

ETFs in Insurance General Accounts – 2022

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Introduction

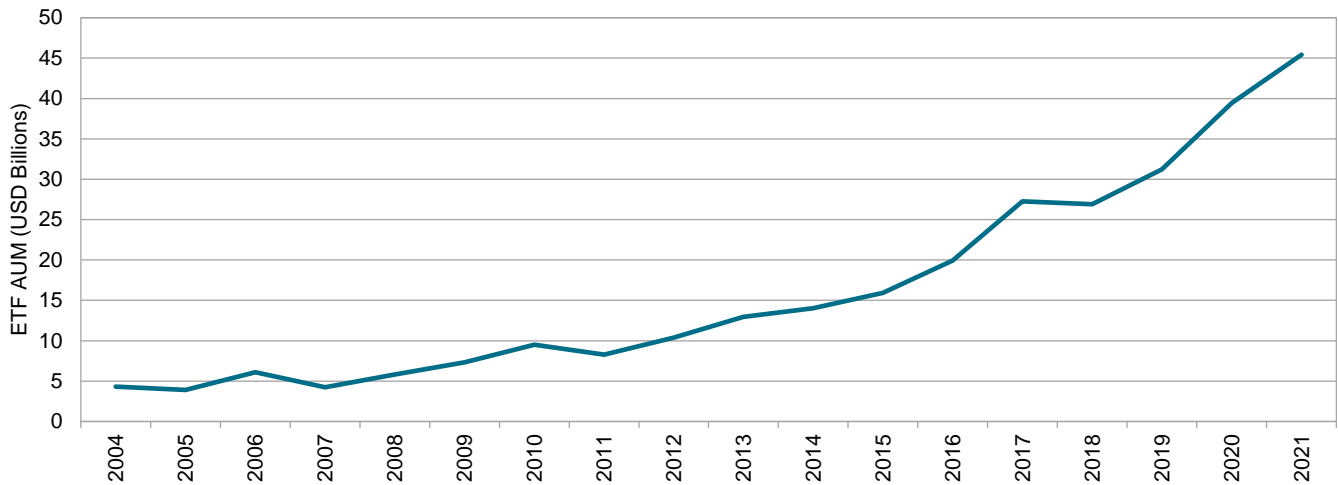
In 2021, U.S. insurance companies added USD 1.5 billion in exchange-traded funds (ETFs) to their general account portfolios. By year-end 2021, U.S. insurers increased their ETF AUM by 15% from 2020. This 2021 growth was in line with long-term trends; in the 18 years since 2004, insurance companies have increased their ETF AUM by 15% annually. Historically, insurance companies have invested in Equity ETFs even though the majority of their assets are in Fixed Income securities, and Equity ETFs still dominate insurance ETF holdings. However, with the increasing acceptance of Fixed Income ETFs, we saw a significant increase in flows into these ETFs from insurance companies. Indeed, in 2021, insurance companies added to Fixed Income ETFs while removing funds from Equity ETFs. In our seventh annual study of ETF usage in U.S. insurance general accounts, we also analyzed the trading of ETFs by insurance companies. On average, insurance companies traded twice as many ETFs during the year as they held at the beginning of the year. Overall, 2021 trade volume was relatively flat compared with 2020. This was primarily because intra-year turnover declined by 24%.

Holding Analysis

Overview

As of year-end 2021, U.S. insurance companies invested USD 45.4 billion in ETFs. This represented only a fraction of the USD 7.2 trillion in U.S. ETF AUM and an even smaller portion of the USD 7.8 trillion in invested assets of U.S. insurance companies. Exhibit 1 shows the growth of ETFs by U.S. insurance companies over the past 18 years.

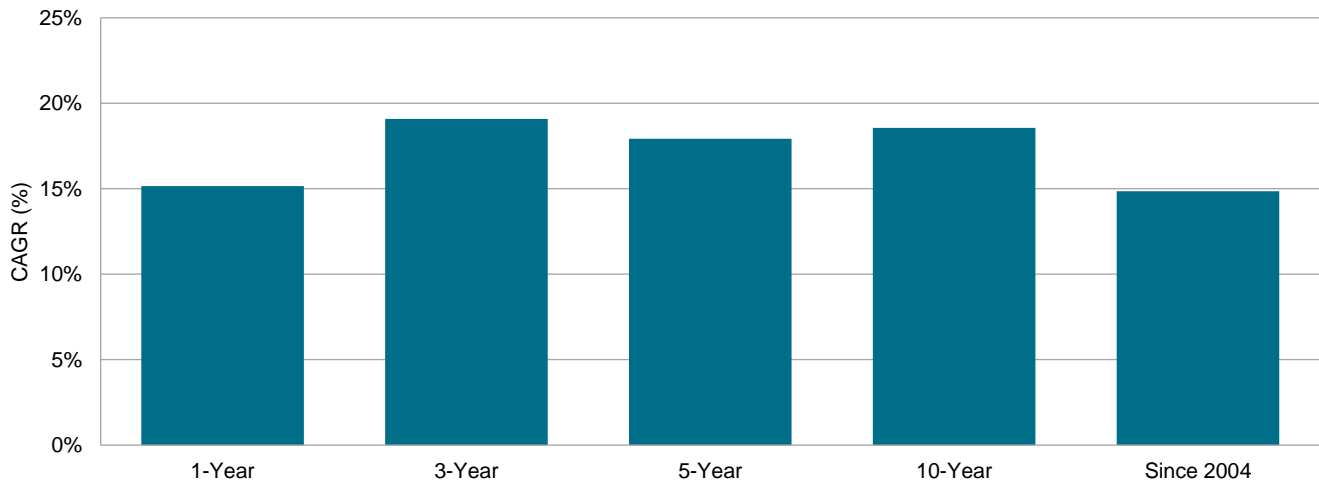
Exhibit 1: ETF AUM Growth



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In 2021, ETF usage by insurance companies increased 15.5%; this is a slightly lower than the rate seen in 2020. The growth rate has remained consistent since 2004, when insurance companies began investing in ETFs (see Exhibit 2). This growth rate implies a doubling of ETF AUM roughly every four to five years (see Exhibit 3).

Exhibit 2: CAGR of ETF AUM



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

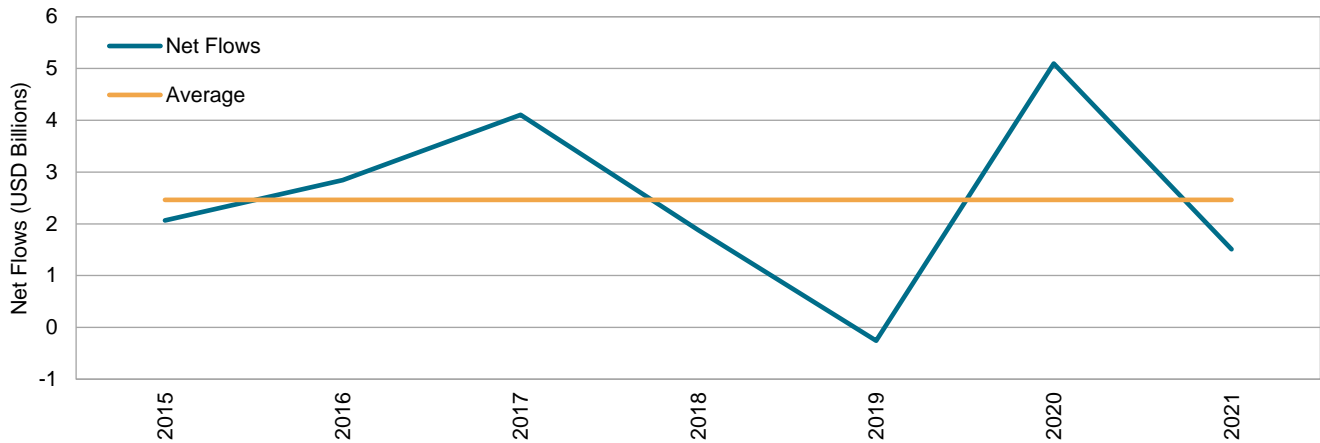
Exhibit 3: ETF AUM Doubling Period

Characteristic	1-Year	3-Year	5-Year	10-Year	Since 2004
CAGR (%)	15.2	19.1	17.9	18.6	14.9
Doubling Period (Years)	4.9	4.0	4.2	4.1	5.0

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

An analysis of flows indicates insurance companies added USD 1.5 billion in ETFs in 2021; this is below the average of USD 2.5 billion that had gone into ETFs over the past seven years (see Exhibit 4).

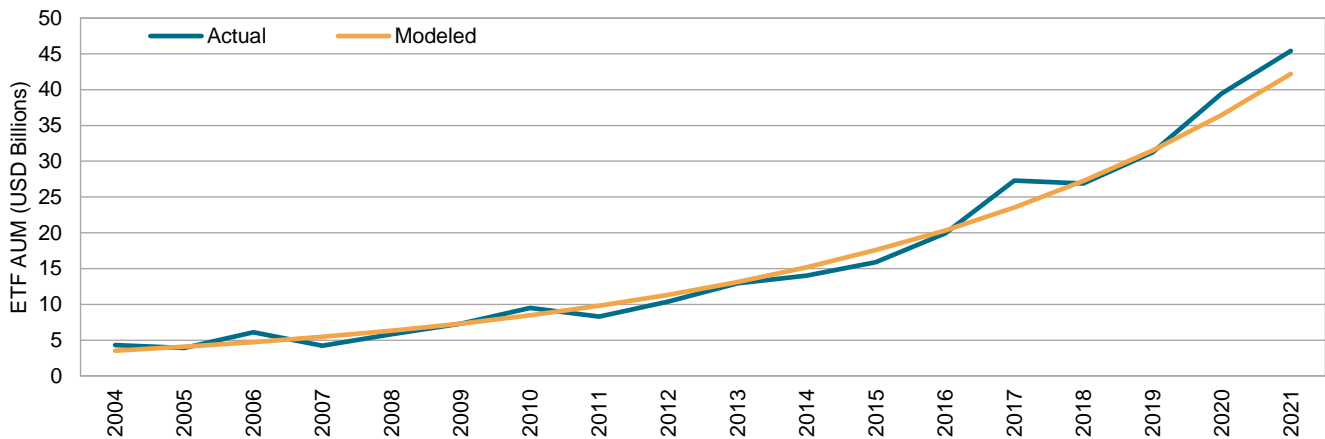
Exhibit 4: ETF Net Flows



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

We used linear regression to model the growth of ETF AUM in insurance general accounts.¹ These models accurately fit the historical growth of ETFs by insurance companies (see Exhibit 5).

Exhibit 5: Actual and Modeled ETF AUM

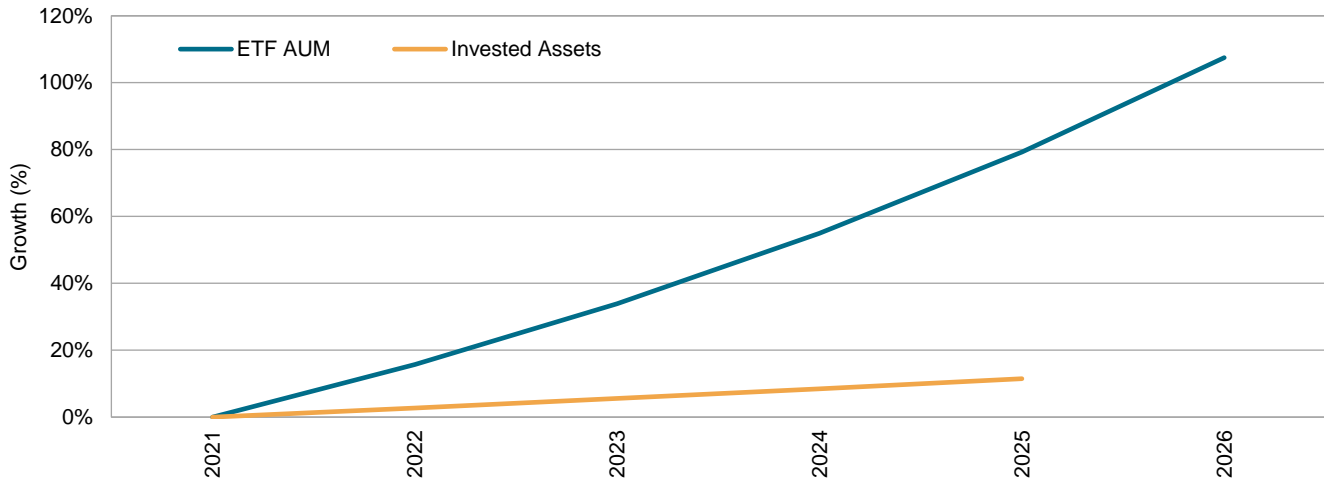


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

¹ See Appendix 2.

We used these regression models to estimate the trended growth of ETFs. If insurance companies continue to invest according to the trend, the use of ETFs by insurance companies could, once again, double in five years. This growth is substantially faster than the expected growth of invested assets² (see Exhibit 6).

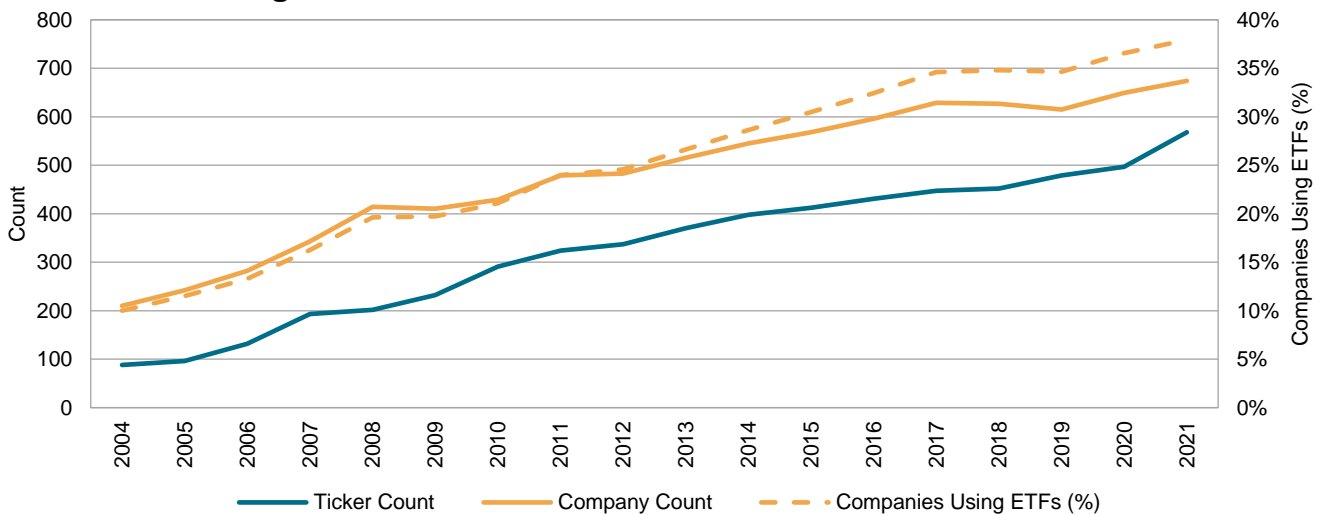
Exhibit 6: Projected Growth of Invested Assets and ETF AUM



Source: NAIC via S&P Global Market Intelligence and Cerulli Associates. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In 2021, insurance companies invested in 568 different ETFs. The number of companies investing in ETFs increased to 674 and the percentage of companies investing in ETFs increased to 38% (see Exhibit 7).

Exhibit 7: ETF Usage



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

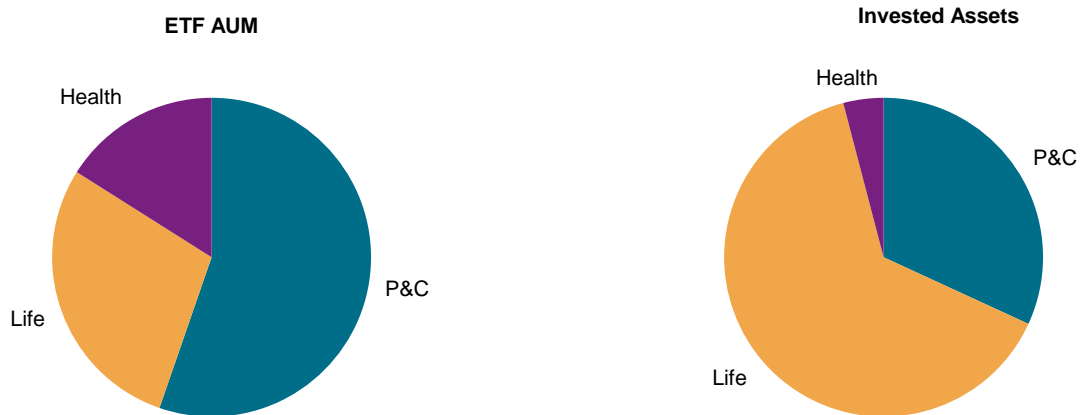
² [U.S. Insurance General Accounts 2021: Adopting New Strategies for Global Challenges](#), Cerulli Associates, p. 31

Analysis by Company Type, Size and Organizational Structure

In this section, we analyze the use of ETFs by different groupings of insurance companies. In particular, we looked at whether company size, type of insurance or ownership structure have affected the use of ETFs by insurance companies.³

Life companies had more invested assets, but P&C companies invested more in ETFs (see Exhibit 8).

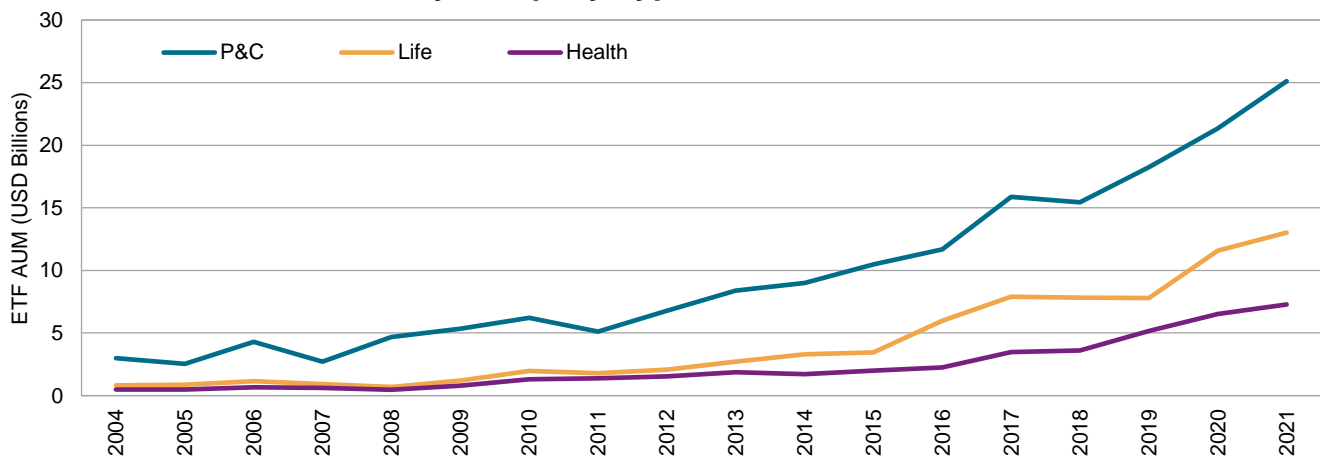
Exhibit 8: ETF AUM and Invested Assets by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

All three types of insurance companies grew their ETF assets in 2021. After a growth spurt in 2020, Life companies only grew their ETF holdings by 13% in 2021; P&C companies, meanwhile, grew at 17% (see Exhibit 9).

Exhibit 9: ETF AUM Growth by Company Type

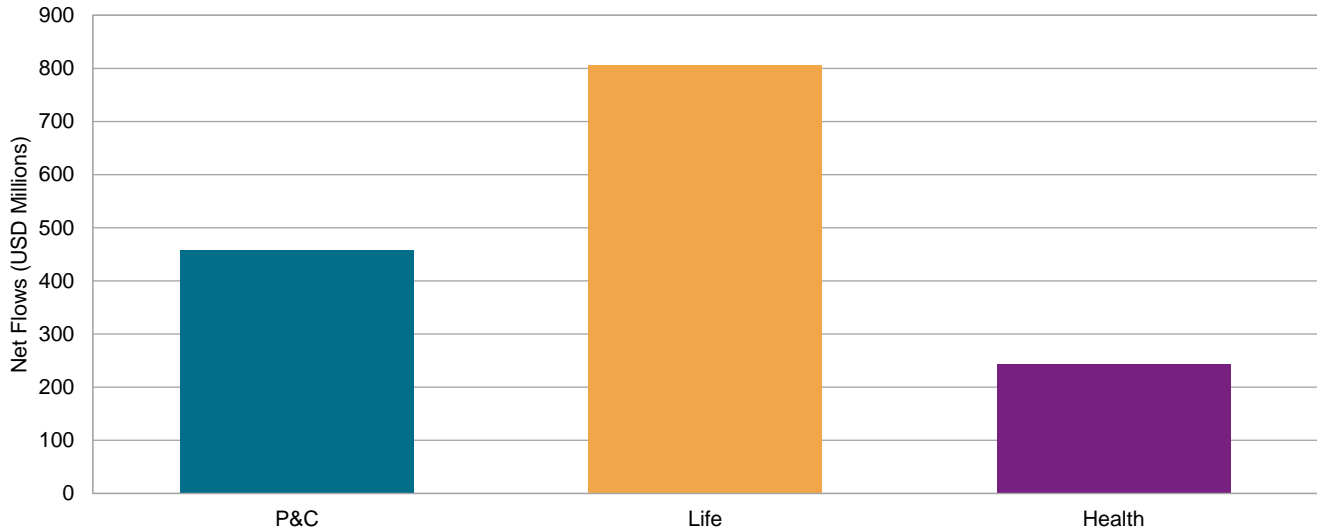


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

³ See Appendix 1.1 for definitions of size and ownership structure

All three types of insurance companies saw inflows into ETFs, with Life companies again adding the most (see Exhibit 10).

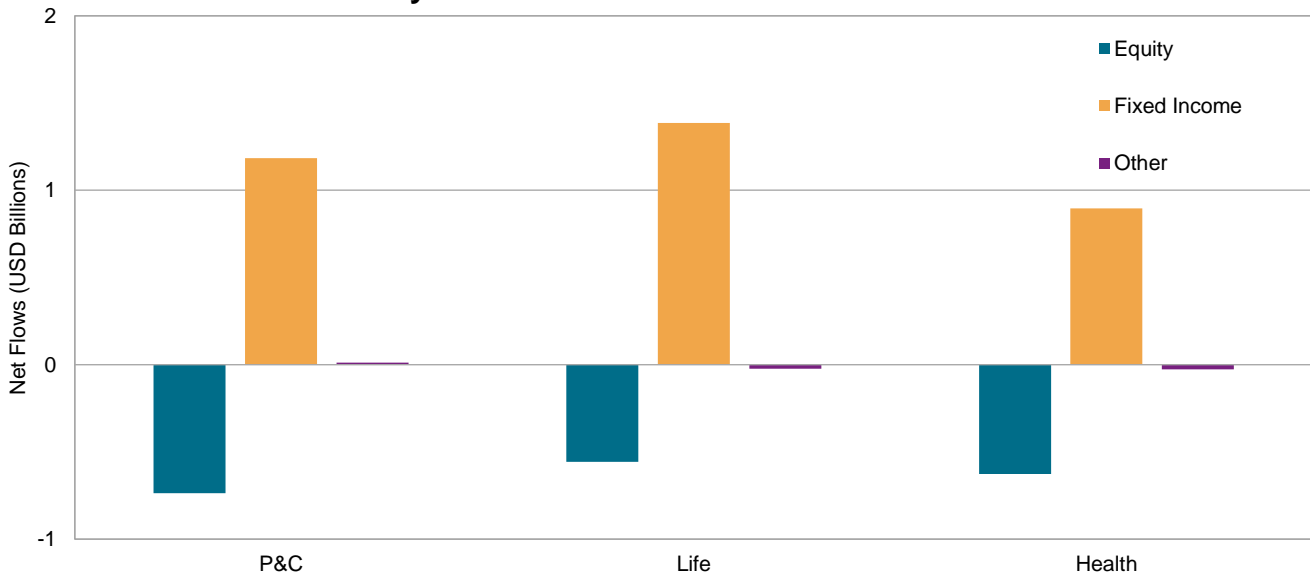
Exhibit 10: Net Flows by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Even though approximately one-half of the change in ETF AUM came from Equity, asset appreciation accounted for this growth. In terms of flows, insurance companies actually removed assets from Equity (see Exhibit 11).

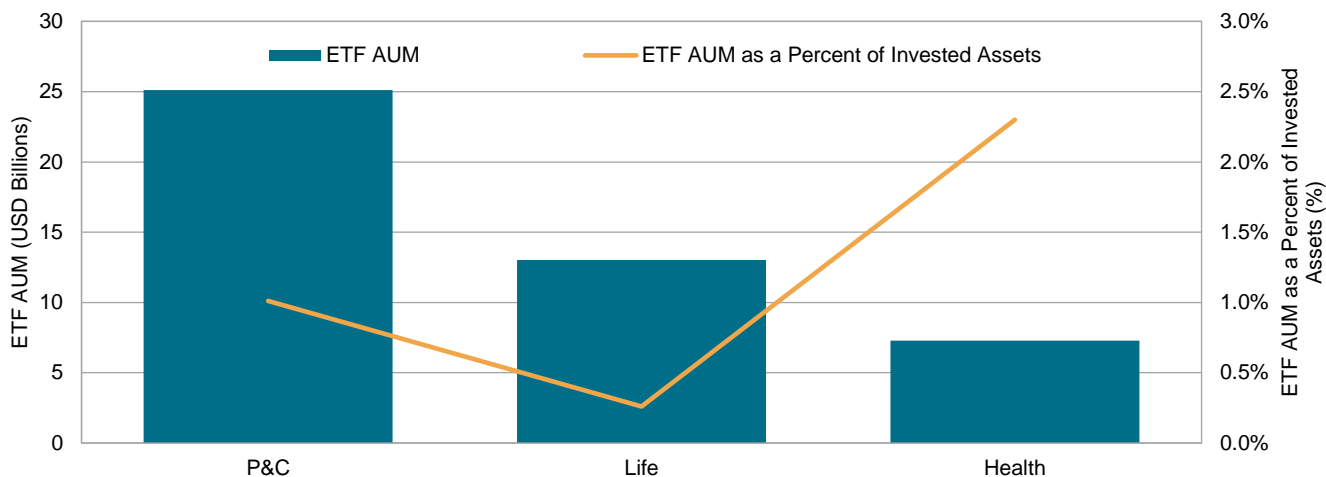
Exhibit 11: ETF Net Flows by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

Although Health companies own the fewest ETFs, they had the highest percentage of ETFs in their general accounts (see Exhibit 12).

Exhibit 12: ETF AUM and ETF AUM as Percentage of Invested Assets by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Over the past five years, a little over one-half of the AUM growth came from P&C companies. However, the flows into the space were more diversified (see Exhibit 13).

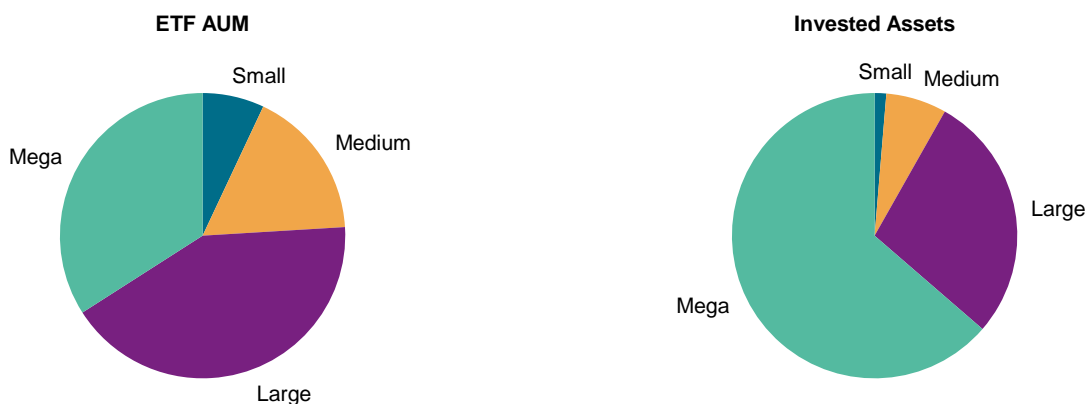
Exhibit 13: Five-Year ETF AUM Growth and Net Flows by Company Type

Type	Five-Year ETF AUM Growth		Five-Year Net Flows	
	Growth (USD)	% of Total	Net Flows (USD)	% of Total
P&C	13,422,207,866	52.63	4,874,246,749	39.53
Life	7,043,209,237	27.62	3,882,287,478	31.48
Health	5,037,147,600	19.75	3,574,267,735	28.99
Total	25,502,564,703	100.00	12,330,801,962	100.00

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

Mega insurance companies owned most of the insurance invested assets but held only a little over one-third of the ETF AUM held by insurance companies (see Exhibit 14).

