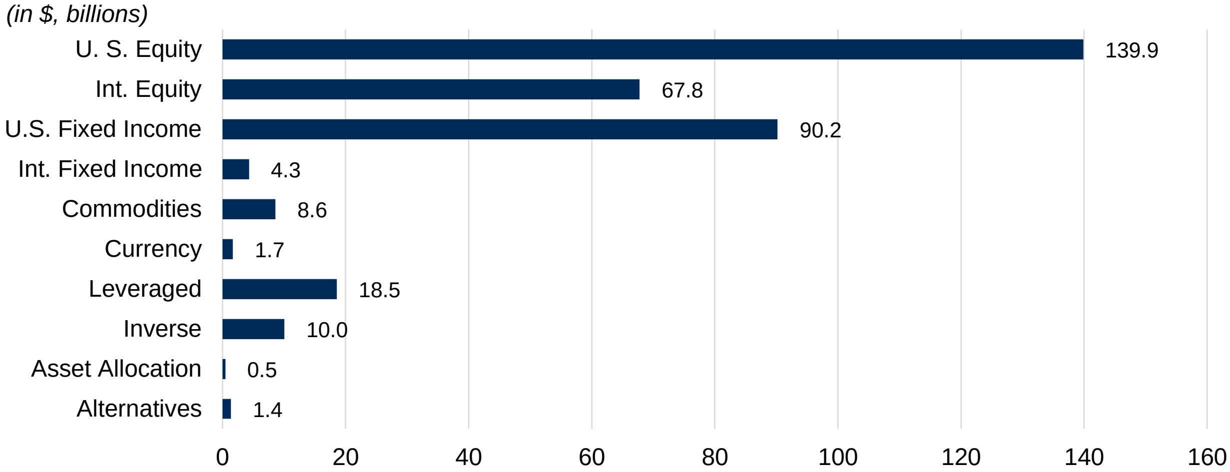
MUTUAL FUND ASSETS UNDER MANAGEMENT BY STRATEGY*
(in $, billions)

FUND TYPE	JUNE 2022	MAY 2022	% CHANGE
Domestic Equity	8,705	9,512	-8.5
World Equity	2,669	2,932	-9.0
Hybrid	1,592	1,705	-6.7
Taxable Bond	3,995	4,138	-3.4
Municipal Bond	800	832	-3.9
Money Market	4,541	4,516	0.6
Total AUM	22,302	23,635	-5.6

*Latest available data.

Source: Investment Company Institute.

ETF FUND FLOWS BY ASSET CLASS 2022*
(in $, billions)

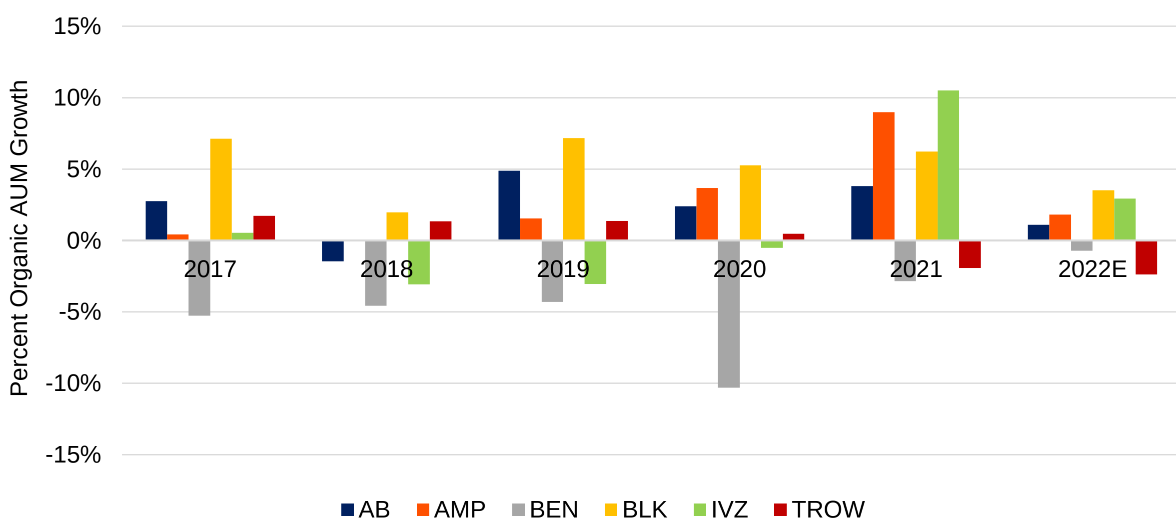


*As of June 30, 2022.
Source: ETF.com.

Despite some weakness earlier in the year, ETF fund flow trends have regained their positive momentum and are poised to be the second highest on record (after a robust 2021). As the chart above highlights, ETF inflows exceeded $340 billion, year to date through June 30, 2022. This compares to net inflows that totaled $900 billion for all of 2021 (which represented a 77% rise from 2020 inflows of $507.4 billion). While virtually all asset classes posted inflows, U.S. equity ETFs paced the year-to-date inflow volume and will likely continue to do so, despite an increase in investor enthusiasm for fixed income ETFs.

The Ability to Grow Organically Will Be a Key Differentiator Among Asset Managers
As the chart below highlights, organic growth trends have varied by firm, but have remained fairly consistent among the historically solid performers, like BlackRock (BLK), AllianceBernstein (AB), and Ameriprise Financial (AMP). The ability to grow AUM through asset inflows will provide the shares of those firms with a catalyst for outperformance during periods of more modest market appreciation, in our view.

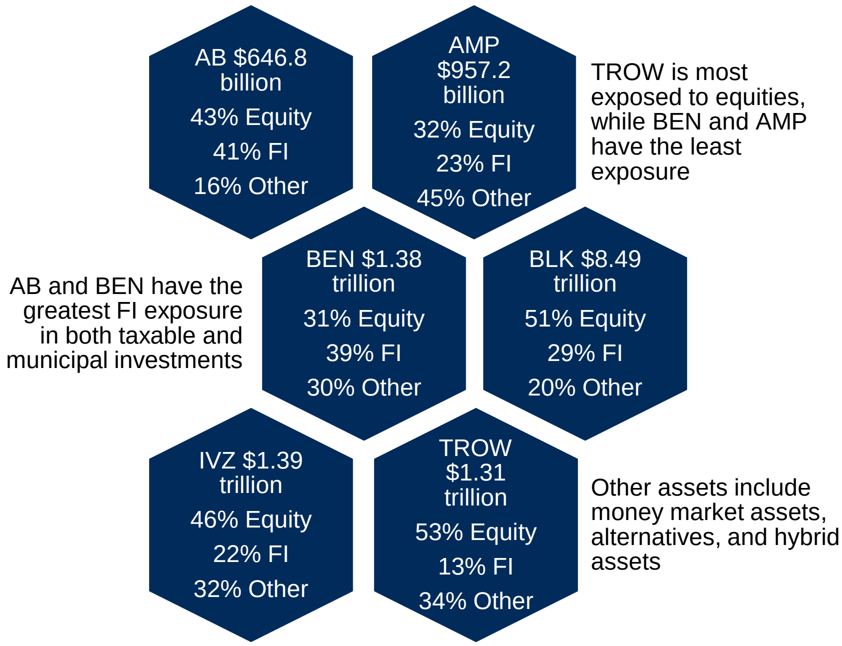
ORGANIC AUM GROWTH TRENDS BY FIRM (FUND FLOW RELATIVE TO AUM)



Source: S&P Global Market Intelligence, Company Filings.

A diversified asset base is another key competitive advantage and a stabilizing factor amid expected ongoing volatility in fund flow trends. As the chart below highlights, the firms highlighted here have varying degrees of exposure to fixed income and equity assets, with T.Rowe Price Group (TROW) having the largest exposure to active equities and AMP and Franklin Resources (BEN) the least.

AUM MIX BY ASSET CLASS*



*As of June 30, 2022.

MUTUAL FUND AND ETF LONG-TERM FUND FLOW TRENDS BY STRATEGY

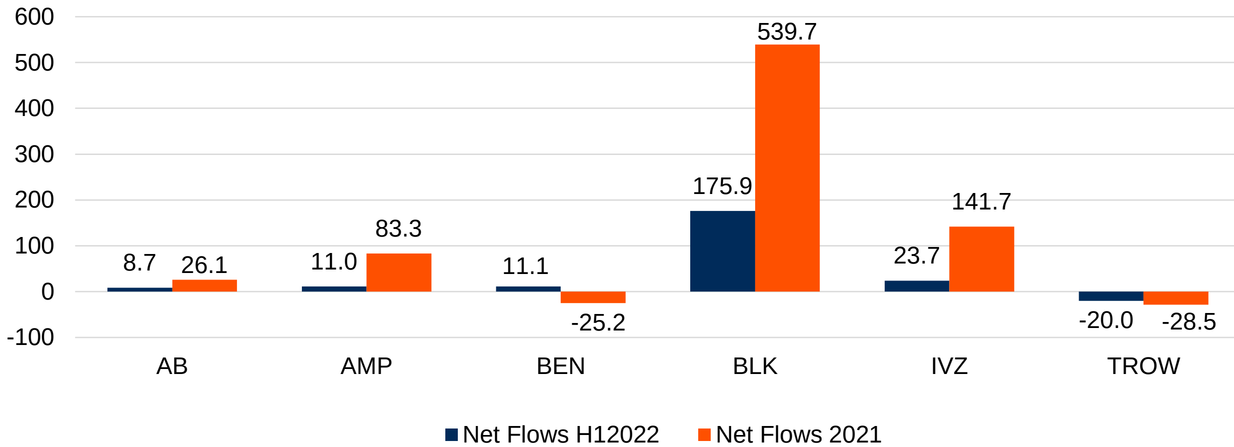
Fund Type	Net Asset Flows H1 2022 ($ Billion)	Net Asset Flows H1 2021 ($ Billion)	Net Asset Flows 2021 ($ Billion)
Domestic Equity	8.7	10.7	120.5
World Equity	2.7	3.5	192.4
Hybrid	1.6	1.8	-5.9
Taxable Bond	4.0	4.6	480.6
Municipal Bond	0.8	0.9	102.0
Total Long-Term Net Flows	17.8	21.5	889.6

Source: Investment Company Institute.

A Core Strategy Saw a Recovery in Fund Flow Trends

Domestic equity mutual funds are a key product line for most asset managers and the largest strategy, industry wide, accounting for around 40% of mutual fund industry AUM. Because the fees associated with most active equity products tend to be the highest among most investment strategies, fund flows here have a significant impact on many asset managers' revenue streams. (CFRA estimates expense ratios for equity mutual funds average around 0.55% before loads and 12b-1 fees, versus around 0.45% for fixed income funds and less than 0.25% for ETFs.) As the table above highlights, inflows into equity products in the first half of 2022 posted $9 billion for domestic equity funds and $3 billion for overseas equity funds, versus the same period year-ago of $11 billion and almost $4 billion, respectively. However, more than two-thirds of 2021's inflows were into fixed income products, a trend CFRA expects will continue into 2022 as rising interest rates bump up investment yields.

FUND FLOW TRENDS BY FIRM
(for the six months ended June 30, 2022, in $, billions)



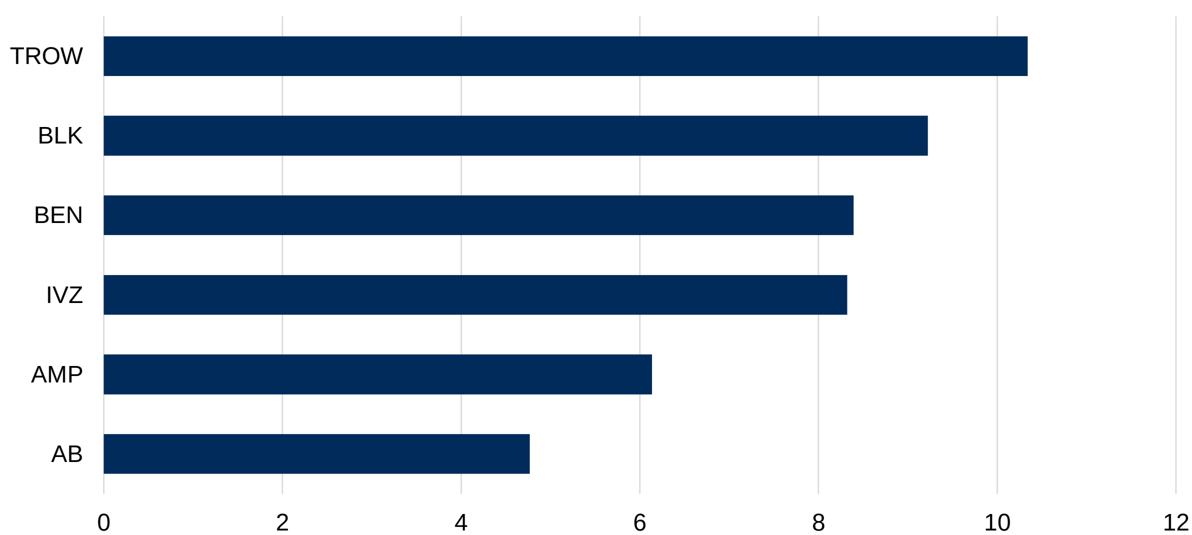
*Legg Mason was acquired by Franklin Resources in July 2020.
Source: S&P Global Market Intelligence, Company Reports.

Fund Flow Trends Vary Widely by Firm

As the chart above indicates, fund flow trends vary widely by firm, a bifurcating trend CFRA thinks investors need to focus on in the coming year, as revenue growth in 2022 will likely be more dependent on organic growth amid more muted performance expectations. Many active managers (including BEN and TROW) experienced net outflows, particularly in equity products, as investors shifted to lower cost and more liquid ETFs, continuing a multi-year trend. There were a handful of standouts, though. Most notably, BLK experienced nearly $176 billion of net inflows during the first half of 2022, reflecting strong fixed income mandates and its continued dominance of the ETF space with its iShares ETF franchise.

While BLK continues to lead the pack on an absolute basis, relative toothier size, Invesco (IVZ) and AllianceBernstein (AB) have produced some impressive fund flow trends in recent periods.

10-YEAR COMPOUND ANNUAL RATE OF AUM (2011 to H1 2022)
(in percent)



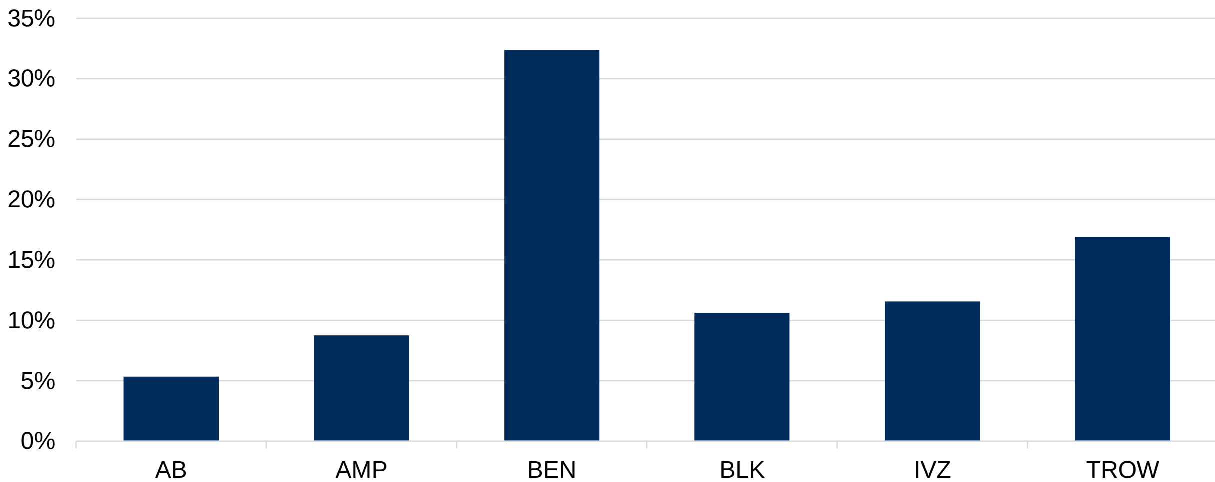
Source: S&P Global Market Intelligence, Company Reports.

Long-Term AUM Growth Rates Reflect Differing Strategies

Considering the confluence of events that have impacted asset managers in recent years, including equity market volatility and a secular shift to passive investing, it is appropriate to take a longer-term view of AUM growth trends. As the chart above indicates, compound annual growth rates over the last 10 years have varied rather significantly by firm. At the top of this heap are firms that have grown above the industry average via an array of strategies. TROW's above-peer rate of growth reflects its stable of actively managed funds with superior performance. We think TROW is at an inflection point, and are concerned that future growth may lag historical trends amid erosion in both fund performance and in organic AUM growth. Conversely, passive investments, like ETFs, are key to the above-peer growth trends at both BLK and IVZ. IVZ has also enhanced its growth prospects through acquisitions. This strategy has also helped growth trends at BEN, and is a trend CFRA expects to see more of in 2022 and beyond, as firms seek diversification, increased growth, and economies of scale. M&A activity among asset managers is also likely to come from outside the industry, as wealth management and brokerage firms seek exposure to the asset management space. Finally, activism in the asset management space is another factor that will indirectly, but significantly, influence growth prospects, as underperforming firms come into activists' crosshairs and are implored to ramp up growth or offer themselves up for sale as a way of increasing value to investors.

