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ETFs in Insurance General Accounts – 2017

INTRODUCTION

Insurance companies have invested in exchange traded funds (ETFs) since 2004. In 2016, companies have continued to increase their investment in ETFs, both in terms of absolute amount and as a proportion of the general account assets. In this paper, we analyze the use of ETFs by insurance companies in their general accounts.

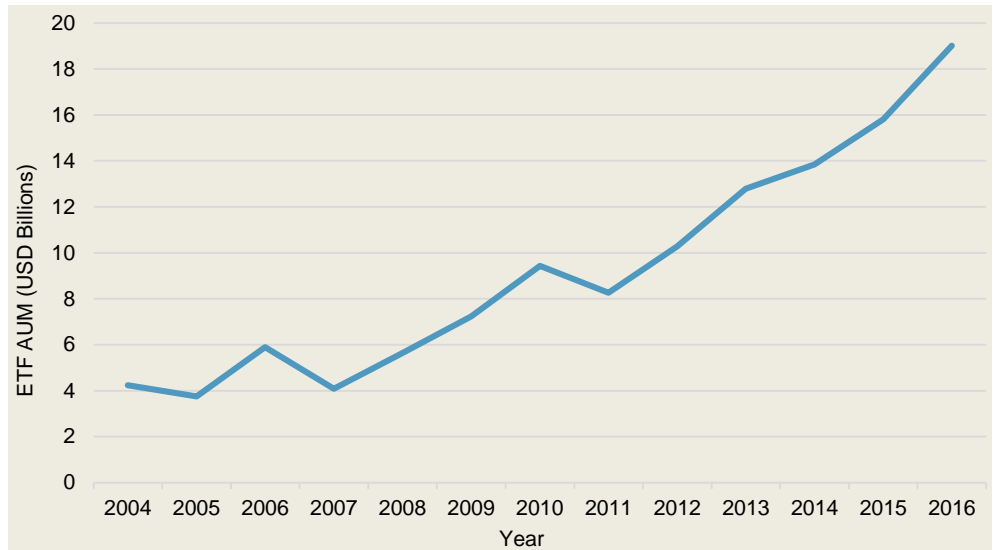
The National Association of Insurance Commissioners (NAIC) requires all U.S. insurance companies to file an annual statement with state regulators. This filing includes a detailed holdings list of all securities held by insurance companies. S&P Global Market Intelligence (SPGMI) compiles this data from the NAIC and makes it available in a usable format. We used this database to extract all insurance ETF holdings, both current and historical. In addition, First Bridge, an ETF data & analytics company, provides a list of U.S. ETFs as well as characteristics of each ETF—such as asset class, equity strategy, fixed income credit quality, etc. We combine First Bridge classification information with the statutory filing data to gain insight into how insurance companies use ETFs.¹

OVERVIEW

Insurance companies continue to increase their use of ETFs. As of year-end 2016, insurance companies had, in their general account, USD 19 billion invested in ETFs.

¹ See Appendix 1

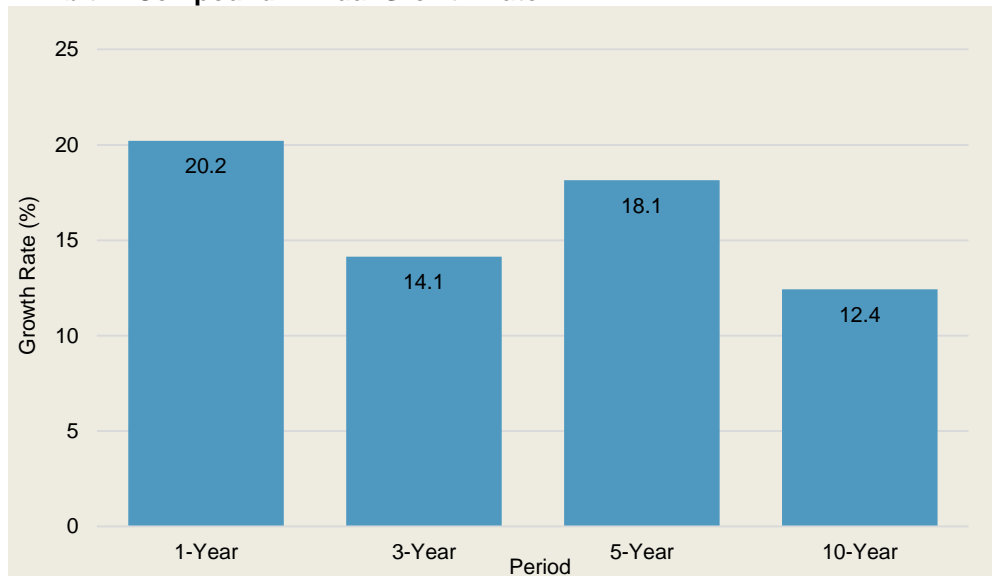
Exhibit 1: ETF AUM



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

While this USD 19 billion only represents a small fraction of the USD 2.5 trillion in U.S. ETF assets and an even smaller fraction of the USD 6 trillion in general account assets, the use of ETFs by insurance companies has shown a consistent and substantial growth over the past 12 years. In 2016, the amount invested in ETFs by insurance companies increased by 20% from the prior year. Moreover, ETF usage has shown a double-digit compound annual growth rate (CAGR) over the last 3-, 5-, and 10-year periods.

Exhibit 2: Compound Annual Growth Rate



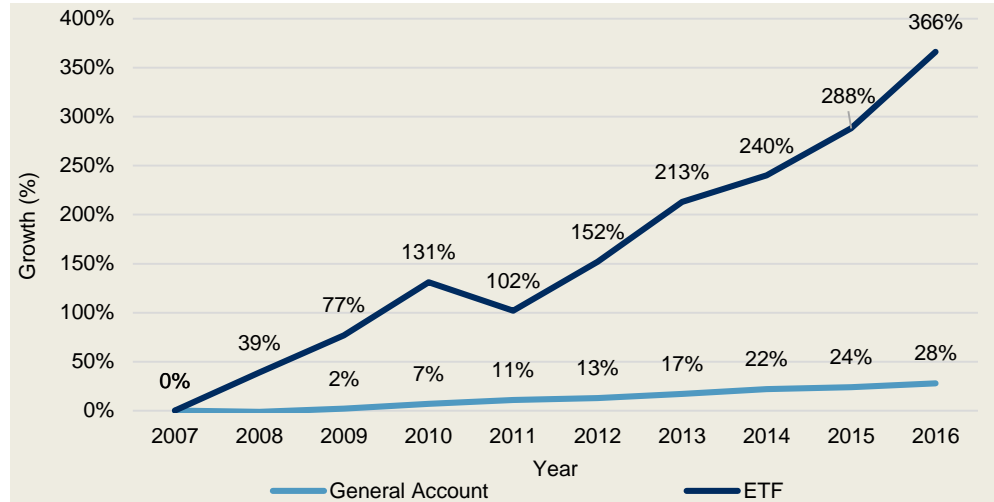
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

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Since 2007, the growth in the use of ETFs has greatly outpaced the growth in total general account assets.²

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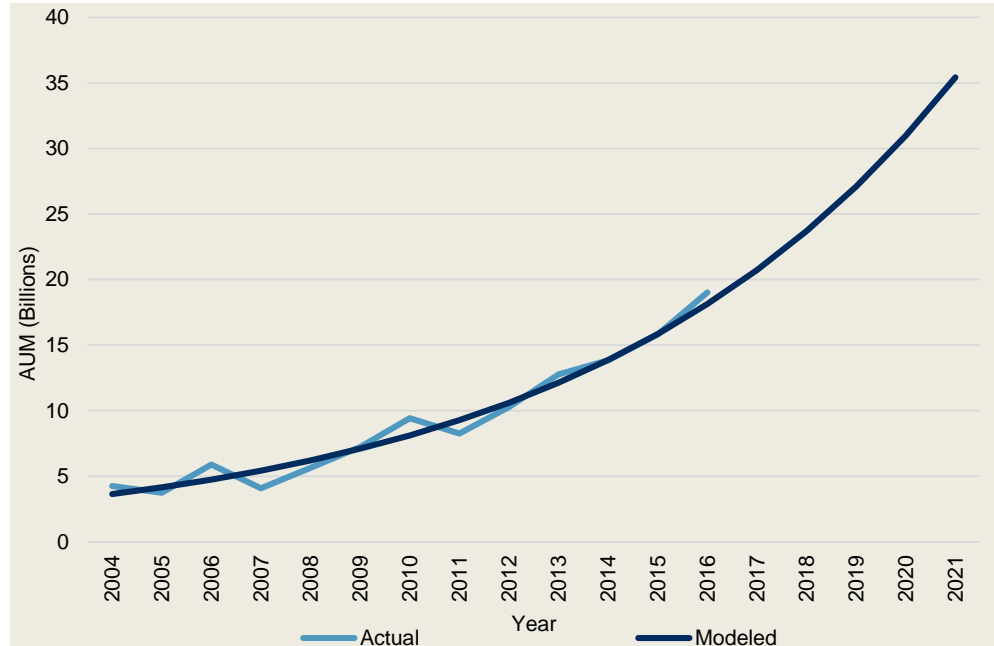
Exhibit 3: Historical Growth of General Account and ETF Assets



Source: NAIC via S&P Global Market Intelligence, Cerulli Associates. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

To model the historical growth of ETF assets, we used linear regression to fit log assets under management (AUM).³ This regression is designed to accurately model the growth of ETF assets.

Exhibit 4: Actual and Modeled Growth



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

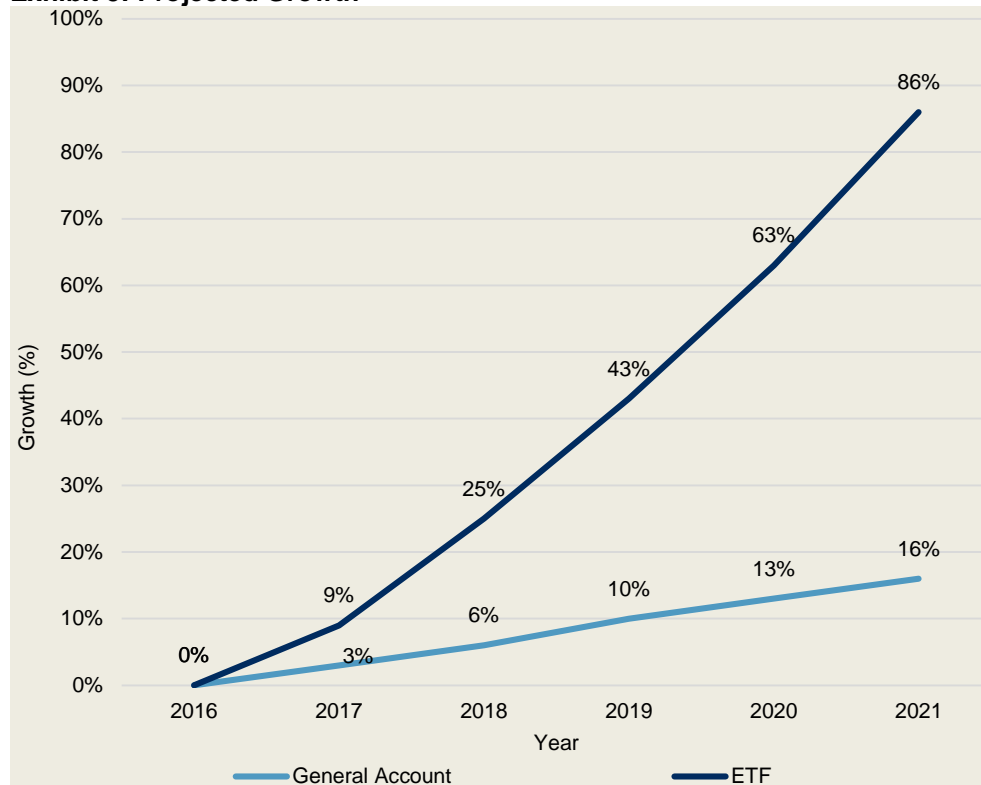
² “U.S. Insurance Asset Pools 2016: Meeting the Needs of the U.S. Insurance Industry,” Cerulli Associates, Nov. 14, 2016, p. 48

³ See Appendix 2

We then used the regression model to estimate the trended growth of ETFs. If insurance companies continue to increase their use of ETFs according to the trend, the use of ETFs by insurance companies will increase by 86% in five years, while general account assets, per Cerulli,⁴ will only increase by 16% over the same period.