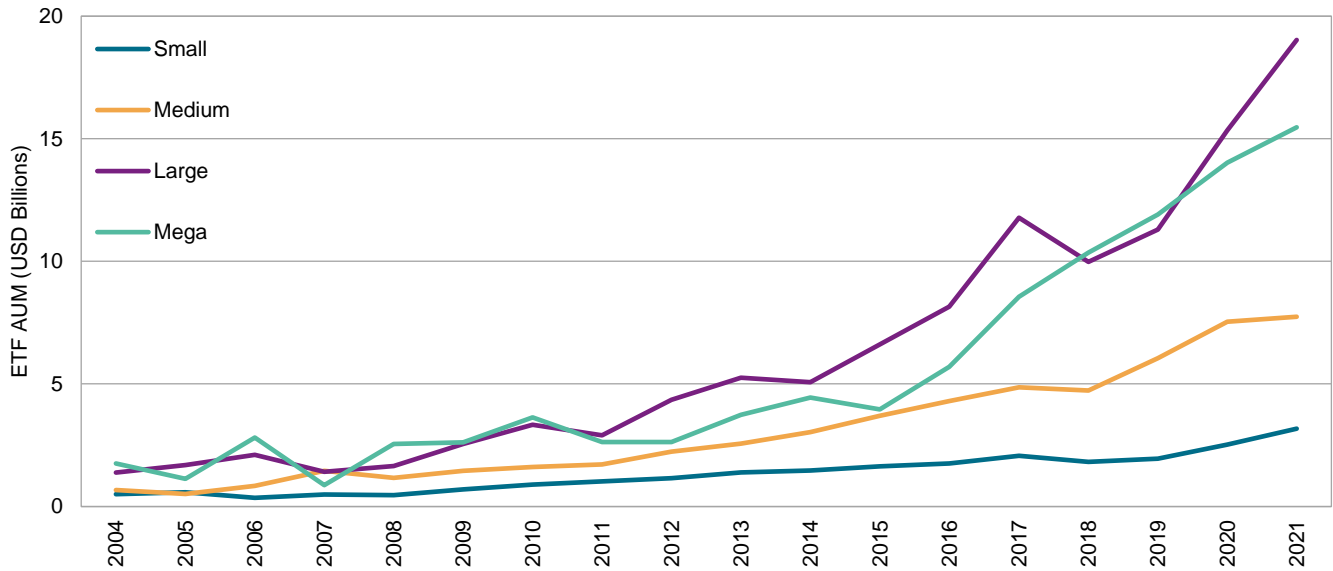
Exhibit 14: ETF AUM and Invested Assets by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

In terms of assets, Large companies increased their ETF usage the most in 2021, but proportionally, Small companies had the fastest growth for the year. Medium companies had the slowest growth (see Exhibit 15).

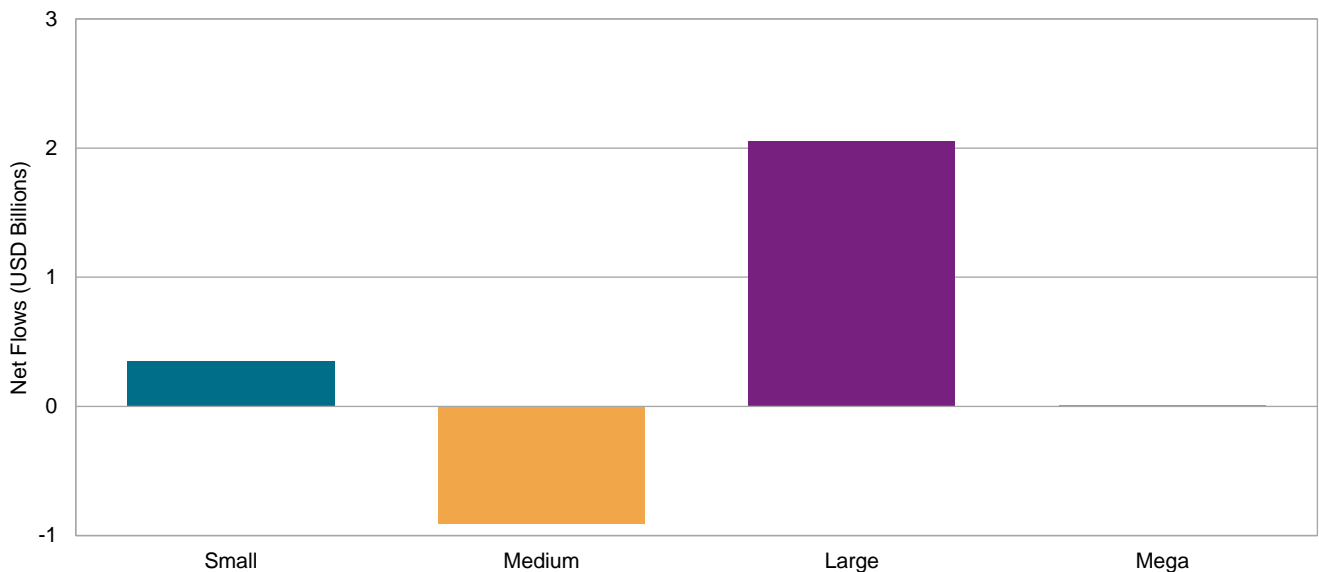
Exhibit 15: ETF AUM Growth by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

At USD 2 billion, 140% of the net flows came from Large companies, which is possible because Medium companies took money out of ETFs in 2021 (see Exhibit 16).

Exhibit 16: ETF Net Flows by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Over the past five years, 81% of ETF AUM growth and 91% of net flows came from Large and Mega companies (see Exhibit 17).

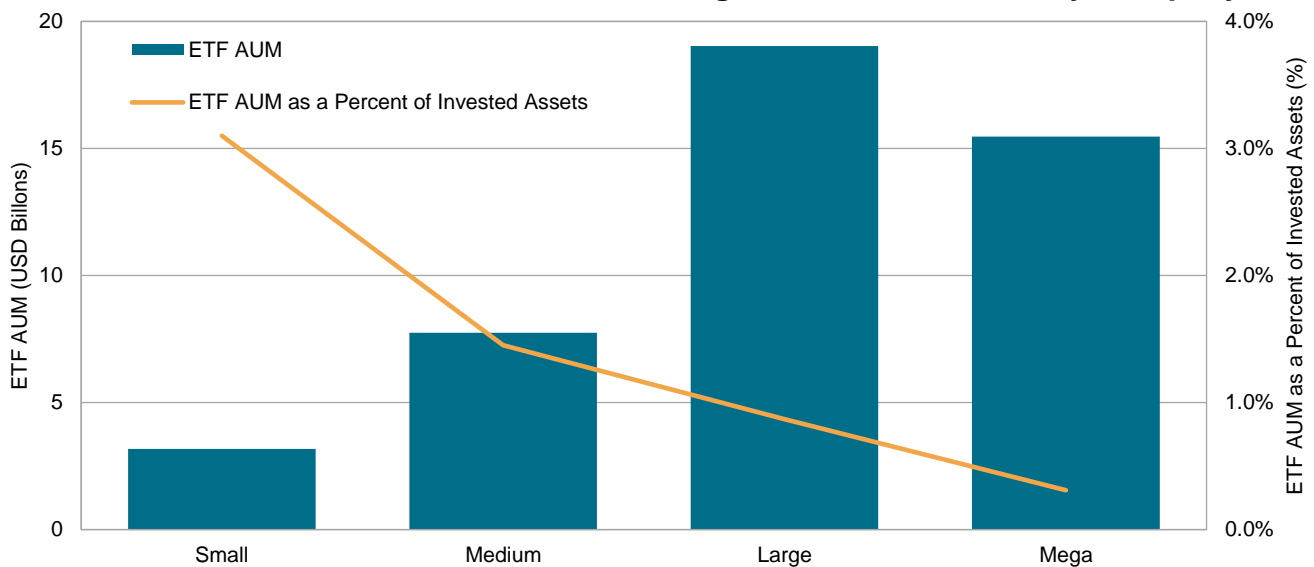
Exhibit 17: Five-Year ETF AUM Growth and Net Flows by Company Size

Size	Five-Year ETF AUM Growth		Five-Year Net Flows	
	Growth (USD)	% of Total	Growth (USD)	% of Total
Small	1,416,281,974	5.55	599,415,344	4.86
Medium	3,445,778,468	13.51	520,636,795	4.22
Large	10,872,114,864	42.63	5,799,899,332	47.04
Mega	9,768,389,397	38.30	5,410,850,491	43.88
Total	25,502,564,703	100.00	12,330,801,962	100.00

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

In spite of the growth by Large and Mega companies, Small companies still had the largest ETF usage as a percentage of invested assets (see Exhibit 18).

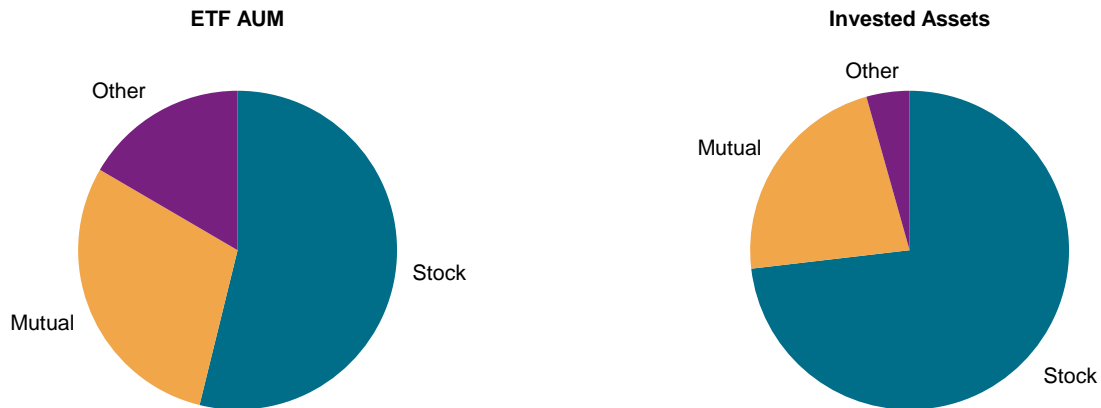
Exhibit 18: ETF AUM and ETF AUM as Percentage of Invested Assets by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Most of the ETFs owned by insurance companies belonged to Stock companies, as did most of the invested assets. But relative to their investment base, Other companies had a higher allocation to ETFs (see Exhibit 19).

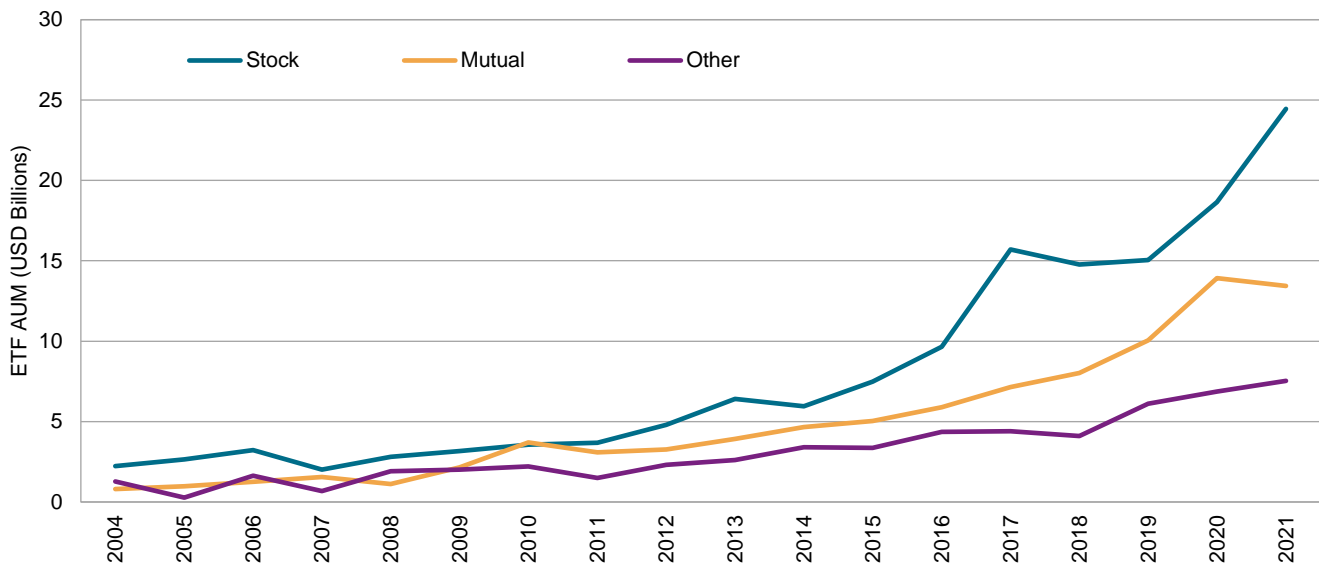
Exhibit 19: ETF AUM and Invested Assets by Company Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

While the use of ETFs by Stock companies continued to increase (31% in 2021), ETF AUM for Mutual companies decreased in 2021 (see Exhibit 20).

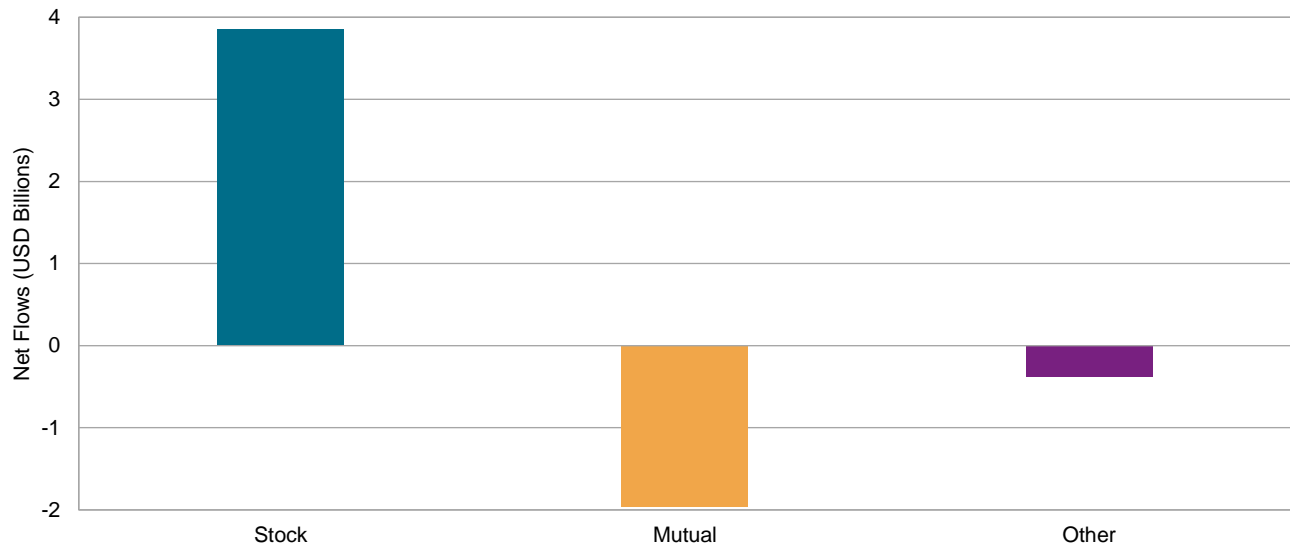
Exhibit 20: ETF AUM Growth by Company Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Stock companies added almost USD 4 billion to ETFs, while Mutual companies took out about USD 1.9 billion (see Exhibit 21).

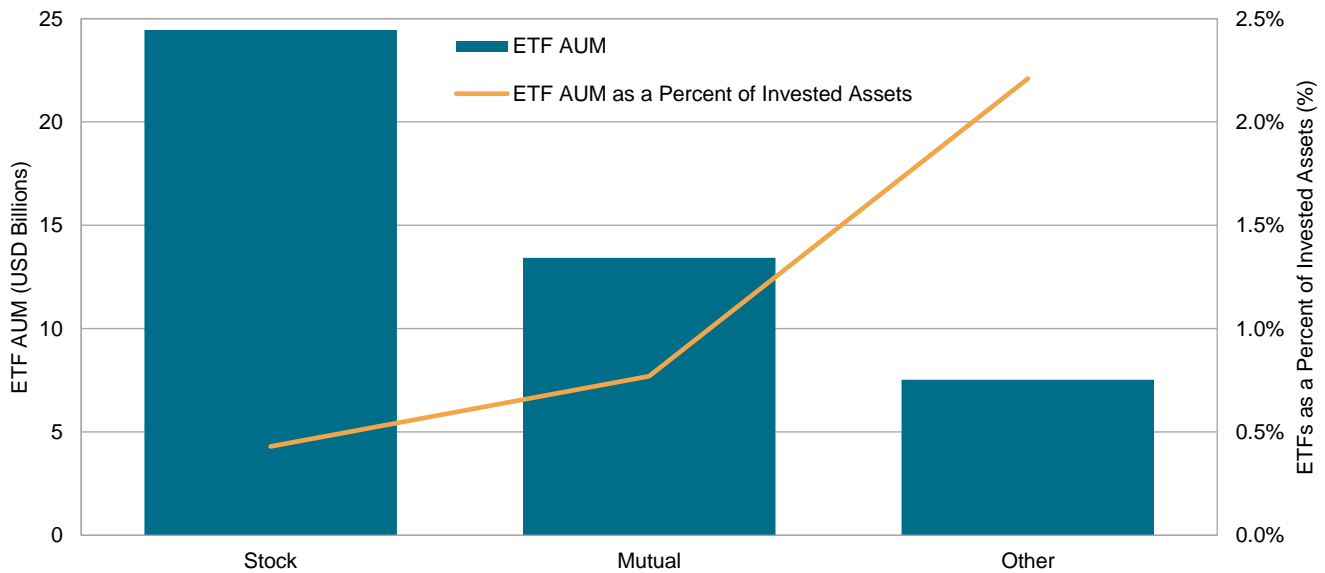
Exhibit 21: ETF Net Flows by Company Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Stock companies had the most ETF assets but the least as a percentage of invested assets; conversely, Other companies had the fewest ETFs but the most as a percentage of invested assets (see Exhibit 22).

Exhibit 22: ETF AUM and ETF AUM as Percentage of Invested Assets by Company Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In the last five years, Stock companies had the largest increase in AUM and the most inflows of ETF (see Exhibit 23).

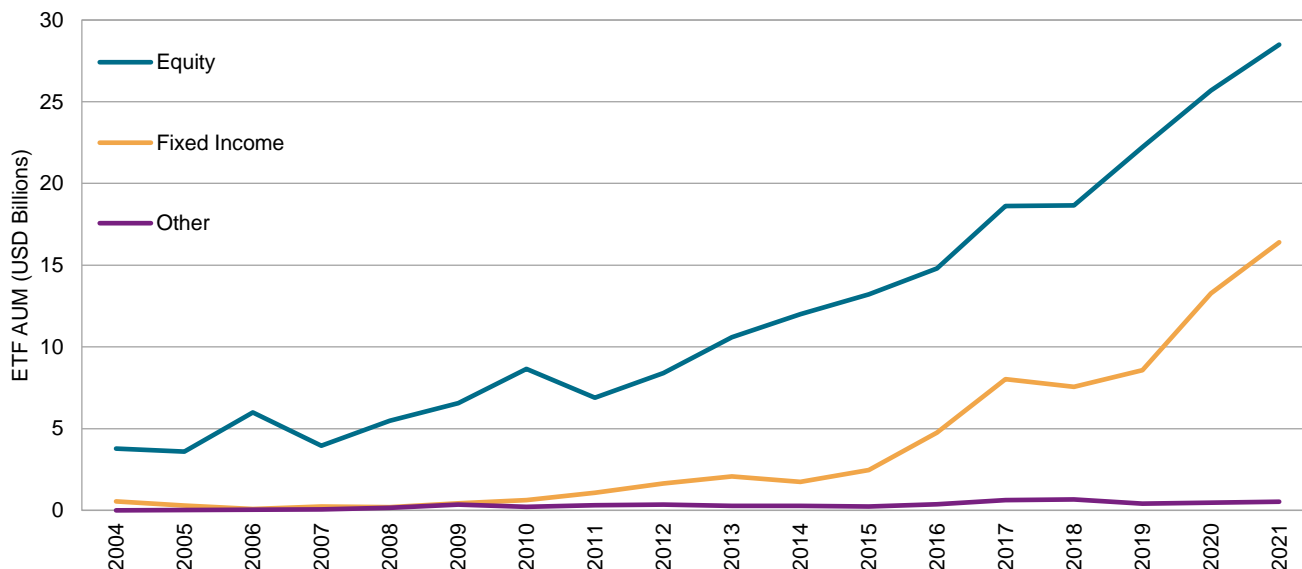
Exhibit 23: Five-Year ETF AUM Growth and Net Flows by Company Ownership

Ownership	Five-Year ETF AUM Growth		Five-Year Net Flows	
	Growth (USD)	% of Total	Growth (USD)	% of Total
Stock	14,793,560,932	58.01	8,963,116,240	72.69
Mutual	7,533,046,181	29.54	2,582,959,300	20.95
Other	3,175,957,590	12.45	784,726,422	6.36
Total	25,502,564,703	100.00	12,330,801,962	100.00

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

Analysis by Asset Class

In 2021, insurance companies continued to add to Fixed Income ETFs.⁴ By adding USD 3.5 billion in 2021, insurers now hold USD 16 billion in Fixed Income ETFs (see Exhibit 24)

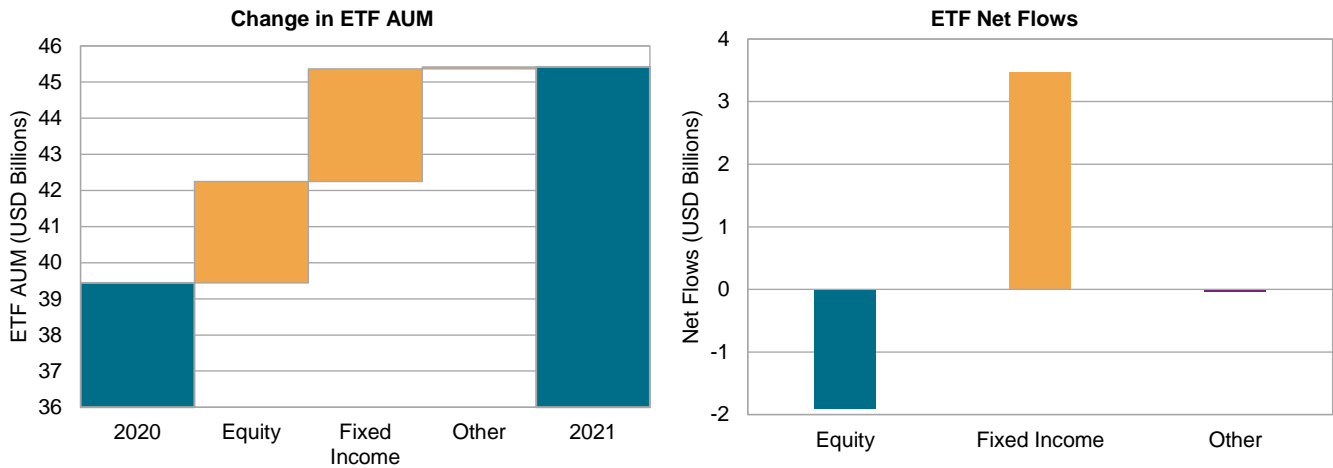
Exhibit 24: ETF AUM by Asset Class

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Insurers also took out USD 1.9 billion in Equity ETFs; nevertheless, Equity ETF AUM increased in 2021 (see Exhibit 25).

⁴ See Appendix 1.2 for definitions of asset classes.

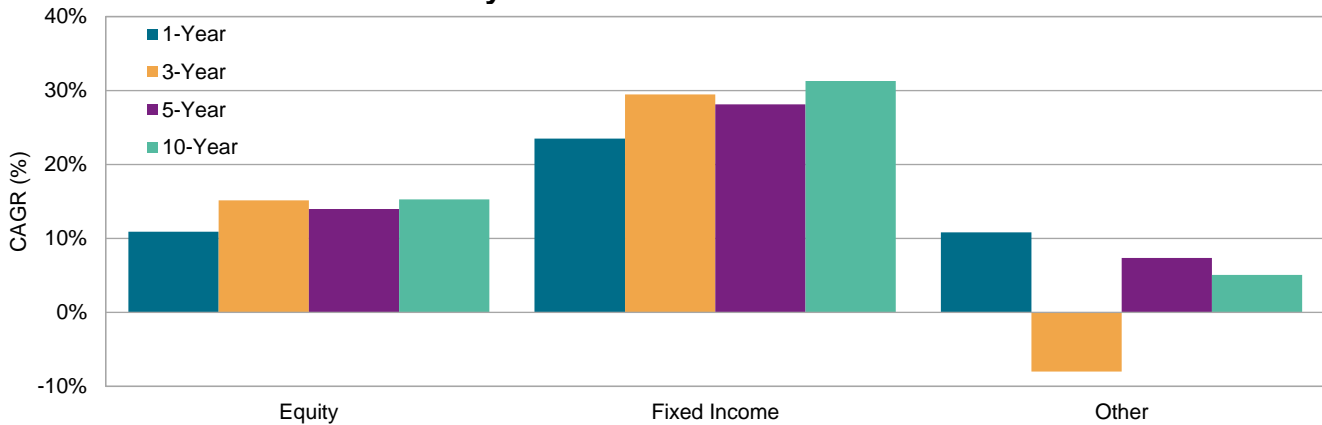
Exhibit 25: ETF Net Flows and Change in ETF AUM by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

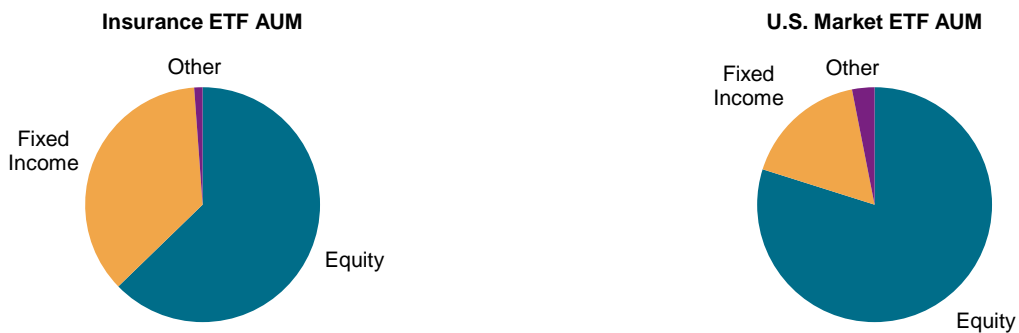
In 2021, Fixed Income ETF usage grew by 23% and over the past 10 years, it has grown by 31% per year. Fixed Income ETFs comprise 36% of insurance ETF usage—exceeding the 17% in the U.S. ETF market (see Exhibits 26 and 27).

Exhibit 26: CAGR of ETF AUM by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

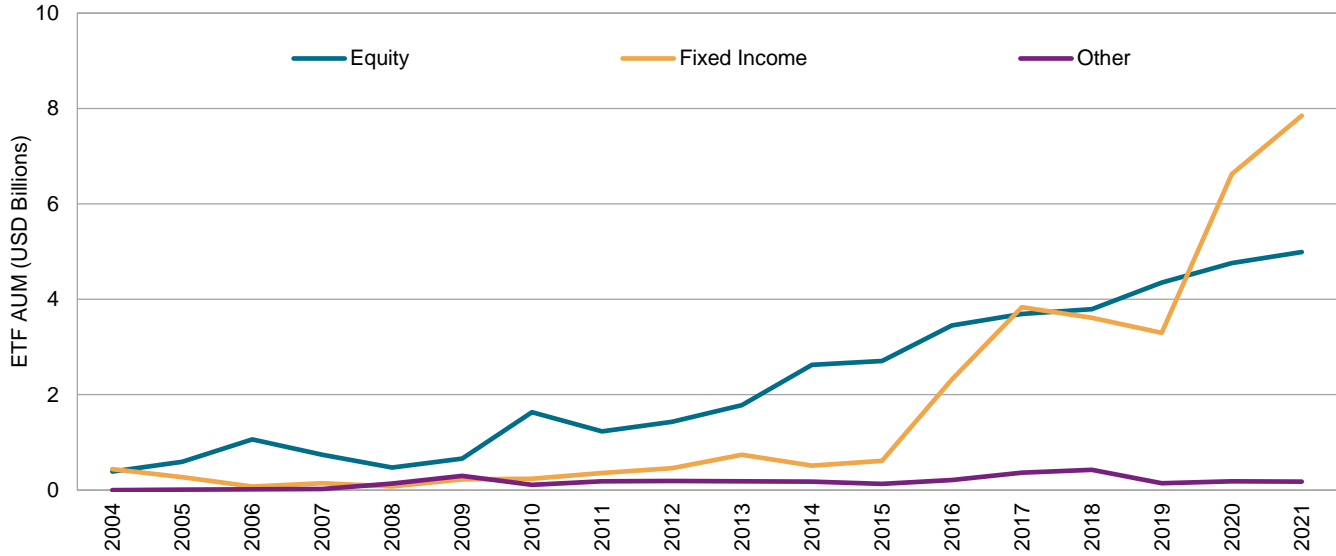
Exhibit 27: Insurance and U.S. Market ETF AUM by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Life companies added USD 1.4 billion to Fixed Income ETFs, while removing USD 550 million in Equity ETFs. Fixed Income ETFs now comprise 60% of Life ETF holdings (see Exhibit 28).