REVENUE-TO-AUM RATIO

(for the six months ended June 30, 2022 in percent)



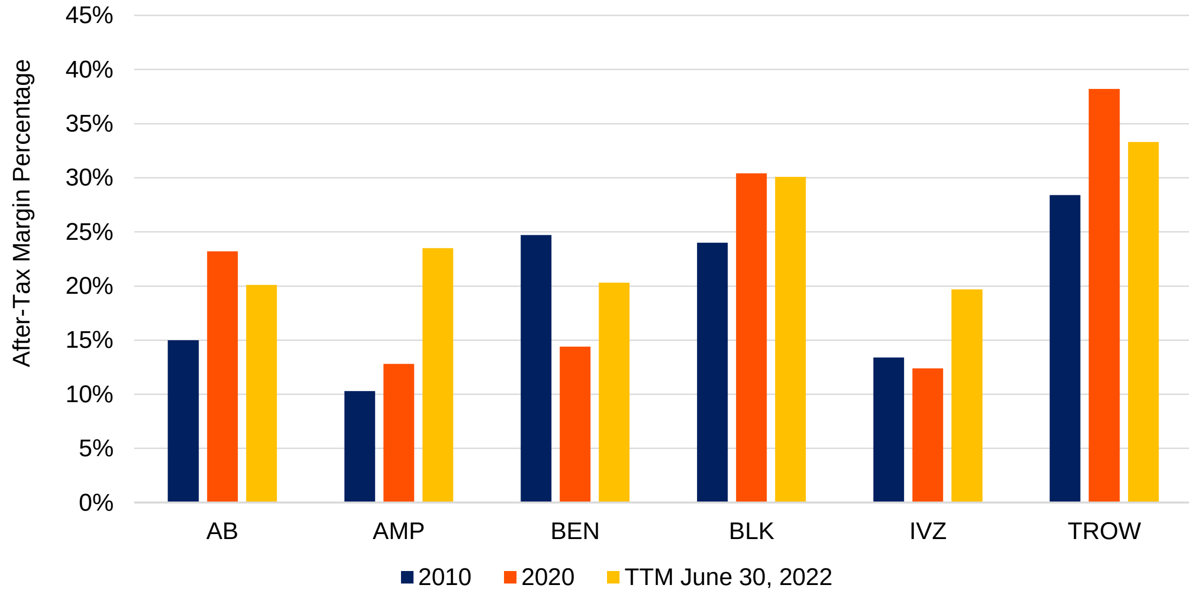
Source: S&P Global Market Intelligence, Company Reports.

These differentiated strategies have helped counter the downward pressure on revenues. An analysis of industry revenue trends highlights the impact of AUM mix on revenues. The ratio of revenue to AUM differs rather markedly by firm, reflecting their differing mix of assets under management. BLK, with more than half of its AUM in lower-fee index and ETF products, not surprisingly is among the firms at the low end of this range, while BEN, whose AUM mix is almost entirely in actively managed funds (many of which are in proprietary products), is at the other end of the spectrum.

Bottom Line Results Show Mixed Margin Trajectories

The degree to which an individual firm has navigated the challenges presented over the last decade can be seen below, which highlights after-tax margins over this time period. As the data shows, there are a handful of firms – most notably BLK, AB, and TROW – that not only have among the highest after-tax margins in the industry but have also steadily increased margins over the last decade, despite the downward pressure in fees amid a shift to passive investments. For the trailing twelve months (TTM) ended June 30, 2022, TROW and BLK are still leading the pack with margins of 33.3% and 30.1% respectively. AMP's different mix of business (including lower margin insurance and annuity operations) has depressed its margins over the last decade, relative to this peer group. However, we see AMP catching up with its peers with a steady growth margin of 23.5% compared to a margin of 20.3% for BEN and 20.1% for AB for the TTM ended June 30, 2022. Meanwhile, IVZ, one of the asset managers in this group that produced lower margins versus a decade ago, has a margin of 19.7% in the TTM ended June 30, 2022.

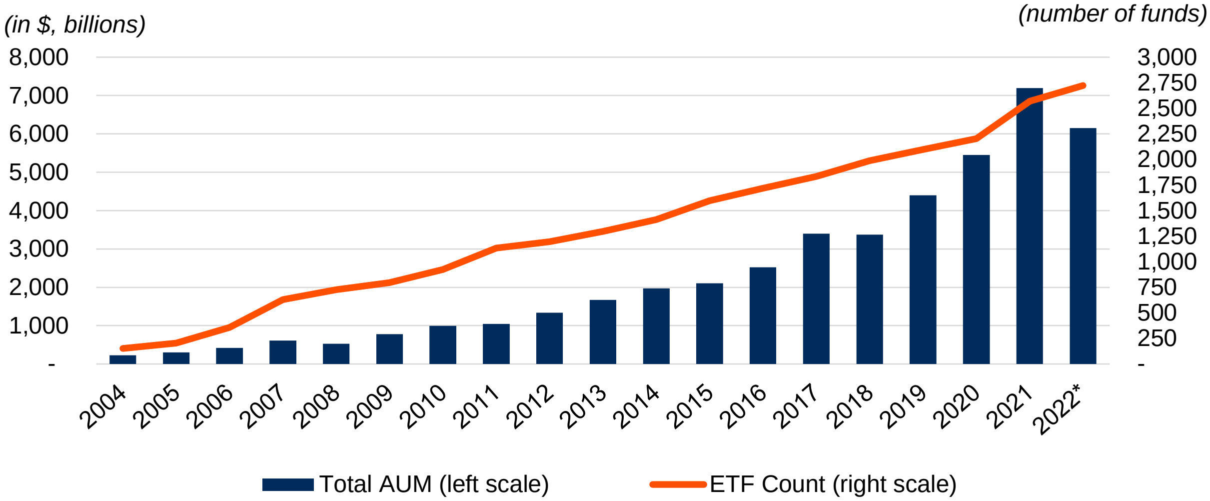
AFTER-TAX MARGINS



Source: S&P Global Market Intelligence, Company Filings.

ETFs Remain a Source of Growth and Innovation, But Also a Bifurcating Force for Asset Managers
From their origins in the early 1990s, ETFs have probably been one of the most heartily embraced product innovations in the asset management industry. As their name implies, ETFs are pooled investment vehicles with shares that can be bought or sold throughout the trading day on a stock exchange at a market determined price. This intraday tradability, coupled with the funds' transparency, tax efficiency, and access to specific markets and/or sectors, has aided their acceptance by both institutional and retail investors. Based on data from the Investment Company Institute, we estimate that assets in ETFs grew at a CAGR of around 20.7% during the 10-year period from 2011 through 2021. This compares to a 10-year CAGR of 9.2% for worldwide regulated open-end funds (which include mutual funds, exchange-traded funds, and institutional funds). As of August 2022, CFRA estimates there were more than 2,500 ETFs with nearly $7 trillion of AUM.

ETF GROWTH TRENDS



*Data as of June 30, 2022.
Source: Investment Company Institute.

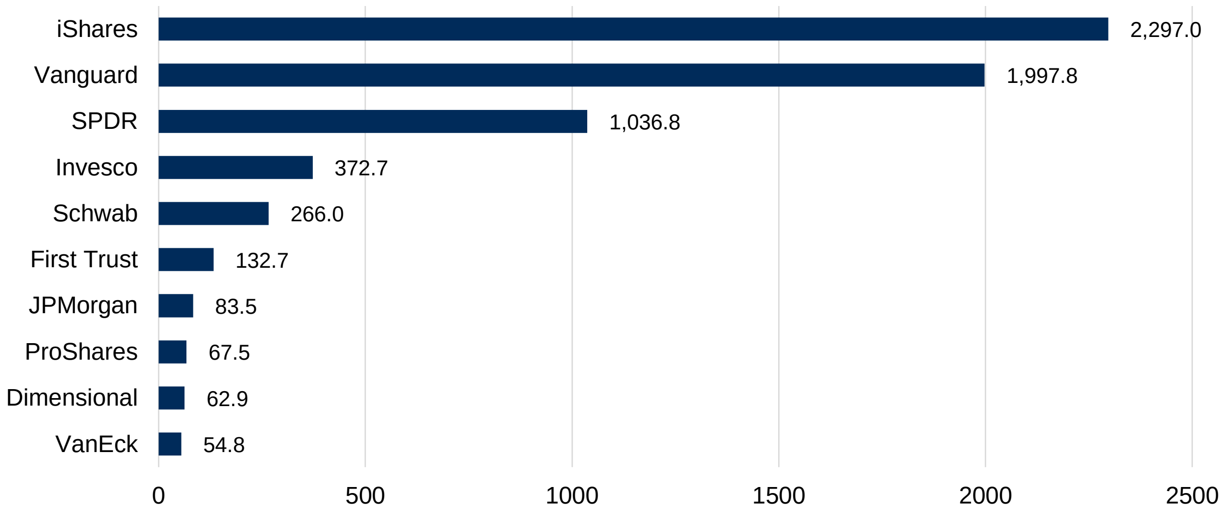
As data in the chart below *(Top 10 ETF Providers)* indicates, the ETF market is dominated by a handful of firms like BlackRock, State Street, and Vanguard. However, there are a number of interesting trends to watch among some of the second-tier players, like Charles Schwab and Invesco. BlackRock, whose iShares ETF franchise is the market leader, has more than 900 funds and nearly $3 trillion in AUM within its suite of ETFs, paced by its iShares Core S&P 500 ETF (IVV). Just behind BlackRock is privately held Vanguard Group, whose ETF AUM base is nearly $2 trillion. A distant third is State Street, a pioneer in the space and creator of the first ETF, created and branded with S&P under the SPDR (S&P Depositary Receipt) name, and now manages more than $1 trillion in more than 100 different ETF strategies.

Barring an aggressive takeover play (which we do not anticipate), the ranks of the top three ETF providers are not likely to change materially. However, below this group are a handful of firms that have aggressively made inroads into this space. Invesco (IVZ), the fourth largest ETF provider, has been expanding and broadening its asset mix and product offerings through acquisitions. We expect this to remain central to the firm's growth strategy. IVZ's latest deal was announced in October 2018 when it agreed to acquire Oppenheimer Funds, Inc. from mutual insurer Mass Mutual for some $5.7 billion in cash and stock. This deal, which closed in late May 2019, propelled IVZ's AUM base to some $1.2 trillion. IVZ previously expanded its presence in the ETF market through two key acquisitions in 2017. In September 2017, IVZ agreed to acquire Guggenheim Investments' ETF business, with some $36.7 billion of AUM at the time the deal was announced. That followed the August 2017 acquisition of Source, a leading European-based ETF provider with $26 billion of AUM. Though market reactions to IVZ's deals have been mixed, we expect the firm to continue to build its ETF presence (which now accounts for more than 20% of total AUM) this way.

Charles Schwab has applied its strategic skills as a disruptor in discount brokerage industry to the ETF space, where it has emerged as one of the fastest growing participants. With a curated line-up of low-cost ETFs, Schwab has more than doubled its ETF AUM in the last two years, and we expect additional growth, possibly from acquisitions.

Given the downward pressure on ETF fees, CFRA expects consolidation among smaller ETF providers to increase. We see this being driven by two factors – the need for smaller ETF providers to gain economies of scale and a desire on the part of asset managers and financial intermediaries to gain or increase their exposure to this market.

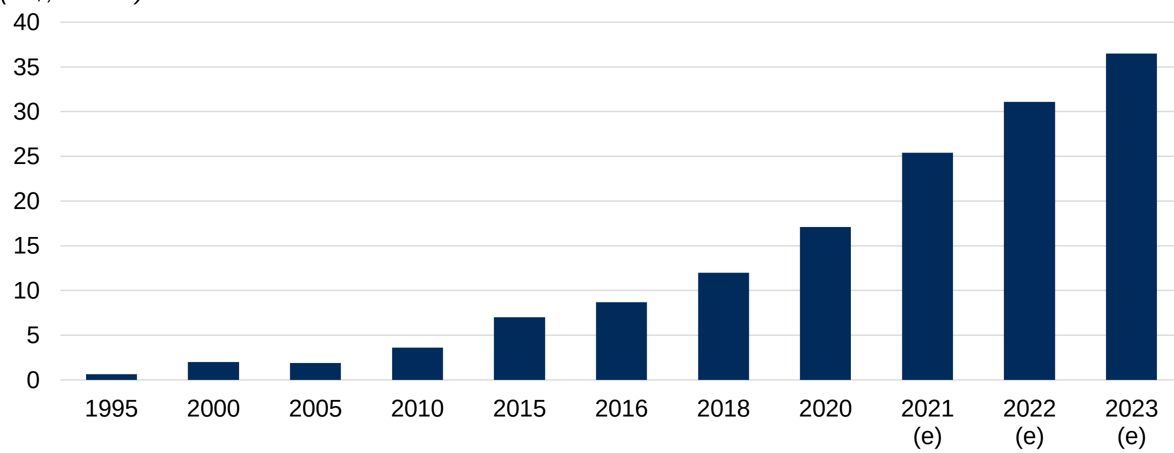
TOP 10 ETF PROVIDERS
(ranked by total AUM as of August 16, 2022, in $, billions)



Source: ETF.com.

Growth in Socially Responsible Investing Set to Accelerate
As the chart below highlights, professionally managed assets employing environmental, social, and governance – or ESG – guidelines grew at a CAGR of nearly 14% over the last 20 years, and CFRA estimates ESG invested assets totaled more than $30 trillion at the start of 2022. Against a backdrop of the coronavirus pandemic and rising racial and environmental activism, CFRA expects an acceleration in the growth rate of ESG assets, and we forecast ESG asset growth will accelerate to more than 20% annually in the next several years. We see this acceleration in growth also being driven by demographic trends, as younger investors seek out investments with sound climate change and sustainability practices. Pressure on corporate boards to address social, racial, and gender inequality issues in the wake of numerous social injustice incidents that exploded on the national scene will also drive an increase in companies adopting ESG guidelines, in our view.

U.S. ESG INVESTED ASSETS*
(in $, trillions)



*Latest available data.
Source: CFRA, US SIF.

The risk, in our view, to ESG-specific funds is a dilution in their value proposition, as a greater percentage of the universe of investable companies employs ESG guidelines. In this arena, though, we believe active asset managers possess a more sustainable and durable competitive advantage over their passive counterparts, particularly within the broader SRI landscape that includes impact and activist investing.

Custody Banks

Tech Capabilities Will Differentiate (and Possibly Bifurcate) Custody Banks

The custody business is one of the most heavily concentrated areas within the financial services sector. CFRA estimates that the top four custody banks – State Street Corporation (STT), The Bank of New York Mellon (BK), JPMorgan Chase (JPM), and Citigroup (C) – control more than 80% of industry revenues. The "pure plays" in this space are STT and BK, plus the somewhat smaller custodian, Northern Trust Corporation (NTRS). While JPM and C have a significant presence in this space, they are classified for investment purposes as large-cap diversified banks since they have a broader mix of business.

Historically, this concentrated group has offered an array of so-called "back office" functions: accounting, record-keeping, cash management, some operations outsourcing, securities lending, compliance, and pricing and performance analytics. Most of these capabilities are fairly commodity-like, so differentiation among firms is a challenge. Moreover, their commodity-like nature renders custody services very price-competitive, making scale an important element of most firms' business models. The offset to this is that this need for scale has established a fairly large moat around the existing players, limiting the ability of new entrants to gain a foothold in this space. Also, once a custody relationship has been established, it tends to be long-term in nature since there is an enormous amount of costly and time-consuming onboarding required.

However, a bit of an arms race has emerged in the custody space, as the rapid pace of technological change in the broader financial services sector has impacted custody banks. CFRA views this as a bifurcating force within the industry, threatening to cleave this space into two camps – tech leaders and tech laggards.

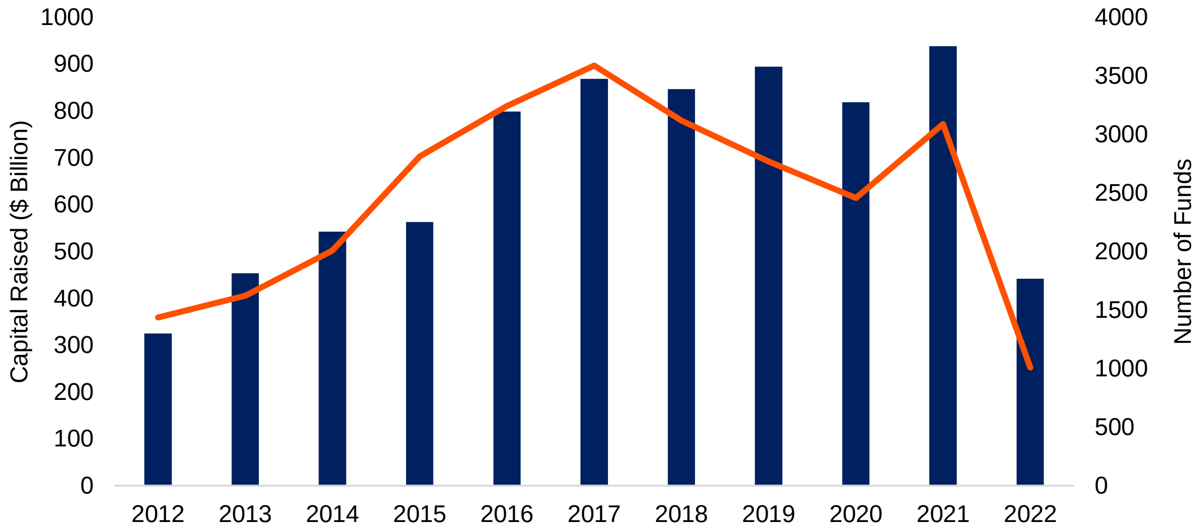
Perhaps the biggest threat to the core custody and settlement business model is distributed ledger technology (DLT) or blockchain technology. Because DLT functions as an online ledger, allowing individuals and companies to make financial transactions directly with one another, an argument can be made that blockchain technology would render many custodial functions (like trade settlement, reconciliation, asset securing, and proof of ownership) obsolete. At this juncture, CFRA believes this argument is valid from a theoretical perspective, but that from a practical application, it is still premature. However, we view the long-term threat as real and believe it imperative for custody banks to "up their game" and more deeply penetrate their clients' operational ecosystems to increase their value proposition and stave off disintermediation.