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Exhibit 5: Projected Growth

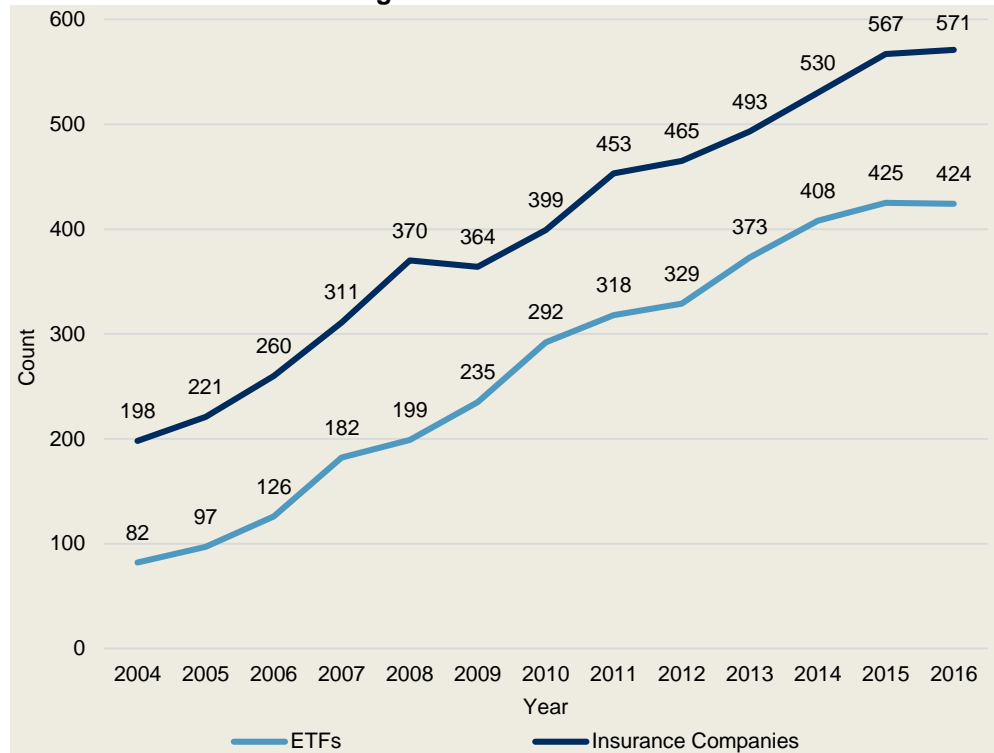


Source: NAIC via S&P Global Market Intelligence, Cerulli Associates. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Over the past 12 years, the number of ETFs used by insurance companies and the number of insurance companies using ETFs have steadily risen. As of 2016, 571 insurance companies had invested in 424 different ETFs (see Exhibit 6). Given that the SPGMI database had 1,986 insurance companies listed in 2016, approximately 30% of all insurance companies were invested in ETFs. The consistent increase in the number of ETFs used indicates a surprising diversification in fund selection, even though insurance companies tend to invest in relatively few asset classes.

⁴ Cerulli, *op.cit.*, p. 48

Exhibit 6: Growth in ETF Usage



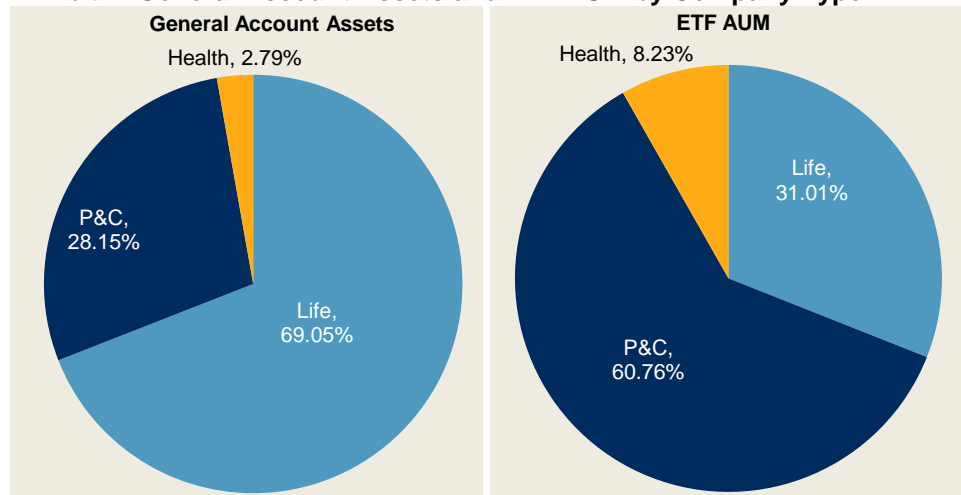
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

ANALYSIS BY COMPANY TYPE AND SIZE

In the insurance industry, Life insurance companies have 69% of all general account assets, but Property & Casualty (P&C) companies own the majority of the ETFs.

Exhibit 7: General Account Assets and ETF AUM by Company Type

Life insurance companies own 69% of all general account assets, but P&C companies own the majority of the ETFs.



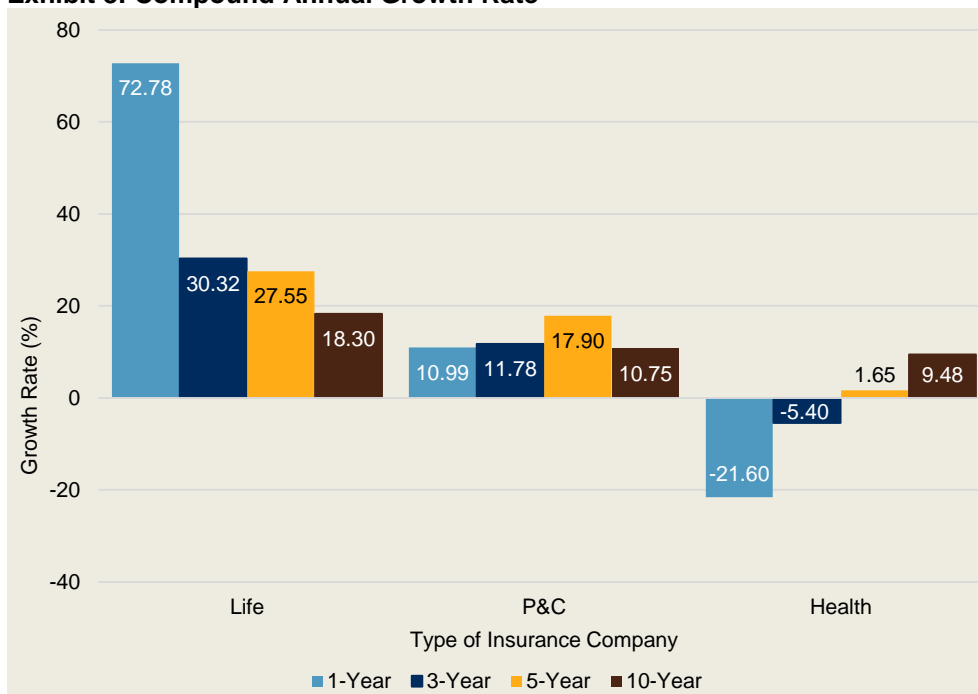
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

However, Life companies have shown rapid growth in the last year. The use of ETFs by Life companies has increased by 72% year-over-year

and by 27% per year for the last five years. Meanwhile, Health companies have reduced their ETF investments for the last three years.

Health companies have reduced their ETF investments for the last three years.

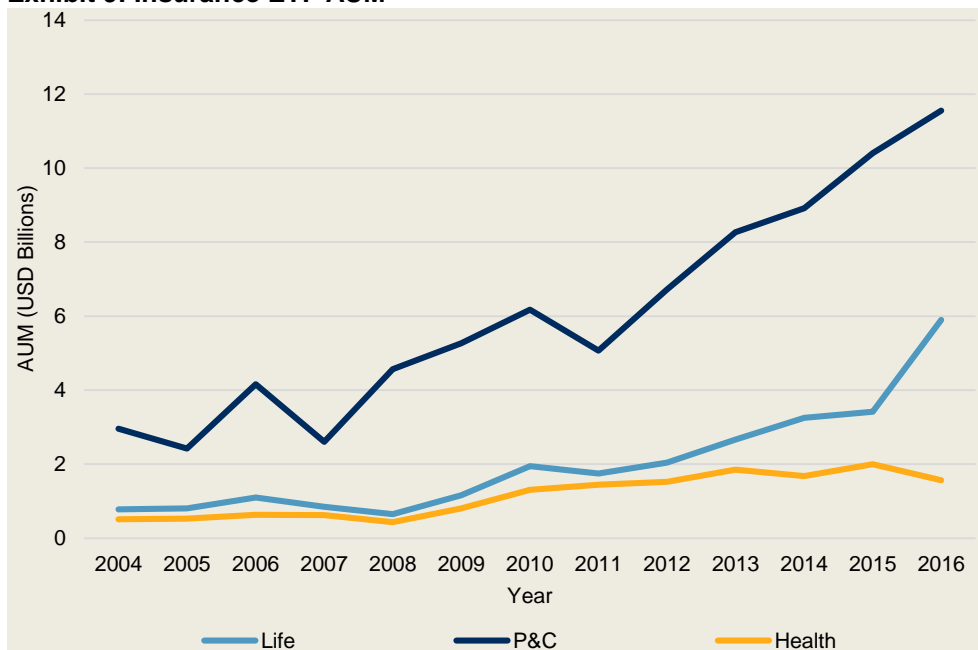
Exhibit 8: Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

P&C companies continue their decade-long low double-digit growth in ETF usage.

Exhibit 9: Insurance ETF AUM

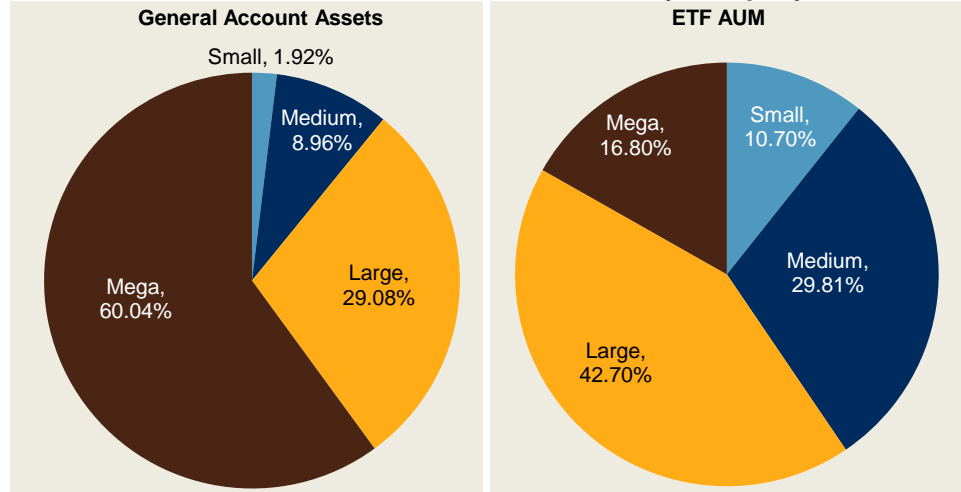


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

We also bucket insurance companies by size of general account assets. We define “Small” as companies with less than USD 500 million in general account assets, “Medium” as having between USD 500 million and USD 5 billion in general account assets, “Large” as having between USD 5 billion and USD 50 billion in general account assets, and “Mega” as having more than USD 50 billion in general account assets. Mega companies own most of the assets belonging to insurance companies, but they only own 16% of the ETFs held by insurance companies.

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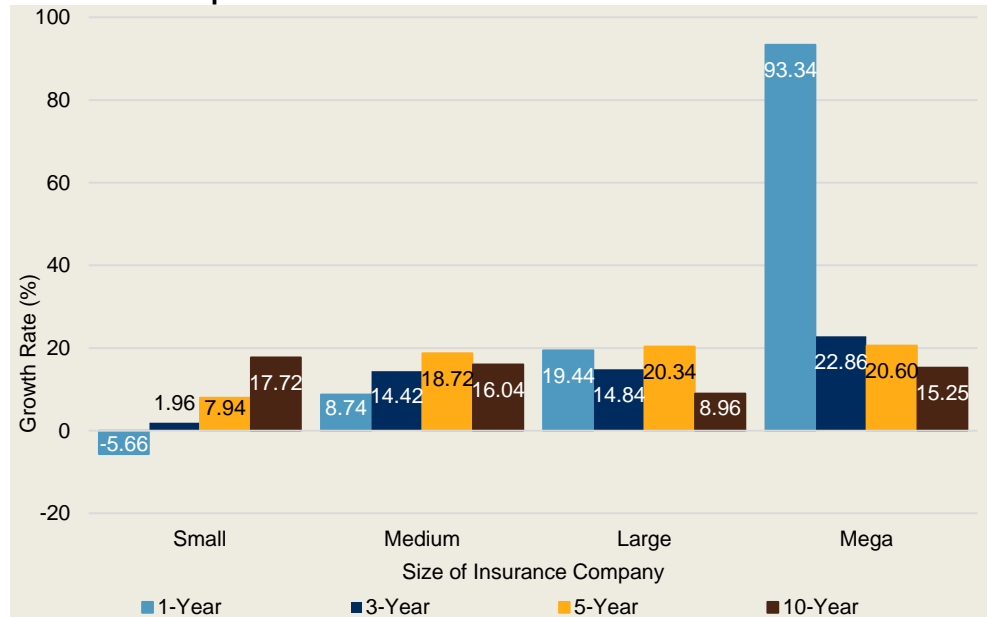
Exhibit 10: General Account Assets and ETF AUM by Company Size



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2017. Charts are provided for illustrative purposes.