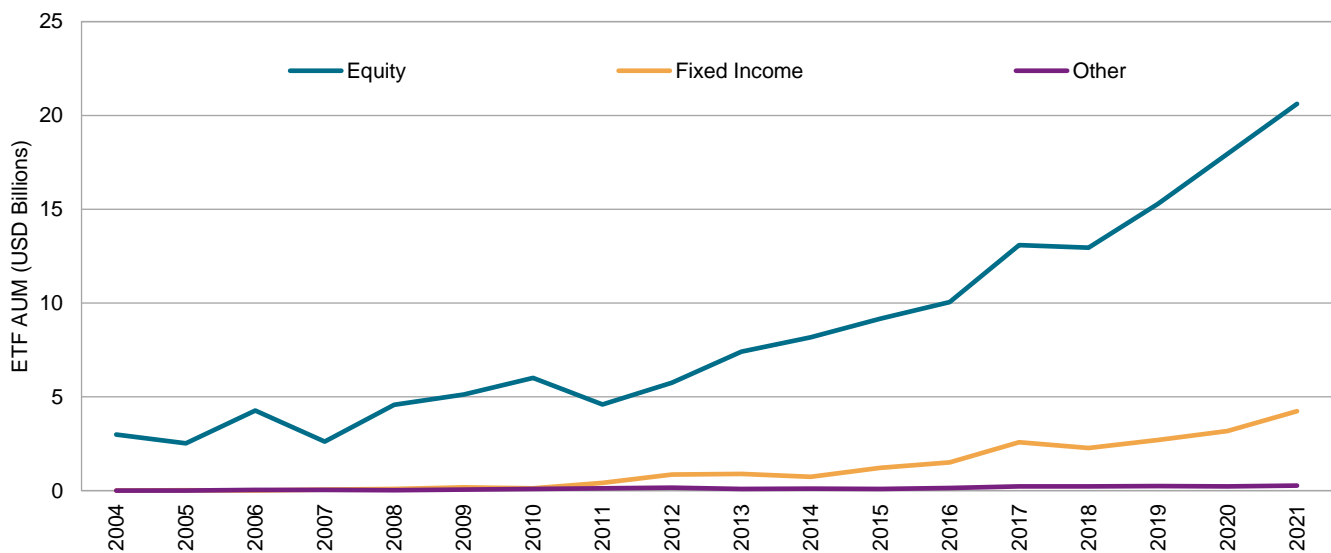
Exhibit 28: ETF AUM Growth by Asset Class for Life Companies



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

P&C companies added another USD 1.1 billion to Fixed Income ETFs. While their Fixed Income holdings are not as substantial as Life companies, they grew Fixed Income ETF usage by 33% in 2021 (see Exhibit 29).

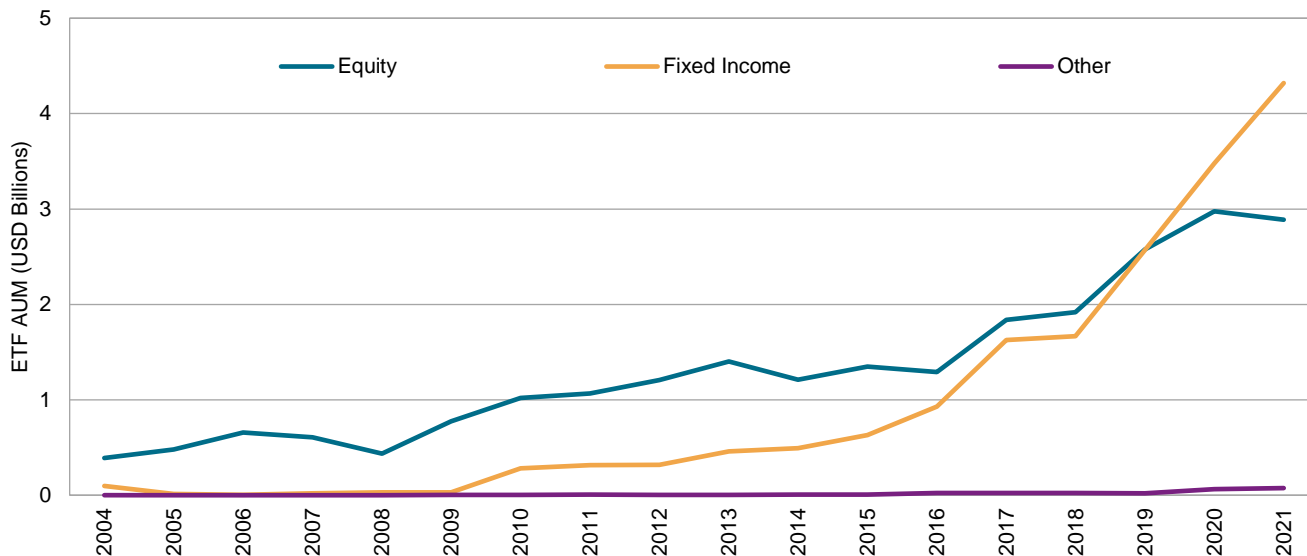
Exhibit 29: ETF AUM Growth by Asset Class for P&C Companies



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Similar to their counterparts, Health companies also increased their Fixed Income ETF usage while removing from Equity ETFs. Fixed Income ETFs now comprise 60% of Health insurer ETF holdings (see Exhibit 30).

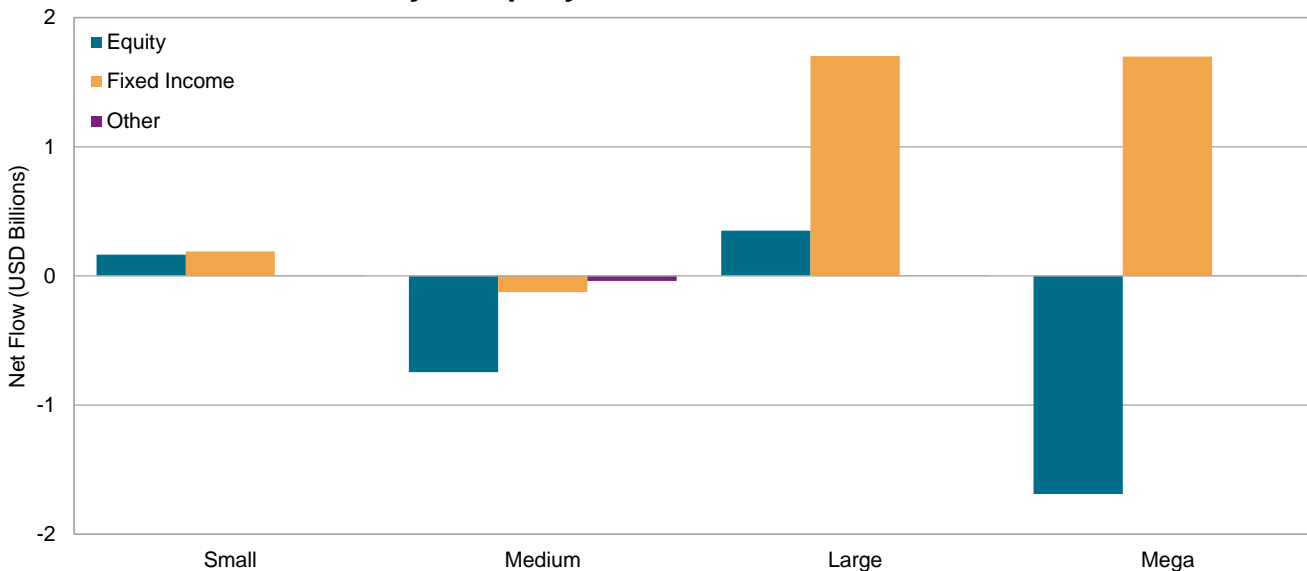
Exhibit 30: ETF AUM Growth by Asset Class for Health Companies



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Most of the inflows in 2021 came from Large companies. Medium companies withdrew across the board and Mega companies took out approximately as much in Equity ETFs as they added in Fixed Income ETFs (see Exhibit 31).

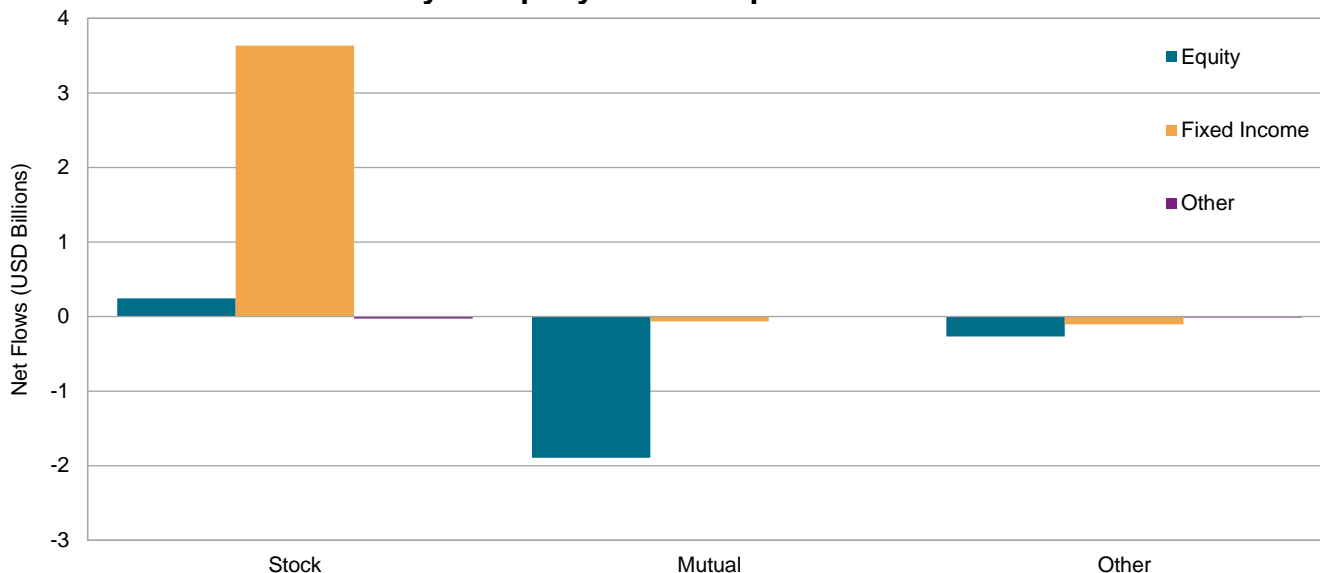
Exhibit 31: ETF Net Flows by Company Size and Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

As expected, the new ETF flows came from Stock companies (see Exhibit 32).

Exhibit 32: ETF Net Flows by Company Ownership and Asset Class

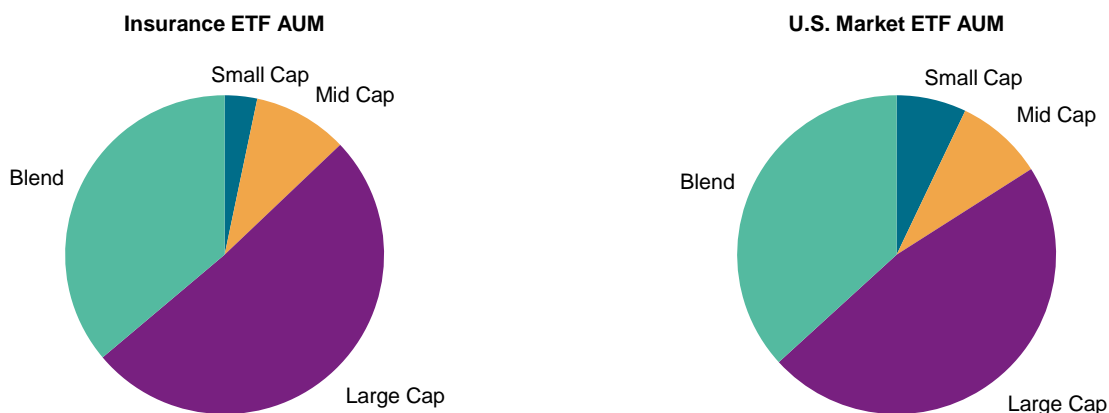


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Analysis of Equity ETFs

As of year-end 2021, Large Cap Equity ETFs comprised almost one-half of the insurance Equity ETF allocation. This was slightly larger than the Large Cap allocation for the overall U.S. ETF market. Insurance companies were less likely to invest in Small Cap than the overall market (see Exhibit 33).

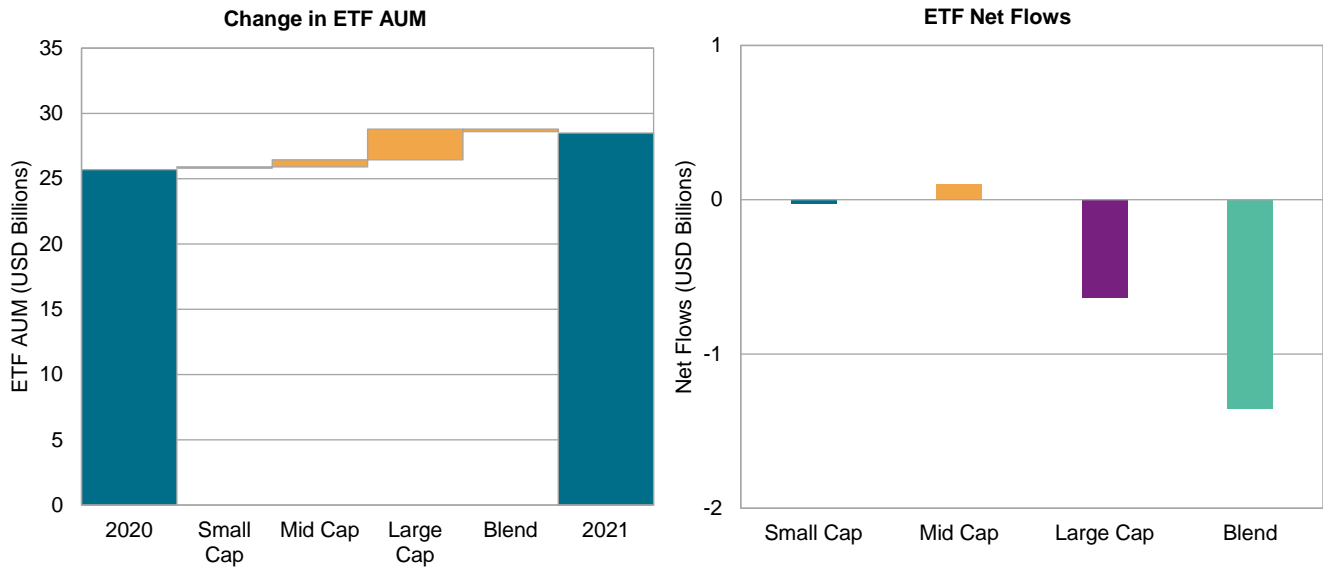
Exhibit 33: Insurance and U.S. Market Equity ETF AUM by Market Capitalization



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Insurance companies withdrew assets from Equity ETFs, led by Blend ETFs. Nevertheless, ETF AUM increased in all capitalizations except Blend. Mid Cap ETFs, which had a slight inflow, had the largest increase in AUM (see Exhibit 34).

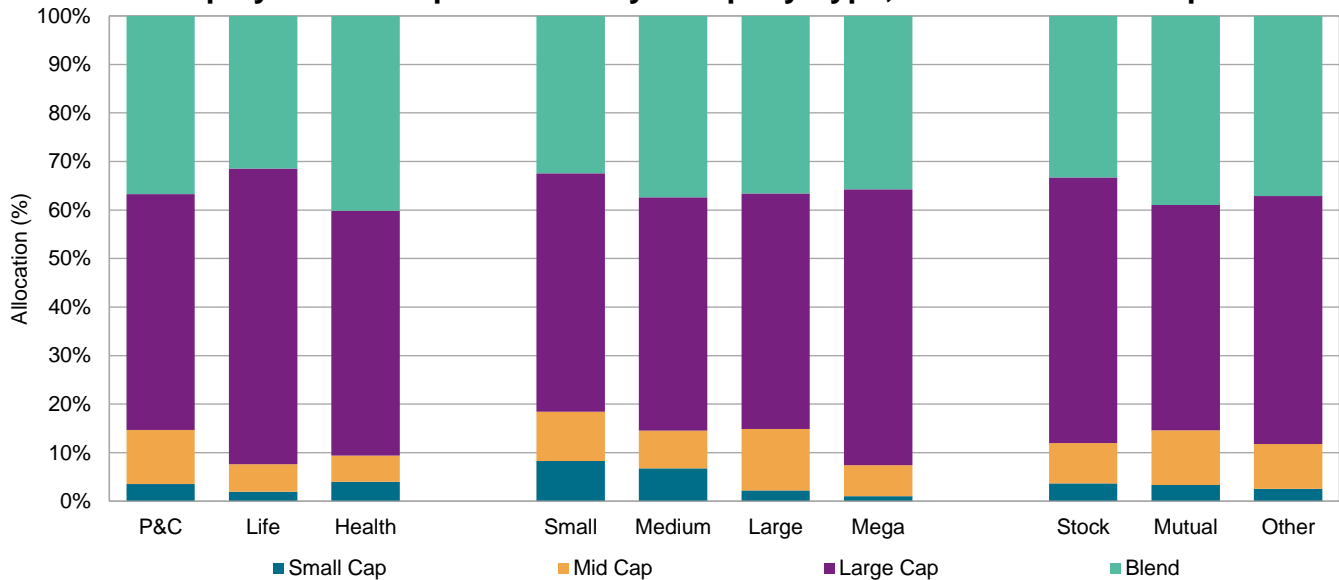
Exhibit 34: Equity ETF Net Flows and ETF AUM by Market Capitalization



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Equity allocation varied little by company Size, Type or Ownership (see Exhibit 35).

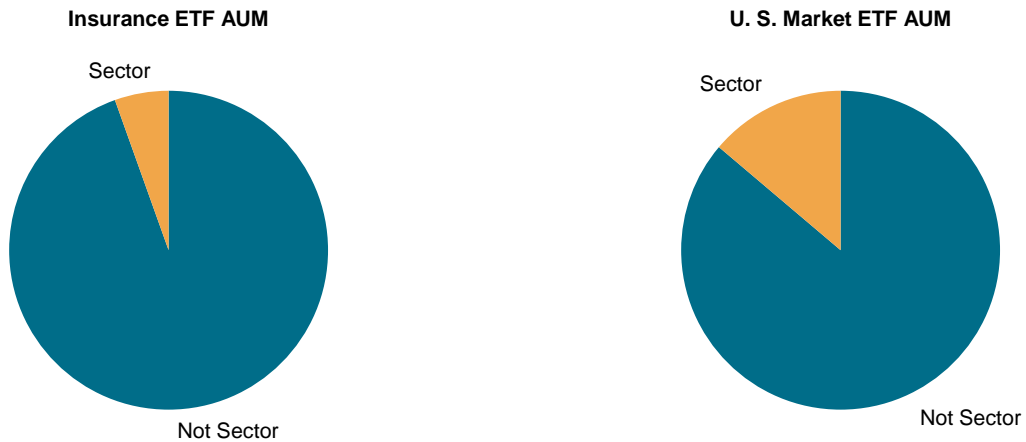
Exhibit 35: Equity Market Capitalization by Company Type, Size and Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Although sector AUM increased in 2021, Sector ETFs continued to have outflows. The use of Sector ETFs by insurance companies remained smaller than that of the overall ETF market (see Exhibit 36).

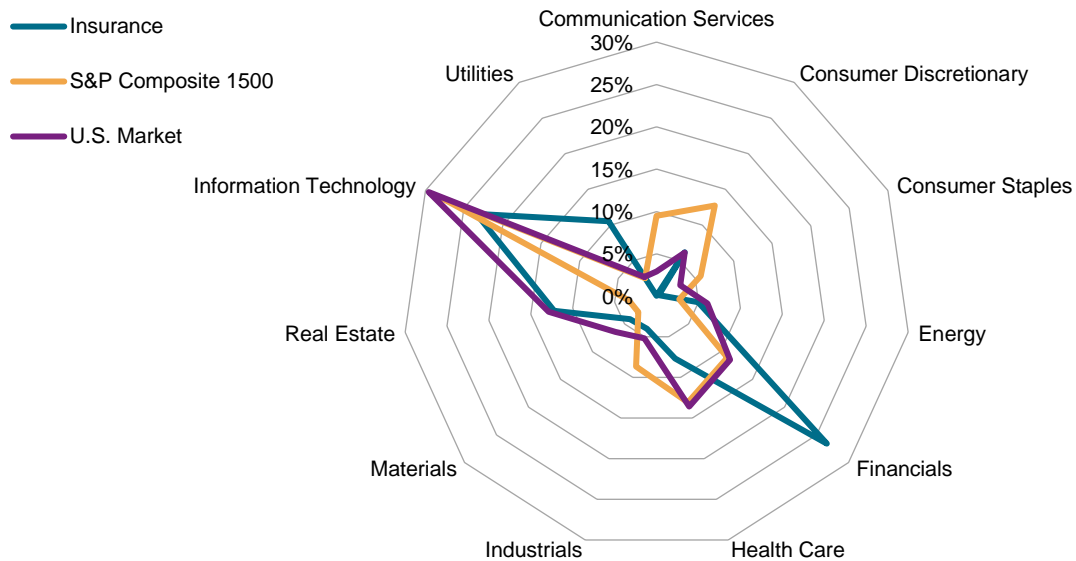
Exhibit 36: Insurance and U.S. Market Equity ETF AUM by Sector Status



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

The allocation to Sector ETFs by insurance companies varied from the U.S. ETF market, which in turn varied from the sector allocation of the equity market, as represented by the [S&P Composite 1500®](#) (see Exhibit 37).

Exhibit 37: Sector Allocation for Insurance, U.S. and Equity Markets

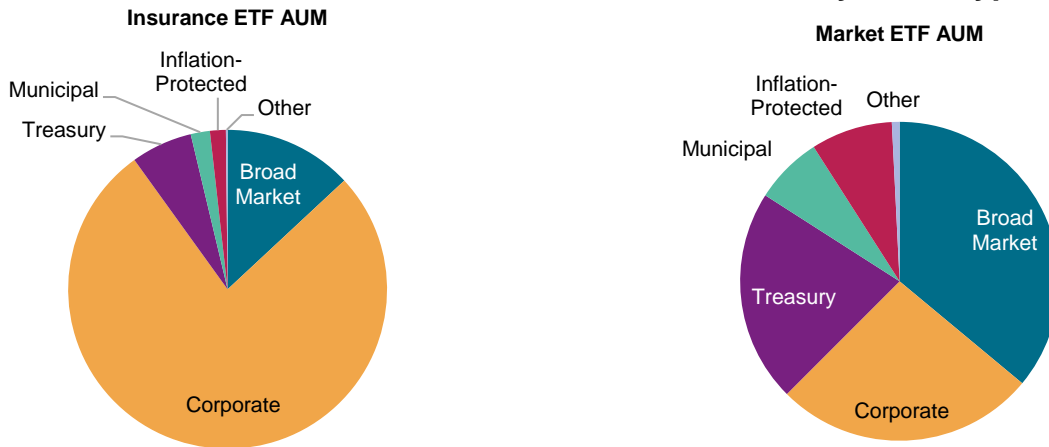


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Analysis of Fixed Income ETFs

The use of Fixed Income ETFs by insurance companies continued to be dominated by Corporate ETFs, which is different than the U.S. ETF market (see Exhibit 38).

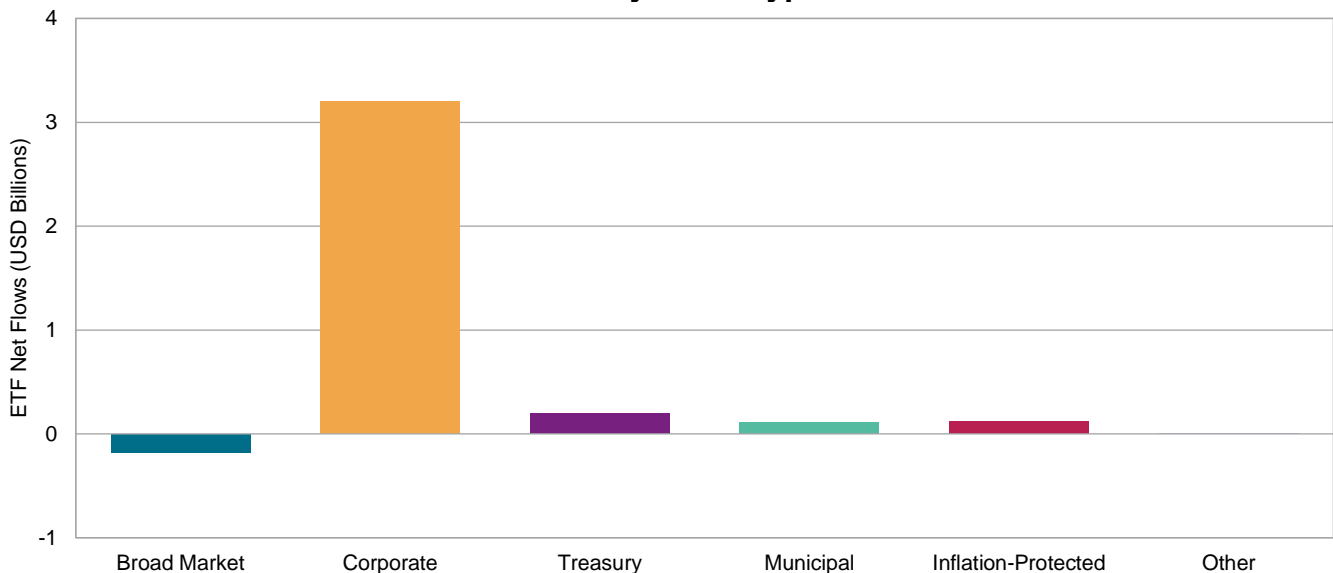
Exhibit 38: Insurance and US Market Fixed Income ETF AUM by Bond Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

In line with this overweight, a vast majority of the inflows into Fixed Income ETFs went to Corporate ETFs (see Exhibit 39).

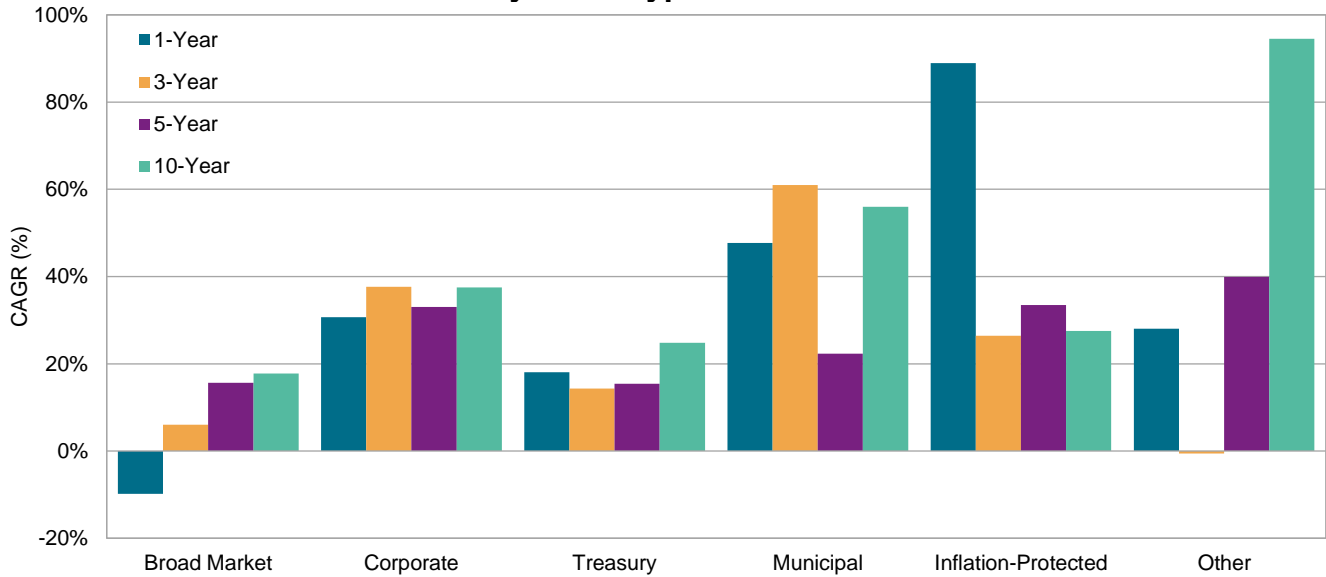
Exhibit 39: Fixed Income ETF Net Flows by Bond Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Except for Broad Market Fixed Income ETFs, which had an outflow of funds, all bond types showed a double-digit increase in ETF AUM in 2021 over 2020 (see Exhibit 40).