Private Equity

Long-Term Fundamental Outlook Remains Positive Despite Difficult Near-Term Comparisons

CFRA has a positive fundamental outlook on the private equity subset of the asset management industry, driven by favorable demand trends that will likely be enhanced by multiple opportunities for private equity firms to leverage disruptions in various industries' business models. Despite the outlook for higher interest rates in 2022 and 2023, a still relatively low interest rate environment has also driven many institutional investors to increase their exposure to alternative investments, including those in private equity. CFRA expects this trend to continue and even accelerate. The still-healthy demand for private equity and alternative investment vehicles has enabled private equity firms to raise funds at a healthy clip. As highlighted in the chart below, private equity funds raised grew at a compound annual growth rate of around 12.5% during the period from 2012 through year end 2021. Based on data from S&P Global, private equity fundraising reached a new high of over $938 billion in 2021, and has remained brisk, year to date through August 15, 2022, with nearly $442 billion raised.

PRIVATE EQUITY FUNDRAISING TRENDS 2012-2022

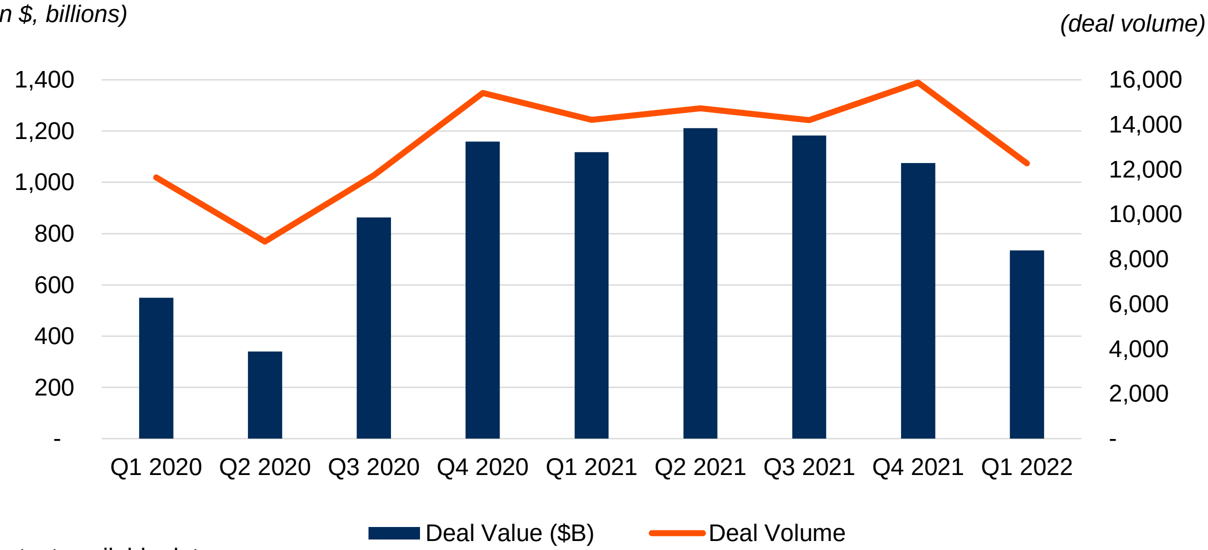


Source: S&P Global Market Intelligence. Data for 2022 is year to date through August 15, 2022.

Based on data from S&P Global, private equity and venture capital deal volume totaled 10,768 deals in 2021 with a total deal value of just under $882 billion, which surpassed our estimate of deal volume of over $700 billion. Year to date through August 15, 2022, deal volume equaled 14,627, and year to date deal value totaled around $678 billion.

As the charts below highlight, overall merger and acquisition (M&A) deal activity has gradually recovered after a disruption in early to mid-2020 brought on by Covid-19 and the attendant market correction and volatility in its aftermath. Against that broader backdrop, we expect private equity's participation in M&A activity to also resume, driven in part by the private equity industry's estimated $1.9 trillion of capital available to invest – or "dry powder" in common industry parlance – at year-end 2021. In the immediate aftermath of Covid-19, most deal activities came to a halt as many private equity firms focused on increasing the value of their existing portfolio holdings.

GLOBAL M&A ACTIVITY 2020-2022*
(in $, billions)



*Latest available data.
Source: S&P Global Market Intelligence.

Operating Environment

After a Strong 2021, Financial Results Slipped in 2022

Asset managers rebounded in 2021 from very mixed results during 2020 and ended the year on a strong note. Total revenues for the entire group – asset managers, custody banks, and private equity firms – advanced by nearly 50% Y/Y in 2021, to $164.1 billion, from $109.7 billion in 2020. Growth varied rather significantly among industry segments, though. Private equity firms saw the sharpest advance in revenues, as most had healthy asset inflows and saw their performance-based revenue streams increase as asset values recovered. As a result, revenues for publicly traded private equity firms in our coverage universe surged to $61.6 billion in 2021, up from $19.9 billion in 2020. While these numbers are encouraging, we caution they are not likely a sustainable long-term run rate. However, private equity firms also have the most favorable growth prospects in the asset management space, in our view, despite the threat from rising interest rates. Underlying fee revenue growth for most private equity firms (before the impact of market performance driven revenues) has averaged around 5% to 10%, above most other asset managers.

Traditional asset managers' growth remains impacted by secular challenges from a shift to passive investment strategies that continue to exert downward pressure on fees. However, these secular pressures were offset in 2021 by the recovery in asset values and some decent organic growth trends at some of the larger firms, which propelled Y/Y revenue growth for traditional asset managers up by nearly 19% in 2021, to $67.5 billion, from $56.8 billion.

Custody banks' top-line results remained hampered by a still-low interest rate environment, which constrained net interest income (that typically accounts for between 15% and 25% of custody banks' total revenues), though asset-based fee revenues for most firms benefit from the recovery in asset values during 2021. As a result, total revenues for custody banks in the 12 months ended December 31, 2021 rose by only 5.1%Y/Y, to $34.8 billion from $33.1 billion.

The correction in asset values brought on by a more aggressive Fed seeking to tame inflation took a toll on top line results at nearly every asset manager (albeit to varying degrees) during the first quarter of 2022. Total revenues for this group fell by nearly 15%, Y/Y, in the first three months of 2022, to $35.8 billion, from $41.9 billion. But results varied significantly by group. Private equity managers were the hardest hit, reflecting the decline in performance-based revenues amid the market's selloff. Private equity revenues plunged by more than 42%, Y/Y, in the first quarter of 2022, to $10 billion, from $17.3 billion. For traditional asset managers, revenue growth slowed in the first quarter of 2022, to a year-over-year rise of 6.9%, to $17.1 billion, from $10.0 billion a year ago. Custody banks' revenue growth in the first quarter of 2022 was only 1.2%, to $8.7 billion from $8.6 billion, as the impact of asset declines on fee revenues was not offset by the positive impact of higher interest rates on investment income.

Industry Expense Levels Varied Considerably, Depending on Business Model

Total expenses climbed by nearly 35% in 2021, to $97.7 billion, from $72.6 billion in 2020. The most significant factor behind this surge was the more than tripling to $29 billion from $9.6 billion of private equity expenses, largely reflecting higher performance-based compensation expenses. We do not see this as a run rate heading into 2022, though CFRA expects private equity expense levels to increase commensurate with revenue levels, given the proportion of total expenses tied to compensation (which is influenced by performance).

After previously implementing an array of cost-cutting initiatives designed to address their eroding fee structures, a number of traditional asset managers increased their technology expenditures. Expense levels for traditional asset managers climbed by nearly 12% in 2021. Custody banks' relatively contained 5.6% rise in expenses reflects the impact of a number of cost-cutting initiatives underway at several of the major banks, like Bank of New York Mellon and State Street. Both firms have been cutting operating expenses in an effort to boost margins and free up capital to redeploy into technology upgrades. First quarter 2022 expense levels rose 4.1%, Y/Y, for the entire industry, as a 1.8% constrained rise in traditional asset managers' expense levels was offset by a 4.8% rise in custody banks' expense levels, and a 6.8% rise in private equity expenses.

Pretax operating margins widened in 2021 to 40.4% from 33.9%, as the surge in revenues more than offset the higher expense levels. We caution that these margin levels are not likely sustainable in the long term, evidenced by the contraction in pretax operating margins in the first quarter of 2022, to 28.7%, from 41.4% a year ago.

Pretax profits for the entire industry nearly doubled, year to year, in 2021, to $70.6 billion from $35.9 billion. The primary factor driving this growth was the more than tripling of private equity pretax profits in 2021, to $35.9 billion from $9.7 billion in 2020. Traditional asset managers also posted a healthy 47.6% rise in pretax profits in 2021 (or $24.8 billion versus $16.8 billion). Custody banks were the laggard group in terms of pretax profitability, with a modest 4.3% rise in pretax profits in 2021 (to $9.8 billion from 9.4%).

Some of the strong gains posted in 2021 were erased in the first quarter of 2022, and industry pretax profits fell by 44%, year to year, to $10 billion from $17.9 billion. A modest 2% rise in asset managers' pretax profits (to $5.2 billion from $5.1 billion) was offset by a 4.3% drop in custody banks' pretax earnings (to $2.2 billion from $2.3 billion), and a 75% plunge in private equity pretax profits (to $2.6 billion from $10.6 billion).

The Industry's Tax Burden Varies by Business Model

The tax burden for the publicly traded custody banks, and asset management, private equity firms in our coverage universe averaged 15.8% for 2021, versus 17.8% in the 12 months ended December 31, 2020, and 15.1% for all of 2019. Results varied widely by sub-group, though. Private equity's tax rate in 2021 averaged 11.5%, versus 12.8% in 2020. Traditional asset managers' average tax rate equaled 22.2% in 2021, up from 20.2% in 2020, and versus 20.6% in 2019. Custody banks' tax burden averaged 19.8% in 2021, versus 19.1% in 2020 and 19.5% in 2019.

Following taxes, and before minority interests, net income for the asset management industry more than doubled Y/Y in 2021, to $59.4 billion, from $29.5 billion in 2020. Pacing this strong showing was the private equity, which produced a near tripling of after-tax profits in 2021 (to $31.8 billion from $8.5 billion in 2020). Traditional asset managers also produced a robust 46.2% rise in after-tax profits (to $19.6 billion in 2021 from $13.4 billion in 2020). Custody banks' profitability lagged the other groups in 2021, as this less volatile group posted a modest 5.3% rise in after-tax profits in 2021 (to $8.0 billion from $7.6 billion in 2020).

First quarter 2022 after-tax profitability of the broader asset management industry sank along with asset values. Net income (before minority interests) sank by 45%, Y/Y, in the first quarter of 2022, to $8.6 billion, from $15.5 billion in 2021's first quarter. Much of this sharp decline reflected the 73% plunge in private equity profits (to $2.6 billion from $9.6 billion), while traditional asset managers' profits rose a modest 2.4% (to $4.2 billion from $4.1 billion) and custody banks' profits were flat, Y/Y, at $1.8 billion.

Outlook for 2022

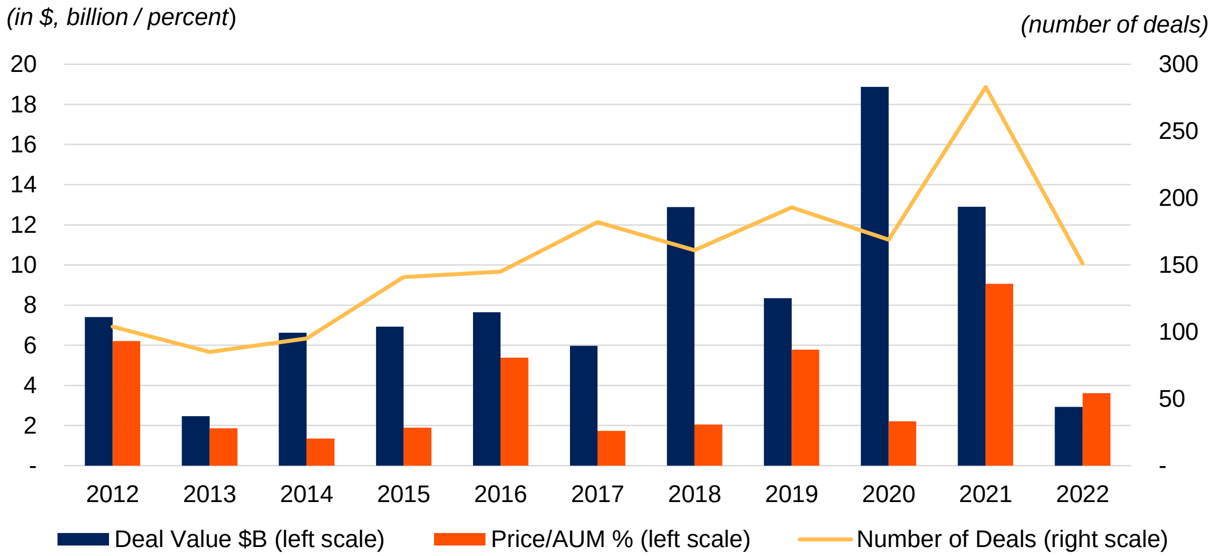
CFRA anticipates organic revenue growth for the Asset Management and Custody Banks sub-industry group will be up by 5% to 7% in 2022. Embedded in this forecast is our assumption that an easing of interest rate pressures that hampered custody bank results in 2021 will ease in 2022 and produce a 3% to 5% rise in custody bank revenues in 2022. Asset management revenues in 2022 may face a difficult comparison to 2021 results, given the rise in asset values in 2021 that are not likely to continue in 2022, limiting revenue growth to between 4% to 6% in 2022 (assuming no significant contraction in economic and/or investment conditions and a continued recovery in asset values). Our forecast for private equity revenue growth assumes a more modest rate of growth in asset values (that may be heavily weighted toward the latter half of 2022), coupled with positive asset inflows and continued favorable capital raises, producing revenue growth of 5% to 10% in 2022.

M&A Environment

The decline in asset values witnessed so far in 2022 as the Fed raises rates to battle historically high levels of inflation has taken its toll on the shares of publicly traded asset managers. Year to date through August 5, 2022, the S&P Asset Management and Custody Bank sub-industry index declined by 23.5%, versus the 13% decline in the S&P 500 during the same period. This sub-group has the dubious distinction of being the worst performing group within the financial sector so far in 2022. This downward pressure on revenue levels from the drop in asset values adds more strain to an industry already pressured by secular changes. CFRA expects shifting consumer preferences that favor passive investing over actively managed mutual funds, coupled with continued downward pressure on asset management fees across most asset classes, to fuel merger and acquisition (M&A) activity in coming periods. Historically, M&A activity in the asset management space has been driven by two needs – scale and diversification. Against that backdrop, CFRA expects an uptick in industry consolidation among smaller asset managers seeking to build scale, while some larger asset managers may seek to diversify their AUM mixes or technology capabilities and will likely do so through acquisitions. Demand for a fee-based revenue stream from banks and insurers, whose margins are being pressured by the low interest rate environment, may also spark some M&A activity. So too will increased activism within the asset management industry, as external investors see opportunities to agitate for change that often involves a merger or sale of a target company.

ASSET MANAGEMENT M&A TRENDS 2011-2022*

(in $, billion / percent)



*Data as of August 17, 2022.
Source: S&P Global Market Intelligence.

Based on data from S&P Global, there were 151 asset manager M&A transactions with over $354 million in AUM, with a total deal value of more than $2.9 billion, year to date through August 17, 2022. During 2021, there were 283 asset manager M&A transactions with an aggregate deal value of $12.9 billion, encompassing AUM of nearly $1.3 trillion. In 2020, there were 169 asset manager M&A transactions with a total deal value of $18.8 billion covering AUM of $2.8 trillion, versus 193 transactions in 2019 worth $8.4 billion encompassing AUM of $284.7 billion. The average price/AUM for these deals was around 2.26% so far in 2022, down sharply from 9.8% in 2021, and versus 2.27% in 2020 and 5.8% in 2019. Given the potentially disparate nature of the transactions, we caution against using the price/AUM valuations as a run rate or to directly compare the year-to-year ratios.

Though deal activity remained on pace with last year's strong performance, the size of the deals so far in 2022 have been more modest. Some of the more notable transactions involved a traditional asset manager acquiring assets in the private credit and/or alternatives space. There were several notable transactions, however. Specifically, on July 1, 2022, AllianceBernstein Holding L.P. (AB) completed its acquisition of Minneapolis, Minnesota-based CarVal Investors for $750 million and an undisclosed multi-year earnout, subject to certain targets being reached. CarVal is a privately-held asset manager with about $15 billion of assets under management, primarily focused on opportunistic and distressed credit, renewable energy infrastructure, specialty finance, and transportation investments. This transaction is just one element of AB's expansion into the private alternative space. AB announced in late June 2022 that it had entered into a strategic partnership with Impact Engine, a private equity and venture capital investment firm with a focus on impact investing. This new partnership with AB is set to focus on creating purpose-driven investment offerings for AB's Bernstein Private Wealth Management unit with a focus on environmental sustainability, economic opportunity, and health equity across the venture capital, growth equity, and buyout fund space.

Franklin Resources, Inc. (BEN) extended its foray into the alternative asset management space in late May 2022 when it announced plans to acquire BNY Alcentra Group Holdings, Inc., a European credit and private debt manager with $38 billion of AUM, from BNY Mellon, for $350 million in cash at closing and up to another $350 million, subject to certain earn-out agreements over the next four years. BEN has also agreed to purchase all seed capital investments from BNY Mellon related to Alcentra, which were valued at about $305 million as of March 31, 2022, though terms of that transaction were not disclosed. BEN expects to complete this deal in early 2023.

BEN completed its acquisition of rival asset manager Legg Mason, Inc. (LM) for $50 a share in cash on July 31, 2020. Total consideration for the deal was about $6.5 billion, including the assumption of about $2 billion of LM debt. Combined, the two firms have nearly $1.6 trillion (as of December 31, 2021), propelling them to the upper ranks of asset managers. The deal also shifts the AUM mix of the combined firm to one that is 48% fixed income, 33% equities, and 19% money market and other assets. We expect the deal to be accretive to BEN after the implementation of a post-merger restructuring. Like many peers, BEN has seen its AUM pressured by net asset outflows, partly due to a shift in investor preferences to passive investments (like ETFs), something the deal with LM does not address. During FY 21 (ended September 30), the combined firm recorded $40.3 billion in net asset outflows. For all of FY 20, BEN recorded net asset outflows of $71.5 billion, nearly double the $30.9 billion of net outflows recorded in FY 19.