However, Mega companies had the largest increase in ETF investments in 2016.

Exhibit 11: Compound Annual Growth Rate

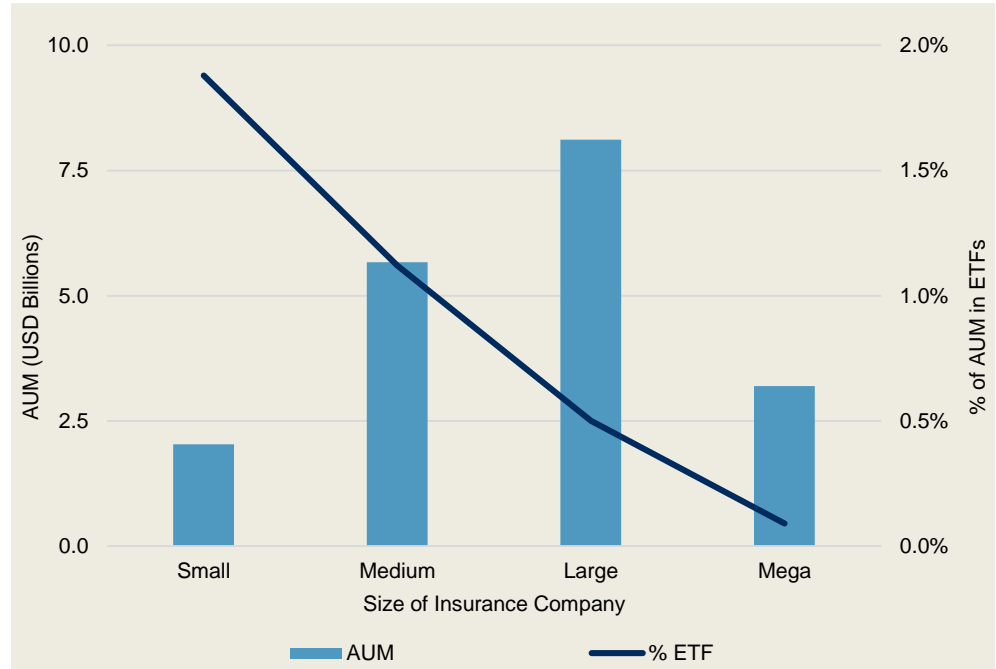


Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

As a percentage of general account assets, ETF investments by insurance companies decrease by size of the company.

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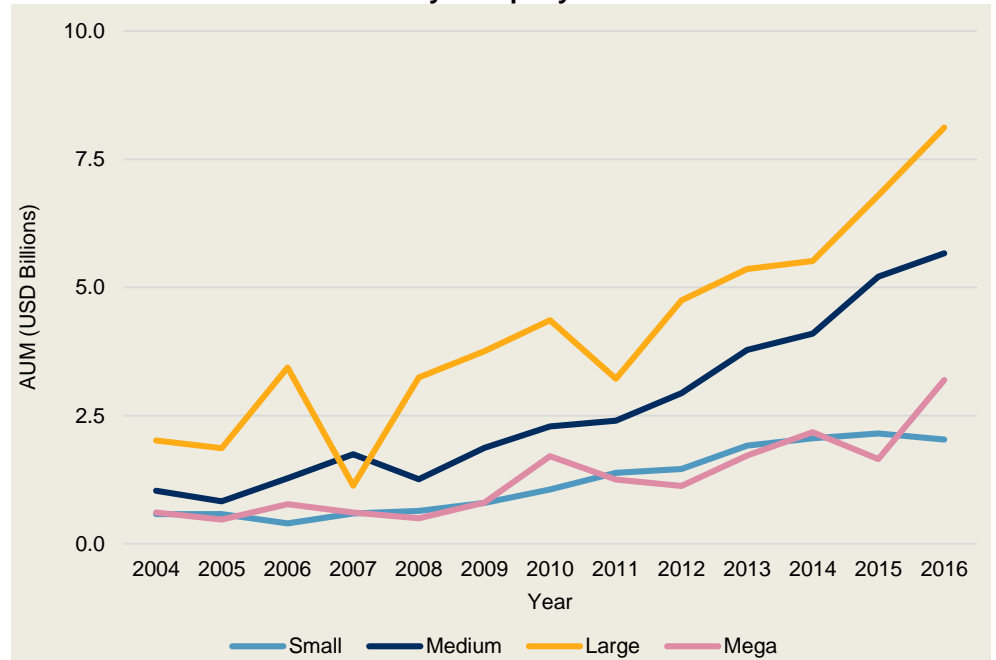
Exhibit 12: AUM and Percent of AUM in ETFs



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

However, Small insurance companies have reduced their ETF investments in 2016.

Exhibit 13: Insurance ETF AUM by Company Size



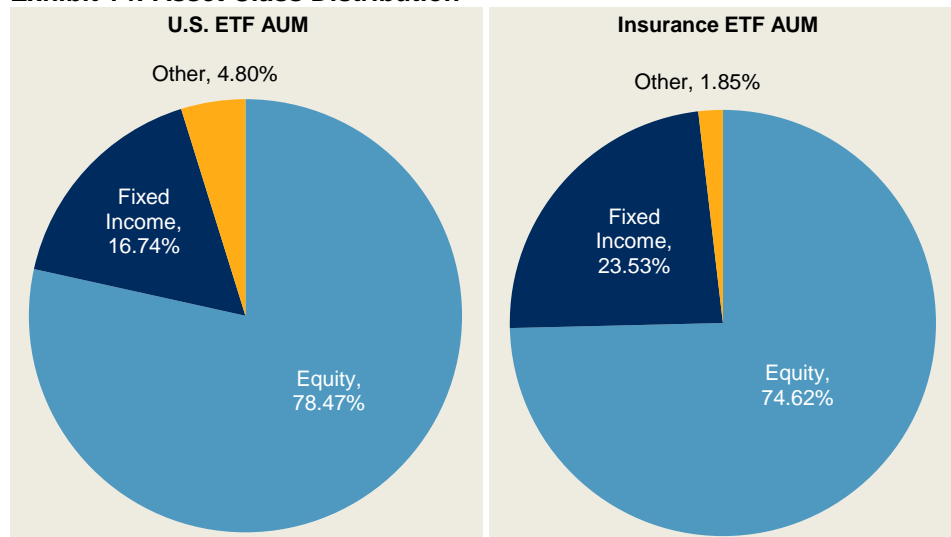
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

ANALYSIS BY ASSET CLASS

By asset class, the distributions of the USD 19 billion in insurance ETFs and the USD 2.55 trillion in U.S. ETFs have similar characteristics. Roughly three-fourths of the investments are in Equity ETFs, approximately 20% are in Fixed Income ETFs, and the remainder are in other asset classes.

Exhibit 14: Asset Class Distribution

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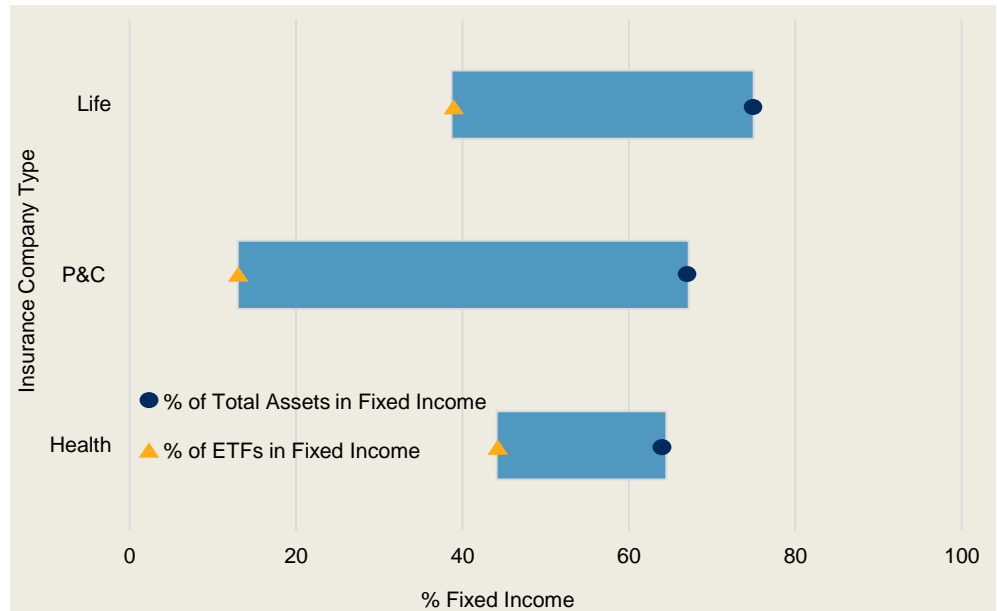


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Insurance companies invest more in Equity ETFs than Fixed Income ETFs, even though most of the assets held by insurance companies are in Fixed Income. Per Cerulli, insurance companies invest between two-thirds and three-fourths of their assets in Fixed Income.⁵ P&C companies have the largest gap between Fixed Income allocation in total Investments and Fixed Income allocation in ETF Investments while Health companies have the least difference. So, while insurance companies have an ETF profile similar to the overall U.S. ETF market, their ETF profile varies greatly from their own general account profile.

⁵ Cerulli, *op. cit.*, p.51

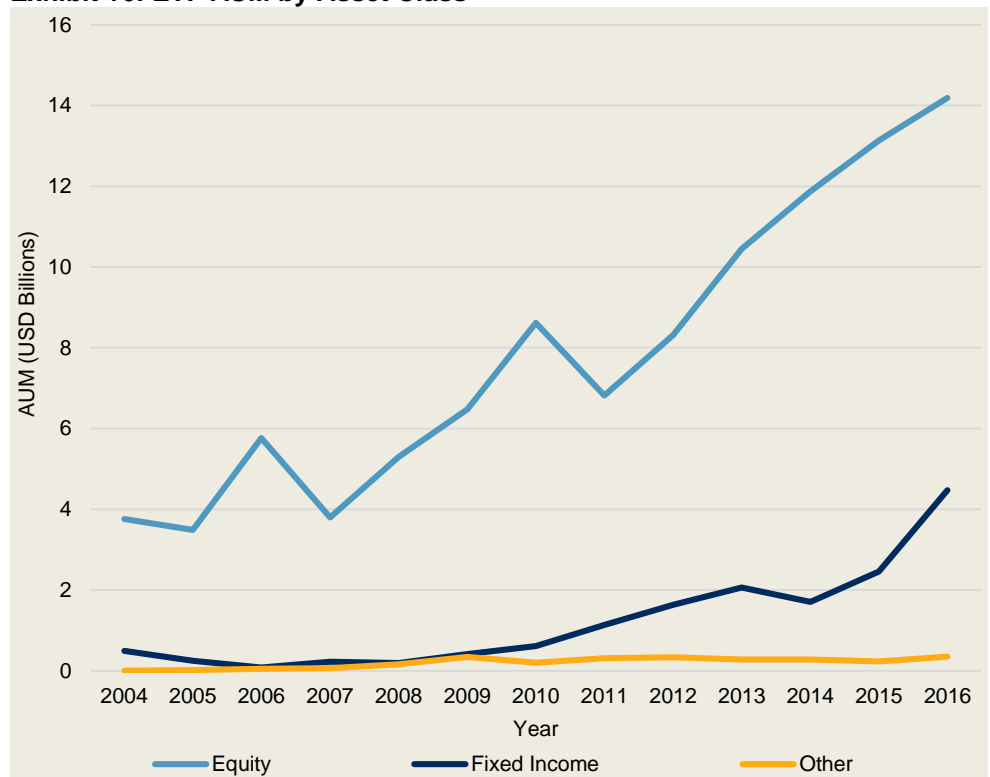
Exhibit 15: Fixed Income Allocation



Source: NAIC via S&P Global Market Intelligence, Cerulli Associates. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

In insurance, even though Equity ETFs have the most assets, Fixed Income ETFs have shown the fastest growth over all periods.