Exhibit 40: Fixed Income CAGR by Bond Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life companies invested mostly in Corporate ETFs, while P&C and Health companies had a more diversified allocation (see Exhibit 41).

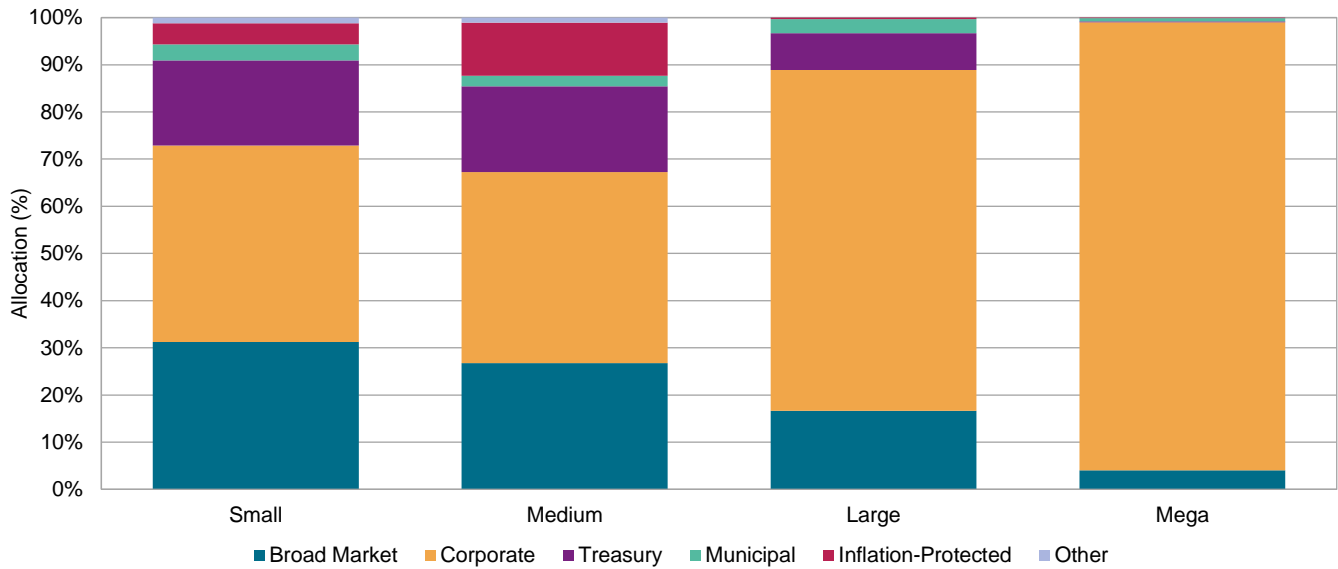
Exhibit 41: Bond Type Allocation by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Corporate ETF usage increased with company size, and Broad Market ETF usage decreased (see Exhibit 42).

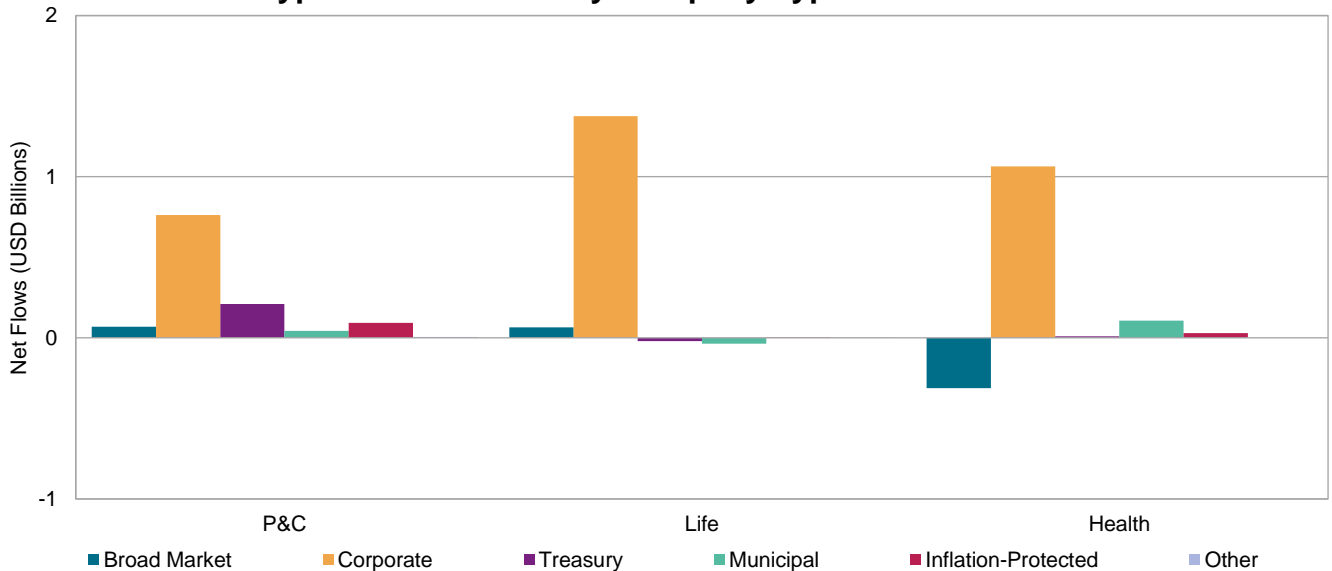
Exhibit 42: Bond Type Allocation by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life companies purchased Corporate ETFs almost exclusively. P&C and Health companies had a more diversified purchasing pattern, with Health companies selling Broad Market ETFs (see Exhibit 43).

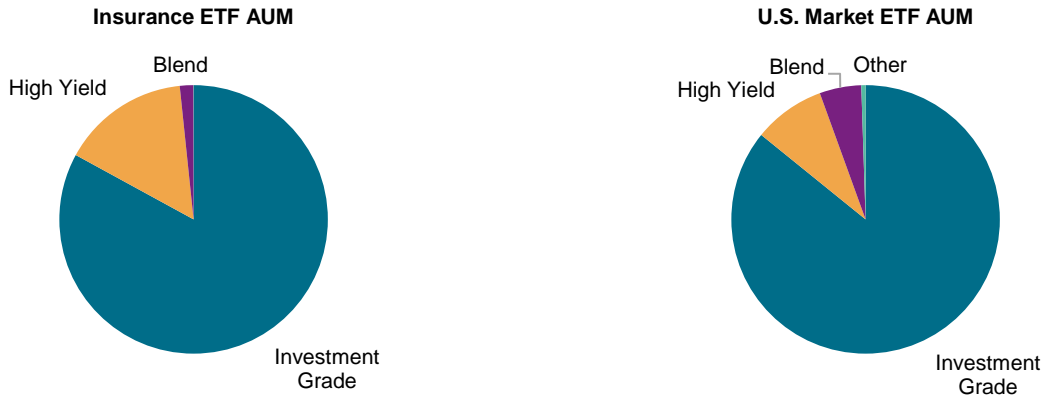
Exhibit 43: Bond Type ETF Net Flows by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

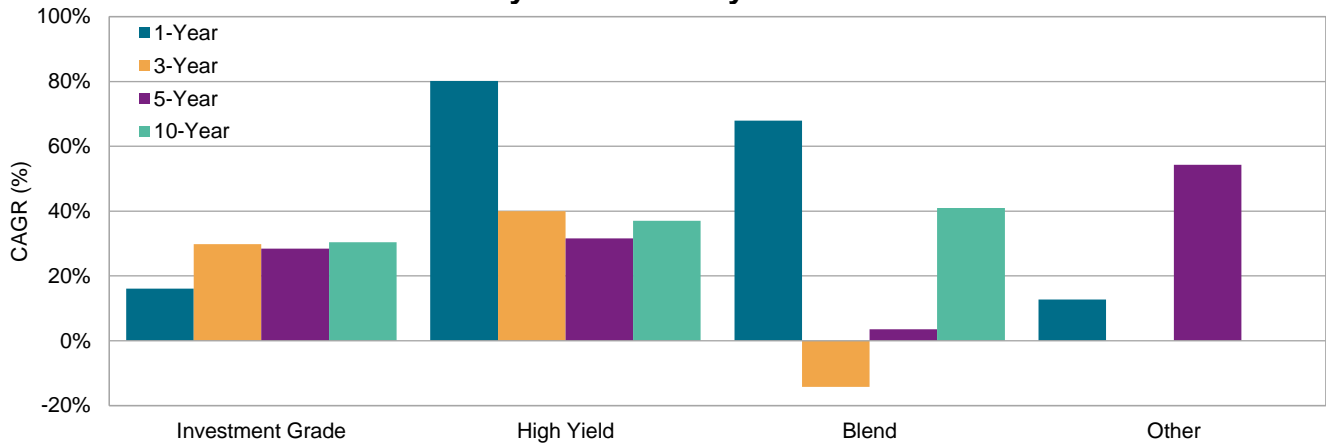
Although insurance companies invested in mostly Investment Grade ETFs, they had a higher allocation to High Yield than the overall U.S. market. High Yield ETF usage also increased by 80% since 2021; indeed, versus Investment Grade, they had a higher growth rate across all periods (see Exhibits 44 and 45).

Exhibit 44: Insurance and U.S. Market Fixed Income ETF AUM by Credit Quality



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

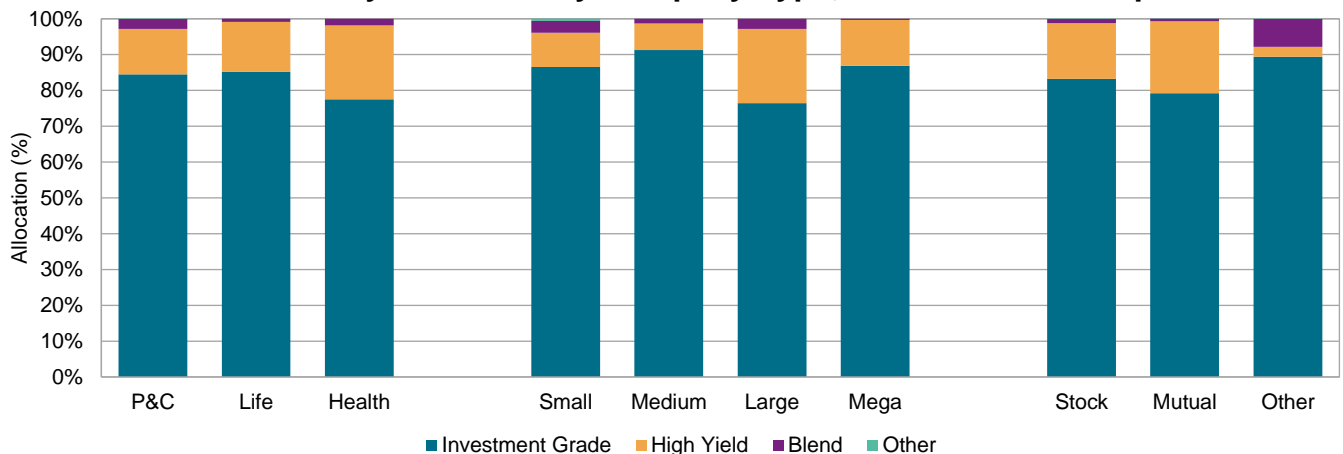
Exhibit 45: Fixed Income CAGR by Credit Quality



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

High Yield allocation varied by size but remained fairly consistent across company types (see Exhibit 46).

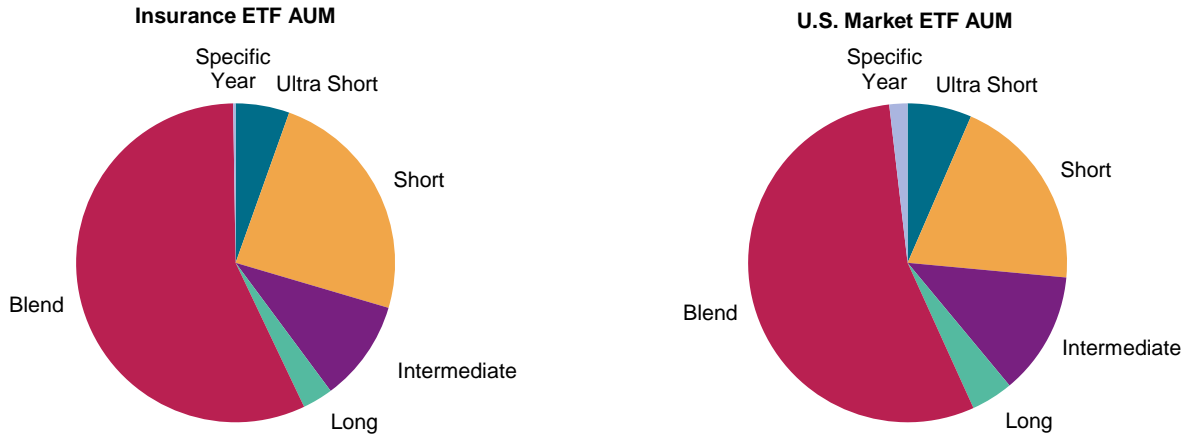
Exhibit 46: Credit Quality Allocation by Company Type, Size and Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Insurance company investment in Fixed Income ETFs by average maturity was similar to that of the overall U.S. market (see Exhibit 47).

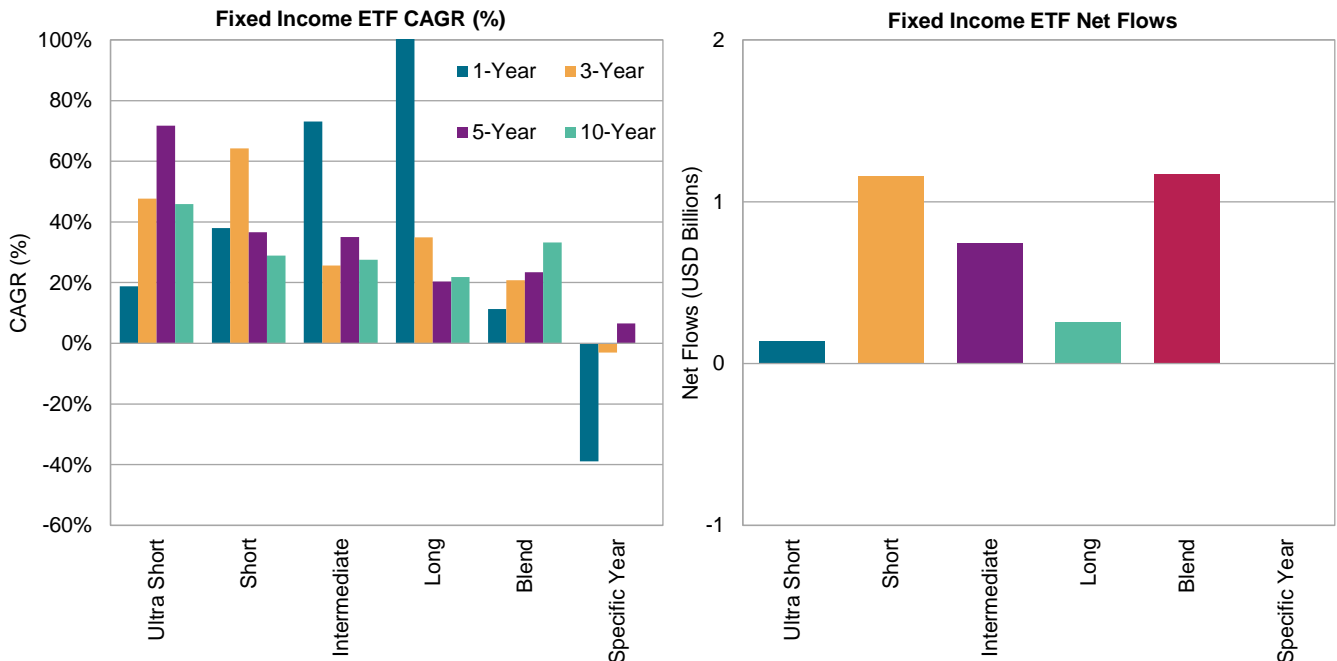
Exhibit 47: Insurance and U.S. Market Fixed Income ETF AUM by Average Maturity



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Even though USD 1.1 billion moved into Blend and Short ETFs, Long and Intermediate ETFs had a higher growth rate (see Exhibit 48).

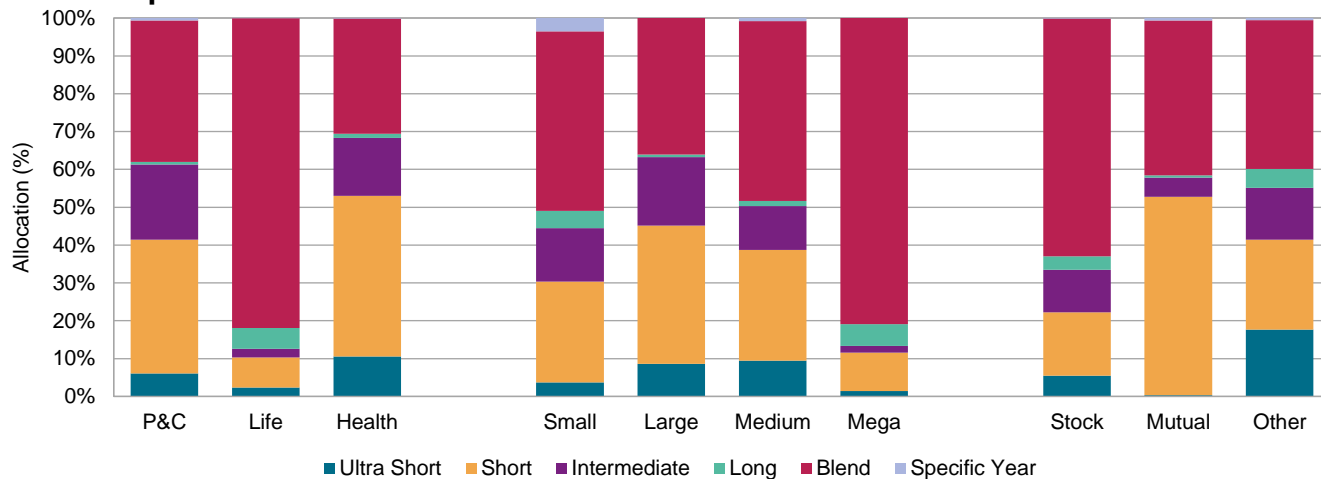
Exhibit 48: Fixed Income ETF CAGR and Net Flows by Average Maturity



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

In terms of company size, Mega companies were more likely to use Blend ETFs. Life companies also used Blend ETFs, but Health companies tended to use Short ETFs (see Exhibit 49).

Exhibit 49: Fixed Income Average Maturity ETF Allocation by Company Type, Size and Ownership

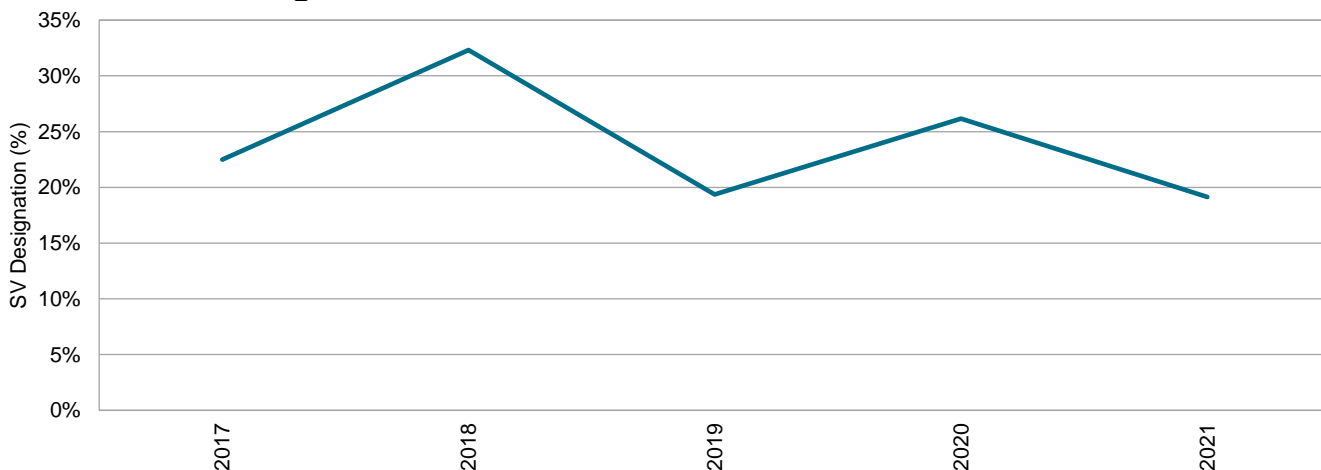


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Systematic Valuation

Systematic valuation (SV) is a book-value-like accounting treatment that has the potential to reduce income volatility in statutory filings. In spite of the increase in Fixed Income ETF usage, the use of SV did not increase. Of the USD 16 billion in Fixed Income ETFs, insurance companies designated 19% as SV. Since the SV regulation went into effect, the use of the designation has remained around 25% (see Exhibit 50).

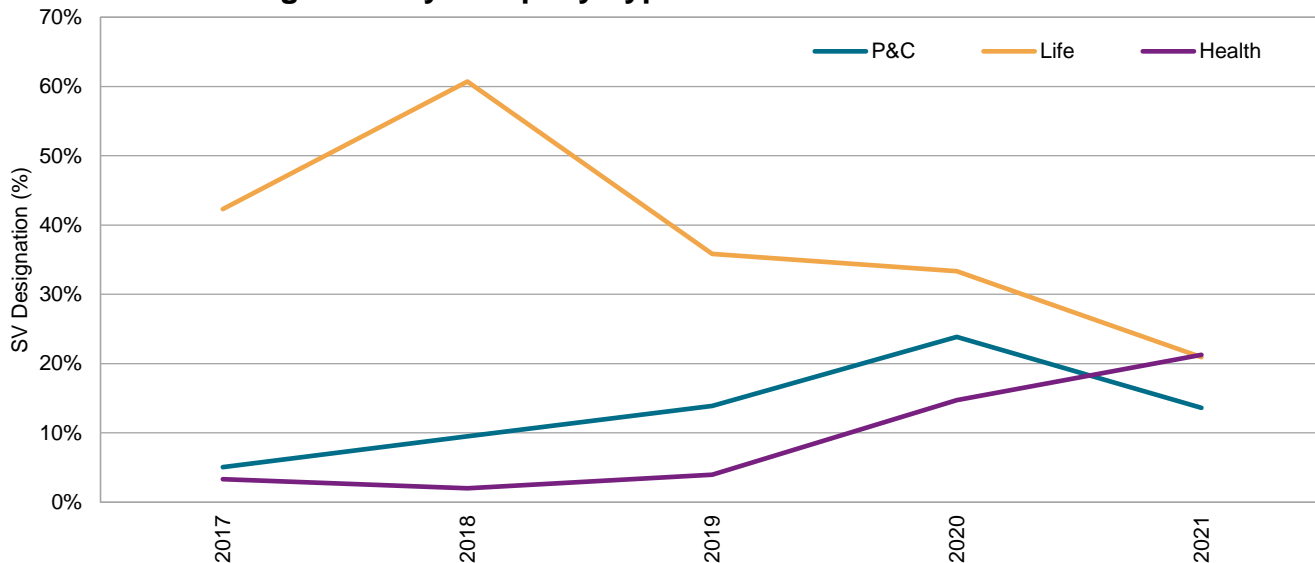
Exhibit 50: SV Designation for Fixed Income Securities



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life companies have historically designated more ETFs as SV, but they have been systematically reducing this usage. However, in recent years, Health companies have increased their SV designation (see Exhibit 51).

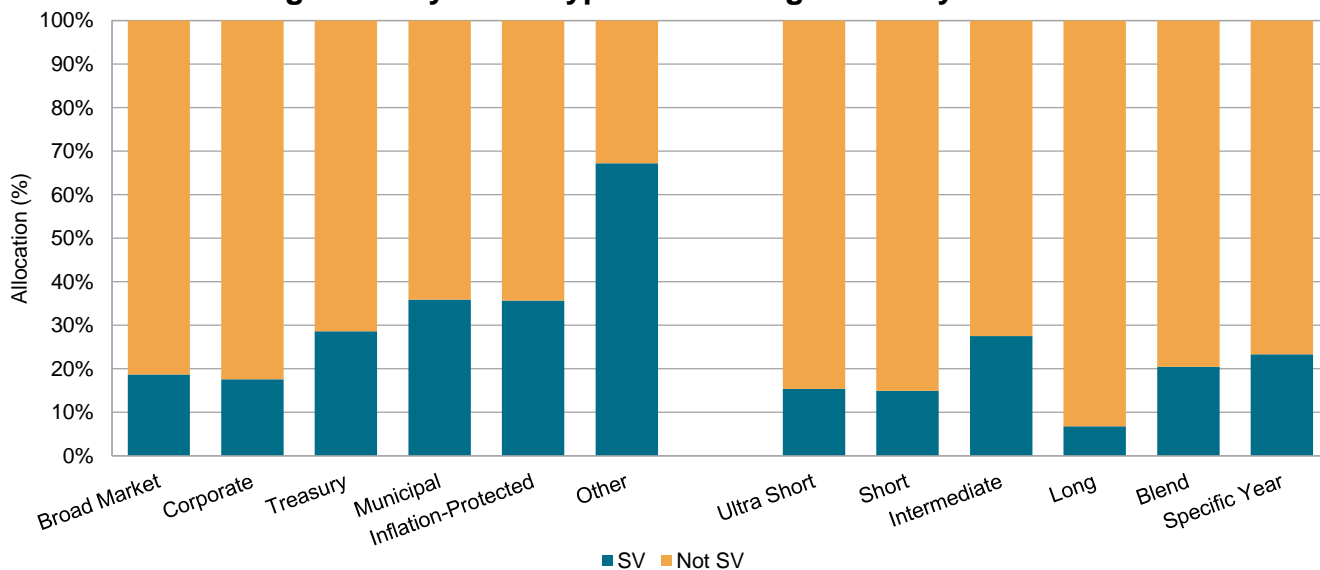
Exhibit 51: SV Designation by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Insurance companies have not designated many Broad Market or Corporate Bond ETFs as SV. Usually the SV designation is limited to Intermediate, Long Municipals and Inflation-Protected ETFs (see Exhibit 52).

Exhibit 52: SV Designation by Bond Type and Average Maturity

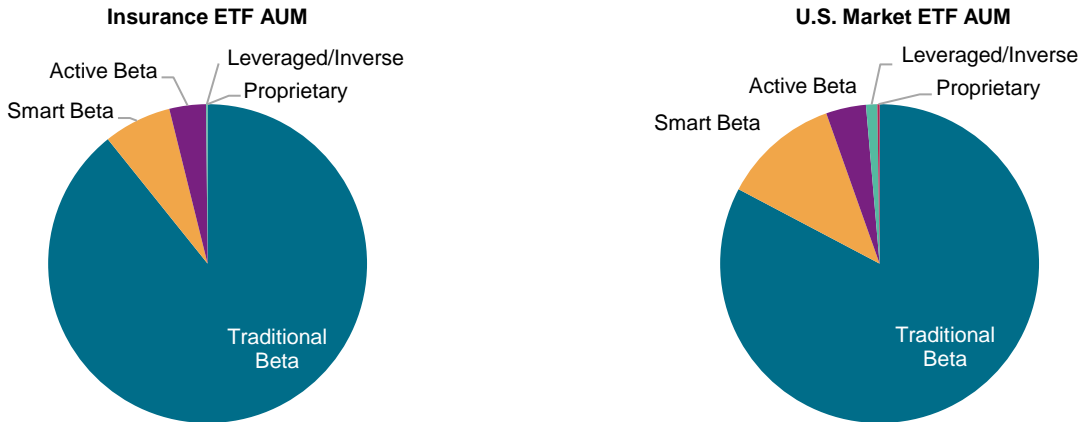


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Analysis of Smart Beta and Active ETFs

The majority of ETF investments by insurance companies were Traditional Beta ETFs. The insurance industry allocated slightly less to Smart Beta than the overall U.S. ETF market; their use of Active Beta was similar to the overall U.S. ETF market (see Exhibit 53).