While the BEN-LM merger can be characterized as a classic consolidation play, a more recent deal announced by BEN represents another trend within asset management M&A. In early January 2022, BEN completed its acquisition of O'Shaughnessy Asset Management, LLC (OSAM), a specialized asset manager with $6.4 billion of AUM when the deal was announced in September 2021. While OSAM's size was not material enough for BEN to disclose term of the transaction, the deal provides BEN with additional capabilities in the separately managed account business and enhances BEN's factor-based and ESG capabilities.

T. Rowe Price Group, Inc. (TROW), the $1.3 trillion (AUM) asset manager that has had some negative fund flow trends in its core equity products recently, expanded its reach into the private credit investment space in late 2021 via its acquisition of Oak Hill Advisors, for $4.2 billion, mostly in cash. Oak Hill, an alternative credit asset manager, had about $56 billion of AUM at the time of the merger, and represents for TROW an opportunity to accelerate its expansion into alternative credit investments. One of the most significant transactions in 2021 closed on March 1, when Morgan Stanley (MS) acquired Eaton Vance Corporation (EV) for cash and stock in a deal valued at around $7 billion (about $56.50 per Eaton Vance share, plus a $4.25 a share pre-closing one-time dividend). The acquisition of Eaton Vance, with about $500 billion of AUM in several proprietary strategies, including its Calvert unit, a leading in socially responsible investing, strategically enhances Morgan Stanley's burgeoning investment management and wealth management capabilities in a deal accretive to both firms.

Invesco (IVZ), a global asset manager with more than $1.5 trillion of AUM, has been addressing its eroding organic growth and shift in investor preferences by broadening its asset mix and product offerings through acquisitions. These efforts yielded results in 2021. Relative to its size, IVZ has produced the most impressive fund flows in the 12 months ended September 30, 2021, with inflows of $120.5 billion on an AUM base of around $1.53 trillion as of September 30, 2021, producing an organic rate of AUM growth of nearly 9%. While some of these flows were into short-term assets (like money market assets), passive investments (ETFs) accounted for nearly half (or $56.8 billion) of IVZ's fund flows. We expect the firm to continue to build on this strategy in 2022 and think IVZ may pursue selective acquisitions to further enhance and broaden its capabilities. IVZ's latest deal was completed in late May 2019 when it acquired OppenheimerFunds, Inc. from mutual insurer Mass Mutual for some $5.7 billion in cash and stock. This deal helped to propel IVZ's AUM base to more than nearly $1.2 trillion. IVZ previously expanded its presence in the ETF market through two key acquisitions in 2017: IVZ agreed to acquire Guggenheim Investments' ETF business, with some $36.7 billion of AUM at the time the deal was announced, and Source, a leading European-based ETF provider with $26 billion of AUM. While IVZ has been very active on the M&A front, the firm also attracted the attention of activist investor Trian Management, who gained two seats on IVZ's board in early November 2020. We expect Trian will likely push IVZ to "explore strategic alternatives" that could include a sale or merger with another firm, Trian may also agitate for a restructuring.

While IVZ seeks to increase its presence in the passive investment space, CFRA anticipates that market leader BLK will pursue a more technology-focused acquisition strategy as it seeks to derive 30% of firm-wide revenues from its BlackRock Solutions Group by 2022. Central to that goal is the firm's Asset Liability and Debt and Derivative Investment Network – dubbed Aladdin for short. This comprehensive portfolio and risk management program monetizes the systems and processes already being used by the firm, whose reputation as a top-tier risk manager has aided the demand for its Aladdin portfolio solution. We expect future acquisitions to be more "bolt-on" rather than transformational and will likely be in the artificial intelligence and fintech space, like the May 2019 acquisition of eFront, a software provider for the alternative investment segment, for $1.3 billion in cash.

Another trend that CFRA believes will likely continue to drive deal volume in the asset management space is the consolidation of registered investment advisors (RIAs). This subset of the asset and wealth management industry remains very fragmented and ripe for consolidation as it faces many of the same competitive pressures as other asset management participants. Many of these deals occur through so-called consolidators, firms established to acquire individual RIA practices and consolidate them into larger practices. Goldman Sachs & Co. took RIA consolidation a step further in late July 2019 when it acquired United Capital, an RIA consolidator with $23 billion in AUM, for $750 million in cash as part of its larger plan to increase its exposure to mass affluent individuals.

Finally, as socially responsible investing is becoming a mainstay within the asset management space, and demand for ESG investments (or those employing environmental, social, and governance standards) skyrockets in the aftermath of the Covid-19 pandemic, many asset managers are seeking acquisitions as a means of addressing this growing need. For instance, Affiliated Managers Group (AMG) announced its strategic partnership with Parnassus Investments, the largest ESG-dedicated fund manager in the U.S. The deal announced on July 6, 2021, calls for AMG to acquire a majority equity interest in Parnassus, a San Francisco-based asset manager with $47 billion of AUM invested under ESG principles.

Regulatory and Legislative Update

The Inflation Reduction Act of 2022 Will Have a Limited Impact on Traditional Asset Managers
The Senate passed the Inflation Reduction Act (IRA) on August 7, 2022 and on August 16, 2022 President Biden signed the act into law. Touted to reduce inflation and allocate resources toward fighting climate change, the soon-to-be new law (and successor to the House-passed Build Better Act of late 2021) has several tax implications for corporations, but leaves a controversial private equity tax loophole intact. The most significant tax implication in the Inflation Reduction Act is the 15% minimum tax on corporate income for corporations with profits over $1 billion, effective for tax years after December 31, 2022.

CFRA expects this component of the IRA will have a limited impact on most traditional asset managers and custody banks, which typically pay income taxes at a rate above the 15% minimum threshold. BlackRock, Inc., for example, paid income taxes of just under $2 billion on pretax profits of just over $8 billion in 2021, for an effective tax rate of around 25%. Custody banks typically have had a slightly lower tax rate, but also above the 15% threshold. Another example is State Street Corporation, which paid taxes at an average rate of around 16.3% over the last several years (2020-2022). Some private equity firms, however, could see a modest increase in their tax burdens under this plan. Blackstone, Inc., for example, paid taxes at an average annual rate of just over 12% in the last three years (2020-2022), though other private equity firms, like Apollo global Management, Inc. and KKR Inc, had average tax bills above the 15% threshold imposed by the IRA.

Another tax element of the IRA is a newly created excise tax of 1% on the value of stock repurchases, beginning with taxable years after December 31, 2022. Stocks that contributed to retirement accounts, pensions, and employee-stock ownership plans (ESOPS) are excluded from this tax. Most of the publicly traded custody banks and asset managers have some form of a stock buyback program, so most will be impacted by this change.

Carried Interest is Left Untouched in the New Tax Plan
One of the more contentious and controversial aspects of the IRA was the tax treatment of carried interest. Carried interest is the share of a private equity fund's profits (usually around 20%-25%) that are allocated to the fund's managers as a form of compensation, usually only after the fund achieves certain performance thresholds. Because carried interest is considered a return on investment, it is taxed at the capital gain rate, currently no more than 20% for long-term gains. Despite a renewed call to tax these gains as ordinary income, the IRA left the taxation of carried interest untouched, at the lower capital gains rate.

"SECURE 2.0" Aims to Build on the Progress of the SECURE Act
Nearly three years after the passage of the SECURE Act, lawmakers in both houses of Congress are putting the finishing touches on a new round of legislation aimed at refining the tenets of the SECURE Act. The House overwhelmingly passed (by a vote of 414 to 5) H.R. 2954 in March 2022. Dubbed the "Securing a Strong Retirement Act of 2022", the House proposal expands the automatic enrollment in retirement plans, enhances 403(b) retirement plans (which are retirement plans offered by public schools and certain charities), seeks to have student loan payments treated as elective deferrals for the purposes of matching contributions, proposes improving coverage for part time workers, and would raise the "catch-up" amount that older workers are permitted to contribute.

As of mid-August 2022, the Senate bill remains in committee, though CFRA expects progress on this initiative later in the fall, given the broad level of bi-partisan support this issue has received.

The SECURE Act Takes Aim at the Retirement Crisis
Amid strong bipartisan support over the need to tackle the current retirement savings crisis, the SECURE (or Setting Every Community Up for Retirement) Act was signed into law on December 20, 2019. Central

to the SECURE Act are a number of reforms and tweaks to current legislation that are designed to make saving for retirement easier and more accessible for most Americans.

Though near-term economic pressures brought on by the outbreak of Covid-19 obscured the positive implications from the SECURE Act, CFRA believes the benefits of the SECURE Act will begin to emerge in the aftermath of the pandemic.

Citing a number of alarming statistics – including one that notes nearly half of American families have no retirement savings – Congress passed bipartisan legislation that was signed into law in December 2019 taking aim at this crisis. The Setting Every Community up for Retirement Enhancement Act of 2019 – aka the SECURE Act – includes the provisions from an earlier measure, the Retirement Enhancement and Savings Act (RESA), which failed to pass during the last Congress. Specifically, the SECURE Act incentivizes employers to create 401k retirement plans by allowing small employers to band together to share the cost of offering 401ks, while requiring employers to cover long-term part-time workers by 2021. The SECURE Act also expanded the investment options within retirement accounts to include annuities, a big win for annuity providers. For plan participants, the SECURE Act raised the age when required minimum distributions must begin, to 72, from 70 ½. Plan participants may also continue contributing to these plans beyond the current cut-off age of 70 ½. Other withdrawal features were also implemented, including one that allows new parents to withdraw, penalty-free, up to $5,000 from their workplace retirement plan for each new child. To fund the cost of these initiatives, the SECURE Act eliminated the “stretch” provision of inherited IRAs that previously allowed non-spouse beneficiaries to spread (or stretch) the required disbursements from these accounts over their lifetime. Now, disbursements must be collected and taxed within 10 years of the original holder’s death.

Biden Administration May Seek to Broaden the Scope of the Fiduciary Rule

As the Biden Administration eventually turns its attention to the finer points of the fiduciary rule, it will likely expand who is bound by these strict regulations. By way of background, the Trump Administration’s Department of Labor (DOL) in mid-June 2018 failed to petition the U.S. Supreme Court to appeal the Fifth Circuit Court of Appeals’ decision to vacate the DOL’s fiduciary rule, essentially ending the legal drama surrounding this controversial (and costly) proposed regulation that expanded the definition of who is a fiduciary under terms of the Employee Retirement Income Security Act of 1974 (ERISA). However, in the wake of the DOL Rule’s demise, the Securities and Exchange Commission (SEC) unveiled its proposed investment-advice rule in late April 2018 as part of a series of standards, with plans to issue a final ruling by September 2019. When the DOL initially unveiled its “final fiduciary rule” on April 6, 2016, the primary stated goal was to ensure that intermediaries who get paid to provide financial advice to retirement savers make recommendations that are “in the best interest of the investor” as opposed to the previous standard that required recommendations to be “suitable”. The rule expanded the definition of who is an investment advice fiduciary under ERISA, and would have elevated all financial professionals who work with retirement plans or who provide any level of retirement advice to the level of a fiduciary. Essentially, this meant that anyone selling retirement products (such as a stockbroker or an insurance agent) would no longer just have a legal duty to provide advice that is suitable; they would have been elevated to the highest legal obligation embedded in a fiduciary relationship. The SEC proposal, in its current form, is not seeking to create a uniform standard for brokers and investment advisors and instead would maintain the current, two-tiered approach to investment advice standards. Brokers would be held to a “best interest” standard, an elevation from the current “suitability” standard. There are some exceptions to this rule, and the SEC does not refer to this as a fiduciary standard. The SEC’s proposal also aims to implement its new broker standard through a combination of enhanced disclosures, including those that outline potential conflicts of interest over compensation and the sale of a firms’ proprietary products. There is also an element of “title reform” in the current SEC proposal – meaning those firms only registered as broker-dealers would not be able to refer to their brokers as advisors (unless they were registered as such). However, this restriction would not apply to those intermediaries working on behalf of a bank or insurer. The proposal also contains the SEC’s interpretation of advisors’ fiduciary obligations, and seeks feedback on potential enhancements to those legal obligations.

After missing their self-imposed rulemaking deadline of December 2021, Biden Administration officials are likely to cast a wider net of financial intermediaries who they believe should be held to the stricter fiduciary standard once they establish their set of guidelines, likely later in 2022 or into 2023.

SEC's Focus on Data and Analytics Will Force Asset Managers to Do the Same

One additional takeaway from the demise of the DOL fiduciary rule is the re-emergence of the SEC as the financial industry's primary regulatory authority. As such, the SEC's office of investment management has indicated one of its near-term priorities will be on data and analytics – specifically, the quality and integrity of data collected and the security of that data. CFRA believes that one of the more bifurcating factors within the asset management industry (particularly among lower tier firms) is their tech-savviness and their cyber security defense. Indeed, some larger asset managers (including BlackRock) have started to monetize their own technology and analytics capabilities and have started offering those services to competitors. Despite this focus, the U.S. has not enacted broad-based data protection legislation, like the General Data Protection Regulation (GDPR) enacted in the European Union (EU) on May 25, 2018.

The European Union Has Taken the Lead in Data Protection

The EU's GDPR took effect in May of 2018 and has now been fully implemented following a transition period. This far-reaching initiative regulates the processing of personal data of individuals in the EU by other individuals, companies and/or organizations. Some of the tenants of the GDPR include a provision that mandates consumers be informed if their personal data is moved outside the EU, offers consumers the right to contest the use of their data for marketing purposes, and offers consumers the right to be "forgotten" (*i.e.,* dropped from databases). There is also a right to data portability in the GDPR, which allows consumers to receive their data and send it wherever they choose. To ensure compliance (which can be costly), there are severe penalties for violation of the code.

The U.S. Lacks a Comprehensive Data Protection Program the States are Moving Forward with Privacy Legislation

Despite a broad-based and sweeping acknowledgment by most federal agencies that cybersecurity threats are one of the top risks facing the financial services industry, the U.S. currently does not have data protection regulation similar to the EU's GDPR (highlighted above). However, New York and California have passed legislation to address this situation several years ago, and in 2021, 23 other states have followed suit and introduced privacy legislation, the California Consumer Privacy Act of 2018 (CCPA) took effect in July 2020 and in its current form (which may be subject to future revisions), it provides California citizens with similar protections to those offered EU citizens under the GDPR. The CCPA gives California citizens the right to access their personal information and to know how their information is being used, as well as the right to have their information removed in certain circumstances. One of the more contentious elements of the CCPA is its provision that allows for civil class action lawsuits in the event of statutory or actual damages arising from a data breach.

The New York State Department of Financial Services cybersecurity regulation initially took effect on March 1, 2017, with a two-year phase-in period that concluded on March 1, 2019. Central to this regulation is the requirement that companies create a written cybersecurity policy, designate a chief information security officer, conduct periodic testing and vulnerability assessments, and establish cybersecurity controls and protocols for third-party risk management.

The debate on the U.S. data protection legislation has been ongoing for many years. On July 9, 2021, President Biden signed an Executive Order on "Promoting Competition in the American Economy", which includes a number of provisions for data protection and privacy. The order urges the U.S. Federal Trade Commission to establish new rules over tech firms' data collection of their customers as it should offer more privacy protections to American consumers. We think the executive order is a steppingstone to approach the lack of data protection in the country with hope that the administration will soon push this initiative forward to enact the legislation.

HOW THE INDUSTRY OPERATES

Asset Managers

The asset management industry includes organizations that offer products such as mutual funds, ETFs, closed-end funds, and unit investment trusts, as well as investment counseling firms and other groups that manage the pooled savings of individuals or organizations. By pooling the savings of investors, investment managers provide a number of benefits to individual investors, such as diversification, reduced risk, lower transaction costs, and professional advice.

The primary revenue source for most asset managers and fund companies is fee income derived from their AUM base. We estimate that AUM for the entire regulated fund industry grew at a 9.6% CAGR in the 10 years ended 2021. However, amid an environment marked by downward pressure on fees and a shift to lower-cost no-load mutual funds and ETFs, expense ratios for mutual funds have plummeted. Equity mutual funds and bond mutual funds in the U.S. have experienced a 53% and 49% decline respectively in their expense ratios since 2000.

The asset management industry is not a capital-intensive business, but rather a service business, where employees, performance record, and customer relationships are the most valuable assets. A significant portion of a company’s performance success is attributable to its portfolio managers and securities analysts, who formulate investment strategies and make decisions on security holdings. As such, retaining and compensating these professionals appropriately is critical to an investment company’s success and longevity.

However, as asset managers grapple with mixed fund flow trends and continued downward pressure on fee structures, many have initiated a number of restructuring actions to streamline their cost structures in an attempt to maintain margins. Firms including The Bank of New York Mellon Corporation and T.Rowe Price are taking a critical look at their “back office” functions and implementing an array of cost-cutting, outsourcing, and consolidation actions in an attempt to streamline results and boost margins.