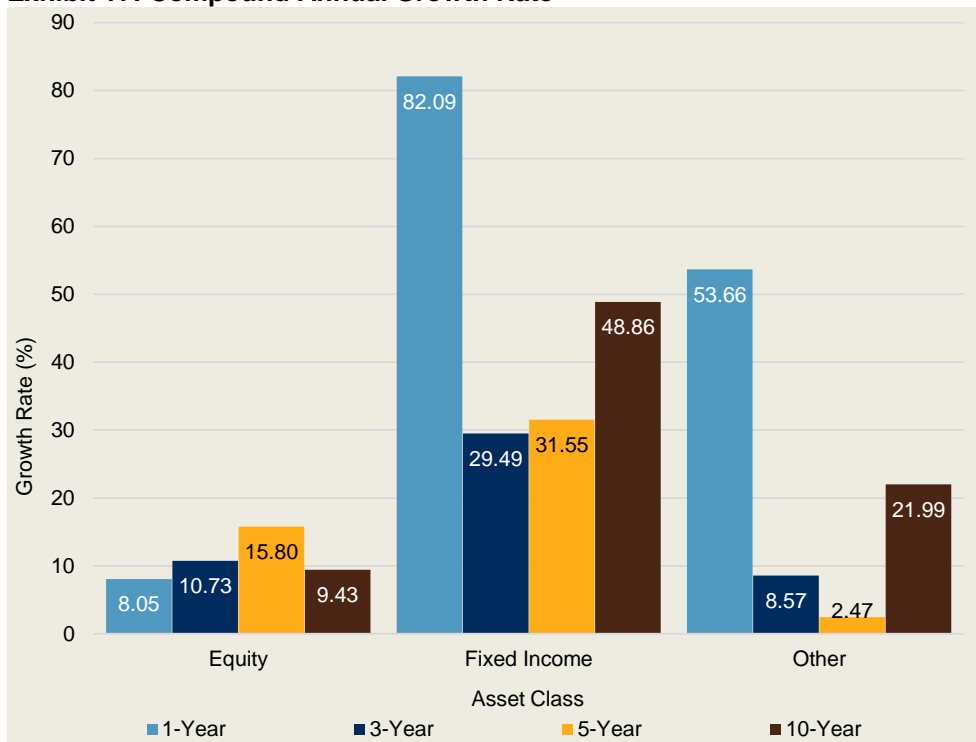
Exhibit 16: ETF AUM by Asset Class



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Insurance companies did not materially invest in Fixed Income ETFs until 2008, but the use of Fixed Income ETFs has increased in recent years.

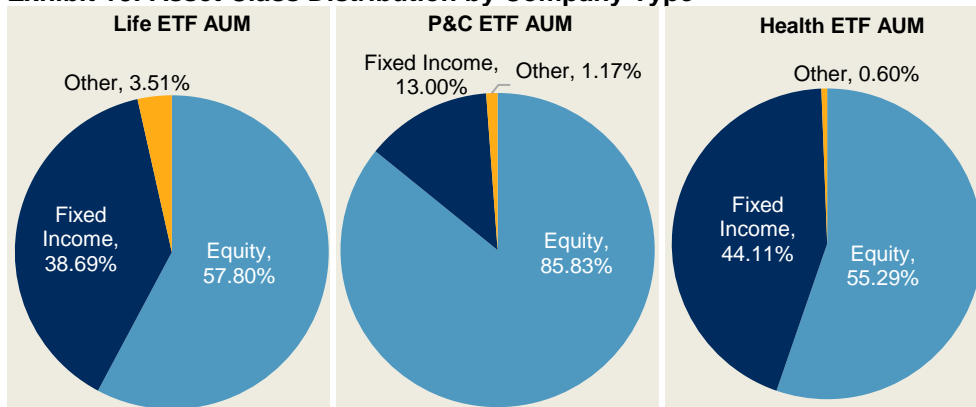
Exhibit 17: Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

P&C companies have the most invested in Equity ETFs. Small and Large companies also have the most invested in Equity ETFs, while Mega companies have the most invested in Fixed Income ETFs.

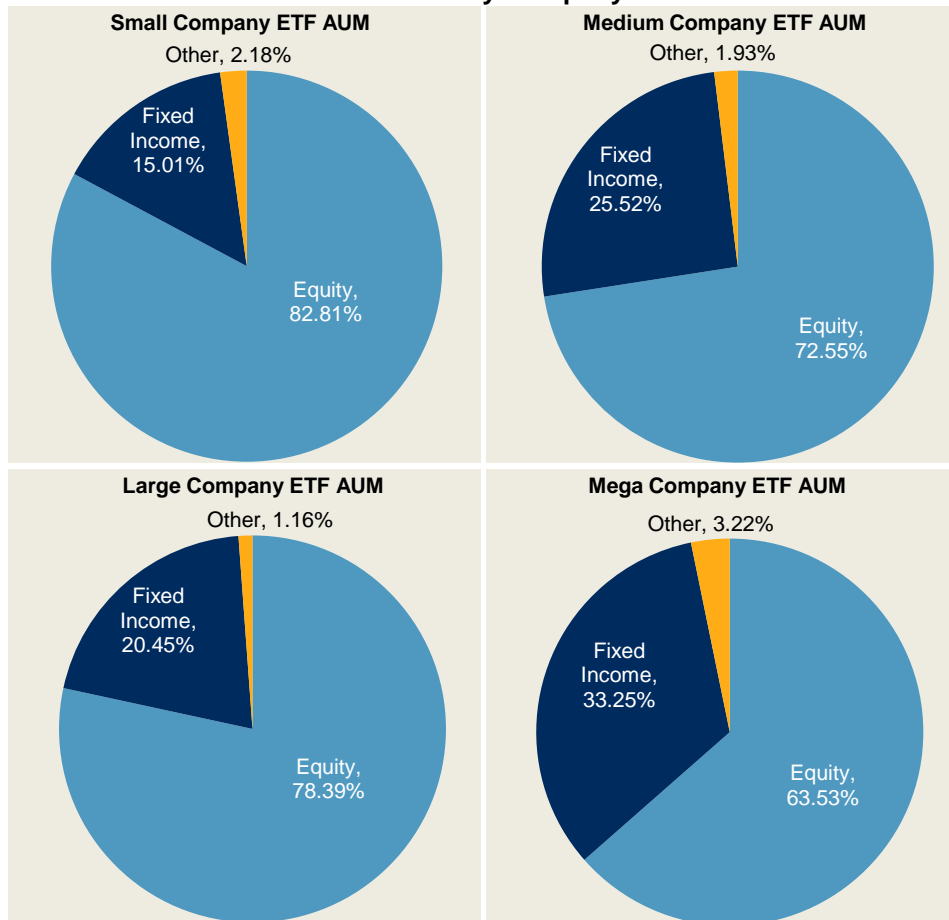
Exhibit 18: Asset Class Distribution by Company Type



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

P&C companies have the most invested in Equity ETFs.

Exhibit 19: Asset Class Distribution by Company Size

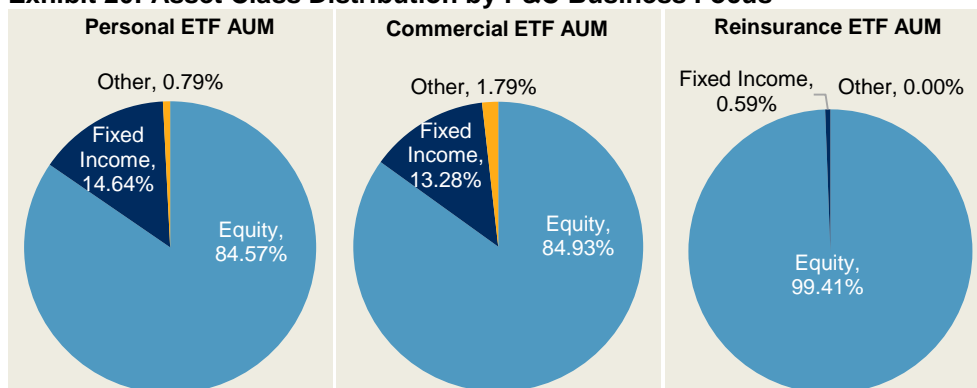


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Personal and Commercial P&C companies largely invest in ETFs in a similar fashion, but P&C companies focused on Reinsurance use Equity ETFs almost exclusively.⁶

Exhibit 20: Asset Class Distribution by P&C Business Focus

P&C companies focused on Reinsurance use Equity ETFs almost exclusively.



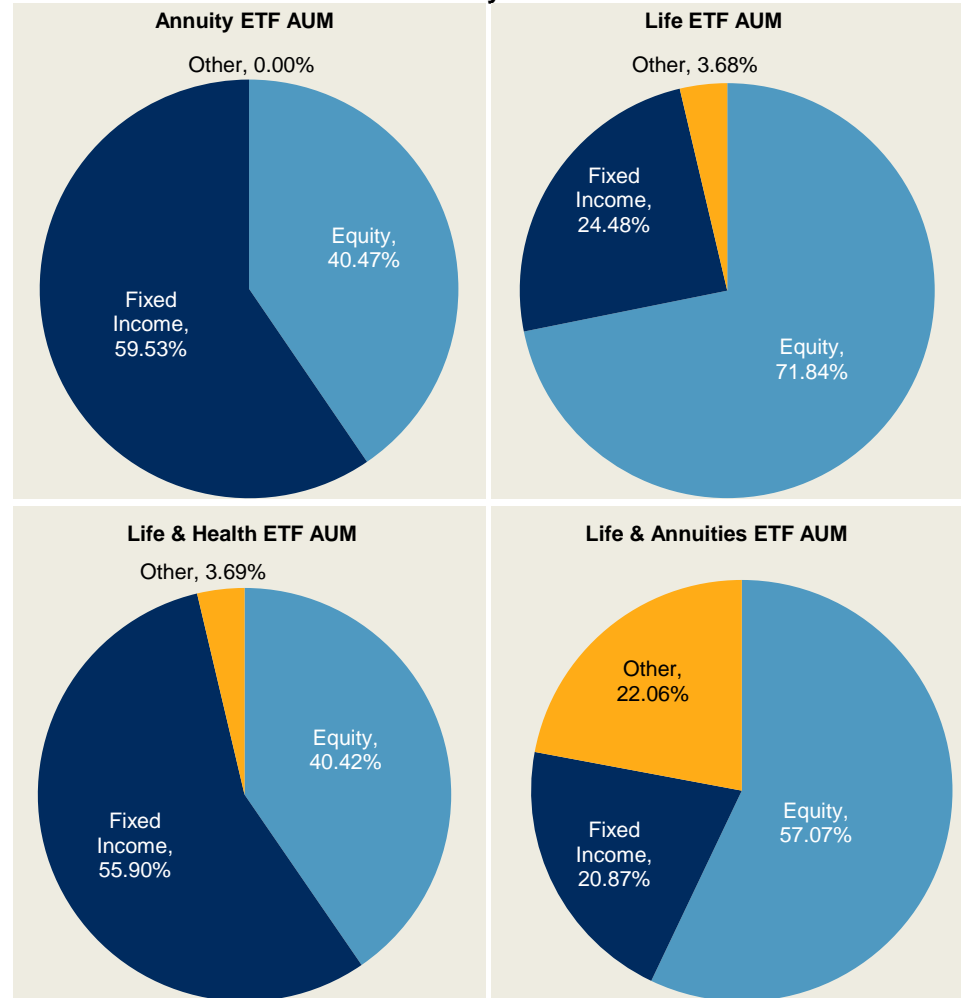
Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

⁶ See Appendix 1.2

In contrast, Life insurance companies have a greater diversity in ETF investments based on business focus. Annuity and Life & Health companies have more fixed income investments, while Life & Annuities-focused companies have a greater focus on other asset classes, such as commodities, metals, and currencies.

Life Insurance companies have a greater diversity in ETF investments based on business focus.

Exhibit 21: Asset Class Distribution by Health Insurance Business Focus

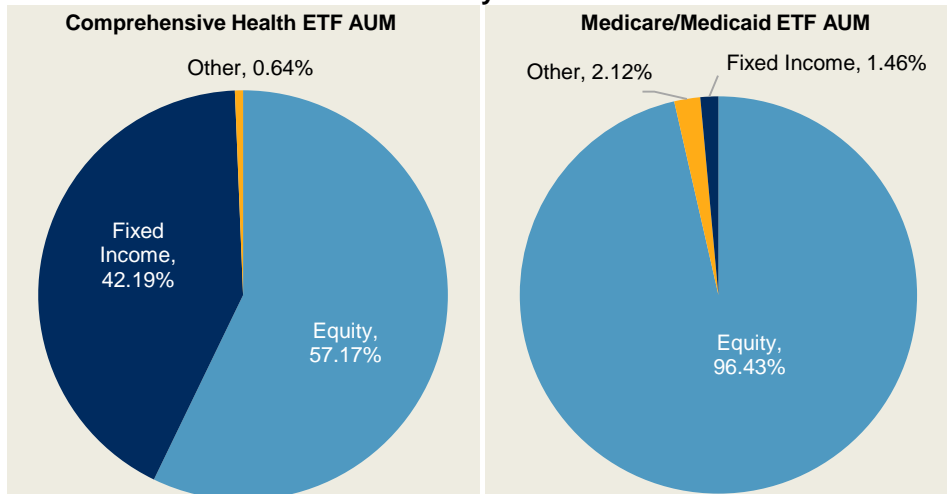


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Similarly, in Health insurance, Medicare/Medicaid companies almost exclusively use Equity ETFs, while comprehensive healthcare companies are more likely to use Fixed Income ETFs.

Comprehensive healthcare companies are more likely to use Fixed Income ETFs.