Exhibit 53: Insurance and U.S. Market ETF AUM by Beta Type

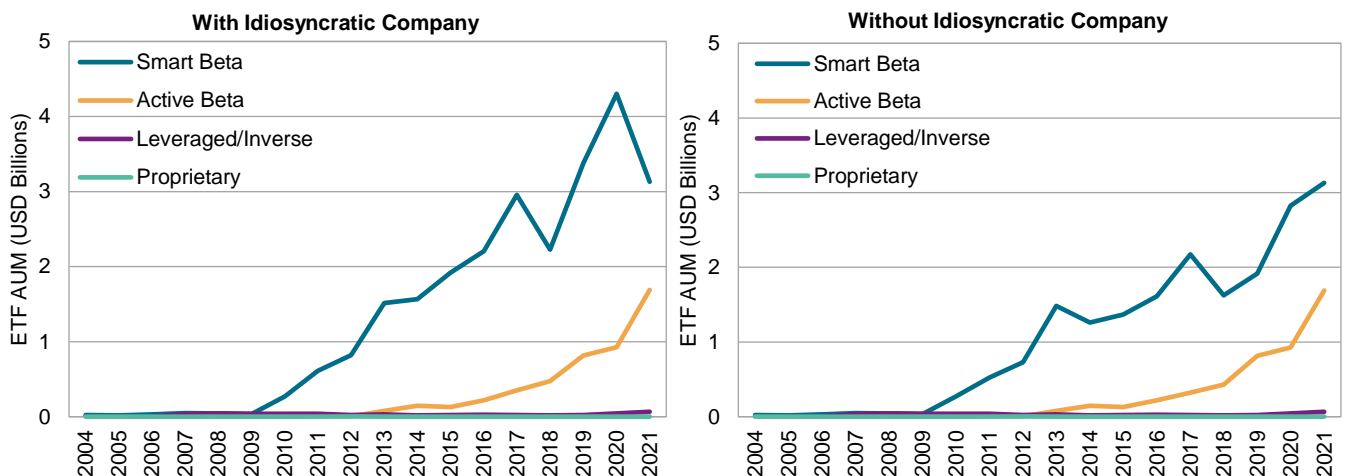


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

In 2021, in one idiosyncratic portfolio reallocation trade, a Mega insurance company reallocated USD 1.8 billion out of Smart Beta ETFs. They reinvested USD 1.2 billion into Traditional Beta ETFs and removed USD 535 million from ETFs. With this trade included, the use of Smart Beta ETFs declined 27%; without this trade, Smart Beta increased by 11%. This trade only had material impact on Smart Beta ETF analysis.

Meanwhile, the use of Active Beta ETFs continued to rise, up 82% from 2020 (see Exhibit 54).

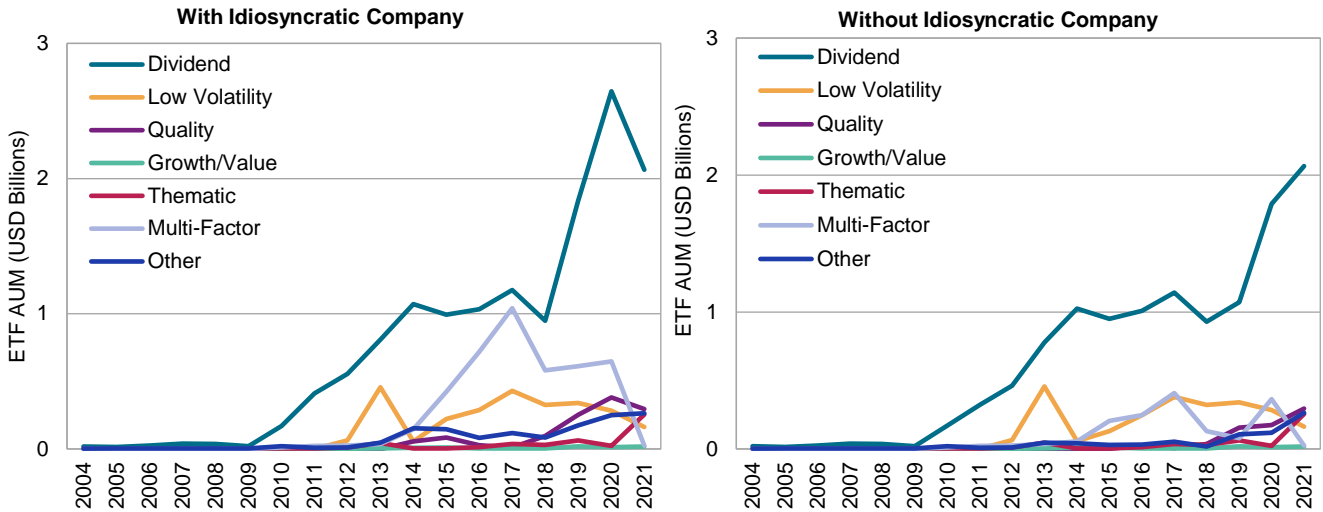
Exhibit 54: Alternative Beta ETF AUM Growth



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Insurance companies almost exclusively used Smart Beta ETFs with Equity ETFs. Companies primarily used Smart Beta ETFs for Dividend ETFs. The one company trade distorted the growth trajectory of Dividend ETF usage (see Exhibit 55).

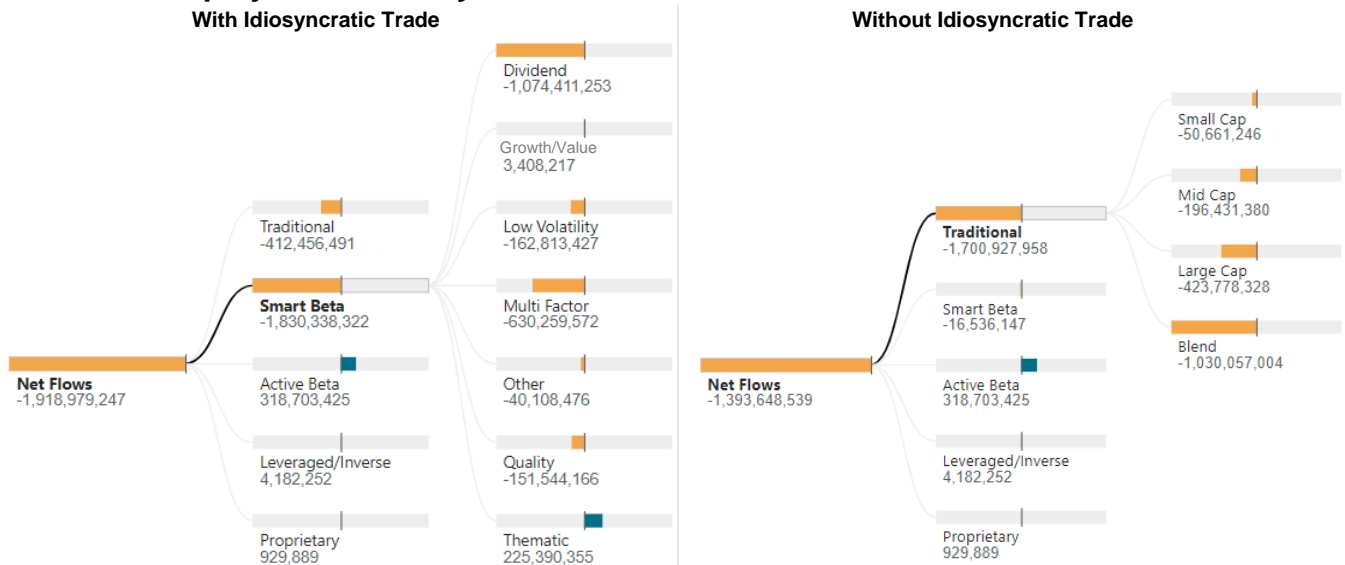
Exhibit 55: Equity ETF AUM Growth by Smart Beta Factor



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Insurance companies took out USD 1 billion from Dividend ETFs and USD 630 million from Multi-Factor ETFs. This was almost the full amount of the USD 1.9 billion that came out of Equity ETFs in 2021. However, without the idiosyncratic trade, companies still took out USD 1.4 billion from Equity ETFs, but this came out of Traditional Beta Equity ETFs; the decline in Smart Beta ETFs was negligible (see Exhibit 56).

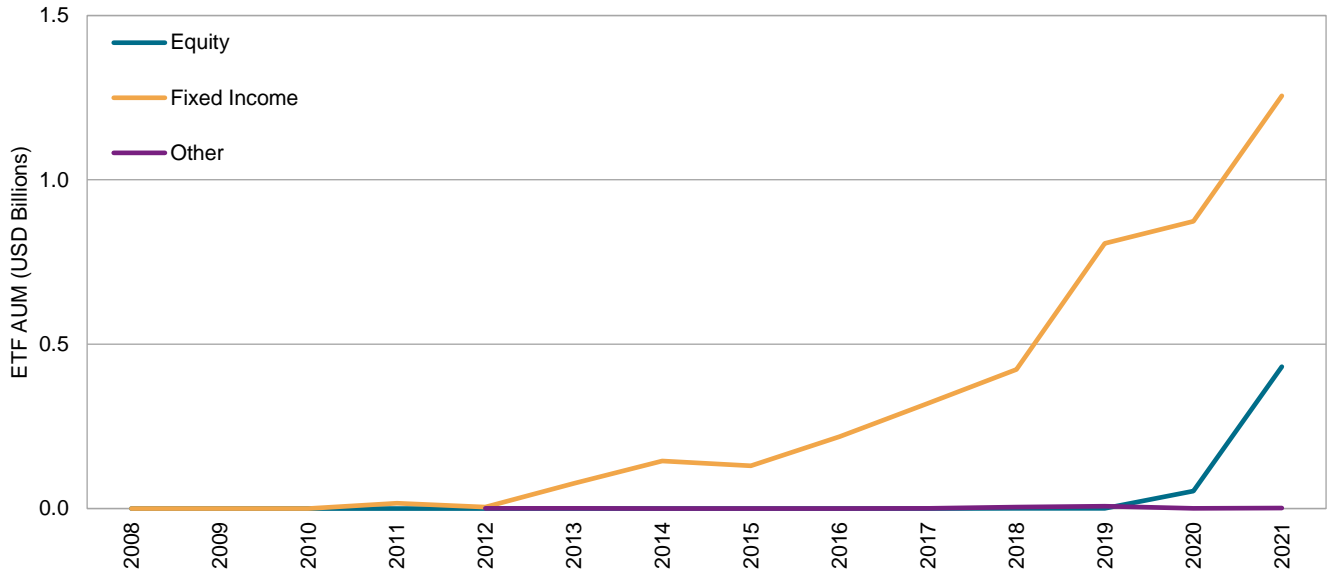
Exhibit 56: Equity Net Flows by Smart Beta Factor



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Historically, insurance companies have used Active Beta ETFs in Fixed Income. However, just like the broader U.S. ETF market, insurance companies increased the use of Active Beta ETFs—albeit not as quickly (see Exhibit 57).

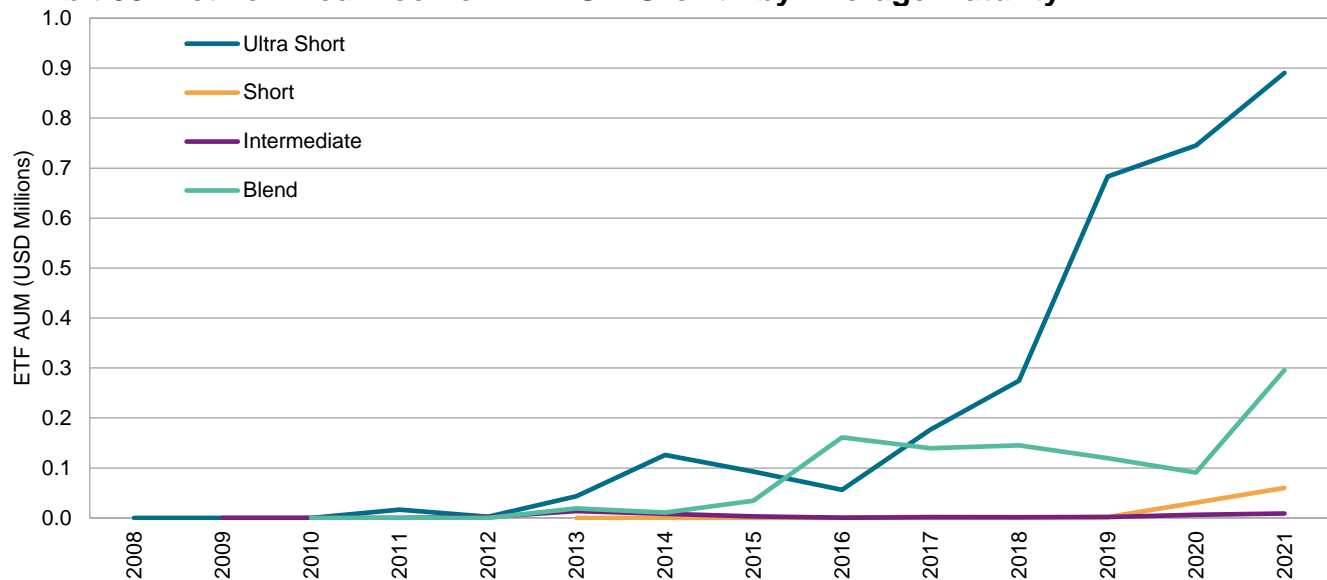
Exhibit 57: Active Beta ETF AUM Growth



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Within Active Beta Fixed Income ETFs, almost all of the allocation was within Ultra Short ETFs (see Exhibit 58).

Exhibit 58: Active Fixed Income ETF AUM Growth by Average Maturity

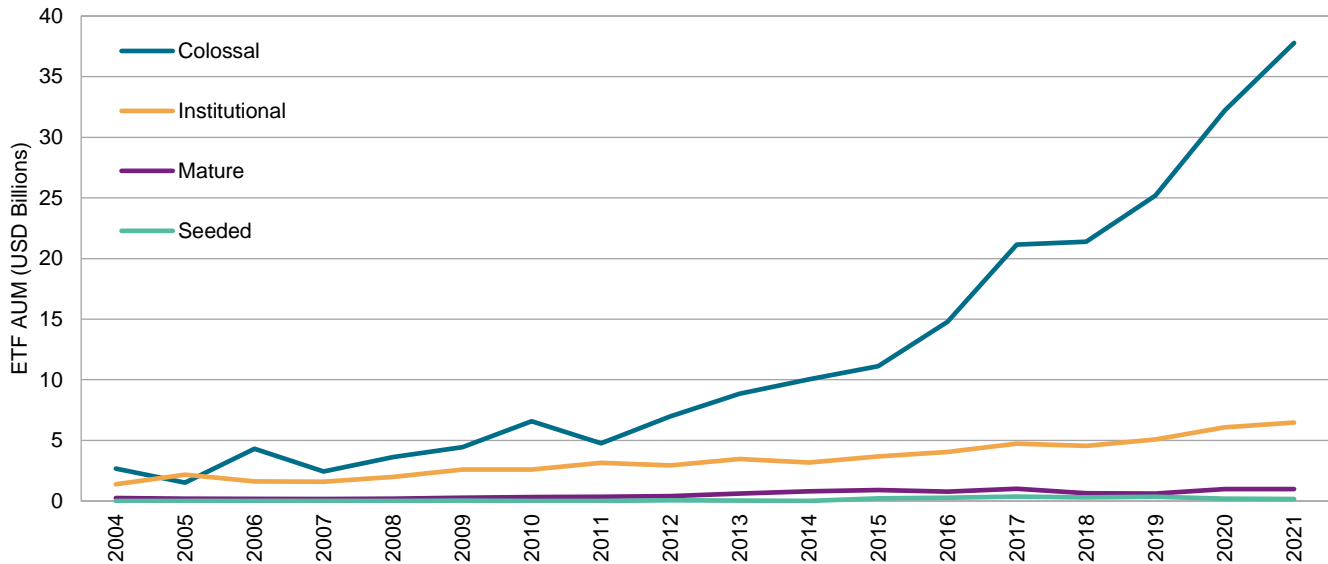


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Miscellaneous Analysis

Insurance companies held most of their ETF assets in Colossal ETFs. Although companies withdrew funds in 2021, it was still 84% of all insurance ETF holdings (see Exhibit 59).

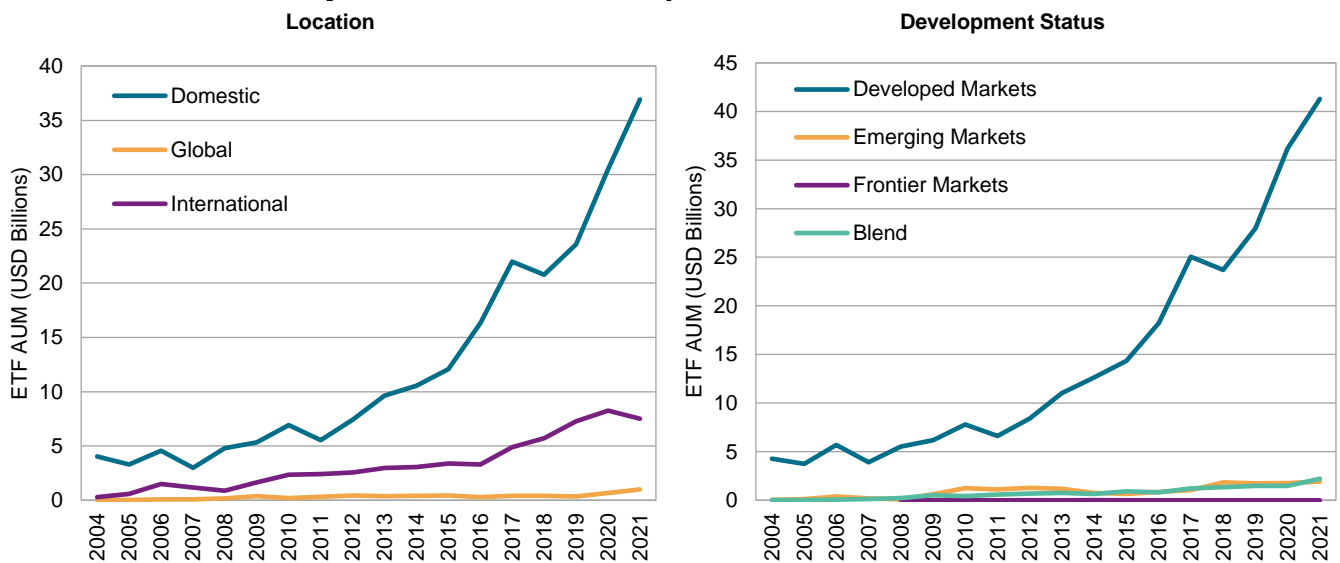
Exhibit 59: ETF AUM by ETF Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In terms of location, insurance companies invested mostly in Developed Markets and Domestic ETFs (see Exhibit 60).

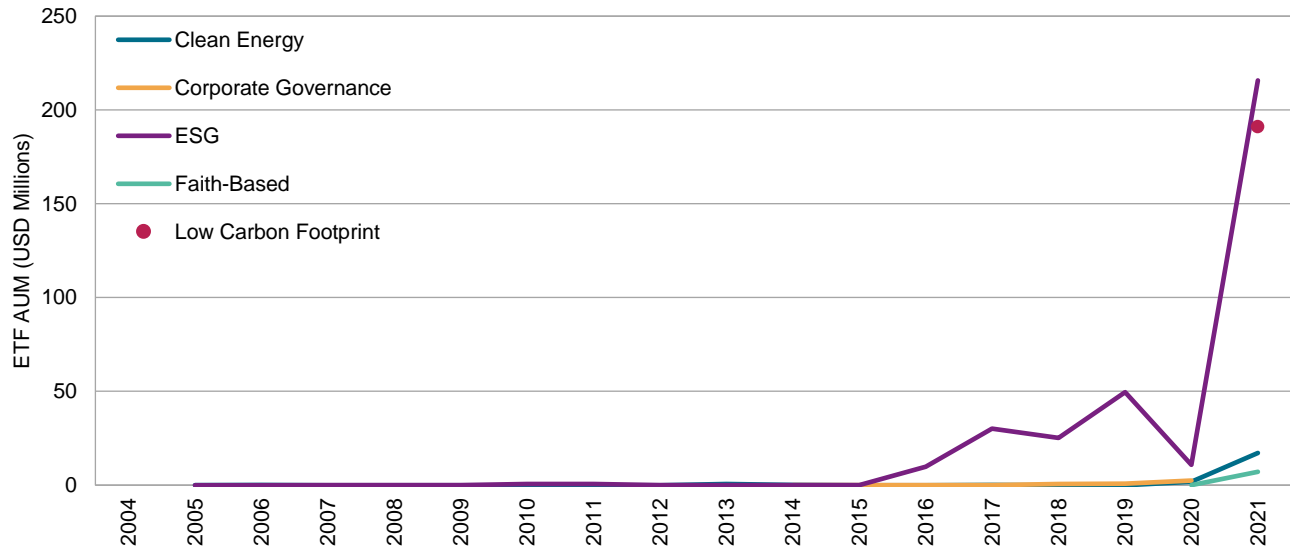
Exhibit 60 ETF AUM by Location and Development Status



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Insurance companies increased their use of ESG ETFs by 400% in 2020; however, this was off a significantly low base. At 1.09%, insurance ESG ETF usage was still lower than the U.S. ETF market, which had 1.67% invested in ESG ETFs. Historically, insurance ESG ETF investments have been insurance companies seeding ETFs in their affiliated asset managers. In 2021, insurance companies not affiliated with an ETF sponsor began using ESG ETFs (see Exhibit 61).

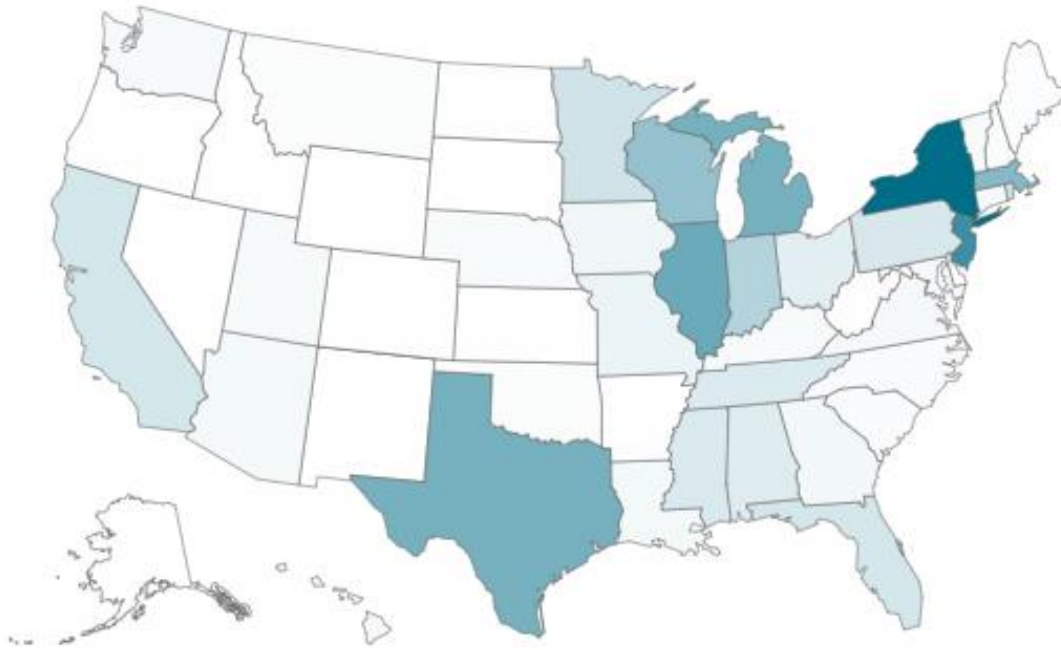
Exhibit 61: ESG ETF AUM Growth



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Geographically, companies domiciled in New York, New Jersey, Illinois, Michigan and Texas (see Exhibit 62) accounted for 51% of all insurance ETF assets. New York increased ETF AUM by 76% in 2021, while Illinois and Michigan reduced their ETF usage (see Exhibit 64). We also analyzed the distribution to ETFs relative to invested assets. Of the five states with the most ETFs, Texas, Michigan and New Jersey had a higher allocation to ETFs than their share of invested assets. Indiana and Rhode Island were two other states with relatively high ETF usage. Illinois, with its reduction in ETFs in 2021, moved in line with its share of invested assets. Of the top five states, New York was the only state with percentage ETF usage lower than percentage invested assets. New York is joined by Ohio, Connecticut, Iowa and Nebraska in having a lower ETF allocation relative to invested assets (see Exhibit 63).

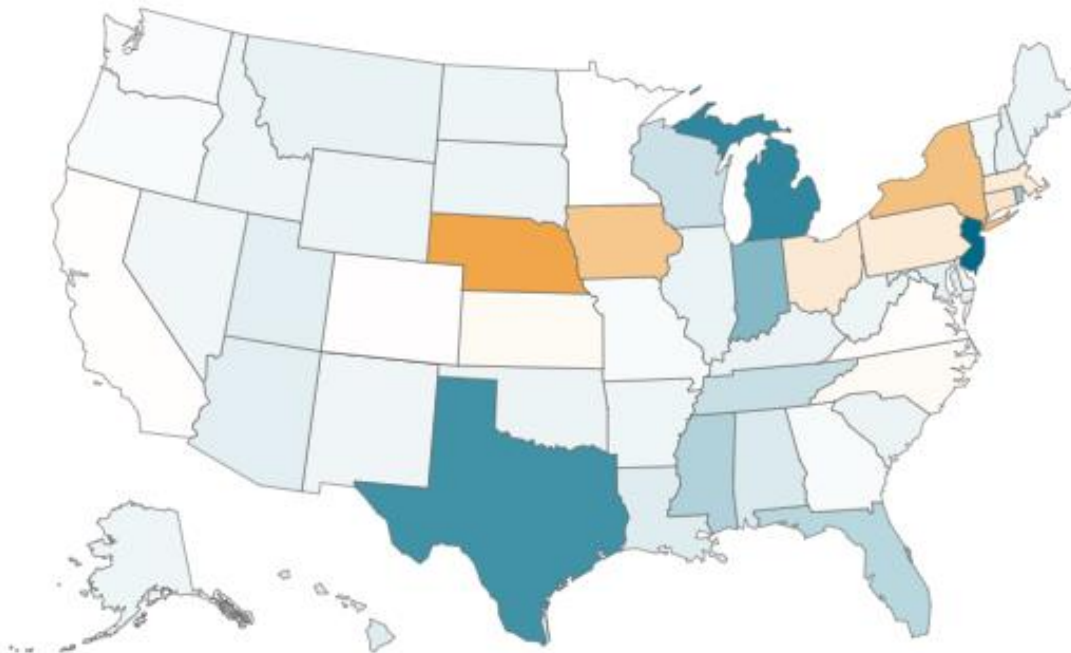
Exhibit 62: ETF AUM by Domicile

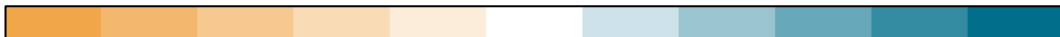


Less ETFs  More ETFs

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

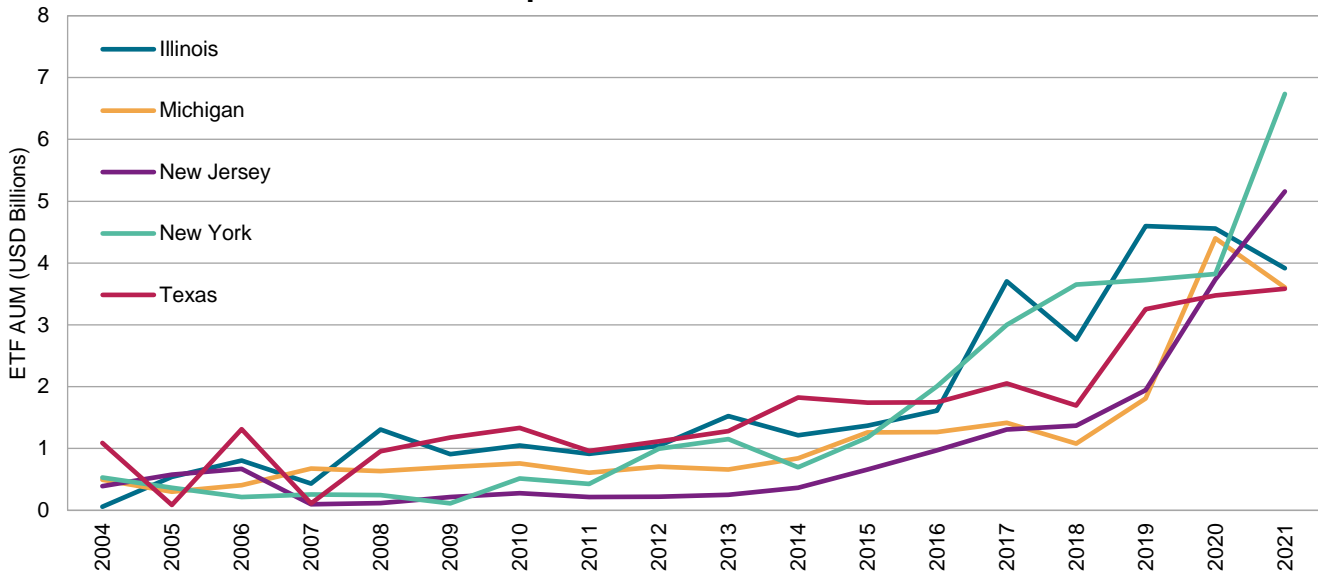
Exhibit 63: ETF Overweight/Underweight Relative to Invested Assets



Underweight  Overweight

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Exhibit 64: ETF AUM Growth for Top Five Domiciles



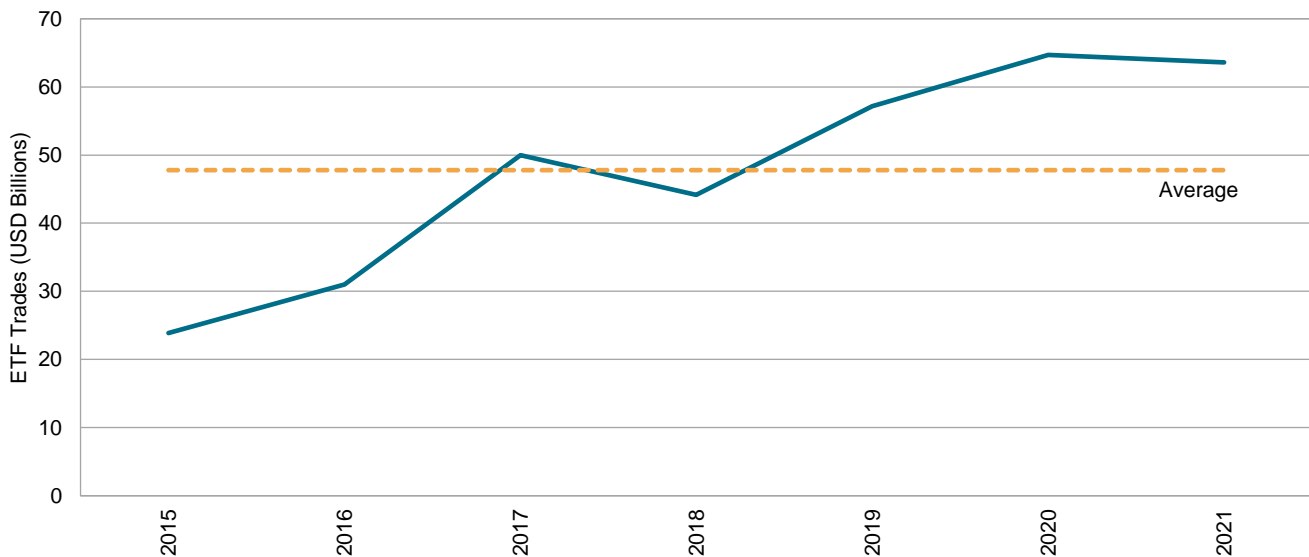
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Trade Analysis

Overview

Although the number of ETFs traded by insurance companies declined slightly in 2021, trade volume doubled over the past five years (see Exhibit 65).