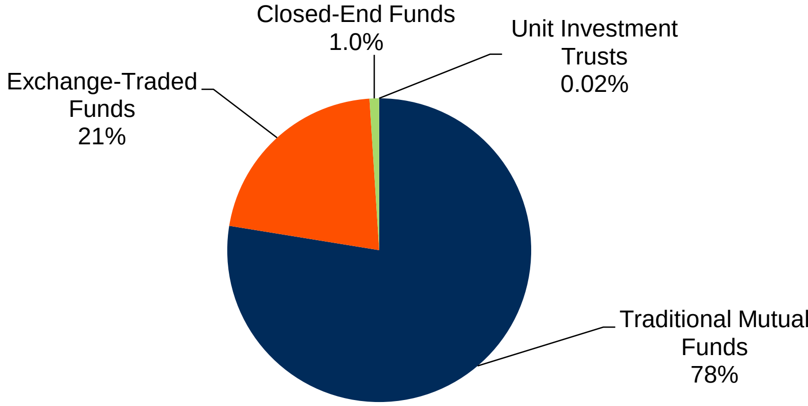
Most mutual funds continuously offer new shares to the public at the net asset value (NAV, the current value of a fund’s net assets less any sales charges). Mutual funds typically distribute their shares through brokers, financial planners, or insurance agents, but may also offer shares directly from the fund itself. By law, mutual fund managers keep securities with a custodian, such as BK, STT, and NTRS.

Investment Asset Allocation

According to the ICI, the net asset for worldwide regulated funds (*i.e.,* regulated open-ended funds including mutual funds, ETFs, and other institutional funds) grew $5.1 trillion (or 12.7%) to $71.1 trillion as of the fourth quarter of 2021, from $63.1 trillion at year-end 2020. This compares to the worldwide value of capital markets – or the value of equity and debt securities outstanding – of $259.6 trillion at year-end 2021.

In the U.S., mutual funds continue to represent the majority of investment asset allocation at 78%, with a total net asset of $22 trillion as of June 2022, followed by ETFs at 21% or $6.2 trillion (as of June 2022) and closed-end funds at 1% or $288.9 billion (as of first quarter of 2022).

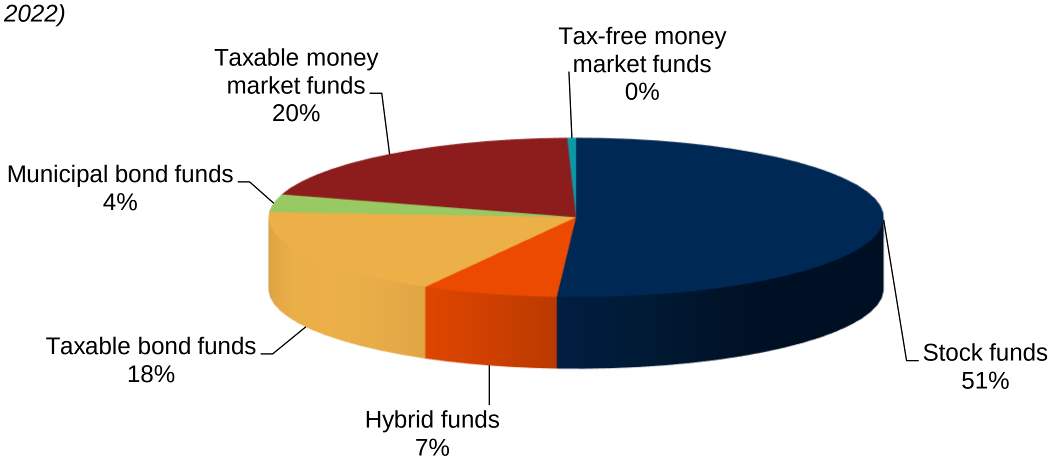
INVESTMENT COMPANY ASSET COMPOSITION*
(as of July 2022)



*Traditional Mutual Funds and ETFs data as of June 2022. Close-End Funds data as of March 2022. Unit Investment Trusts data as of July 2022.
Source: Investment Company Institute.

At the end of June 2022, equity funds remained the largest segment of fund industry assets in the U.S., as shown below.

U.S. MUTUAL FUND ASSETS BY TYPE OF FUND
(as of June 2022)



TOTAL: $22.3 trillion

Source: Investment Company Institute.

Fund Ownership and Demand

Ownership of mutual funds has increased steadily on a global basis over the past two decades, with the U.S. maintaining its lead as the world's largest fund market in 2021, with $34.2 trillion, or about 48% of the world's fund assets. Europe held $23.3 trillion (or about 33%), while Asia-Pacific and Africa accounted for $10 trillion (14%) of net fund assets.

One way to gauge the demand curve for investment funds by region or country is to analyze the level of development of a country's stock market. A key metric to use in this exercise is the ratio of stock market capitalization as a percentage of gross domestic product (GDP). Typically, as stock market capitalization rises relative to GDP, so do the assets in regulated investment funds. So, countries like the U.S., the U.K., and Switzerland, where stock market capitalization exceeds GDP (in some cases by 2-to-1 ratio), have developed fund industries and robust fund demand. Conversely, countries like China, Russia, and Poland have a stock market capitalization that averages half of GDP and corresponding underdeveloped fund industries. One significant outlier to this exercise is Japan. While Japan has a ratio of stock market capitalization to GDP of about 1.33 to 1, demand for regulated funds is below that of other similarly developed nations, reflecting Japanese households' preference to save via bank deposits. As a result, Japanese households only have 5% of their wealth in regulated funds, while households in the EU have 10% and those in the U.S. have 23%.

In 2021, 47.9% of all households in the U.S. owned fund shares, according to the ICI Profile of Mutual Fund Shareholders 2021. Among those households that owned mutual fund shares, the median value of those assets was $200,000 in 2021, spread among three different funds, on average.

Separate but related to the regulated funds market is the market for retirement assets in the U.S., which totaled $39.4 trillion in 2021, according to data from the ICI. In 2021, 63% of U.S. households had some form of a tax-advantaged retirement savings account (like a 401k or IRA). As of year-end 2021, $12.6 trillion (or 32%) of retirement assets were invested in mutual funds.

Custody Banks

Custody banks are specialized financial institutions that provide asset safekeeping and other related custody services for their customers – generally large institutional investors including mutual funds, retirement funds, sovereign wealth funds, central banks, alternative investment funds, insurance companies, foundations, and endowments, as well as personal and family trusts. The four largest custody banks in the U.S. are BNY Mellon, State Street, JPMorgan, and Citigroup.

TOP U.S. CUSTODY BANKS BY TOTAL ASSETS UNDER CUSTODY
(ranked by latest end of year figures, in $, millions)

		Assets Under Custody ($ trillion)			
NO.	COMPANY NAME	Q3 2021	Q4 2021	Q1 2022	Q2 2022
1	Bank of New York Mellon	45.3	46.7	45.5	43.0
2	State Street Global Advisors	43.3	43.7	41.7	38.2
3	JPMorgan Chase & Co	32.0	33.2	31.6	28.6
4	Citigroup	25.8	25.0	23.0	21.1

Source: Company Reports.

The services provided by a custody bank can be categorized into three primary areas – custody services, supplementary services, and other administrative services.

◆ Custody Services

Custody servicing activities are the core services offered by custodians and they include safekeeping and record-keeping services, asset servicing, transaction processing and settlement, and banking services.

- **Safekeeping and Record-Keeping Services:** Custodians are primarily responsible for the safekeeping of clients' assets. They record the number of securities deposited by their clients, reconcile their holdings with a central securities depository, and also segregate securities from the custodians' own assets.

- **Asset Servicing:** Custodians also offer asset administration services such as income and tax processing, corporate action processing, collateral processing, securities valuation, as well as reporting services.

- **Transaction Processing and Settlement:** A custodian also facilitates the delivery or receipt of a security and the corresponding cash consideration whenever a client engages in the purchase or sale of a security.

- **Banking Services:** Banking services provided by custodians relate primarily to the processing of payments and other transactions that result from client investment activities.

◆ **Supplementary Services**
On top of core custody services, custodians also offer other services that are ancillary to the custody function, which are agency securities lending and foreign exchange services.

- **Agency Securities Lending Services:** As custodians' clients commonly hold large quantities of liquid debt and equity securities, custodians have developed agency services that allow clients to lend securities to other investors as an additional source of yield on their assets.

- **Foreign Exchange Services:** Some custodians may offer clients foreign exchange products and services such as execution of spot and forward FX transactions and, in some cases, act as market makers in certain currencies to provide liquidity.

◆ **Administrative Services**
Other than the provision of core custody and supplementary services, custodians have started to offer custody-related administrative services which are complementary to the operation of their clients' securities and cash accounts. Administrative services offered by custodians to clients typically include fund accounting and administration services, transfer agency services, collateral processing services, and outsourcing services.

- **Fund Accounting and Administrative Services:** This generally involves reporting the value of assets as well as fund expenses in clients' account, and then communicating the net asset value to the respective recipients.

- **Transfer Agency Services:** Transfer agency services consist of acting as the registrar of a fund, processing and recording subscriptions to and redemptions of fund shares by investors, interact with the fund's custodian to make payments to and from the fund's cash account, and acting as a reporting agent to a fund's shareholders, distribution agents, and regulatory authorities.

- **Collateral processing services:** Custodians also provide services to support collateralized transactions, which includes verifying the amount of credit exposure, calculating margin requirements, and executing margin calls.

- **Outsourcing Services:** Generally consist of activities such as transaction management, cash management, record-keeping and accounting, data management, reconciliation, and performance measurement and analysis.

Private Equity

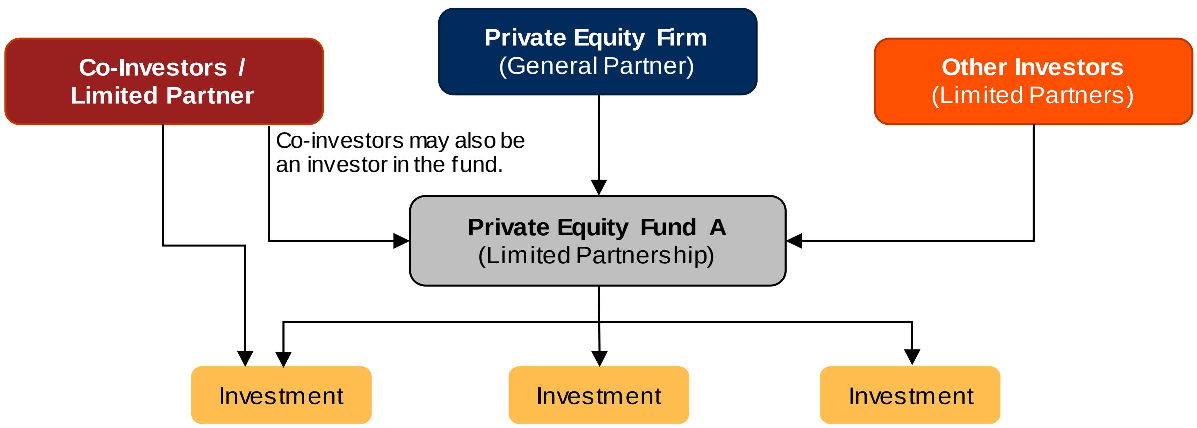
Private equity (PE) firms also manage the pooled savings of investors, but unlike asset managers, they generally invest in companies that are not publicly traded and/or public companies, which are then de-listed from public exchanges. A PE firm is made up of limited partners (LPs) – external institutional investors (*e.g.,* insurance companies, endowment funds, banks, foundations, pension funds, etc.) that provide capital and general partners (GPs) – professional investors who manage the PE firm and deploy the funds for investments. The total liability for LPs is limited to the capital contributed and is usually a minimum of $1 million.

A PE fund is usually structured as a limited life partnership, allowing each partner to cooperate for a specified period without creating additional layer of taxable income. These funds generally have a lifecycle of 7 to 15 years with several overlapping stages:

- Fund Raising (Years 0 to 2)
- Deal Sourcing and Investing (Years 1 to 4)
- Portfolio Management (Years 2 to 7)
- Exiting Investments (Varied time frames)

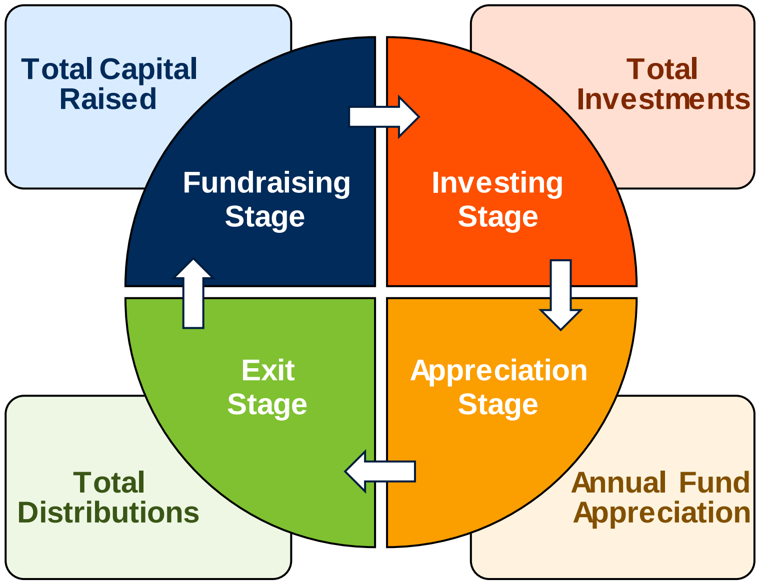
In some arrangements, partners are allowed to invest directly in each individual investment as well as, or instead of, the whole fund. This practice is called co-investment and they usually come with lower or sometimes even no fees, unlike the high management and performance fees charged by a PE fund. From GPs' perspective, a co-investment setup allows the GP to invest in a desirable opportunity that would otherwise be too large for the main fund given exposure limitations and diversification requirements.

PRIVATE EQUITY STRUCTURE



Generally, it is common for successful PE firms to form multiple funds for different investment strategies and styles. For example, a PE firm may begin raising funds for fund 1 and conduct deal sourcing and start making investments. After investing the majority of the capital in fund 1 (usually after a few years), the PE firm will restart the process and initiate the fundraising for fund 2.

Key Metrics in a Private Equity Fund Lifecycle



Source: The Carlyle Group.

◆ **Fundraising Stage** generally starts from year 0 to 2 of a PE fund. During this stage, any increase in total capital raised (or committed capital) will lead to increases in recurring fund management fees for the firm.

◆ **Investing Stage** usually runs from year 1 to 4 and it refers to the period when a fund begins sourcing for deals and making investments. The success of this stage could be measured by the amount of annual and total investments as the firm takes on multiple investment opportunities.

◆ **Appreciation/Growth Stage** continues from year 2 to 7 and it is when the firm focuses on managing the investment portfolio in efforts to increase its value. The performance of the firm could be assessed through the appreciation or depreciation of the PE fund, which will directly impact the fair market value of invested capital. Appreciation (depreciation) of the fund will contribute to greater (lower) performance fees for the firm.

◆ **Exit Stage** begins when a fund starts to exit its investments. This is normally done through exit strategies including but not limited to trade sale, leverage buyout, initial public offering, and private placement. Cash collected from exited funds will be distributed to investors and any amount above the hurdle rate are gains that will determine the realized performance fees for the firm.

Private Equity Investment Strategies

There are numerous investment strategies that a PE firm may employ, but the two most common ones are leverage buyouts and venture capital.

Leverage buyouts refer to a strategy whereby a target firm is bought out by a PE firm using capital acquired from loans or bonds (leverage). Companies that are involved in a buyout transaction are usually mature companies that are generating operating cash flows. A PE firm would purchase the company when it is confident that they can increase its value over the longer term through active management, focusing on achieving a return higher than the cost of leverage.

Venture capital generally involves younger firms, start-ups, or early-stage companies that are often without any proven track record. PE firms are likely to invest when there is noticeable potential in the industry but more importantly in the target firm itself. Due to the limited access to capital and/or resources for these companies, PE firms are able to take on huge ownership stakes for hopes that the target firm will grow into a market leader in its industry.

As a compensation for the riskiness of these investments, PE firms typically demand higher rates of return, making them an expensive source of capital. However, these firms are usually equipped with experienced professionals and are able to provide guidance to inexperienced management along the way, indirectly generating additional value to the firm. Venture capital will be the best source of funds for firms that require large initial capital and are unable to obtain financing from alternative sources.

Other than the aforementioned strategies, there are few other strategies that are common among PE firms, such as:

- **Growth Capital** – Finance mature companies that are looking to expand/restructure existing operations, enter new markets, or finance an acquisition.
- **Real Estate** – Invest in ownership of various types of real estate properties. Four common strategies are core, core plus, value added, and opportunistic.
- **Funds of Funds** – Invest into other funds instead of directly into securities, bonds, or stocks.
- **Distressed / Special Situations** – Invest into target companies that need restructuring, turnaround, or are in any unique circumstances.

HOW TO ANALYZE A COMPANY IN THIS INDUSTRY

Asset Managers

A basic review of an asset management company involves analyzing net client flows, relative fund performance, breadth and mix of product offerings, types of clients, operating margins, and management consistency. These firms earn advisory or management fees for investing and managing the assets of their clients; the fees are typically calculated based on either ending or average AUM on a monthly or a quarterly basis. Therefore, increases in a company's AUM, both in absolute terms and relative to its peers, merit a careful analysis, as they are an important valuation driver. The mix of AUM is also an important factor, since passive investments (like ETFs are faster growing, but have a much lower fee structure than active investments. Similarly, a mix of actively managed AUM heavily weighted with fixed-income investments will likely have a lower fee structure than one more heavily weighted with equities.

It is helpful to discern whether the changes in AUM are a function of client inflows and outflows or due to changes in securities prices. Given the volatility of debt and equity markets, CFRA views net client flows as a better indicator of the health of a firm's underlying portfolio and fund lineup. Client redemption relative to total AUM is also an important metric, given that attracting new assets often entails sales commissions and marketing expenses, which can reduce profitability. Companies with institutional and high-net-worth clients typically have lower redemption rates than companies with retail clients. Further, redemption rates tend to be lower for retirement accounts, such as individual retirement accounts and 401(k) plans.

Fund Performance: The Key Driver of Client Flows

Relative fund performance (*i.e.*, track record) of asset management companies is a primary determinant of net client flows, and, in turn, valuations, given CFRA's view that money chases performance. Fund performance is often measured over several years, and it represents an important and sustainable competitive advantage for certain industry participants.