Exhibit 22: Asset Class Distribution by Health Insurance Business Focus



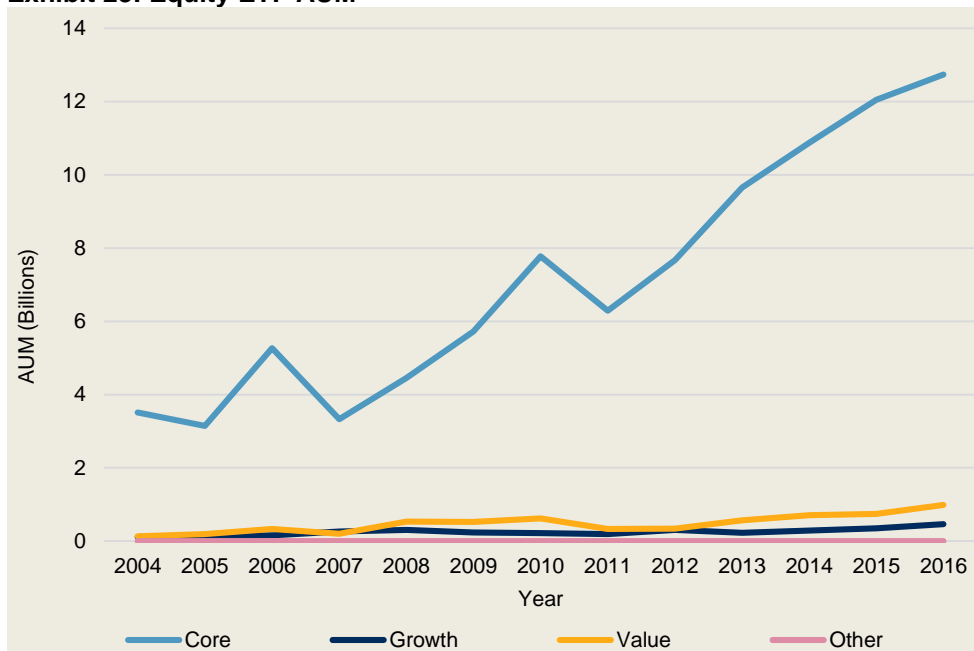
Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

ANALYSIS OF EQUITY ETFS

Considering just Equity ETFs, insurance companies mostly purchased Core Equity ETFs. While Growth and Value ETFs show higher growth rates, together they only comprise 10% of the total ETF allocation.

Insurance companies mostly purchased Core Equity ETFs.

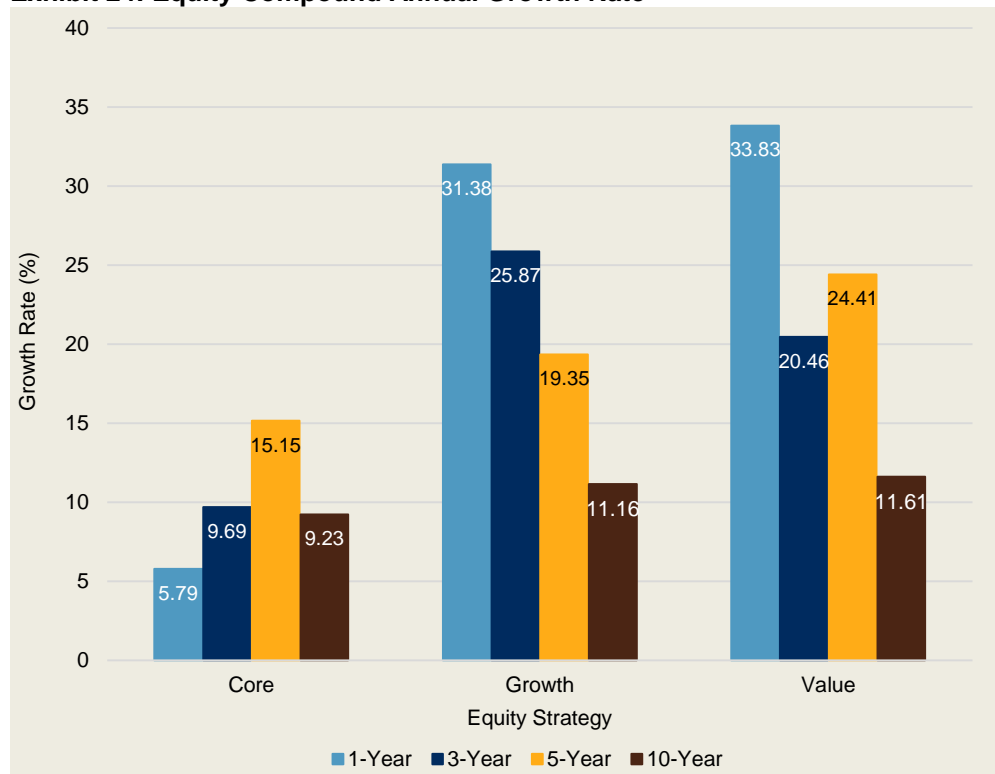
Exhibit 23: Equity ETF AUM



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

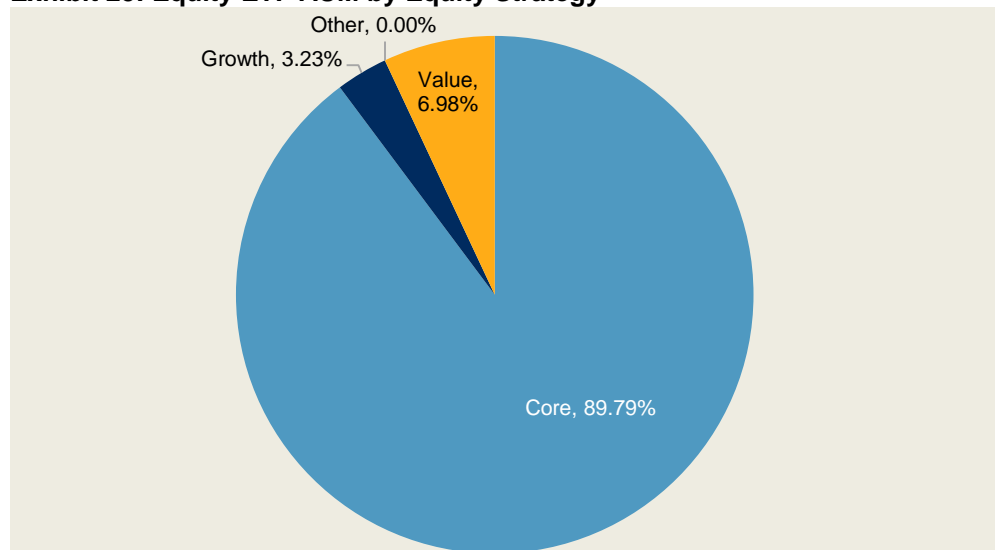
Growth & Value ETFs have shown higher proportional growth.

Exhibit 24: Equity Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Exhibit 25: Equity ETF AUM by Equity Strategy

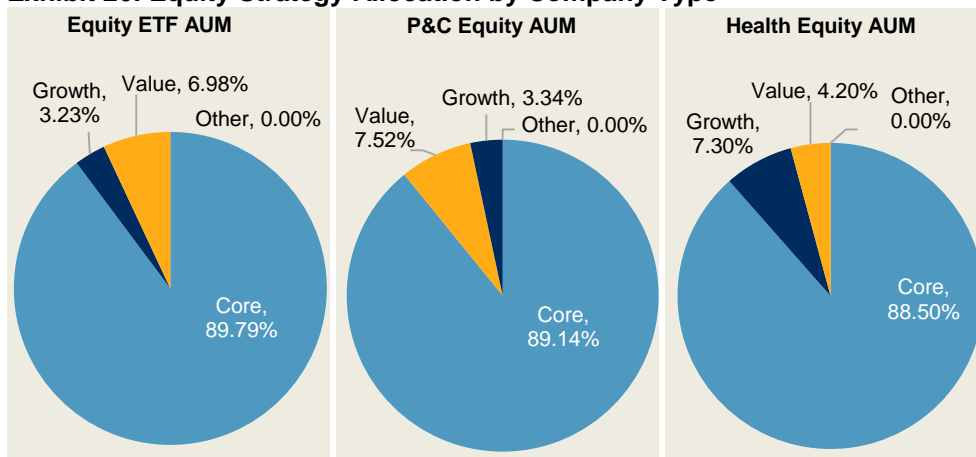


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

The allocation to Core Equity ETFs does not vary by insurance company type, but it does vary by company size. In ETFs, Mega insurance companies show low use of Value and Growth ETFs.

Exhibit 26: Equity Strategy Allocation by Company Type

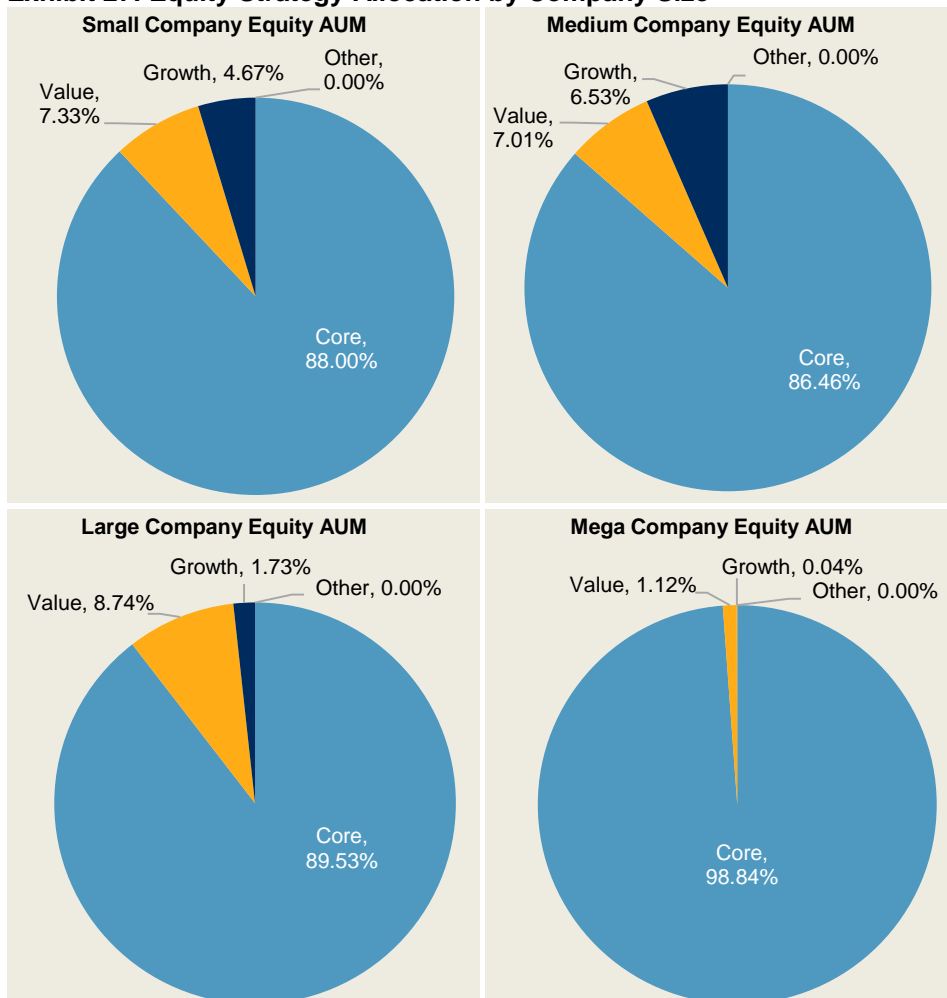
The allocation to Core Equity does not vary by insurance company type, but it does vary by size.



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Exhibit 27: Equity Strategy Allocation by Company Size

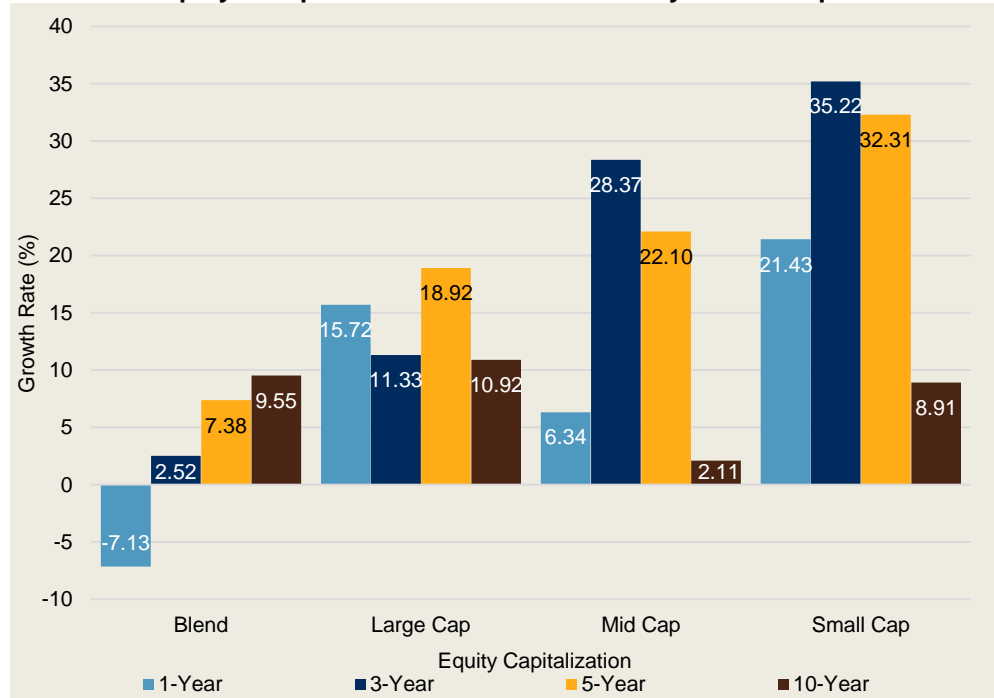
In ETFs, Mega insurance companies show low use of Value and Growth funds.