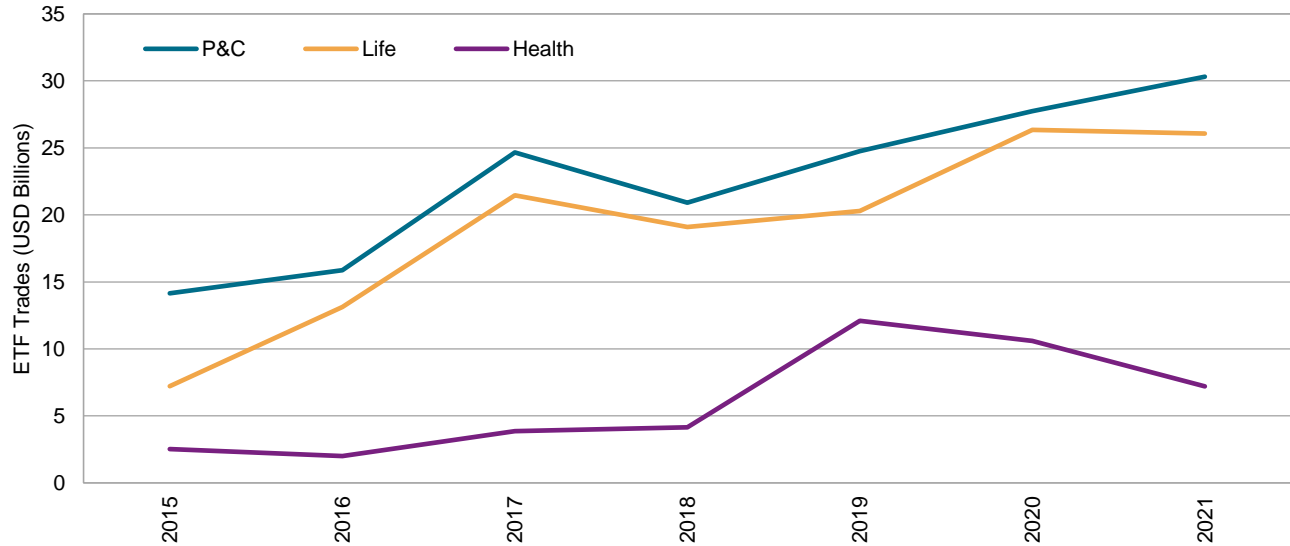
Exhibit 65: ETF Trades



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life and P&C companies accounted for approximately 90% of the trades in 2021. Health companies have reduced their trading over the past couple of years (see Exhibit 66).

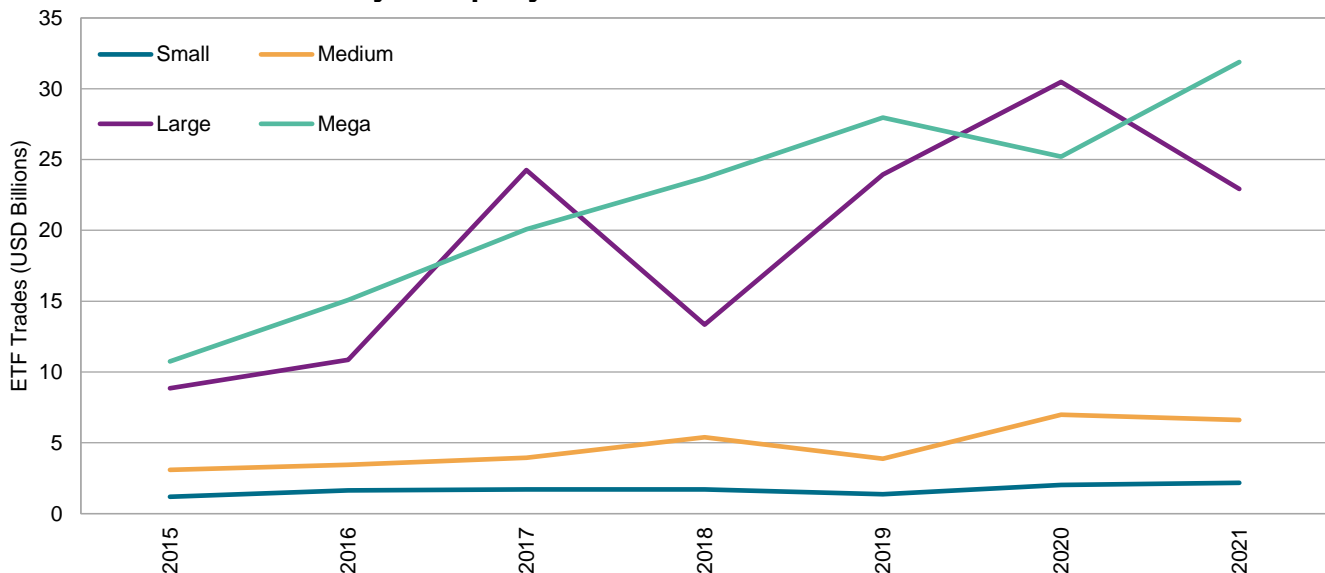
Exhibit 66: ETF Trades by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Mega companies increased trading by 27% in 2021 to again take the lead from Large companies. This coincided with a 25% drop in trading by Large companies (see Exhibit 67).

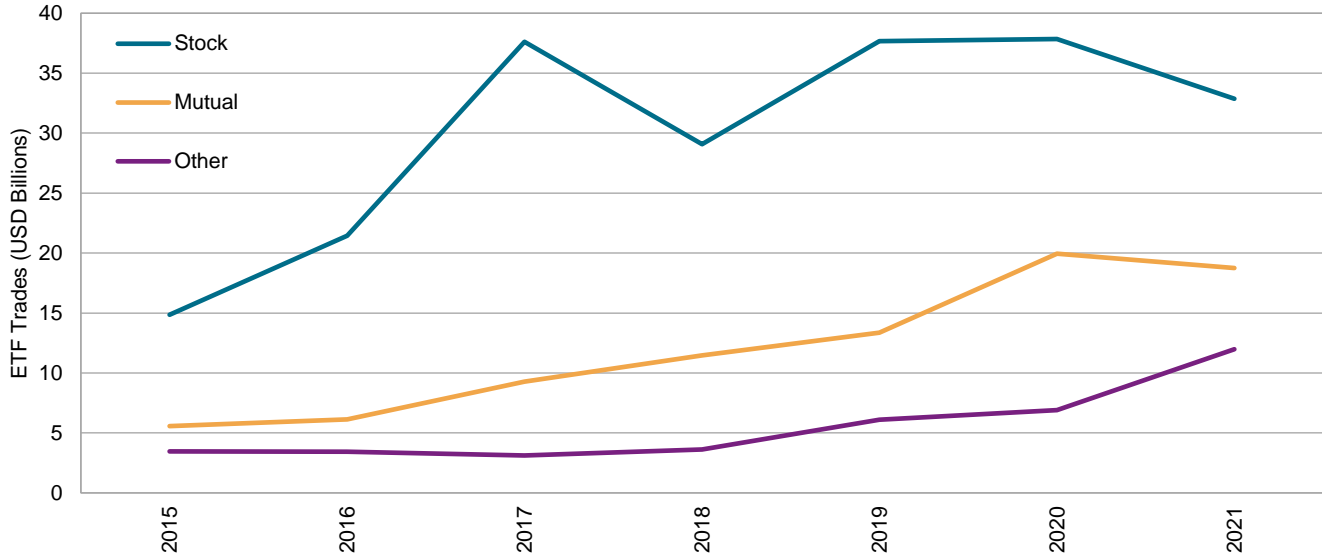
Exhibit 67: ETF Trades by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Although the amount traded by Stock companies declined, they still traded the most (see Exhibit 68).

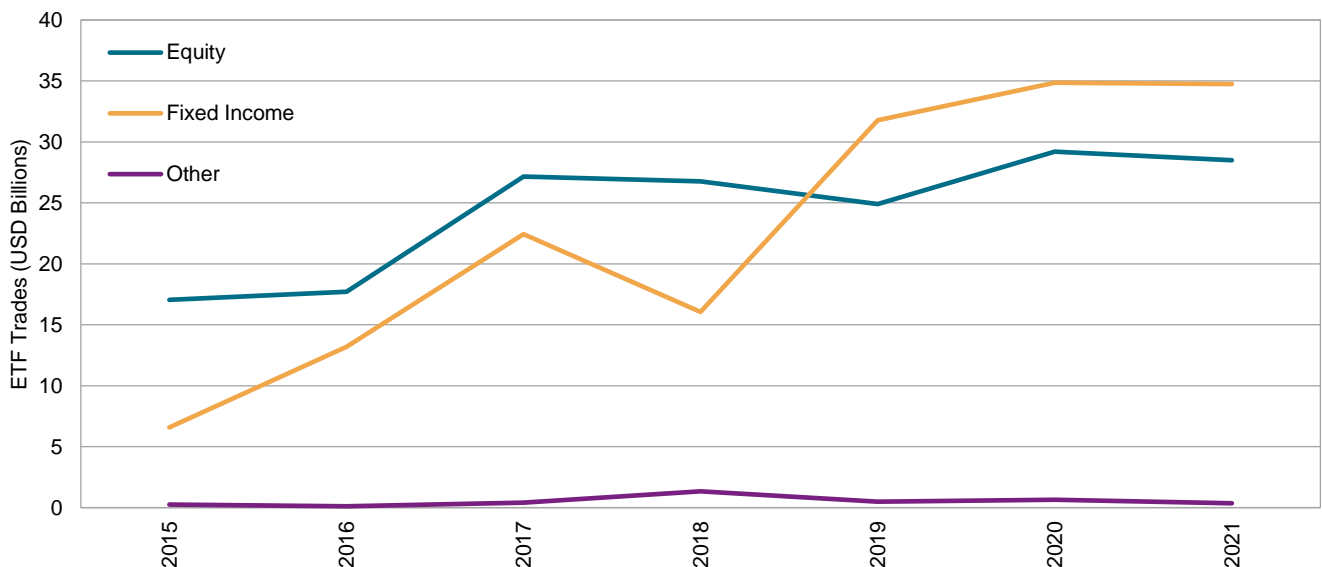
Exhibit 68: ETF Trades by Company Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Insurance companies traded more Fixed Income ETFs and Equity ETFs. However, trade volumes for both remained roughly the same as in 2020 (see Exhibit 69).

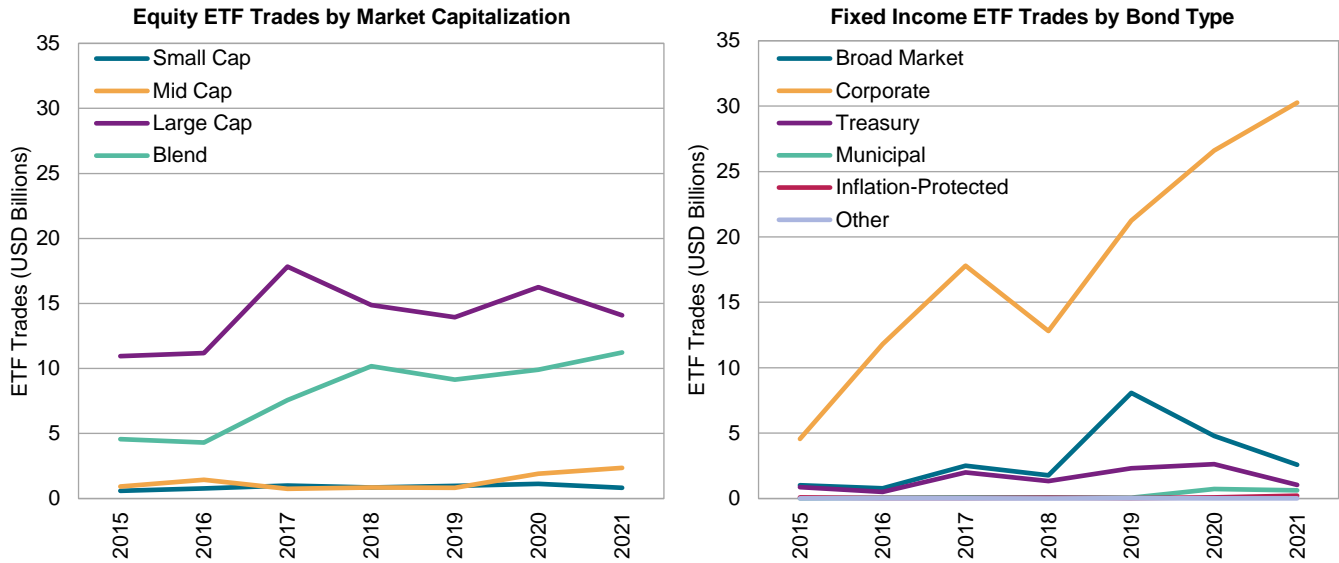
Exhibit 69: ETF Trades by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Among Equity ETFs, Large Cap still dominated trading, but Blend has closed the gap significantly since 2016. For Fixed Income ETFs, Corporate ETFs continued to overwhelm trading in other bond types (see Exhibit 70).

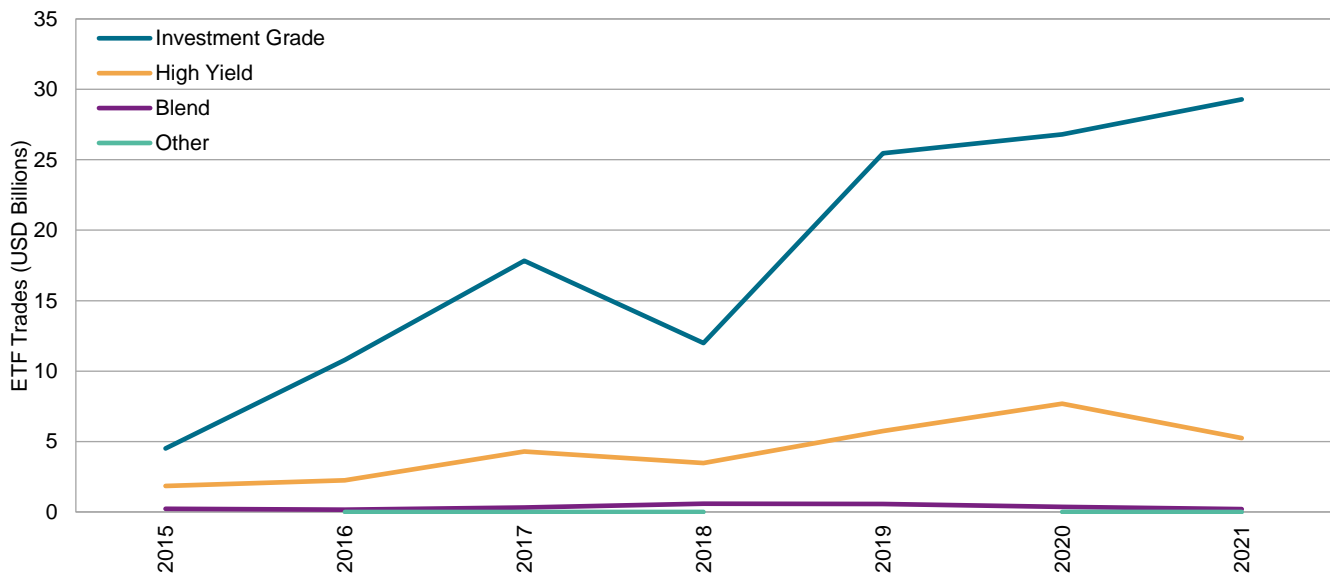
Exhibit 70: Equity and Fixed Income ETF Trades



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Investment Grade ETFs traded the most; High Yield ETFs reversed trend and declined in trading volume in 2021 (see Exhibit 71).

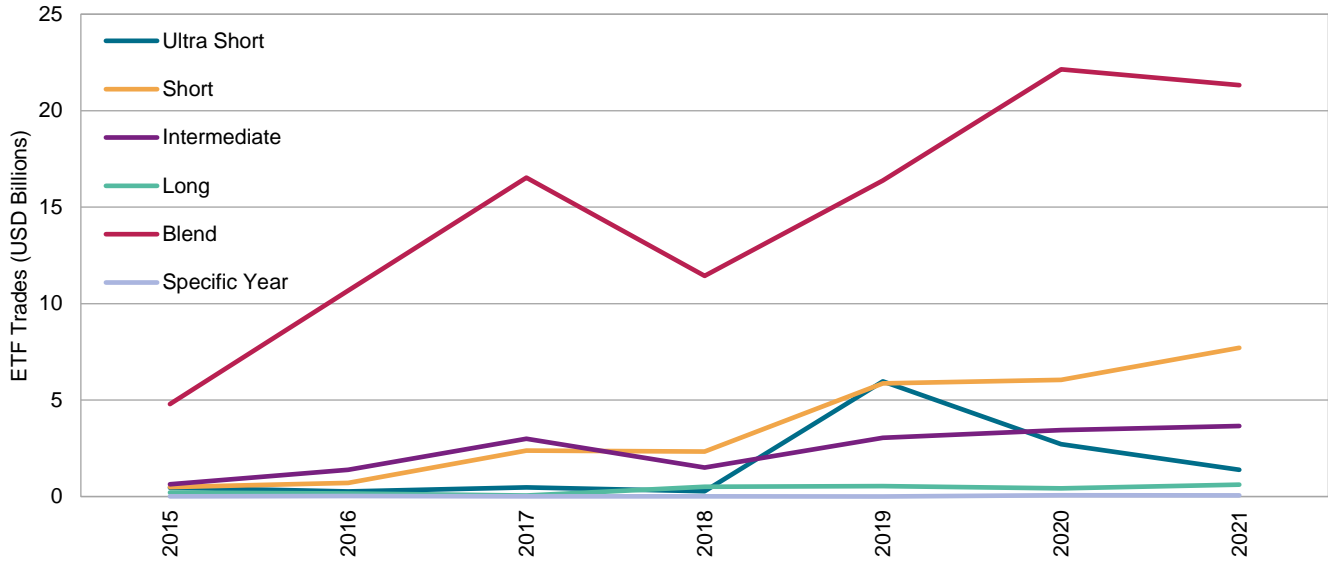
Exhibit 71: Fixed Income ETF Trades by Credit Quality



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Blended maturity ETFs traded the most, but that volume declined slightly in 2021. Ultra Short trading has consistently declined for the past two years. But Short ETFs increased trading by 27% in 2021 (see Exhibit 72).

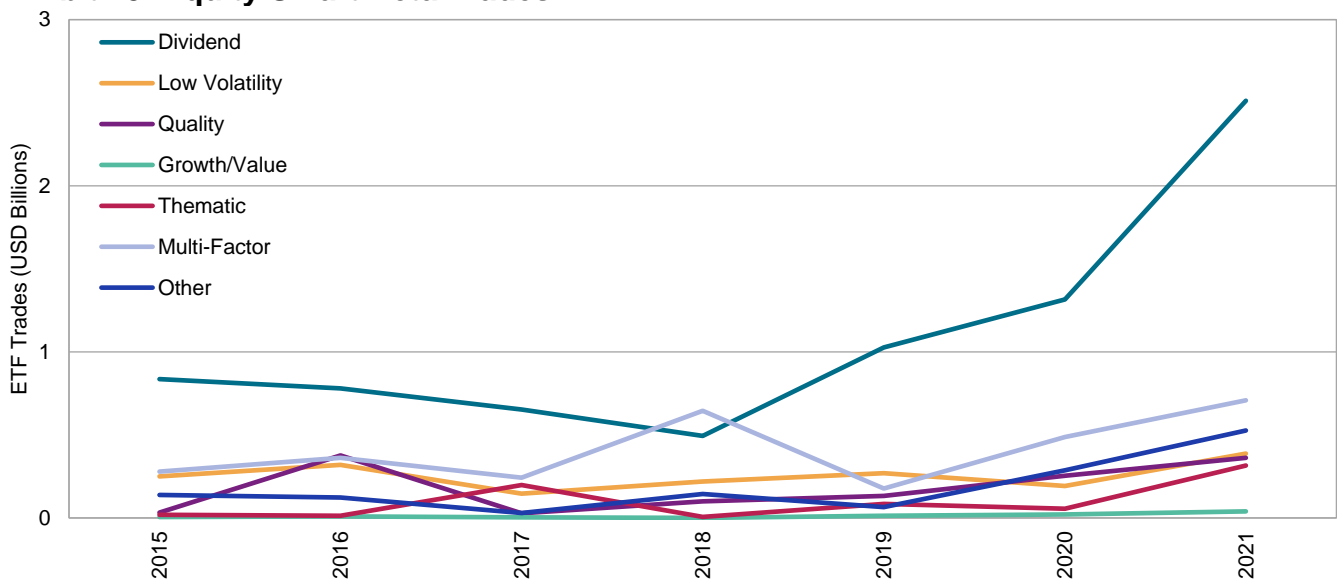
Exhibit 72: Fixed Income ETF Trades by Average Maturity



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In the Smart Beta space, Dividend ETFs had the most volume, but this was due to one company reallocation away from Dividend ETFs (see Exhibit 73).

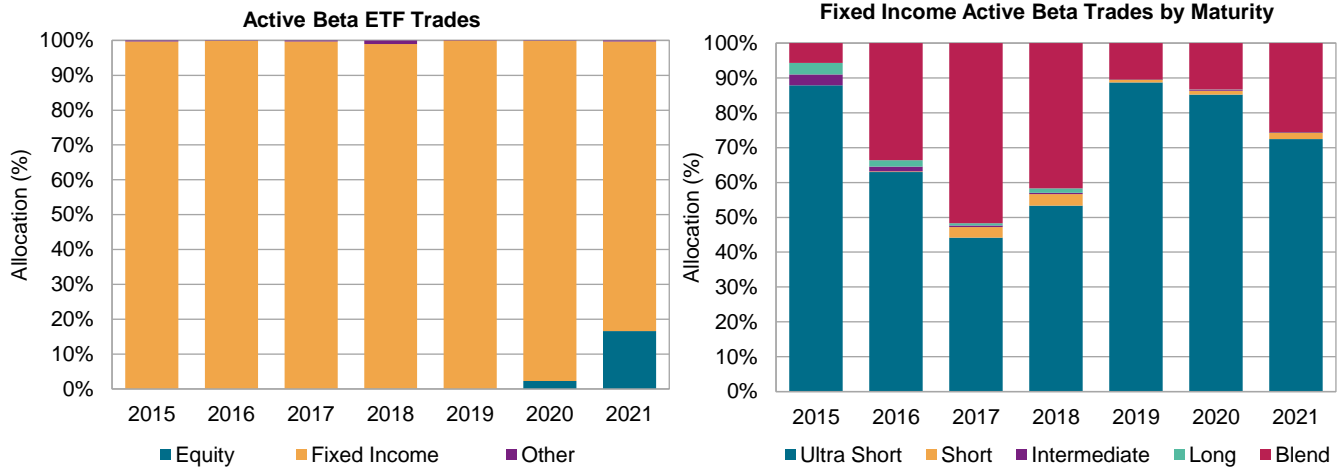
Exhibit 73: Equity Smart Beta Trades



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Even though Active Beta Equity ETFs increased, trading in this space was still dominated by Active Beta Fixed Income ETFs and Ultra Short ETFs (see Exhibit 74).

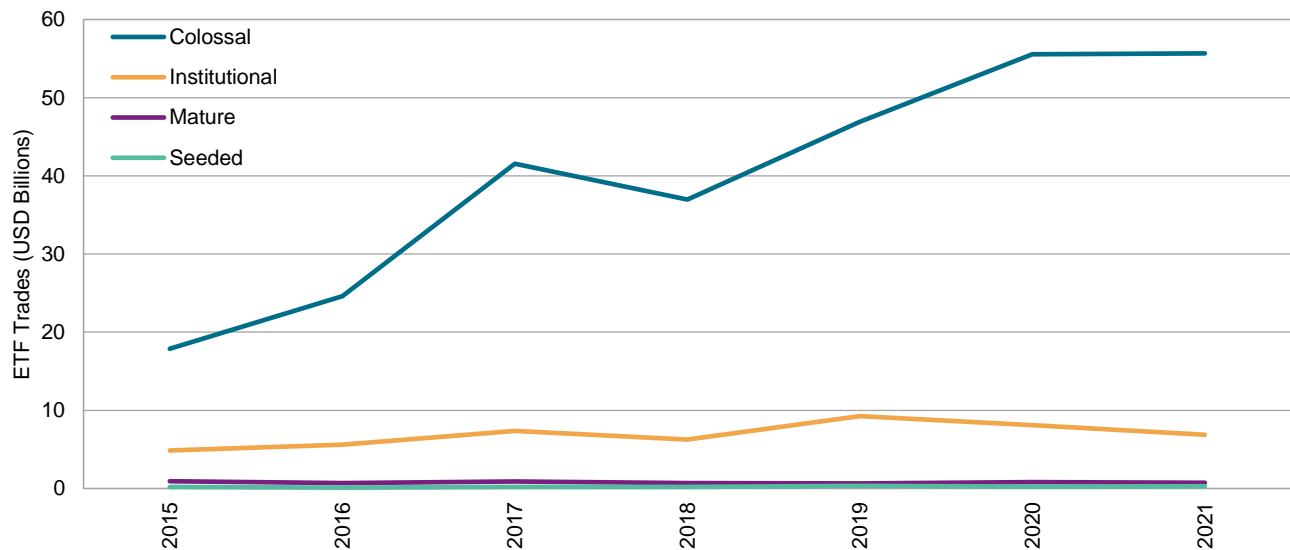
Exhibit 74: Active Beta Trades



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Mirroring the holding analysis, Colossal ETFs dominated trading (see Exhibit 75).

Exhibit 75: ETF Trades by ETF Size

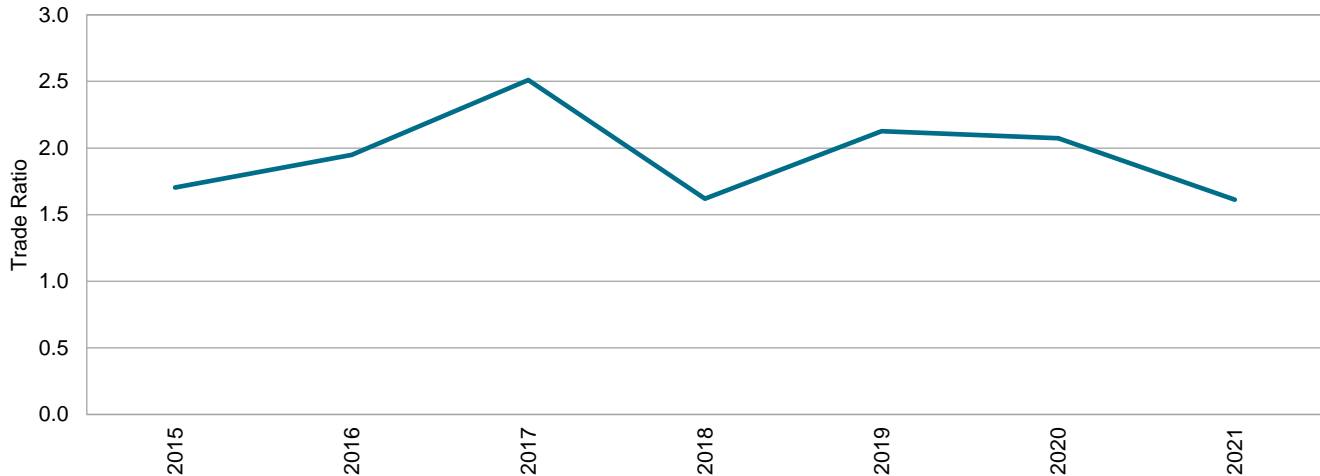


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

ETF Trade Ratio and Trade Size

By combining the holding and trade data, we analyzed the amount of trading relative to holding. We define “trade ratio” as the amount traded in a given year by the amount of ETFs held at the beginning of the same year. In 2021, overall trade ratio declined slightly to 1.6 (see Exhibit 76).