Other important factors are investor sentiment, distribution channels (retail versus institutional), and the composition of AUM, which can indicate a company's asset diversification and potential earnings volatility. Given the inherent volatility of capital markets and investor sentiment, diversification can help investment companies mitigate earnings volatility, maintain investor confidence, and retain client assets over various economic cycles.

The Income Statement

The income statement provides the investor with concrete measures of operating performance. For asset managers, important measures include revenues, expenses, and certain profitability ratios, such as net profit margin and return on equity (ROE).

◆ **Revenues.** The revenue growth of asset management companies generally tracks the growth in AUM. Revenue growth is difficult to forecast since no one can predict price movements with certainty.

Watch Out! *The fee structure for asset managers generally results in negative net cash flow to capture new accounts. By capitalizing certain sales commissions paid to broker/dealers as assets, asset managers are able to match revenues and expenses more closely. However, if client assets do not remain under management for a sufficient period of time, deferred sales charges and management fees could be insufficient to cover these up-front costs.*

◆ **Expenses.** Compensation costs are often one of the largest expenses for an asset management company, and compensation of portfolio managers is often tied to investment performance, which can reduce operating leverage. For asset management companies that distribute their products through third parties, underwriting and distribution costs are a large proportion of total expenses. Other major cost items include advertising, promotion, occupancy, and technology expenses. The asset management industry benefits from economies of scale and low operating leverage.

◆ **Net profit margin.** Asset management companies are extremely profitable. They regularly post net profit margins (net income divided by total revenues) that are well in excess of those achieved by most industrial companies.

◆ **ROE.** This measure is net income divided by average shareholders' equity. ROE measures how efficiently a company employs shareholders' capital.

Valuation
The preferred valuation technique for asset managers usually involves calculating the Price-to-Earnings (P/E) ratio. Other tests, such as market capitalization to AUM and a multiple of advisory revenues, can be useful.

The popularity of different products varies with the investment environment and asset flow trends, and influences P/E multiples. In addition, a greater emphasis on higher fee products can justify higher valuation. For instance, companies with more emphasis on equity and international products may earn higher fees and this may lead to those companies enjoying relatively higher P/E ratios than those focused on purely domestic investments.

Historically, companies with more equity exposure tend to have higher P/E ratios than those investing in fixed-income securities, given the higher management fees earned on equity assets and greater active management involved due to the perceived higher risk.

Custody Banks

Custody banks are a unique group in the financial sector. Many custodians do not participate in traditional lending businesses except as part of their broader service offerings to clients. For most commercial banks, net interest income represents the majority of the banks' revenue, and these are derived from the holding and issuing of deposits and loans – which also make up a significant portion of the banks' balance sheet. Given the business nature of custodians, both their income statements and balance sheets are quite different from other traditional banking businesses.

Revenue Source
◆ **Fee Revenue** compose a majority of revenues for custodians. We note that there is some variability in categorizing fee-based revenues from custody services, but they generally represent asset servicing fees, fund administration fees, securities brokerage fees, payment fees, securities lending fees, and fees from data solutions. These fee-based revenues are mainly calculated from the market values of assets under custody (AUC) and/or administration (AUA), making it fairly immune to the effects of varying interest rate environments. Rather, it is more correlated to client investment activities (*i.e.,* transaction volumes) and overall market conditions (*i.e.,* market values of assets).

The fee revenues from custody services are usually steady and predictable, even during periods of financial stress. Custodians that have a large percentage of fee revenues to total revenues are likely to have a relatively stable profit margin which allows them to maintain healthy capital ratios, thus, being more resilient during periods of financial market uncertainty.

◆ **Net Interest Income.** Custodians also generate income in the form of net interest income, albeit a smaller portion of total revenue. This form of income comes from the interest earned on the reinvestment of clients' cash deposits and interest charged on credit extended to clients for the purchase of securities.

While it represents a significantly lower percentage of revenues compared to most commercial banks, net interest income is still important to the overall profitability of a custody bank.

Balance Sheet

Custody banks are generally measured on assets under custody (AUC) or a combination with assets under administration (AUC), but these are not recognized on the balance sheet as they are not the property of the custodian. Rather, these assets remain as the property of the beneficial owners and are recognized on their balance sheets. As a result, the beneficial owners will bear the risks (*e.g.,* credit risk and market risk) associated with the assets.

The balance sheets of custodians are usually liability-driven and primarily consist of clients' cash deposits. These cash deposits are made up of 3 components – client-deposited cash balances, proceeds from the sale of securities, and cash distributions from client securities. As custody banks are free to use the cash for its own purposes, these cash deposits are reflected as liabilities on the balance sheet, while the resulting investments (cash deposits are generally invested in high quality liquid assets) are reported as assets.

◆ **Liabilities (Client Deposits).** Client deposits can be segregated into two distinct types: operational deposits and other/excess deposits.

- Operational deposits refer to deposits that are required for custodial and other operating activities. These deposits are necessary to perform custody services, without which the custodian might not be able to provide the required level of service. Hence, they usually represent a stable funding source for the custodian and are unlikely to be withdrawn frequently.

  Generally, the activities that require funds from operational deposits include purchase and sale of securities, dividends and interest payments, corporate action events, as well as client subscriptions and redemptions.

- Excess deposits refer to additional amounts deposited in clients' account and are common during periods of financial market stress. As custodians are viewed as "safe havens" in times of financial stress, there may be significant growth in their balance sheets arising from client's desire to hold cash deposits instead of other assets.

Other than client deposits, custodians have few other liabilities on their balance sheets. While these institutions may occasionally borrow funds from other lenders, the liquidity provided by clients through their cash accounts are largely sufficient, which alleviates the need for liquidity from external lenders.

◆ **Assets** associated with a custody bank consist of two main categories: cash on deposit with other institutions and high-quality liquid investment securities. Other than generating a return, these investment securities are also used as collateral to obtain intraday and overnight financing from entities in connection with the purchase of clients' securities.

Some custody banks also do provide short-term loans in connection with providing custody services. These credit facilities have short-term maturities of about one to two months and are largely subjected to the custodians' ability to meet asset quality and diversification requirements. This limited lending activity usually represents a relatively low percentage of net loans and leases recognized on the balance sheets of custodians.

As custody banks do not have material market-making or dealing activities, they generally have small amounts of trading assets on their balance sheets.

Private Equity

As most PE firms are in the business of creating value from private companies, it is extremely difficult to determine an accurate valuation due to the lack of data transparency and unpredictability of the firm's cash flows. Regardless, we think understanding the sources of income for a PE firm as well as the key metrics at each stage of a fund's lifecycle could approximate the strength of a PE firm.

In general, a PE firm generates income from two main sources: fund management fees and performance fees. Fund management fees are relatively predictable and easier to analyze/project, while performance fees are sporadic in nature and are affected by the combination of many macroeconomics and company-specific factors.

Fund Management Fees

PE firms (or GPs) receive long-term recurring management fees in exchange for services provided in managing the fund. These fees are used to fund operating costs such as staff salaries, general business expenses, and the remuneration of partners. Excess over these costs is retained by the firm and may be distributed to the partners/shareholders of the fund. As a result, GPs are faced with the constant challenge of balancing between reinvesting the recurring fee income to grow the business or retaining top partners by offering attractive remunerations.

These fees could be defined as a percentage of capital committed, invested capital, and/or AUM and they usually range around 2% to 3% in smaller funds to 0.5% to 2% for larger funds. For example, PE firm – The Carlyle Group charges 1% to 2% of committed capital in the "investment period" (first 4-5 years of the fund) and 0.6% to 2% of invested capital outside the "investment period" (last 4-5 years of the fund).

Watch Out! *As fund management fees are positively correlated to fund sizes, larger funds are able to receive substantial fees regardless of whether the fund performs or not. Since excess funds are usually distributed to partners, they are essentially hauling in risk-free profits if they could successfully raise a large fund, which could potentially result in the misalignment of interests between partners and shareholders.*

Performance Fees

The second source of income for PE firms are performance fees which are also commonly known as carried interest. These fees are usually structured at 20% of the gains, but only available after achieving a return above a hurdle rate (about 8%-9% on average) specified by the fund, net of fund related expenses. A fund that is eligible to generate "accrued" performance fees are known to be "in carry" and the fees will be recognized on the firm's balance sheet as accrued or unrealized performance fees until distribution or exit.

- **Realized performance fees** are generated when a fund has a distribution event (*e.g.,* an exit or dividend). The amount to be paid to the GP are usually determine through a distribution waterfall process. In this process, 100% of investment returns are allocated to the LPs until the amount of capital committed plus the preferred return (hurdle rate of return) are fulfilled. After that, 100% of returns will be distributed to the GP until the share of profits received equals the carried interest percentage (*e.g.,* 20%) of total amount distributed with respect to the preferred return (this stage is referred to as catch-up). Finally, remaining returns are split between the GP and LPs according to the carried interest percentage.

- **Accrued (unrealized) performance fees** refer to the fees that an unrealized fund would generate if all of its assets are sold at fair value at the end of a given period. In any distribution event, the realization of performance fees would reduce the balance of the accrued amount in the balance sheet.

Watch Out! *PE companies hold significant amounts of investments that are valued using models or using market values that are derived from illiquid markets. These valuations are subject to significant management discretion. The policies applied to arrive at reported fair values for these investments can have a material impact on earnings or the balance sheet.*

GLOSSARY

Asset manager—An organization or individual that manages the financial assets of their clients professionally.

Assets under management (AUM)—Market value of assets managed by an investment company in behalf of the investors.

Bipartisan bill—A bill that is supported by two opposing political parties (e.g., Democrats and Republicans).

Carried interest—The share of profits paid to the investment manager (also known as the general partner) of a private equity fund as a form of compensation. Carried interest is usually only available when the fund generates a return exceeding a specified hurdle rate.

Catch-up—A clause in a private equity deal in favor of the GP. This allows the GP to receive all of the gains above the hurdle rate until the share of the profits received equals the specified carried interest percentage of total return.

Closed-end funds—A closed-end fund is a type of investment company with shares that are generally listed on a stock exchange or traded in the over-the-counter (OTC) market. Closed-end funds provide investors with flexibility and access to diverse investments. Assets are managed by professionals in accordance with the fund's investment objective and policies, and may be invested in stocks, bonds, or a combination of both.

Committed capital—An agreement between an investor and a private equity fund that creates the obligation from the investor to contribute money into the fund when called upon.

Custody bank—Financial Institutions that provide safekeeping services for its clients' assets and does not normally involve in regular banking activities.

Distributed ledger technology (DLT)—A database that simultaneously shares and synchronize data across multiple locations without any central administrator or centralized data storage. Any changes or additions in the ledger are communicated to all participants in extremely short amounts of time.

Distribution waterfall—A method of allocating the capital gains between the GP and LPs of a private equity fund. The process starts by returning the invested capital to the LPs as well as the return specified by the hurdle rate. Excess gains will be allocated to the GP according to the "catch-up" clause. Finally, any remaining gains will be shared between the GP and the LPs according to the carried interest rate.

Exchange-traded fund (ETF)—A marketable security that tracks indexes, bonds, a commodity, or an index fund. ETFs are traded like common stocks on an exchange.

General partner (GP)—The investment manager of a fund that receives compensations in a form of management fee and performance fee for services provided.

Hurdle rate—The minimum rate of return required by the investors. In private equity, this is the rate that the GP must achieve before being able to receive any carried interest/performance fees.

Initial public offering (IPO)—The process of offering the shares of a private company to the public for the first time.

Investment period—In a private equity fund, this generally refers to the period when the GP is actively sourcing and evaluating potential investments to be a part of the fund's core portfolio companies.

K-12—The K-12 system stands for "from kindergarten to 12th grade". This equates roughly to a school starting age of around five through to Grade 12 at around the age of 18.

Leverage buyout (LBO)—The acquisition of a company with the majority portion of the cost financed through debt.

Limited partner (LP)—The investors that commits capital into an investment fund to be managed by the GP. Typically consist of pension funds, institutional investors, and wealthy individuals.

Private placement—A sale of the investment directly to a small group of private investors rather than as part of a public offering.

INDUSTRY REFERENCES

PERIODICALS

ICI ETF Assets and Net Issuance
ICI Trends in Mutual Fund Investment
ICI Worldwide Regulated Open-End Fund Assets and Flows
http://www.ici.org/research/stats
Reports total sales, redemptions, and net new cash flows for U.S. and worldwide bond, income, and equity mutual funds, as well as for exchange-traded funds (ETFs).

Institutional Investor
http://www.institutionalinvestor.com
Examines trends in banking, pensions, corporate finance, insurance, corporations, and investing.

TRADE ASSOCIATIONS & REGULATORY AGENCIES

ETF.COM
http://www.etf.com
World's leading authority on ETF research and analysis.

Investment Company Institute (ICI)
http://www.ici.org
National organization representing U.S. investment companies, including mutual funds, closed-end funds, and unit investment trusts.

World Bank
https://www.worldbank.org
An international financial institution that provides loans and grants to the governments of low- and middle-income countries for the purpose of pursuing capital projects.

GOVERNMENT AGENCIES

U.S. Federal Reserve Bank
http://www.federalreserve.gov
The central banking system of the U.S., functions to promote the effective operations of U.S.'s economy.

US Bureau of Economic Analysis (BEA)
http://www.bea.gov
Agency that provides U.S. macroeconomic data and industry statistics.

RESEARCH AND CONSULTING FIRMS

Action Economics
http://www.actioneconomics.com
Research firm that provides in-depth analysis of economic data and projections.

S&P Global Market Intelligence
http://marketintelligence.spglobal.com
Provider of independent ratings, benchmarks, analytics, and data to the capital and commodity markets worldwide.

ONLINE RESOURCES

The Clearing House
http://www.theclearinghouse.org
A U.S. payments company that publishes whitepapers relating to the custody banking industry.

COMPANY RESOURCES

Affiliated Managers Group, Inc.
http://www.amg.com

AllianceBernstein Holding L.P.
http://www.alliancebernstein.com

BlackRock, Inc.
http://www.blackrock.com

Citigroup
https://www.citigroup.com

Eaton Vance Corp.
http://www.eatonvance.com

Federated Investors, Inc.
http://www.federatedinvestors.com

Franklin Resources, Inc.
http://www.franklinresources.com

Invesco Ltd.
http://www.invesco.com

Janus Henderson Group plc
http://en-us.janushenderson.com

Legg Mason, Inc.
http://www.leggmason.com

T. Rowe Price Group, Inc.
http://www.troweprice.com

The Blackstone Group
http://www.blackstone.com

The Carlyle Group
http://www.carlyle.com

COMPARATIVE COMPANY ANALYSIS

Operating Revenues

Ticker		Company	Yr. End	Million $ 2021	2020	2019	2018	2017	2016	2015	CAGR (%) 10-Yr.	5-Yr.	1-Yr.	Index Basis (2012=100) 2021	2020	2019	2018	2017	2016
ASSET MANAGERS																			
AMG	†	AFFILIATED MANAGERS GROUP, INC.	DEC	2,412.4	2,027.5	2,239.6	2,378.4	2,305.0	2,194.6	2,484.5	3.5	1.9	19.0	97	82	90	96	93	88
AB		ALLIANCEBERNSTEIN HOLDING L.P.	DEC	416.3	308.4	266.3	270.6	232.4	239.4	210.1	NA	11.7	35.0	198	147	127	129	111	114
AMP	[]	AMERIPRISE FINANCIAL, INC.	DEC	13,443.0	11,958.0	12,890.0	12,924.0	12,180.0	11,839.0	12,193.0	2.8	2.6	12.4	110	98	106	106	100	97
BLK	[]	BLACKROCK, INC.	DEC	19,374.0	16,205.0	14,539.0	14,198.0	13,600.0	12,261.0	11,401.0	7.9	9.6	19.6	170	142	128	125	119	108
BCOR	§	BLUCORA, INC.	DEC	885.2	755.0	717.9	560.5	509.6	455.9	117.7	14.5	14.2	17.3	752	641	610	476	433	387
EV	0	EATON VANCE CORP.	ENTIFIER)								NA	NA	NA	NA	NA	NA	NA	NA	NA
FHI	†	FEDERATED HERMES, INC.	DEC	1,300.4	1,448.3	1,326.9	1,135.7	1,102.9	1,143.4	926.6	3.8	2.6	-10.2	140	156	143	123	119	123
BEN	[]	FRANKLIN RESOURCES, INC.	SEP	8,425.5	5,566.5	5,669.4	6,204.5	6,392.2	6,618.0	7,948.7	1.7	4.9	51.4	106	70	71	78	80	83
IVZ	[]	INVESCO LTD.	DEC	6,894.5	6,145.6	6,117.4	5,314.1	5,160.3	4,734.4	5,122.9	5.6	7.8	12.2	135	120	119	104	101	92
JHG	†	JANUS HENDERSON GROUP PLC	DEC	2,767.0	2,298.6	2,192.4	2,306.4	1,818.3	1,018.2	1,155.1	15.0	22.1	20.4	240	199	190	200	157	88
LM	0	LEGG MASON, INC.	ENTIFIER)								NA	NA	NA	NA	NA	NA	NA	NA	NA
SEIC	†	SEI INVESTMENTS COMPANY	DEC	1,918.3	1,684.1	1,649.9	1,624.2	1,526.6	1,401.5	1,334.2	7.5	6.5	13.9	144	126	124	122	114	105
TROW	[]	T. ROWE PRICE GROUP, INC.	DEC	7,671.9	6,206.7	5,617.9	5,372.6	4,854.9	4,284.8	4,200.6	10.8	12.4	23.6	183	148	134	128	116	102
VRTS	§	VIRTUS INVESTMENT PARTNERS, INC.	DEC	979.2	603.9	563.2	552.2	425.6	322.6	382.0	16.9	24.9	62.2	256	158	147	145	111	84
WDR	§	WADDELL & REED FINANCIAL, INC.	ENTIFIER)								NA	NA	NA	NA	NA	NA	NA	NA	NA
WETF	§	WISDOMTREE INVESTMENTS, INC.	DEC	304.3	249.9	266.5	274.1	228.3	218.9	298.9	16.7	6.8	21.8	102	84	89	92	76	73
CUSTODY BANKS																			
NTRS	[]	NORTHERN TRUST CORPORATION	DEC	6,546.0	5,975.8	6,087.6	5,974.7	5,403.3	5,006.7	4,745.6	5.8	5.5	9.5	138	126	128	126	114	106
STT	[]	STATE STREET CORPORATION	DEC	12,060.0	11,615.0	11,746.0	12,116.0	11,264.0	10,197.0	10,348.0	2.3	3.4	3.8	117	112	114	117	109	99
BK	[]	THE BANK OF NEW YORK MELLON CORPORATION	DEC	16,162.0	15,472.0	16,487.0	16,403.0	15,567.0	15,248.0	15,034.0	0.9	1.2	4.5	108	103	110	109	104	101
PRIVATE EQUITY																			
APO		APOLLO GLOBAL MANAGEMENT, INC.	DEC	5,812.5	2,220.8	2,833.5	1,033.7	2,718.9	2,030.1	1,011.6	46.1	23.4	161.7	575	220	280	102	269	201
KKR		KKR & CO. INC.	DEC	25,009.3	8,659.8	8,076.7	4,199.3	4,999.1	2,589.2	7,212.9	27.6	57.4	188.8	347	120	112	58	69	36
BX		THE BLACKSTONE GROUP INC.	DEC	22,175.8	6,188.9	7,058.6	5,997.0	6,947.5	4,993.6	4,502.0	21.4	34.7	258.3	493	137	157	133	154	111
CG		THE CARLYLE GROUP INC.	DEC	8,782.1	2,934.6	3,377.0	2,427.2	3,676.2	2,274.3	3,006.2	11.9	31.0	199.3	292	98	112	81	122	76