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

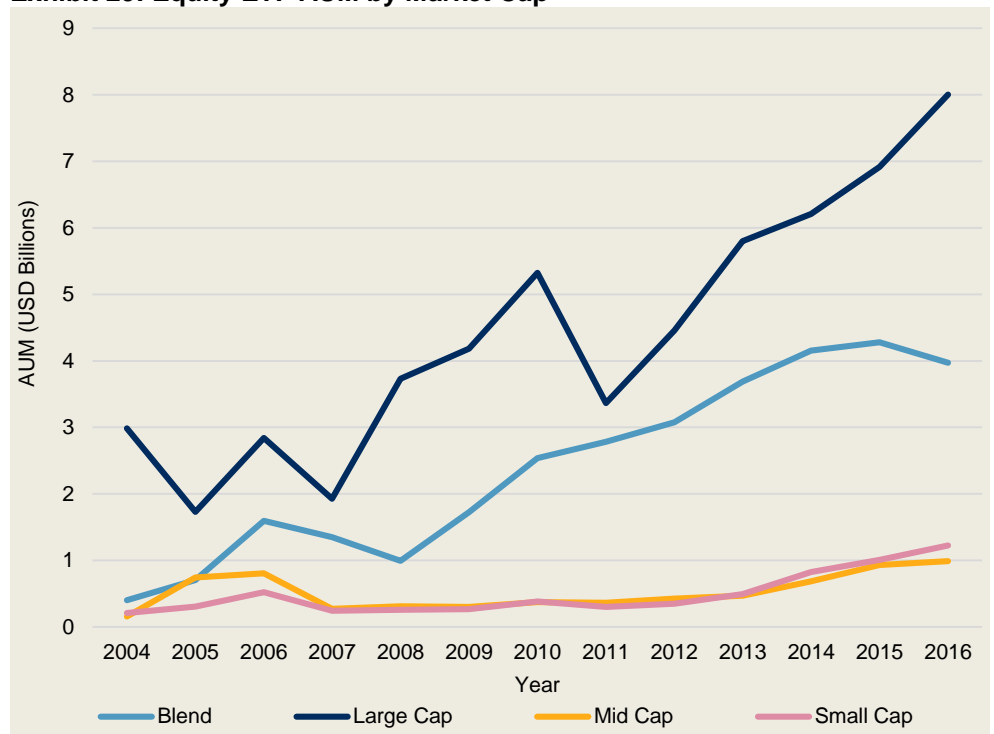
Large Cap Equities still dominate the insurance ETF market, but in recent years, Blended ETFs have given way slightly to Small Cap ETFs.

Exhibit 28: Equity Compound Annual Growth Rate by Market Cap



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

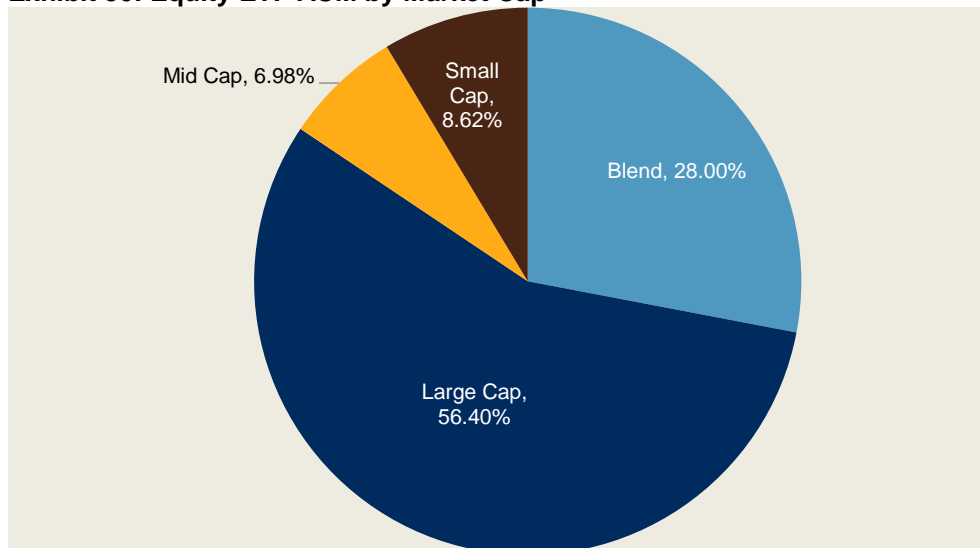
Exhibit 29: Equity ETF AUM by Market Cap



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

In recent years, Blended ETFs have given way slightly to Small Cap ETFs.

Exhibit 30: Equity ETF AUM by Market Cap

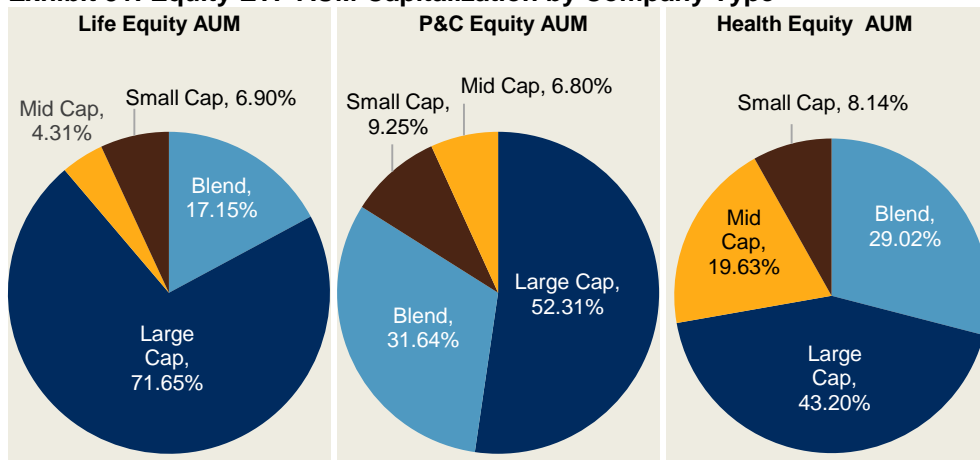


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

In using Equity ETFs, Life and P&C companies favor Large Cap ETFs, while Health companies use a wider variety of ETFs.

Exhibit 31: Equity ETF AUM Capitalization by Company Type

Life and P&C companies favor Large Cap ETFs.

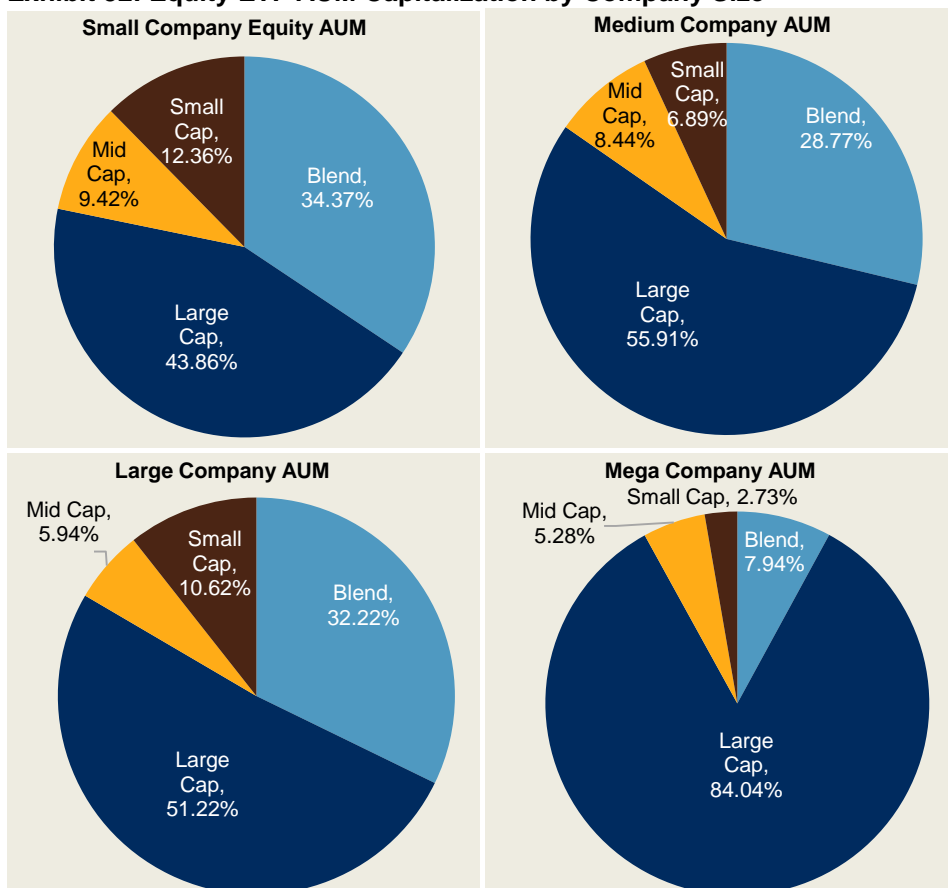


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

In terms of company size, most insurance companies have similar allocation to Equity capitalization, except that Mega insurance companies have a preference for Large Cap Equity ETFs.

Exhibit 32: Equity ETF AUM Capitalization by Company Size

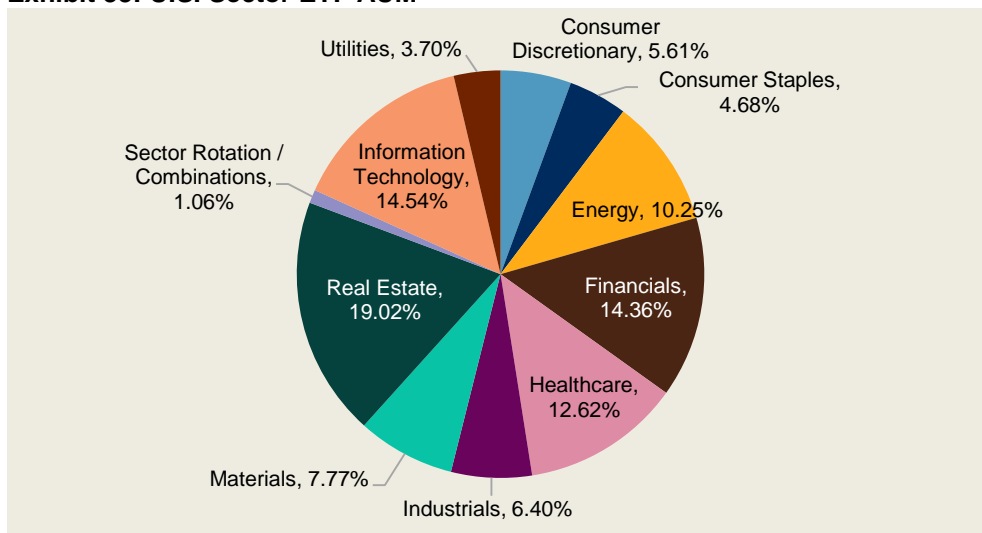
Mega insurance companies use mostly Large Cap Equity ETFs, while Small companies have greater diversification.