Exhibit 76: ETF Trade Ratio



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

The trade ratio for P&C companies has remained consistent at 1.5 for many years. After spiking in 2019, trading by Health companies returned to 1.1. Trading by Life companies declined in 2021, but they still traded more than twice the amount they held at the beginning of the year. In terms of size, Mega companies still traded 2.3 times their holdings, but Large companies reduced trading volume and had a trade ratio of 1.5. Both Stock and Mutual companies had lower trade ratios with lower volumes (see Exhibit 77).

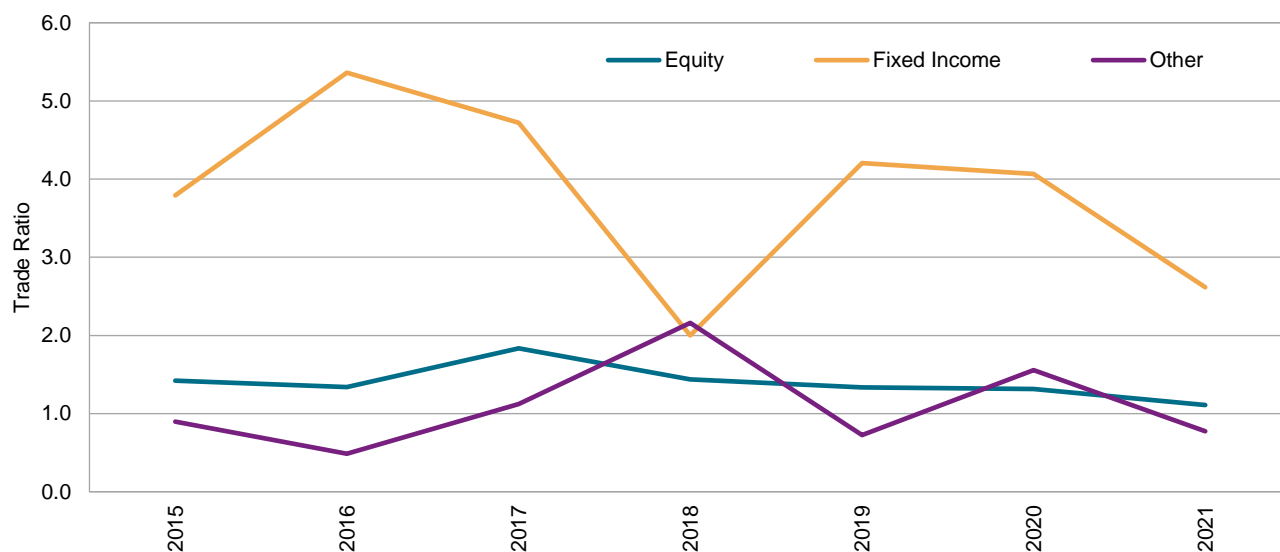
Exhibit 77: Trade Ratio by Company Type, Size and Ownership



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Insurance companies continued to trade Fixed Income ETFs more frequently than Equity ETFs. Even with the decline in trading volume, the Fixed Income trade ratio remained above 2.0. The Equity trade ratio, on the other hand, remained nearly constant at 1.1 (see Exhibit 78).

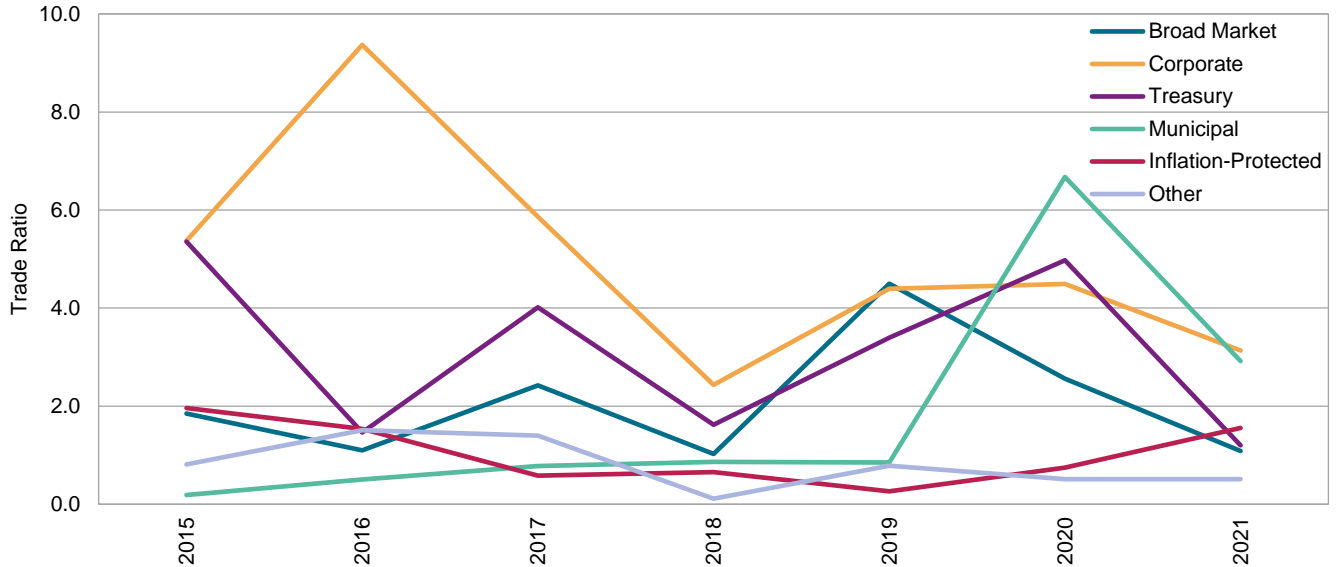
Exhibit 78: Trade Ratio by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Corporate ETFs, the most commonly held Fixed Income ETFs, continued to be heavily traded. While the trade ratio declined, it was still a healthy 3.1 (see Exhibit 79).

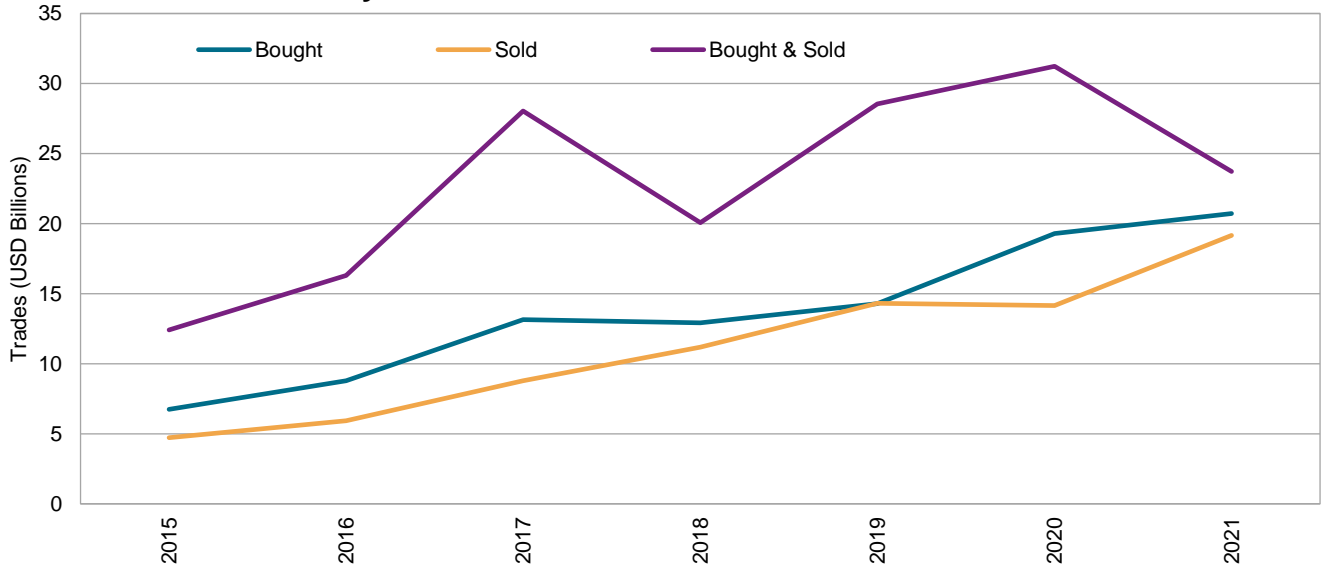
Exhibit 79: Trade Ratio by Bond Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Using NAIC schedules, we can also identify ETFs that were bought in a year, sold in a year, or bought and sold within a year. Historically, about one-half of the trades were round-trip trades. However, in 2021, the round-trip volume declined, even as bought and sold volumes increased (see Exhibit 80).

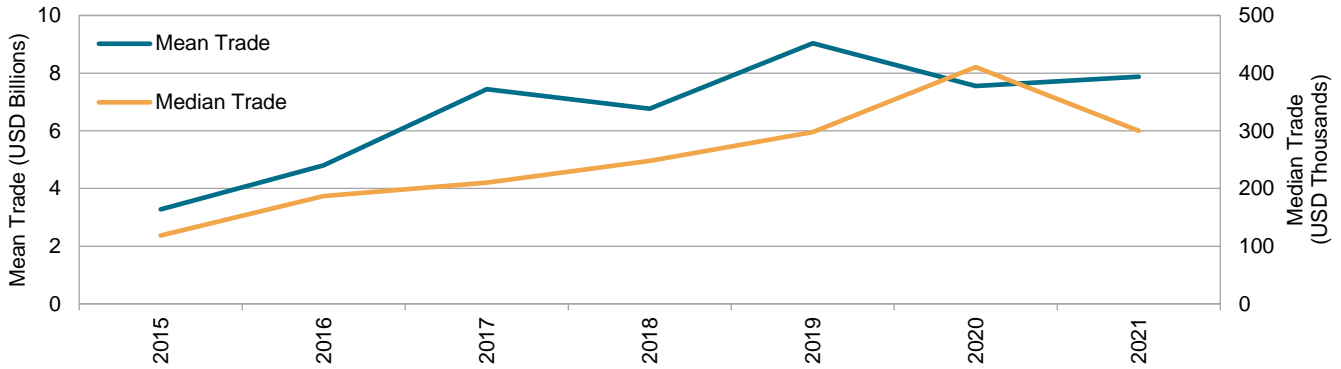
Exhibit 80: ETF Trades by NAIC Schedule



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

We note a large disparity between the mean and median of trades. In 2021, the average trade was USD 7.8 million, while the median trade was USD 300,000 (see Exhibit 81).

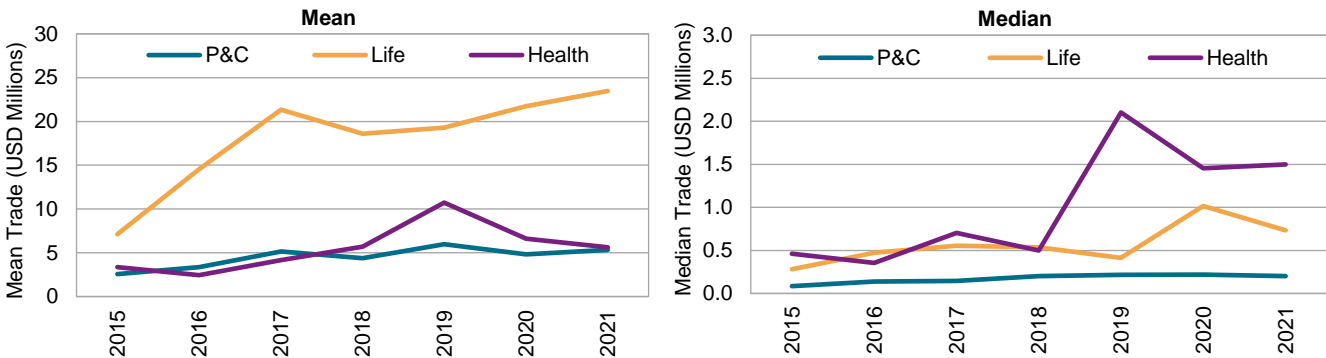
Exhibit 81: Mean and Median Trade Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life companies have consistently had a higher mean trade size. A few dozen large block trades by Life companies accounted for this skew. However, Health companies have had a larger median trade since 2019 (see Exhibit 82).

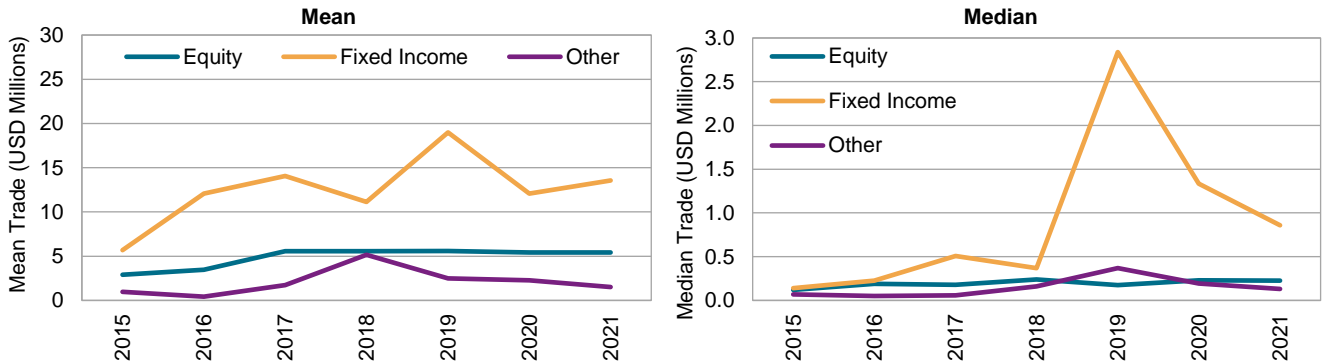
Exhibit 82: Mean and Median Trade Size by Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Fixed income ETFs had a higher mean and median trade size (see Exhibit 83).

Exhibit 83: Mean and Median Trade Size by Asset Class



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Appendix 1: Methodology

The National Association of Insurance Commissioners (NAIC) requires all U.S. insurance companies to file an annual statement with state regulators. This filing includes a detailed holdings list of all securities held by insurance companies. S&P Global Market Intelligence (SPGMI) compiled this data from the NAIC and makes it available in a usable format. From this database, we extracted all insurance ETF holdings and trades, both current and historical. In addition, CFRA ETF Data, which is an ETF data and analytics company, provided us with a list of U.S. ETFs, as well as characteristics of each ETF—such as asset class, stock strategy, bond credit quality, etc. We combined First Bridge ETF classifications with SPGMI statutory filing data to gain insight into how insurance companies use ETFs.

Appendix 1.1: S&P Global Market Intelligence Data

For U.S. insurance companies, we used NAIC data as compiled by SPGMI. U.S. insurance companies filed the data with the NAIC at the end of February 2022. SPGMI retrieved the data and loaded it into its database. The completeness of the database depended on the timeliness of SPGMI receiving the data from the NAIC and the amount of quality control SPGMI performs. To get timely yet complete information, we retrieved the data for this analysis on April 14, 2022.

SPGMI classified companies in various ways. For companies that are members of a group, we classified all companies the same way as a group. For example, if a group contained individual companies of various ownership structures (Stock, Reciprocal Exchange, Lloyd's Syndicate, etc.), but SPGMI classified the group as a Stock company. For this analysis, we assigned the ownership structure of the parent organization to all the subsidiaries. We do a similar assignment across all the features in this report.

In 2021, the SPGMI database contained 7,793 companies, both historical and operating. Most of these companies (4,363 or 56%) belonged to one of 620 insurance groups; this left 3,430 stand-alone insurance entities. For this analysis, we referred to “companies” as the combination of the 620 groups and 3,430 individual entities. This gave us 4,050 companies in our analysis (see Exhibit 84).

Exhibit 84: Companies and Groups

Type of Company	Individual Companies	Stand Alone Companies	Companies part of a Group	Number of Groups	Groups + Stand Alone Companies
P&C	2,011	727	1,284	152	879
Life	1,694	851	843	142	993
Health	4,088	1,852	2,236	326	2,178
Total	7,793	3,430	4,363	620	4,050

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

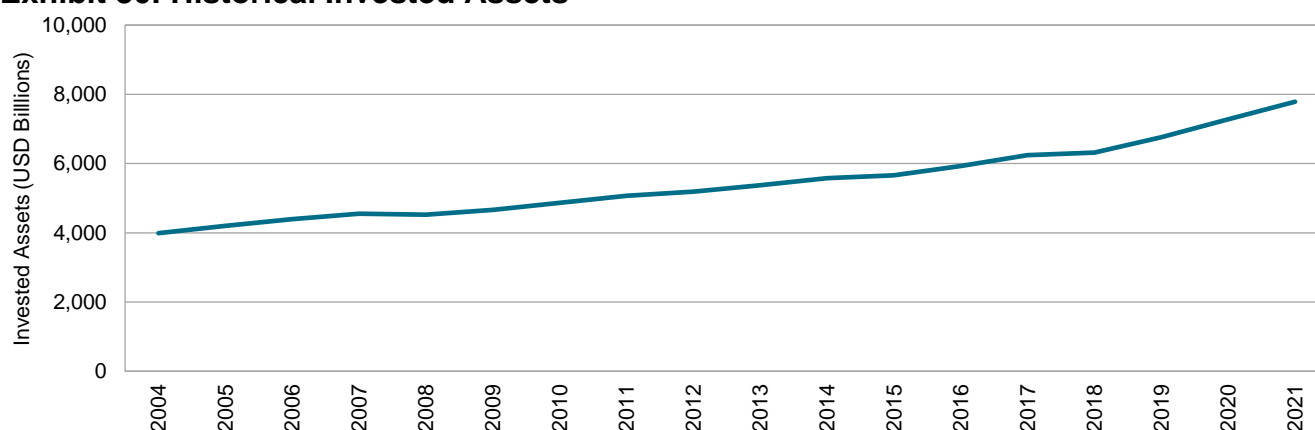
It is possible that some companies had not filed their financials, or that the NAIC had not reported these to SPGMI, or that the data had not made it into the SPGMI database by April 14, 2022. To test for completeness, we compared the reported invested assets⁵ of the 7,793 companies in 2021 versus 2020. Of the 7,793 companies, 3,179 had a status of “Historical”; thus, we would not expect these companies to have assets reported in 2021. Of the remaining 4,614 companies, only 74 had assets reported in 2020 but not in 2021. In terms of invested assets, this represented only 0.10% of 2020 invested assets (see Exhibit 85).

Exhibit 85: Companies without Filing Data

Type of Company	Number of Companies	Invested Assets (%)
P&C	25	0.04
Life	6	0.04
Health	43	1.56
Total	74	0.10

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Table is provided for illustrative purposes.

As of December 2021, the U.S. insurance industry had USD 7.8 trillion in invested assets (see Exhibit 86).

Exhibit 86: Historical Invested Assets

Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

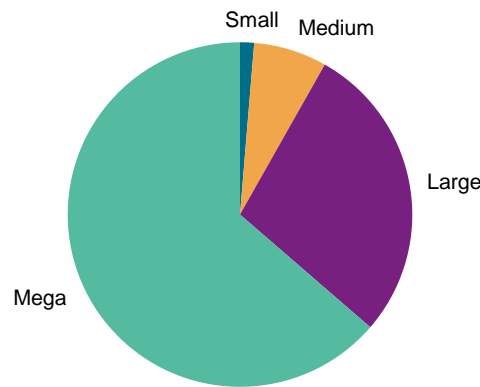
⁵ Invested assets refer to net admitted cash and invested assets, reported on Page 2, Line 12 of the annual statement.

We segregated companies by size, based on their invested assets as of Dec. 31, 2021.

- Small: Invested assets < USD 500 million
- Medium: USD 500 million ≤ invested assets < USD 5 billion
- Large: USD 5 billion ≤ invested assets < USD 50 billion
- Mega: Invested assets ≥ 50 billion

Historically, invested assets were concentrated in Mega companies. As of 2020, Mega companies represented 64% of all the industry’s invested assets (see Exhibit 87).

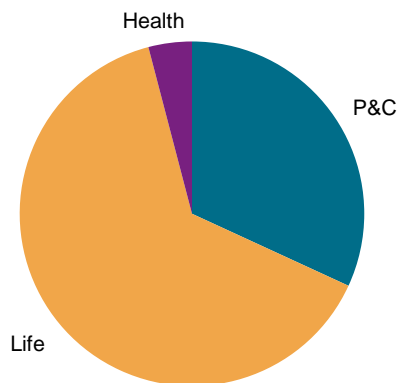
Exhibit 87: Invested Assets by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Life companies represented approximately 66% of all invested assets in the insurance industry (see Exhibit 88).

Exhibit 88: Invested Assets by Company Type



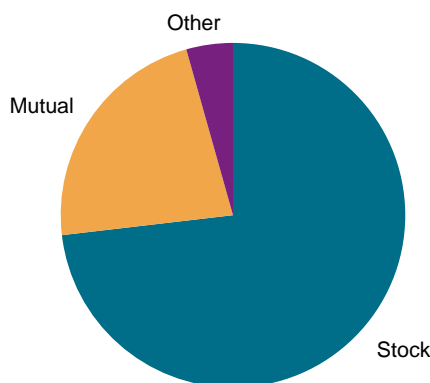
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

SPGMI classified the ownership of each company in 12 different ways, which we condensed into three ownership structures.

- Stock: Stock companies
- Mutual: Mutual companies
- Other: BC/BS Not for Profit, BC/BS Stock, Limited Liability Corporation, Lloyd’s Organization, Non Profit, Reciprocal Exchange, Risk Retention Group, Syndicate, U.S. Branch of Alien Insurer and Other

Stock companies held the vast majority of invested assets, with Mutual companies holding just 21% of invested assets (see Exhibit 89).

Exhibit 89: Invested Assets by Company Ownership Structure



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

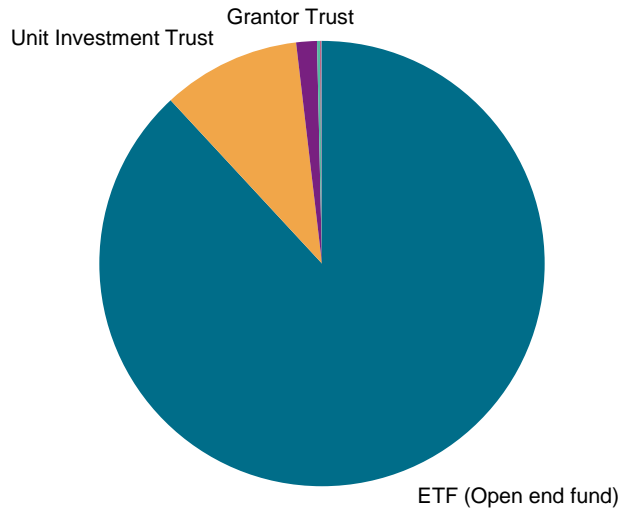
Appendix 1.2: CFRA ETF Data

We used CFRA ETF Data (CFRA) as the source of ETF data in this analysis. We used the categorization labels developed by CFRA in this analysis. For example, we used CFRA’s definition of Smart Beta. We also relied on CFRA to classify every Smart Beta ETF. We assume consistency and completeness of the data provided by CFRA.

For year-end 2021, CFRA provided us with a list of 2,991 funds. We note that insurance companies do not invest in a vast majority of these funds. While we refer to these funds as ETFs, the funds have varying legal structures. The vast majority of the funds in the list are open-ended ETFs. However, a few large funds have a Unit Investment Trust or Grantor Trust. The remaining legal structures, including semi-transparent ETFs, do not represent a material

amount of assets (see Exhibit 90). For this reason, we do not analyze ETF usage by legal structure and refer to all these funds as ETFs.⁶

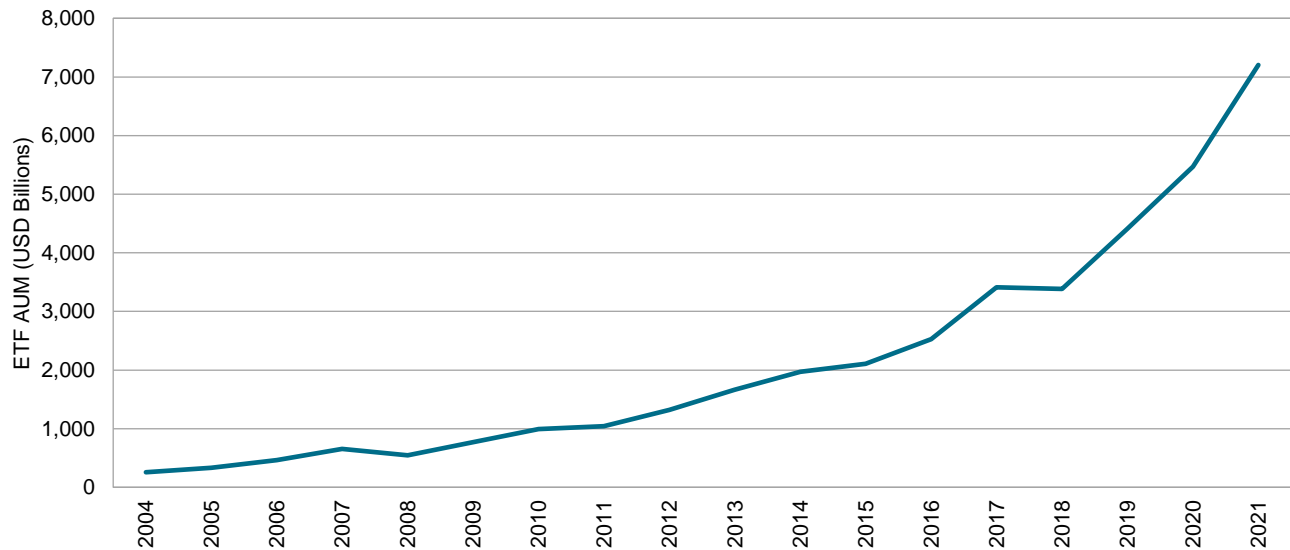
Exhibit 90: ETF AUM by Legal Structure



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In 2021, ETF AUM exceeded USD 7 trillion (see Exhibit 91). Over the past 10 years, ETF AUM increased at an annualized rate of 21% (see Exhibit 92).

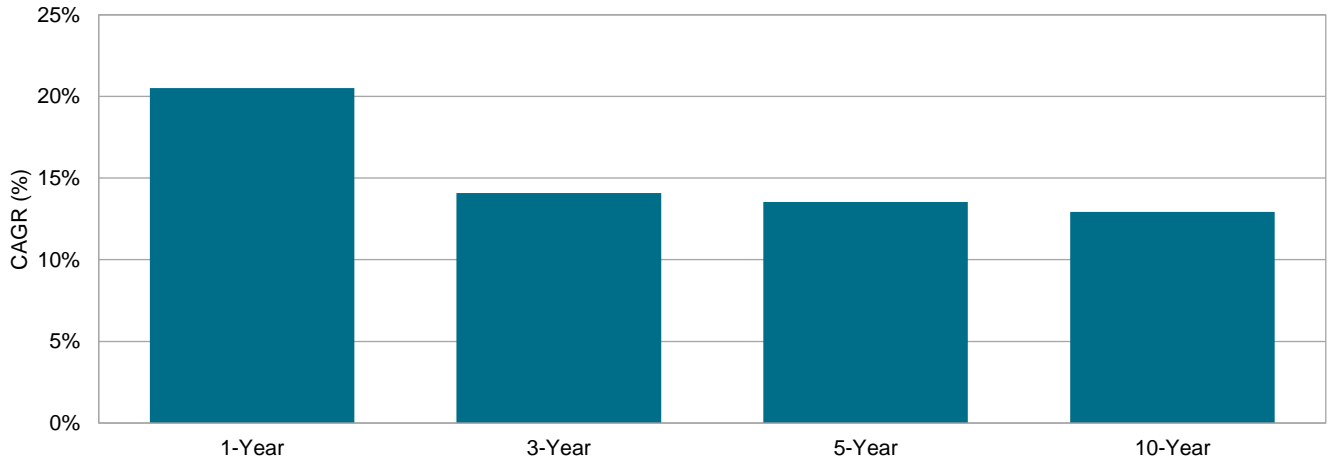
Exhibit 91: ETF AUM Growth



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

⁶ Our analysis excludes exchange-traded notes.