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Net Income

				Million $							CAGR (%)			Index Basis (2012=100)					
Ticker		**Company**	**Yr. End**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**10-Yr.**	**5-Yr.**	**1-Yr.**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**
ASSET MANAGEMENT AND CUSTODY BANKS																			
AMG	†	AFFILIATED MANAGERS GROUP, INC.	DEC	565.7	202.2	15.7	243.6	689.5	472.8	509.5	13.1	3.7	179.8	111	40	3	48	135	93
AB		ALLIANCEBERNSTEIN HOLDING L.P.	DEC	385.8	279.4	238.6	242.4	207.4	216.6	185.8	NA	12.2	38.1	208	150	128	130	112	117
AMP	[]	AMERIPRISE FINANCIAL, INC.	DEC	2760.0	1534.0	1893.0	2098.0	1480.0	1313.0	1562.0	9.5	16.0	79.9	177	98	121	134	95	84
BLK	[]	BLACKROCK, INC.	DEC	5901.0	4932.0	4476.0	4305.0	4952.0	3168.0	3345.0	9.7	13.2	19.6	176	147	134	129	148	95
BCOR	§	BLUCORA, INC.	DEC	7.8	-342.8	48.1	50.6	27.0	-65.2	-40.1	-9.7	NM	NM	-19	855	-120	-126	-67	163
FHI	†	FEDERATED HERMES, INC.	DEC	270.3	326.4	272.3	220.3	291.3	208.9	169.8	6.0	5.3	-17.2	159	192	160	130	172	123
BEN	[]	FRANKLIN RESOURCES, INC.	SEP	1831.2	798.9	1195.7	764.4	1696.7	1726.7	2035.3	-0.5	1.2	129.2	90	39	59	38	83	85
IVZ	[]	INVESCO LTD.	DEC	1629.8	761.6	688.3	882.8	1127.3	854.2	968.1	8.4	13.8	114.0	168	79	71	91	116	88
JHG	†	JANUS HENDERSON GROUP PLC	DEC	622.1	161.6	427.6	523.8	655.5	189.0	329.8	33.7	26.9	285.0	189	49	130	159	199	57
SEIC	†	SEI INVESTMENTS COMPANY	DEC	546.6	447.3	501.4	505.9	404.4	333.8	331.7	10.3	10.4	22.2	165	135	151	153	122	101
TROW	[]	T. ROWE PRICE GROUP, INC.	DEC	3082.9	2372.7	2131.3	1837.5	1497.8	1215.0	1223.0	14.8	20.5	29.9	252	194	174	150	122	99
VRTS	§	VIRTUS INVESTMENT PARTNERS, INC.	DEC	208.1	80.0	95.6	75.5	37.0	48.5	35.1	3.7	33.8	160.3	593	228	272	215	105	138
WETF	§	WISDOMTREE INVESTMENTS, INC.	DEC	49.8	-35.7	-10.4	36.6	27.2	26.2	80.1	32.0	13.7	NM	62	-45	-13	46	34	33
CUSTODY BANKS																			
NTRS	[]	NORTHERN TRUST CORPORATION	DEC	1545.3	1209.3	1492.2	1556.4	1199.0	1032.5	973.8	9.9	8.4	27.8	159	124	153	160	123	106
STT	[]	STATE STREET CORPORATION	DEC	2693.0	2420.0	2242.0	2593.0	2156.0	2143.0	1980.0	3.4	4.7	11.3	136	122	113	131	109	108
BK	[]	THE BANK OF NEW YORK MELLON CORPORATION	DEC	3759.0	3617.0	4441.0	4266.0	4090.0	3547.0	3158.0	4.1	1.2	3.9	119	115	141	135	130	112
PRIVATE EQUITY																			
APO		APOLLO GLOBAL MANAGEMENT, INC.	DEC	1838.5	156.6	843.2	-10.4	629.1	402.9	134.5	NA	35.5	1073.9	1367	116	627	-8	468	300
KKR		KKR & CO. INC.	DEC	4666.5	2002.5	2005.0	1131.1	1018.3	309.3	488.5	118.0	72.1	133.0	955	410	410	232	208	63
BX		THE BLACKSTONE GROUP INC.	DEC	5857.4	1045.4	2049.7	1541.8	1471.4	1039.0	709.8	NA	41.3	460.3	825	147	289	217	207	146
CG		THE CARLYLE GROUP INC.	DEC	2974.7	348.2	380.9	116.5	244.1	6.4	-18.4	8.2	241.5	754.3	NM	NM	NM	-633	NM	-35

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Ticker		Company	Yr. End	Return on Revenues (%) 2021	2020	2019	2018	2017	2016	Return on Assets (%) 2021	2020	2019	2018	2017	2016	Return on Equity (%) 2021	2020	2019	2018	2017	2016
ASSET MANAGEMENT AND CUSTODY BANKS																					
AMG	†	AFFILIATED MANAGERS GROUP, INC.	DEC	23.4	10.0	0.7	10.2	29.9	21.5	6.4	2.6	0.2	3.0	7.9	5.4	21.3	10.2	6.5	10.3	19.2	15.6
AB		ALLIANCEBERNSTEIN HOLDING L.P.	DEC	92.7	90.6	89.6	89.6	89.3	90.5	23.8	17.4	15.3	16.3	13.4	14.1	23.9	17.7	15.7	16.0	13.5	13.9
AMP	[]	AMERIPRISE FINANCIAL, INC.	DEC	20.5	12.8	14.7	16.2	12.2	11.1	1.6	0.9	1.2	1.5	1.0	0.9	47.8	26.5	33.5	36.2	24.1	17.9
BLK	[]	BLACKROCK, INC.	DEC	30.5	30.4	30.8	30.3	36.4	25.8	3.9	2.8	2.7	2.7	2.2	1.4	16.2	14.6	13.2	13.1	16.2	10.8
BCOR	§	BLUCORA, INC.	DEC	0.9	NM	6.7	9.0	5.3	NM	0.7	NM	4.2	5.1	2.7	NM	2.4	NM	7.5	8.7	5.9	NM
FHI	†	FEDERATED HERMES, INC.	DEC	20.8	22.5	20.5	19.4	26.4	18.3	13.4	15.8	14.5	14.3	23.7	18.1	21.3	25.6	24.2	24.3	41.6	34.5
BEN	[]	FRANKLIN RESOURCES, INC.	SEP	21.7	14.4	21.1	12.3	26.5	26.1	7.6	3.7	8.2	5.3	9.7	10.7	17.3	6.9	10.7	5.7	13.0	14.0
IVZ	[]	INVESCO LTD.	DEC	23.6	12.4	11.3	16.6	21.8	18.0	5.0	2.1	1.7	2.8	3.6	3.3	12.4	5.4	6.1	9.5	13.6	10.4
JHG	†	JANUS HENDERSON GROUP PLC	DEC	22.5	7.0	19.5	22.7	36.1	18.6	9.2	2.4	5.6	7.6	9.0	7.8	12.7	3.5	8.4	9.9	19.0	10.4
SEIC	†	SEI INVESTMENTS COMPANY	DEC	28.5	26.6	30.4	31.1	26.5	23.8	23.2	20.6	23.3	25.7	21.8	20.4	30.4	25.7	30.1	33.0	29.1	25.7
TROW	[]	T. ROWE PRICE GROUP, INC.	DEC	40.2	38.2	37.9	34.2	30.9	28.4	24.6	22.3	22.8	23.9	19.9	19.5	31.7	28.9	29.8	25.9	25.3	24.0
VRTS	§	VIRTUS INVESTMENT PARTNERS, INC.	DEC	21.3	13.2	17.0	13.7	8.7	15.0	5.3	2.3	3.0	2.6	1.4	5.9	29.0	15.1	14.5	11.6	8.2	10.4
WETF	§	WISDOMTREE INVESTMENTS, INC.	DEC	16.4	NM	NM	13.4	11.9	11.9	4.8	NM	NM	3.9	10.7	10.5	12.4	NM	NM	10.7	13.8	12.0
CUSTODY BANKS																					
NTRS	[]	NORTHERN TRUST CORPORATION	DEC	23.6	20.2	24.5	26.0	22.2	20.6	0.8	0.7	1.1	1.2	0.9	0.8	13.0	10.6	13.8	15.0	12.0	11.2
STT	[]	STATE STREET CORPORATION	DEC	22.3	20.8	19.1	21.4	19.1	21.0	0.9	0.8	0.9	1.1	0.9	0.9	10.1	9.6	9.1	11.0	9.9	10.1
BK	[]	THE BANK OF NEW YORK MELLON CORPORATION	DEC	23.3	23.4	26.9	26.0	26.3	23.3	0.8	0.8	1.2	1.2	1.1	1.1	8.4	8.3	10.8	10.3	10.1	9.0
PRIVATE EQUITY																					
APO		APOLLO GLOBAL MANAGEMENT, INC.	DEC	31.6	7.1	29.8	NM	23.1	19.8	6.0	0.7	9.9	NM	9.0	7.2	46.7	10.0	56.0	0.7	60.6	59.6
KKR		KKR & CO. INC.	DEC	18.7	23.1	24.8	26.9	20.4	11.9	1.8	2.5	3.3	2.2	2.2	0.8	24.9	14.4	16.6	10.6	13.6	2.9
BX		THE BLACKSTONE GROUP INC.	DEC	26.4	16.9	29.0	25.7	21.2	20.8	14.2	4.0	6.3	5.3	4.3	3.9	68.2	15.2	26.8	23.8	25.7	18.2
CG		THE CARLYLE GROUP INC.	DEC	33.9	11.9	11.3	4.8	6.6	0.3	14.0	2.2	2.8	0.9	2.0	0.1	70.5	13.0	40.8	11.4	45.8	0.3

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Ticker	Company	Yr. End	Current Ratio						Debt/Capital Ratio (%)						Debt as a % of Net Working Capital					
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
ASSET MANAGEMENT AND CUSTODY BANKS																				
AMG	† AFFILIATED MANAGERS GROUP, INC.	DEC	2.6	3.9	2.4	2.2	1.7	1.8	2.1	1.7	1.8	2.1	2.0	3.4	286.9	201.6	291.1	284.6	466.5	493.8
AB	ALLIANCEBERNSTEIN HOLDING L.P.	DEC	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.5	2.4	2.4	2.2	2.1	NA	NA	NA	NA	NA	NA
AMP	[] AMERIPRISE FINANCIAL, INC.	DEC	3.2	2.3	2.4	2.6	2.5	2.4	1.4	1.3	1.2	1.2	1.1	1.2	13.6	23.1	31.2	33.5	33.8	36.6
BLK	[] BLACKROCK, INC.	DEC	1.7	1.4	1.3	1.3	1.3	1.2	2.7	1.9	1.8	2.1	5.0	1.5	80.8	81.3	95.3	78.5	66.4	75.6
BCOR	§ BLUCORA, INC.	DEC	1.8	2.0	1.5	2.7	1.9	1.8	5.2	4.6	3.8	4.0	3.5	2.8	624.6	555.2	836.4	311.7	709.6	948.5
FHI	† FEDERATED HERMES, INC.	DEC	2.1	2.2	2.0	1.7	3.4	2.2	4.6	11.0	7.9	9.5	6.9	7.1	77.4	24.2	43.4	109.8	55.1	84.0
BEN	[] FRANKLIN RESOURCES, INC.	SEP	3.5	3.0	4.5	4.9	11.4	8.8	8.2	10.5	8.2	6.6	3.9	3.6	39.9	48.5	9.8	8.6	8.5	10.4
IVZ	[] INVESCO LTD.	DEC	7.7	7.1	8.4	11.8	14.0	11.7	11.1	12.2	12.4	20.5	18.4	21.0	16.3	13.2	10.9	12.9	10.0	13.4
JHG	† JANUS HENDERSON GROUP PLC	DEC	3.1	3.0	3.4	2.8	2.2	2.3	6.0	6.1	5.4	6.0	6.0	0.0	19.1	21.4	17.5	24.7	26.0	0.0
SEIC	† SEI INVESTMENTS COMPANY	DEC	3.9	4.1	4.4	4.0	4.1	4.2	2.1	0.0	0.0	0.0	2.0	0.0	3.8	0.0	0.0	0.0	3.5	0.0
TROW	[] T. ROWE PRICE GROUP, INC.	DEC	1.6	2.6	2.7	2.5	3.8	3.8	1.1	0.0	0.0	0.0	0.0	0.0	12.1	0.0	0.0	0.0	0.0	0.0
VRTS	§ VIRTUS INVESTMENT PARTNERS, INC.	DEC	2.7	2.7	3.0	2.5	2.5	2.5	21.4	19.4	27.0	31.9	29.0	7.7	59.0	75.8	106.0	166.4	138.1	25.4
WETF	§ WISDOMTREE INVESTMENTS, INC.	DEC	3.6	1.9	1.6	1.9	2.7	4.1	44.2	29.5	27.2	28.4	0.0	0.0	144.6	245.6	399.7	350.8	0.0	0.0
CUSTODY BANKS																				
NTRS	[] NORTHERN TRUST CORPORATION	DEC	0.0	0.0	0.0	0.0	0.0	0.0	53.5	66.3	89.0	105.4	101.2	76.4	(8.9)	(12.9)	(18.0)	(20.4)	(19.6)	(14.8)
STT	[] STATE STREET CORPORATION	DEC	0.0	0.0	0.0	0.0	0.0	0.0	60.9	102.9	85.0	89.3	73.5	86.8	(16.6)	(28.7)	(23.8)	(27.5)	(19.2)	(22.8)
BK	[] THE BANK OF NEW YORK MELLON CORPORATION	DEC	0.0	0.0	0.0	0.0	0.0	0.0	95.1	93.2	94.5	96.3	100.3	94.6	(32.9)	(38.6)	(46.3)	(48.6)	(51.1)	(40.3)
PRIVATE EQUITY																				
APO	APOLLO GLOBAL MANAGEMENT, INC.	DEC	1.5	2.9	2.3	1.9	1.5	3.7	53.4	69.4	53.5	47.5	45.0	53.4	1517.8	722.1	285.8	433.8	505.7	119.7
KKR	KKR & CO. INC.	DEC	0.9	2.2	1.7	1.8	1.6	2.2	37.9	45.9	47.1	47.0	51.4	52.5	NM	680.5	1482.0	1124.0	969.8	528.6
BX	THE BLACKSTONE GROUP INC.	DEC	0.9	1.5	1.3	1.3	1.4	1.4	27.0	29.3	42.9	43.1	52.5	41.9	NM	277.0	749.5	863.2	746.3	604.3
CG	THE CARLYLE GROUP INC.	DEC	2.1	1.9	1.8	1.9	2.2	2.2	58.3	72.0	69.5	69.2	66.6	78.2	133.4	248.2	286.1	267.1	200.1	216.8