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

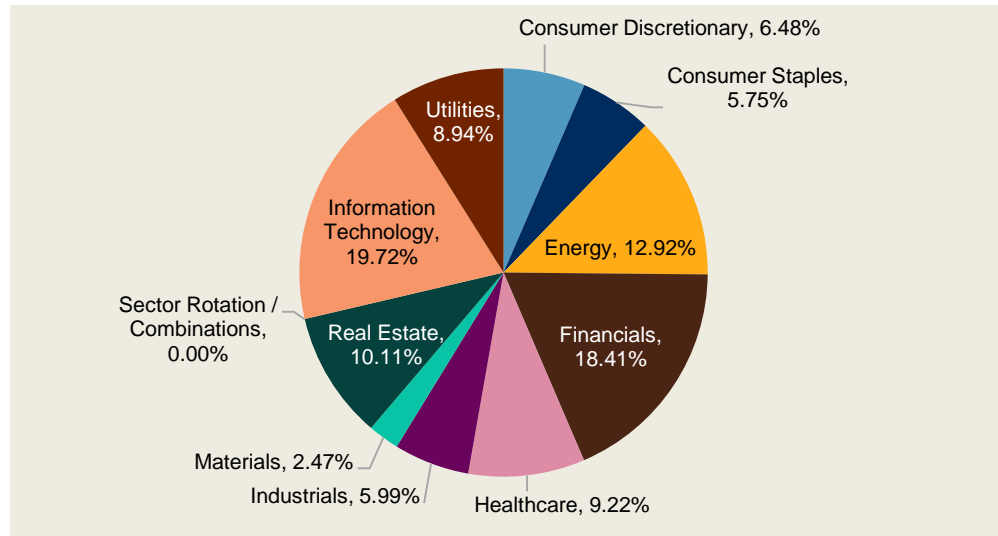
On a sector basis, insurance companies invest proportionally more in Technology and Utility ETFs and less in Energy and Materials ETFs than the overall U.S. ETF market.

Exhibit 33: U.S. Sector ETF AUM



Source: First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

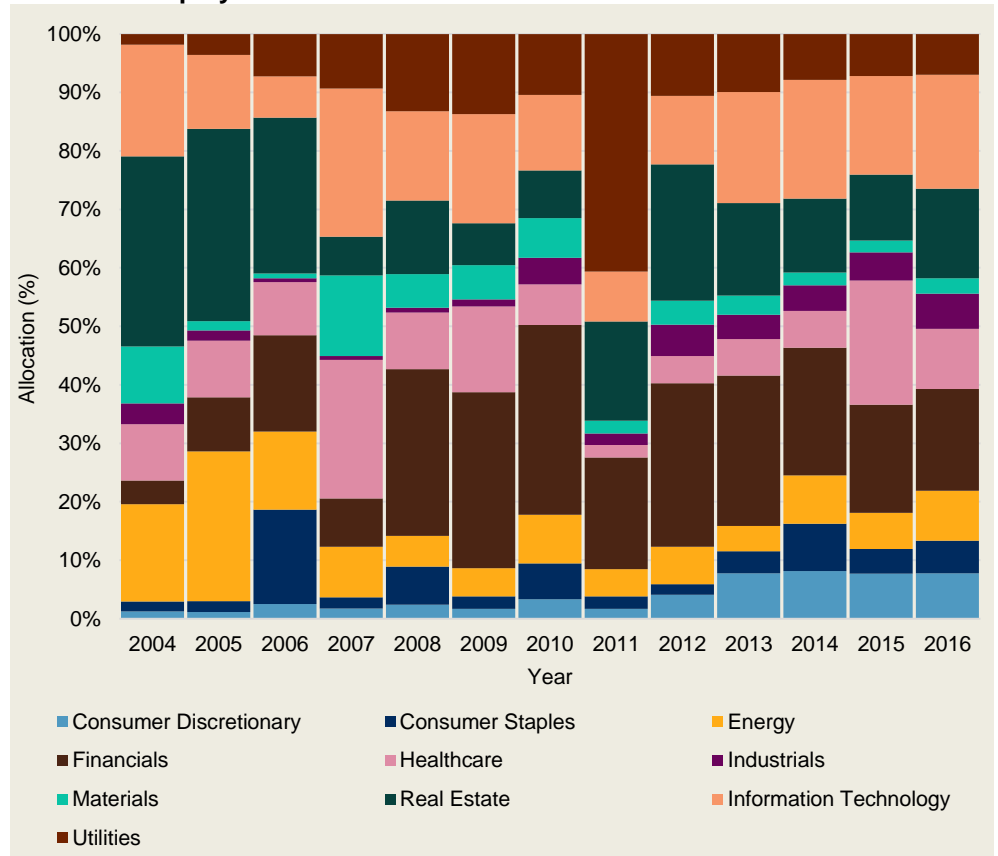
Exhibit 34: Insurance Sector ETF AUM



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

As evidenced by historical holdings, the insurance industry uses sector ETFs to rotate its exposure.

Exhibit 35: Equity Sector ETF AUM



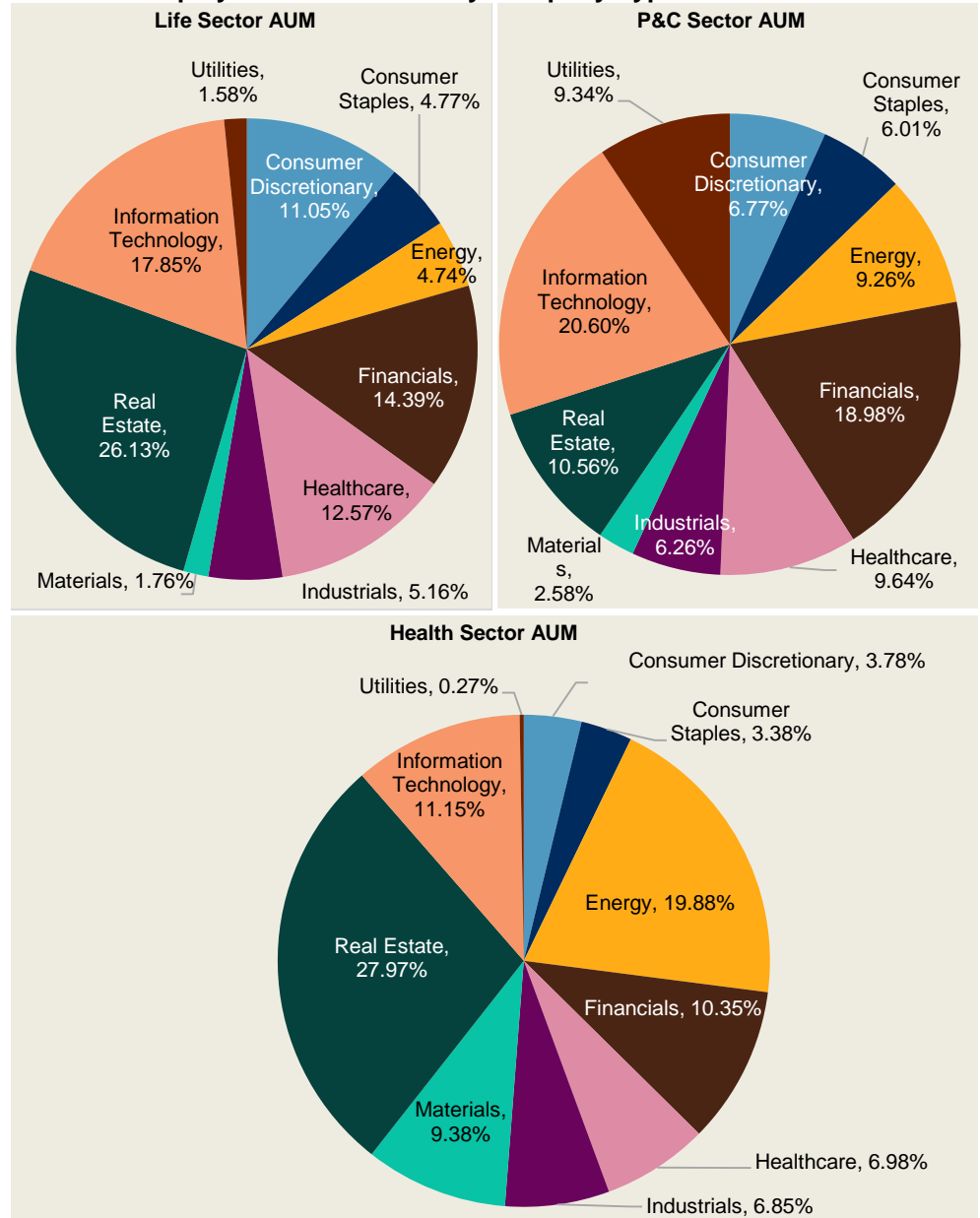
Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

The insurance industry uses sector ETFs to rotate its exposure.

Interestingly, the use of Sector ETFs varies by both type of insurance company and size of insurance company.

Investments in Sector ETFs vary greatly by company type.

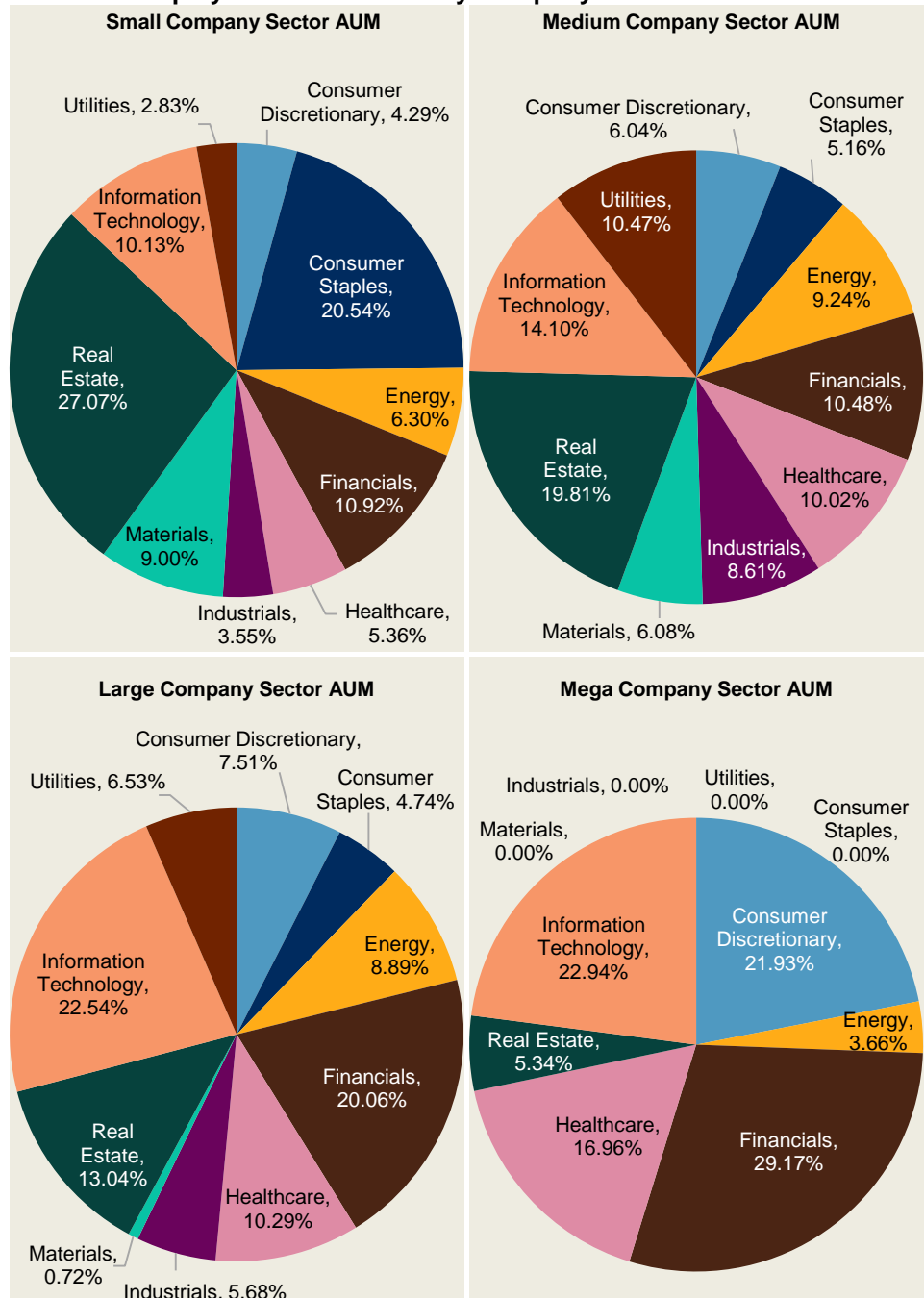
Exhibit 36: Equity Sector ETF AUM by Company Type



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Exhibit 37: Equity Sector ETF AUM by Company Size

Small insurance companies have a larger allocation to Real Estate than other companies.