Exhibit 92: CAGR of ETF AUM



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

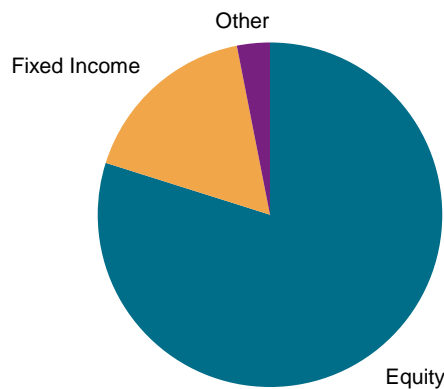
Often CFRA classified ETFs in more granular detail than was needed for this analysis. In these instances, we combined fields to make our analysis more meaningful.

For example, the CFRA field of asset class contained six different categories. We collapsed these into three.

- Equity: Equities
- Fixed Income: Bonds
- Other: Commodities & Metals, Currency, Target Date/Multi Asset and Other Asset types

The vast majority of U.S. ETFs are Equity ETFs. Fixed Income ETFs grew considerably in recent years and comprised 17% of the ETF market as of year-end 2021 (see Exhibit 93).

Exhibit 93: ETF AUM by Asset Class



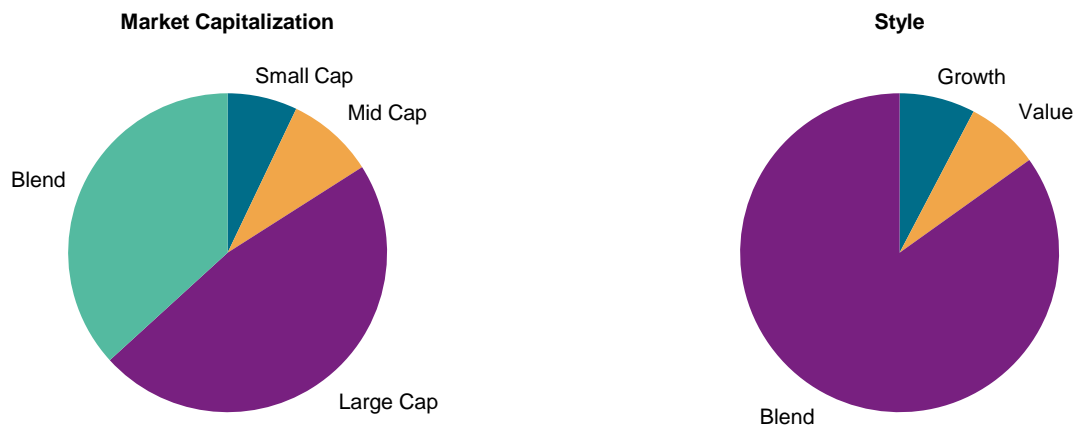
Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

CFRA segregated Equity ETFs into eight buckets by market capitalization. We consolidated these into four buckets.

- Blend: Broad Market/Multi Cap
- Large Cap: Large Cap and Mega Cap
- Mid Cap: Mid Cap, Large & Mid Cap and Small & Mid Cap
- Small Cap: Small Cap and Micro Cap

Large Cap ETFs had the most assets, with Blend ETFs closely behind. In terms of style, Blend ETFs had the highest allocation (see Exhibit 94).

Exhibit 94: Equity ETF AUM Market Capitalization and Style



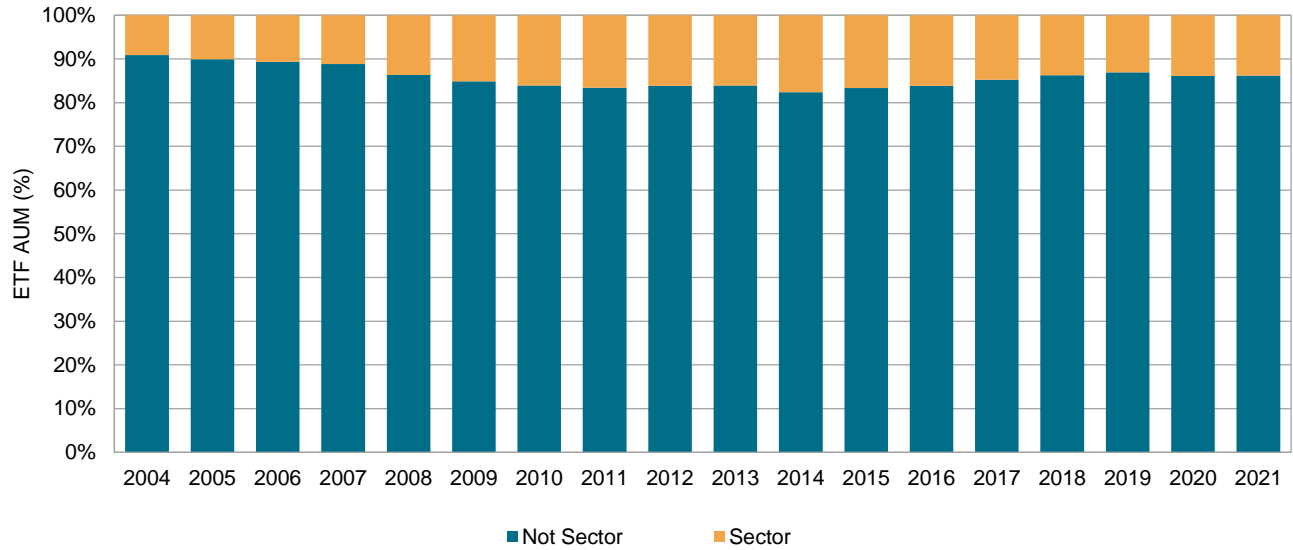
Source: CFRA. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

CFRA classified individual sector fields for Equity ETFs. CFRA also identified whether an ETF was not sector specific or rotated through different sectors. Using this field, we identified whether an Equity ETF was a Sector ETF or not.

- Not Sector: Not Applicable, Sector Rotation/Combination
- Sector: All Other

While the AUM in Sector ETFs increased in 2021 by 37% as a percentage of all Equity ETFs, Sector ETF shares have remained consistent for nearly a decade (see Exhibit 95).

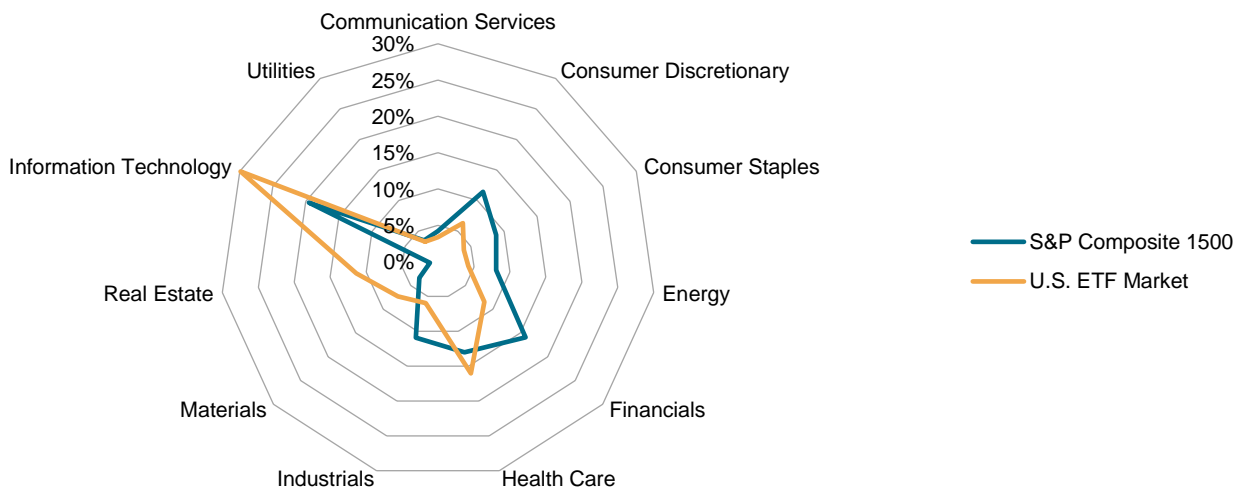
Exhibit 95: Equity ETF AUM by Sector Status



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

We compared the ETF market allocation to various sectors relative to the sector allocation within the S&P Composite 1500 and noted that ETF investors did not replicate the sector weights of the broader U.S. market (see Exhibit 96).

Exhibit 96: Equity ETF Sector Allocation versus S&P Composite 1500 Sector Allocation



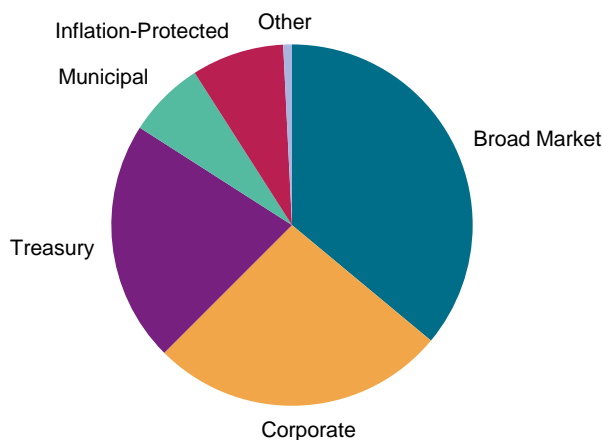
Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

CFRA classified Fixed Income ETFs into eight types. We narrowed this into the following six bond types.

- Broad Market: Broad Market
- Corporate: Corporate
- Treasury: Treasury & Government
- Municipal: Municipal
- Inflation-Protected: Inflation Protected
- Other: Convertible, Mortgages and Not Applicable

Broad Market ETFs had the largest allocation. However, all types showed increases in ETF AUM in 2021, with Inflation-Protected ETFs increasing by 67% in 2021 (see Exhibit 97).

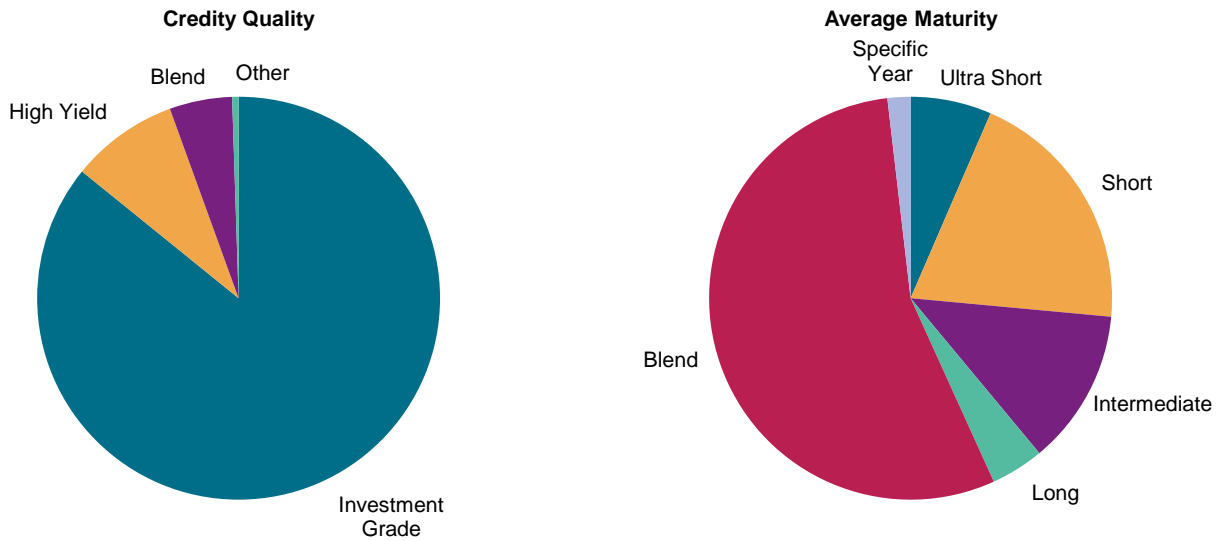
Exhibit 97: Fixed Income ETF AUM by Bond Type



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

In terms of credit quality, CFRA classified Fixed Income ETFs as Investment Grade, High Yield, Blend or Not Applicable. Investment Grade ETFs comprised the majority of Fixed Income ETFs. In terms of average maturity, CFRA classified Fixed Income ETFs into six buckets: < 1 Year, 1-3 Years, 3-10 Years, 10+ Years, Blend and Specific Year. We labeled these duration buckets Ultra Short, Short, Intermediate and Long, respectively. The majority of Fixed Income ETFs had a Blend maturity (see Exhibit 98).

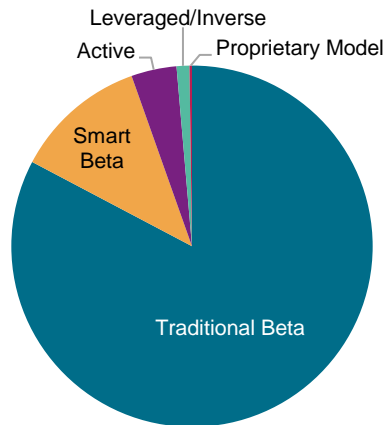
Exhibit 98: Fixed Income ETF AUM by Credit Quality and Average Maturity



Source: CFRA. Data as of Dec. 31, 2021. Charts are provided for illustrative purposes.

Most ETF AUM and shares had market capitalization weights. Index providers and ETF sponsors have created new indices and ETFs that have different weighting methodologies. CFRA classified portfolio weighting in six ways: Traditional Beta, Smart Beta, Active Beta, Leveraged/Inverse and Proprietary Model.⁷ The vast majority of U.S. ETFs used Traditional Beta, or market-capitalization weighting. Investors allocated a little over 11% to Smart Beta ETFs (see Exhibit 99). We also note the increased use of Active Beta ETFs, which increased by 69% in 2021.

Exhibit 99: ETF AUM by Beta Type



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

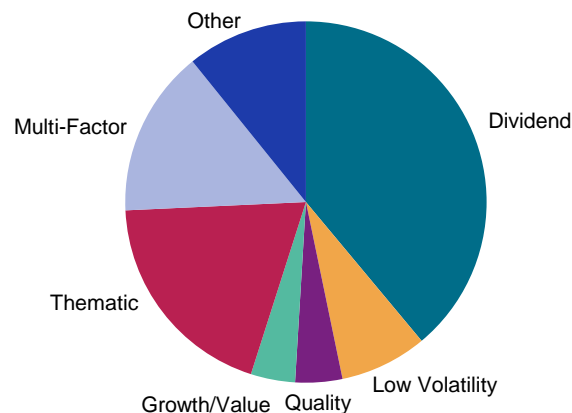
⁷ See detailed descriptions of Smart Beta at First Bridge: <https://www.cfraresearch.com/our-solutions/etf-data-analytics/>.

Of those ETFs classified as Smart Beta, 97% were Equity ETFs. For these ETFs, First Bridge had 15 classifications of Smart Beta factors. We condensed these into the following seven factors.

- Dividend: Dividend
- Low Volatility: Low Volatility
- Multi-Factor: Multi-Factor
- Thematic: Thematic
- Low Volatility: VIX/Risk Control
- Growth/Value: Factor Weighted Growth/Value, Cap Weighted Growth/Value,
- Other: Hedge Fund Replication, High/Low Beta, Options Overlay, Revenue Weighted, Strategy, Quality, Momentum and Equal Weighted

Dividend ETFs were the most prevalent. However, in the past three years, Thematic ETFs have increased substantially (see Exhibit 100).

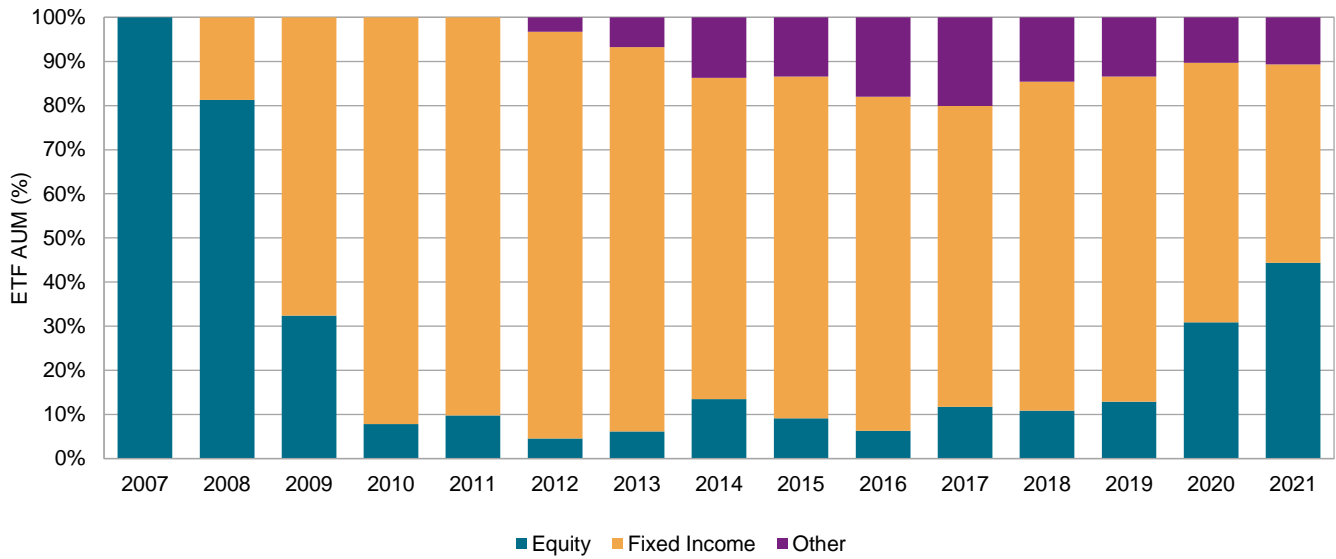
Exhibit 100: Equity ETF AUM by Smart Beta Factor



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Approximately 4% of all U.S. ETFs were Active Beta ETFs; Active Beta ETFs have increased at 67% per year for the past 10 years. Historically, most of the Active Beta ETFs were Fixed Income. However, use of Active Beta Equity ETFs increased rapidly in the past two years and is now roughly on par with Active Beta Fixed Income ETFs (see Exhibit 101).

Exhibit 101: Active ETFs by Asset Class



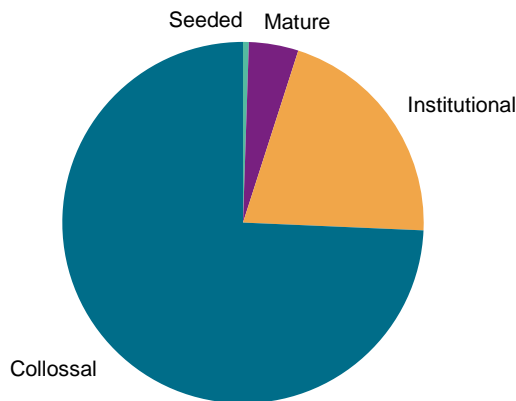
Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

We classified the size of the ETF in four different ways by amount of AUM.

- Seeded: AUM < USD 100 million
- Mature: USD 100 million <= AUM < USD 1 billion
- Institutional: USD 1 billion <= AUM < USD 10 billion
- Colossal: AUM >= USD 10 billion

Investors invested a little over 74% of the AUM in Colossal ETFs (see Exhibit 102).

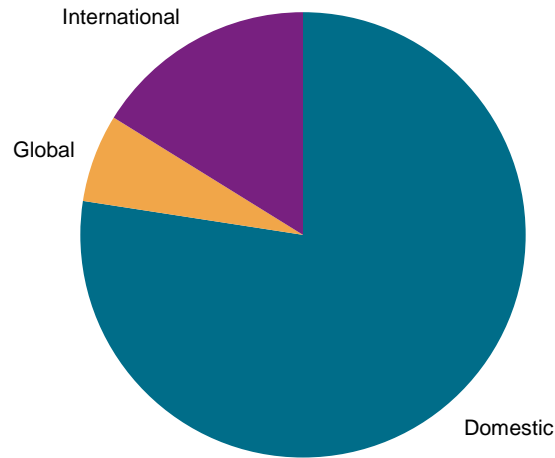
Exhibit 102: ETF AUM by ETF Size



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

The U.S. ETF market invested mostly in the Domestic ETF market (see Exhibit 103). Equity investments resembled overall ETF market, but Fixed Income ETFs contained a domestic bias. International funds were mostly Equity, while Global funds had a large Other component.

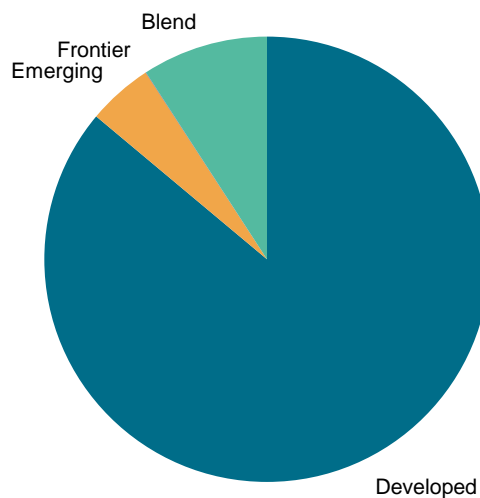
Exhibit 103: ETF AUM by Region



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

By development status, most ETF investment was in Developed Markets. Investors were twice as likely to invest in Blend funds than strictly in Emerging Markets funds (see Exhibit 104).

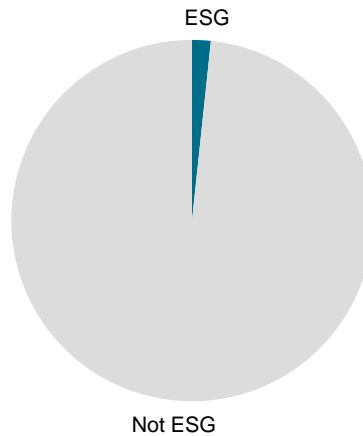
Exhibit 104: ETF AUM by Development Status



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

While the amount invested in ESG ETFs increased by 67% in 2021, these funds represented only 1.7% of all ETFs (see Exhibit 105).

Exhibit 105: ESG ETFs



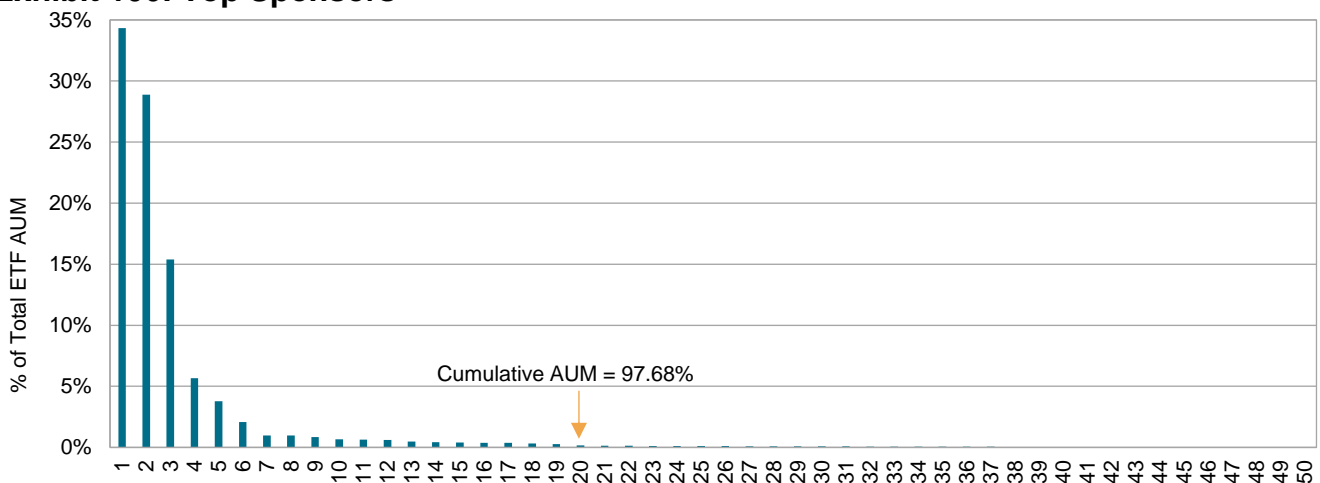
Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Appendix 1.3: Data Extraction Methodology

The NAIC Schedule D filings do not identify which securities are ETFs. Further, the statutory filings do not have consistency in reporting ETF names or CUSIPS. Therefore, we have developed a methodology to extract ETF data from Schedule D filings.

We first create a list of top 20 ETF sponsors. Then, we query Schedule D for any asset description that contains the name of these sponsors. This methodology will miss ETFs held by insurance companies issued by a sponsor not in the top 20. As of 2021, the top 20 sponsors accounted for 97.68% of U.S. ETF AUM (see Exhibit 106).

Exhibit 106: Top Sponsors



Source: CFRA. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

To capture some of the missing sponsors, we appended this list with any security that had “ETF” in its asset description. The methodology would also miss a holding if the filings did not follow a consistent naming convention.

For all holdings that pass these filters, we extracted both a ticker and a CUSIP number. Using CFRA data, we matched both the ticker and CUSIP number against the CFRA list. We automatically included in the analysis any security that matched both fields. Often a ticker, or CUSIP number, or both will change for an ETF. However, this is not updated in insurance holdings in a timely manner. If one field matched the CFRA list, then we manually reviewed to see if we should include the security in the analysis. We excluded from the analysis any security that did not match either the CUSIP number or ticker.

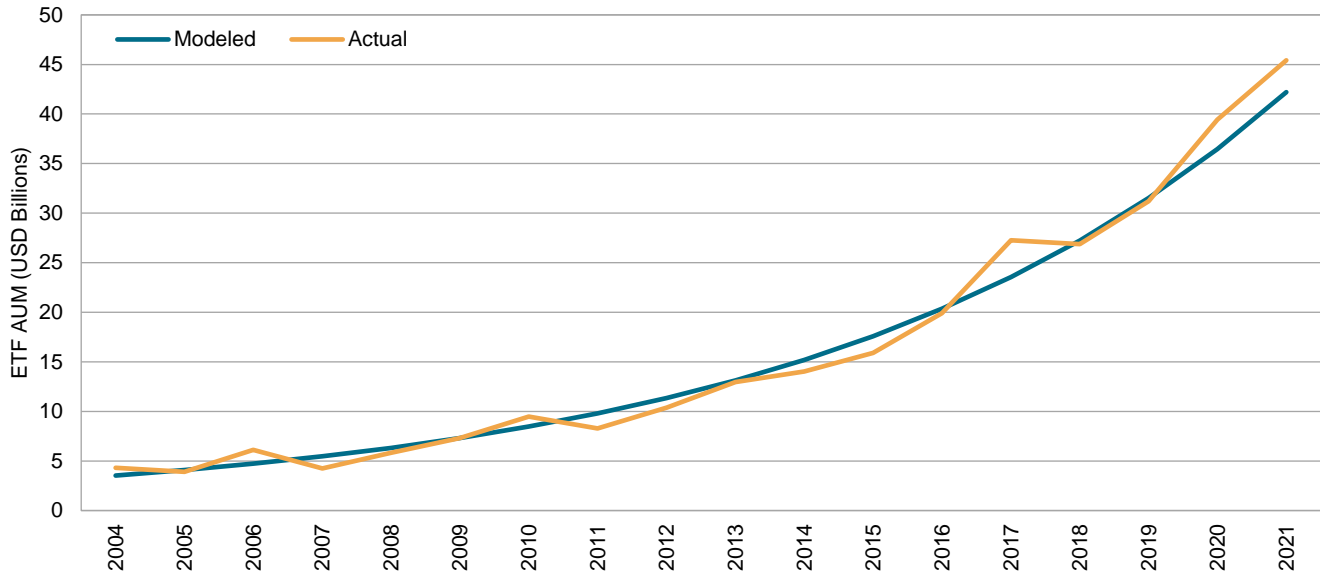
In order to publish this paper in a timely manner, we extracted the data from the SPGMI data base in April 2022. However, as noted above, some of the data remains incomplete. When we began the analysis for this year, the data was updated. Therefore, the 2020 values in this report will vary from the 2020 values reported in the 2021 study.⁸

⁸ See Ramachandran, Raghu. [“Revisiting ETF Usage in Insurance General Accounts.”](#) Indexology® Blog. April 21, 2022.

Appendix 2: Linear Regression

To model the growth of ETF AUM, we applied a linear regression to the data (see Exhibit 107).

Exhibit 107: Linear Regression of ln(ETF AUM)



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2021. Chart is provided for illustrative purposes.

Based on the data, the following equation described the trend of ETF AUM as a function of the year.

$$\ln(\text{ETF AUM}) = 0.1460 \times \text{Year} - 270.5725$$

This model has a coefficient of determination of 97.36%. The coefficient of determination explains how well the model represents the actual results. The value can range from 0% to 100%. A value of 0% implies that the independent variable (year) cannot explain the dependent variable. A value of 100% implies the model explains the dependent variable exactly. Using this model, we estimated future AUM, assuming the growth continues according to historical trend.

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