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Ticker	Company	Yr. End	Price/Earnings Ratio (High-Low) 2021	2020	2019	2018	2017	2016	Dividend Payout Ratio (%) 2021	2020	2019	2018	2017	2016	Dividend Yield (High-Low, %) 2021	2020	2019	2018	2017	2016
ASSET MANAGEMENT AND CUSTODY BANKS																				
AMG	† AFFILIATED MANAGERS GROUP, INC.	DEC	14 - 7	23 - 10	372 - 231	47 - 20	17 - 11	21 - 14	0.3	8.3	415.9	26.4	6.5	0.0	0.0 - 0.0	0.0 - 0.0	2.8 - 0.0	1.8 - 1.1	1.1 - 0.4	0.5 - 0.4
AB	ALLIANCEBERNSTEIN HOLDING L.P.	DEC	15 - 8	12 - 5	13 - 10	12 - 9	12 - 9	11 - 8	92.6	97.0	93.3	115.8	97.6	78.4	10.7 - 5.5	8.1 - 5.1	17.3 - 7.1	10.2 - 7.4	8.9 - 6.9	9.3 - 7.3
AMP	[] AMERIPRISE FINANCIAL, INC.	DEC	13 - 8	16 - 7	12 - 7	13 - 7	18 - 11	15 - 10	18.5	32.4	26.6	24.1	33.2	36.5	2.0 - 1.4	2.2 - 1.5	4.7 - 2.2	3.7 - 2.4	3.0 - 1.8	2.7 - 2.0
BLK	[] BLACKROCK, INC.	DEC	25 - 18	22 - 10	18 - 13	22 - 13	17 - 12	21 - 15	43.2	45.8	46.8	45.7	33.6	48.8	3.3 - 1.8	2.4 - 1.7	4.4 - 2.0	3.5 - 2.7	3.3 - 1.9	2.7 - 2.0
BCOR	§ BLUCORA, INC.	DEC	115 - 90	NM - NM	36 - 19	43 - 23	43 - 24	NM - NM	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
FHI	† FEDERATED HERMES, INC.	DEC	14 - 10	12 - 4	13 - 9	17 - 10	13 - 9	16 - 11	39.1	63.7	40.1	48.5	34.8	49.4	3.8 - 2.8	4.0 - 3.0	8.3 - 2.9	4.4 - 3.0	4.9 - 2.7	4.0 - 3.0
BEN	[] FRANKLIN RESOURCES, INC.	SEP	10 - 5	18 - 10	15 - 11	33 - 22	16 - 11	14 - 10	30.6	66.7	43.4	65.0	26.0	23.7	4.9 - 3.0	5.8 - 3.1	7.1 - 3.5	4.0 - 2.7	2.9 - 1.8	2.2 - 1.7
IVZ	[] INVESCO LTD.	DEC	10 - 6	17 - 6	17 - 12	18 - 7	14 - 11	16 - 11	33.4	78.0	94.8	55.6	41.8	53.9	4.4 - 2.7	3.8 - 2.3	16.3 - 3.6	8.2 - 5.5	6.1 - 3.0	3.9 - 3.1
JHG	† JANUS HENDERSON GROUP PLC	DEC	13 - 8	38 - 14	12 - 8	16 - 7	10 - 8	NA - NA	41.2	162.7	63.7	52.5	39.1	83.3	5.9 - 3.5	5.1 - 3.1	12.0 - 4.9	8.1 - 5.6	6.3 - 3.1	3.9 - 3.4
SEIC	† SEI INVESTMENTS COMPANY	DEC	17 - 14	23 - 12	20 - 13	24 - 13	28 - 19	26 - 16	19.3	23.2	20.1	18.6	22.0	25.4	1.5 - 1.2	1.4 - 1.1	1.9 - 1.0	1.5 - 1.0	1.2 - 0.8	1.2 - 0.8
TROW	[] T. ROWE PRICE GROUP, INC.	DEC	17 - 11	15 - 8	14 - 10	17 - 11	17 - 11	16 - 13	32.5	35.6	34.4	37.8	37.6	44.5	4.2 - 2.1	2.7 - 1.9	4.2 - 2.2	3.3 - 2.5	3.0 - 1.9	3.4 - 2.2
VRTS	§ VIRTUS INVESTMENT PARTNERS, INC.	DEC	12 - 8	20 - 5	10 - 6	15 - 8	31 - 24	20 - 11	15.1	31.1	26.5	29.6	50.9	28.4	3.6 - 2.0	2.1 - 1.0	4.7 - 1.7	3.1 - 1.8	2.4 - 1.3	1.8 - 1.4
WETF	§ WISDOMTREE INVESTMENTS, INC.	DEC	24 - 17	NM - NM	NM - NM	58 - 27	64 - 41	86 - 44	39.1	NM	NM	52.5	161.0	166.9	2.3 - 1.8	2.8 - 1.7	5.9 - 2.3	2.6 - 1.5	2.8 - 1.0	3.9 - 2.5
CUSTODY BANKS																				
NTRS	[] NORTHERN TRUST CORPORATION	DEC	18 - 12	20 - 11	16 - 12	17 - 12	20 - 17	21 - 13	40.5	52.1	38.6	29.0	33.9	34.5	2.7 - 2.1	3.2 - 2.2	4.5 - 2.5	3.3 - 2.2	2.5 - 1.5	1.9 - 1.5
STT	[] STATE STREET CORPORATION	DEC	14 - 10	13 - 7	15 - 9	17 - 9	19 - 14	16 - 10	32.2	36.7	41.5	31.9	35.6	33.7	3.5 - 2.2	3.0 - 2.3	4.8 - 2.5	4.3 - 2.6	2.8 - 1.5	2.0 - 1.6
BK	[] THE BANK OF NEW YORK MELLON CORPORATION	DEC	14 - 10	13 - 7	12 - 9	14 - 11	15 - 12	16 - 10	35.2	35.8	29.0	28.6	26.3	25.4	3.2 - 2.1	3.1 - 2.3	4.5 - 2.4	3.0 - 2.1	2.5 - 1.6	1.9 - 1.4
PRIVATE EQUITY																				
APO	APOLLO GLOBAL MANAGEMENT, INC.	DEC	11 - 6	122 - 54	13 - 6	NM - NM	11 - 6	10 - 6	30.1	374.3	56.0	NM	60.4	59.4	3.8 - 2.7	5.2 - 2.5	9.9 - 3.5	9.0 - 4.1	7.9 - 3.9	7.2 - 4.3
KKR	KKR & CO. INC.	DEC	11 - 5	12 - 5	8 - 5	13 - 9	10 - 7	27 - 17	9.0	17.7	15.2	31.4	33.9	99.5	1.3 - 0.7	1.4 - 0.7	2.9 - 1.4	2.7 - 1.7	3.5 - 2.0	4.2 - 3.3
BX	THE BLACKSTONE GROUP INC.	DEC	18 - 8	44 - 24	19 - 10	17 - 12	16 - 12	19 - 14	0.0	126.2	0.0	106.1	193.2	194.3	4.2 - 1.6	4.0 - 1.5	6.8 - 3.1	9.8 - 3.6	8.9 - 4.1	10.6 - 4.4
CG	THE CARLYLE GROUP INC.	DEC	7 - 4	35 - 17	10 - 5	29 - 17	9 - 6	229 - 151	12.0	100.9	45.3	131.7	50.8	2201.6	3.7 - 1.8	4.1 - 1.7	6.9 - 3.5	9.2 - 4.5	8.2 - 5.7	13.8 - 6.3

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Ticker		Company	Yr. End	Earnings per Share ($) 2021	2020	2019	2018	2017	2016	Tangible Book Value per Share ($) 2021	2020	2019	2018	2017	2016
ASSET MANAGEMENT AND CUSTODY BANKS															
AMG	†	AFFILIATED MANAGERS GROUP, INC.	DEC	13.0	4.3	0.3	4.5	12.0	8.6	-42.5	-21.1	-18.6	-9.3	-5.3	-8.9
AB		ALLIANCEBERNSTEIN HOLDING L.P.	DEC	3.9	2.9	2.5	2.5	2.2	2.2	16.3	16.3	15.8	15.4	16.0	15.9
AMP	[]	AMERIPRISE FINANCIAL, INC.	DEC	23.0	12.2	13.9	14.2	9.4	7.8	28.1	33.2	30.2	41.0	40.9	40.7
BLK	[]	BLACKROCK, INC.	DEC	38.2	31.9	28.4	26.6	30.1	19.0	25.6	16.2	4.0	6.4	7.4	-8.5
BCOR	§	BLUCORA, INC.	DEC	0.2	(7.1)	1.0	0.9	0.6	(1.6)	-9.4	-9.6	-6.7	-5.1	-7.2	-11.8
FHI	†	FEDERATED HERMES, INC.	DEC	2.8	3.2	2.7	2.2	2.9	2.0	-1.7	-1.5	-1.8	-3.0	0.3	-1.4
BEN	[]	FRANKLIN RESOURCES, INC.	SEP	3.6	1.6	2.4	1.4	3.0	2.9	4.1	1.4	13.8	14.6	18.7	17.1
IVZ	[]	INVESCO LTD.	DEC	3.0	1.1	1.3	2.1	2.8	2.1	-10.0	-12.8	-13.3	-1.9	1.3	-0.1
JHG	†	JANUS HENDERSON GROUP PLC	DEC	3.6	0.9	2.2	2.6	3.9	1.7	4.4	3.6	1.6	1.2	0.5	4.6
SEIC	†	SEI INVESTMENTS COMPANY	DEC	3.8	3.0	3.2	3.1	2.5	2.0	10.3	9.6	9.0	7.7	6.9	6.3
TROW	[]	T. ROWE PRICE GROUP, INC.	DEC	13.1	10.0	8.7	7.3	6.0	4.8	23.6	30.9	27.4	22.9	21.0	17.7
VRTS	§	VIRTUS INVESTMENT PARTNERS, INC.	DEC	26.0	10.0	11.7	8.9	4.0	6.2	-1.4	18.5	-5.3	-15.7	0.8	46.9
WETF	§	WISDOMTREE INVESTMENTS, INC.	DEC	0.3	(0.3)	(0.1)	0.2	0.2	0.2	-2.9	-2.9	-2.3	-2.2	1.3	1.4
CUSTODY BANKS															
NTRS	[]	NORTHERN TRUST CORPORATION	DEC	7.1	5.5	6.6	6.6	4.9	4.3	41.6	40.3	42.9	40.3	37.9	36.4
STT	[]	STATE STREET CORPORATION	DEC	7.2	6.3	5.4	6.4	5.2	5.0	43.6	40.3	33.2	29.6	31.2	27.4
BK	[]	THE BANK OF NEW YORK MELLON CORPORATION	DEC	4.1	3.8	4.5	4.0	3.7	3.2	19.4	21.3	17.6	15.5	15.0	12.3
PRIVATE EQUITY															
APO		APOLLO GLOBAL MANAGEMENT, INC.	DEC	7.3	0.4	3.7	(0.3)	3.1	2.1	12.5	3.2	5.3	3.5	5.6	3.9
KKR		KKR & CO. INC.	DEC	7.3	3.4	3.5	2.1	2.0	0.6	23.8	21.0	18.3	15.1	13.4	11.6
BX		THE BLACKSTONE GROUP INC.	DEC	8.1	1.5	3.0	2.3	2.2	1.6	10.3	6.4	7.1	6.0	6.6	6.8
CG		THE CARLYLE GROUP INC.	DEC	8.2	1.0	2.8	0.8	2.4	(0.1)	14.8	7.5	4.7	4.8	5.9	3.1

Ticker	Share Price (High-Low, $) 2021	2020	2019	2018	2017	2016
ASSET MANAGEMENT AND CUSTODY BANKS						
AMG	191.6 - 98.9	103.3 - 44.4	115.8 - 71.1	217.0 - 88.5	207.7 - 139.5	179.9 - 116.0
AB	57.5 - 32.8	36.1 - 13.2	31.4 - 26.3	31.2 - 23.3	26.7 - 20.4	24.7 - 16.1
AMP	312.1 - 185.7	198.2 - 80.0	169.7 - 102.8	183.9 - 95.7	173.6 - 110.6	119.3 - 76.0
BLK	973.2 - 670.3	722.4 - 324.0	506.8 - 377.3	594.5 - 360.8	520.7 - 365.8	399.5 - 280.6
BCOR	18.8 - 14.2	26.5 - 8.4	37.2 - 18.4	41.4 - 21.2	26.2 - 14.3	15.9 - 4.7
FHI	38.2 - 26.4	38.3 - 13.1	36.0 - 24.6	36.8 - 22.1	36.7 - 24.9	33.1 - 22.8
BEN	38.3 - 24.0	27.6 - 14.9	35.8 - 25.6	46.0 - 27.3	47.7 - 39.4	42.2 - 30.6
IVZ	29.7 - 16.9	19.0 - 6.4	22.2 - 15.2	38.4 - 15.4	37.8 - 28.8	33.5 - 23.0
JHG	48.6 - 28.0	34.5 - 11.8	25.8 - 17.7	41.6 - 19.0	38.8 - 30.2	0.0 - 0.0
SEIC	65.2 - 52.1	69.6 - 35.4	67.1 - 44.2	78.4 - 42.3	72.5 - 47.9	52.5 - 32.0
TROW	224.6 - 145.8	154.3 - 82.5	126.2 - 86.6	127.4 - 84.6	106.1 - 65.3	79.0 - 63.0
VRTS	338.8 - 200.9	218.5 - 55.4	126.6 - 70.0	138.0 - 70.0	126.6 - 97.6	128.1 - 66.1
WETF	7.4 - 5.1	5.6 - 1.9	8.0 - 4.6	13.4 - 6.2	12.7 - 7.9	15.6 - 8.0
CUSTODY BANKS						
NTRS	126.7 - 88.2	109.9 - 60.7	110.5 - 81.8	115.6 - 76.0	101.5 - 81.9	91.0 - 54.4
STT	100.7 - 69.0	85.9 - 42.1	81.2 - 48.6	114.3 - 57.9	100.9 - 74.5	81.9 - 50.6
BK	60.5 - 39.5	51.6 - 26.4	54.3 - 40.5	59.0 - 43.7	55.4 - 43.9	49.5 - 32.2
PRIVATE EQUITY						
APO	81.1 - 45.4	55.4 - 19.5	48.8 - 23.8	37.4 - 22.6	34.0 - 19.4	21.2 - 12.4
KKR	83.9 - 37.5	40.7 - 15.6	30.2 - 18.6	28.7 - 18.3	21.4 - 15.5	17.6 - 10.9
BX	149.8 - 61.3	65.8 - 33.0	56.7 - 28.5	40.6 - 26.9	35.1 - 27.4	30.2 - 22.3
CG	60.6 - 30.4	35.0 - 15.2	32.5 - 15.5	25.9 - 15.1	24.9 - 15.2	18.0 - 11.3

Note: Data as originally reported. CAGR-Compound annual growth rate.
[]Company included in the S&P 500. †Company included in the S&P MidCap 400. §Company included in the S&P SmallCap 600. #Of the following calendar year.
Souce: S&P Capital IQ.

Disclosures

S&P GLOBAL™ is used under license. The owner of this trademark is S&P Global Inc. or its affiliate, which are not affiliated with CFRA Research or the author of this content.

CFRA's Industry Surveys Reports (the "Industry Surveys") have been prepared by Accounting Research & Analytics, LLC and/or one of its affiliates. The Industry Surveys are published and originally distributed by Accounting Research & Analytics, LLC d/b/a CFRA ("CFRA US"), with the following exceptions: In the United Kingdom/European Union/European Economic Area, the Industry Surveys are published and originally distributed by CFRA U.K. Limited (company number 08456139 registered in England & Wales with its registered office address at New Derwent House, 69-73 Theobalds Road, London, WC1X 8TA, United Kingdom), which is regulated by the U.K. Financial Conduct Authority (No. 775151); in Malaysia, the Industry Surveys are published and originally distributed by CFRA MY Sdn Bhd (Company No. 683377-A) and regulated by Securities Commission Malaysia, No. CMSL/A0181/2007 ("CFRA Malaysia"). CFRA Malaysia is a wholly-owned subsidiary of CFRA US. For Recipients in Canada: This report is not prepared subject to Canadian disclosure requirements and may not be suitable for Canadian investors.

The content of this report and the opinions expressed herein are those of CFRA based upon publicly-available information that CFRA believes to be reliable, and the opinions are subject to change without notice. This analysis has not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body. While CFRA exercised due care in compiling this analysis, CFRA AND ALL RELATED ENTITIES SPECIFICALLY DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, to the full extent permitted by law, regarding the accuracy, completeness, or usefulness of this information and assumes no liability with respect to the consequences of relying on this information for investment or other purposes.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of CFRA. The Content shall not be used for any unlawful or unauthorized purposes. CFRA and any third-party providers, as well as their directors, officers, shareholders, employees or agents do not guarantee the accuracy, completeness, timeliness or availability of the Content.

Past performance is not necessarily indicative of future results. This document may contain forward-looking statements or forecasts; such forecasts are not a reliable indicator of future performance.

This report is not intended to, and does not, constitute an offer or solicitation to buy and sell securities or engage in any investment activity. This report is for informational purposes only. Recommendations in this report are not made with respect to any particular investor or type of investor. Securities, financial instruments or strategies mentioned herein may not be suitable for all investors and this material is not intended for any specific investor and does not take into account an investor's particular investment objectives, financial situations or needs. Before acting on any recommendation in this material, you should consider whether it is suitable for your particular circumstances and, if necessary, seek professional advice.

CFRA may license certain intellectual property or provide services to, or otherwise have a business relationship with, certain issuers of securities that are the subject of CFRA research reports, including exchange-traded investments whose investment objective is to substantially replicate the returns of a proprietary index of CFRA. In cases where CFRA is paid fees that are tied to the amount of assets invested in a fund or the volume of trading activity in a fund, investment in the fund may result in CFRA receiving compensation in addition to the subscription fees or other compensation for services rendered by CFRA, however, no part of CFRA's compensation for services is tied to any recommendation or rating. Additional information on a subject company may be available upon request.

CFRA's financial data provider is S&P Global Market Intelligence. THIS DOCUMENT CONTAINS COPYRIGHTED AND TRADE SECRET MATERIAL DISTRIBUTED UNDER LICENSE FROM S&P GLOBAL MARKET INTELLIGENCE. FOR RECIPIENT'S INTERNAL USE ONLY.

The Global Industry Classification Standard (GICS®) was developed by and/or is the exclusive property of MSCI, Inc. and S&P Global Market Intelligence. GICS is a service mark of MSCI and S&P Global Market Intelligence and has been licensed for use by CFRA.

Certain information in this report is provided by S&P Global, Inc. and/or its affiliates and subsidiaries (collectively "S&P Global"). Such information is subject to the following disclaimers and notices: "Copyright © 2022, S&P Global Market Intelligence (and its affiliates as applicable). All rights reserved. Nothing contained herein is investment advice and a reference to a particular investment or security, a credit rating or any observation concerning a security or investment provided by S&P Global is not a recommendation to buy, sell or hold such investment or security or make any other investment decisions. This may contain information obtained from third parties, including ratings from credit ratings agencies. Reproduction and distribution of S&P Global's information and third-party content in any form is prohibited except with the prior written permission of S&P Global or the related third party, as applicable. Neither S&P Global nor its third-party providers guarantee the accuracy, completeness, timeliness or availability of any information, including ratings, and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such information