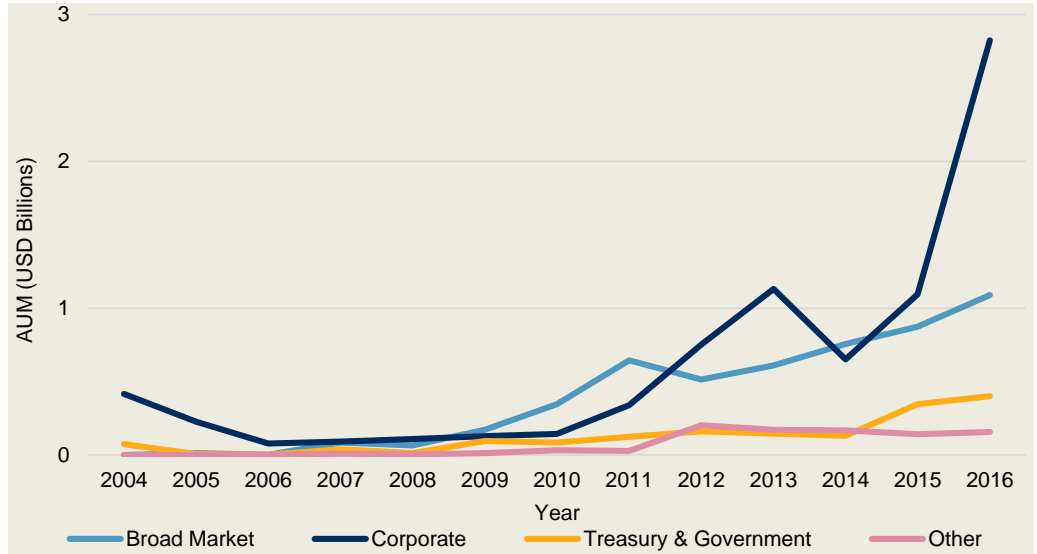


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

ANALYSIS OF FIXED INCOME ETFS

Insurance companies did not materially invest in Fixed Income ETFs until 2008. Initially, the investments were in Broad Market Fixed Income ETFs. However, in recent years, companies have begun to invest more in Corporate Fixed Income ETFs.

Exhibit 38: Fixed Income ETF AUM

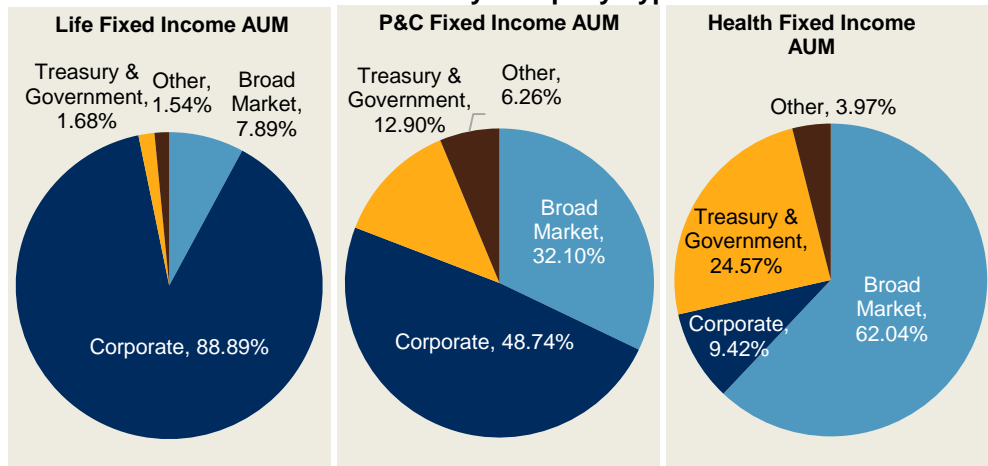


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Insurance companies display a surprising diversity in how they use Fixed Income ETFs; they vary usage by both size of company and type of company. Life companies prefer corporate ETFs, Health companies prefer Broad Market and Treasury ETFs, and P&C companies invest more broadly.

Exhibit 39: Fixed Income ETF AUM by Company Type

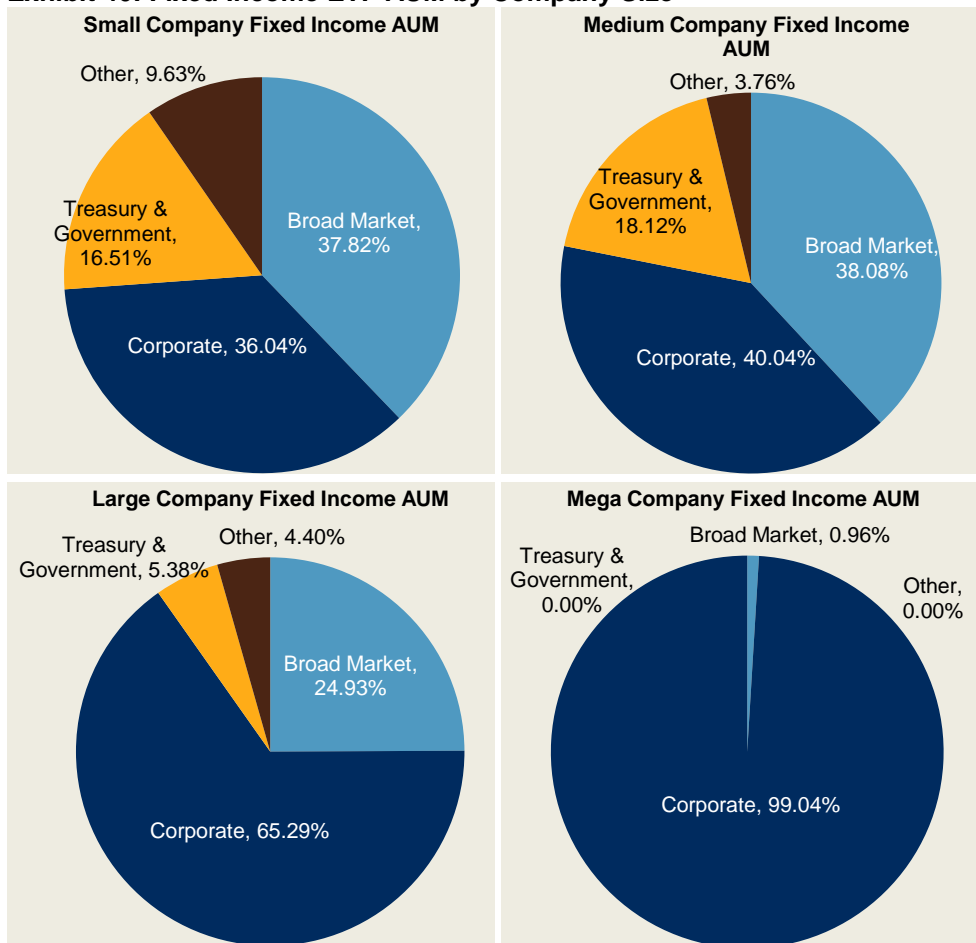
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Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Mega insurance companies almost exclusively use Corporate Fixed Income ETFs.

Exhibit 40: Fixed Income ETF AUM by Company Size

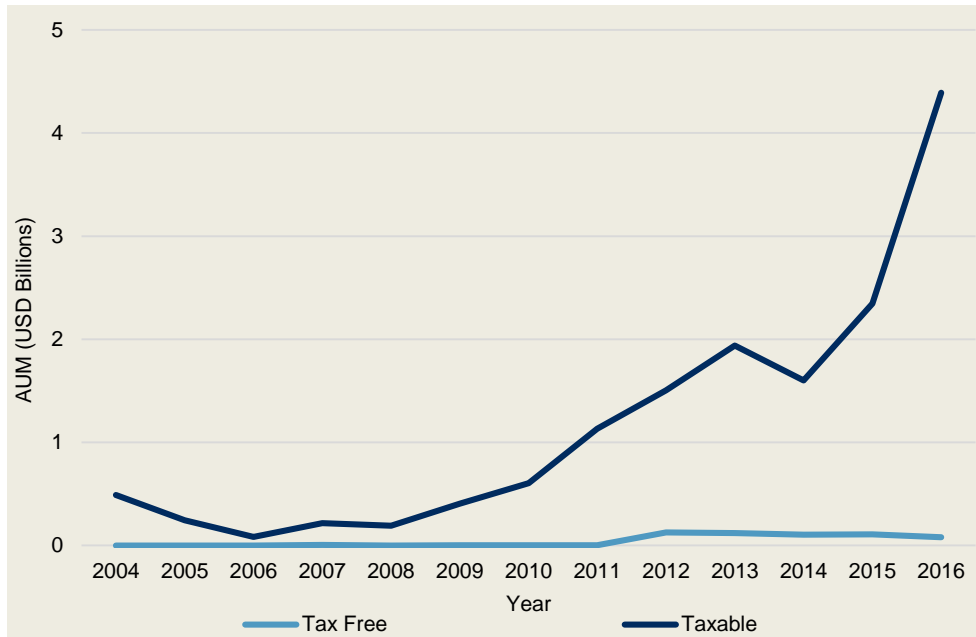


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Mega insurance companies almost exclusively use Corporate Fixed Income ETFs, and the proportion of Broad Market and Treasury ETF usage increases as size declines.

Insurance companies almost exclusively use Taxable Fixed Income ETFs. Some P&C companies do use Non-Taxable ETFs but only in small amounts.

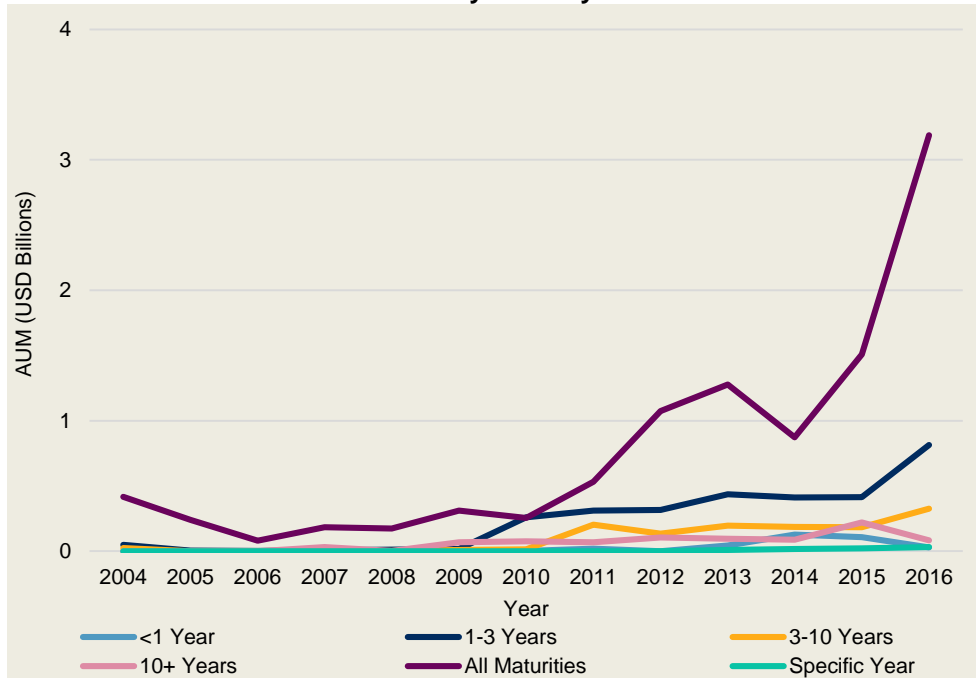
Exhibit 41: Taxable Versus Tax Free Fixed Income ETF AUM



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

For the most part, insurance companies do not have a preference for a specific maturity bucket when selecting Fixed Income ETFs.

Exhibit 42: Fixed Income ETF AUM by Maturity

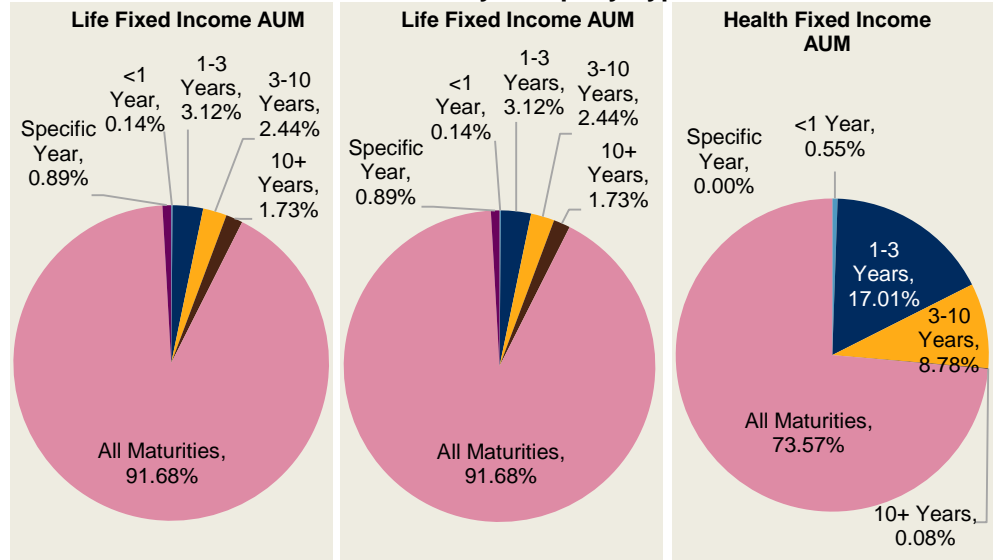


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Insurance companies mostly use All Maturities ETFs, but the use of maturity-specific ETFs has grown in recent years.

However, P&C companies and, to a lesser extent, Health companies have begun to use maturity-specific funds.

Exhibit 43: Fixed Income Maturities by Company Type

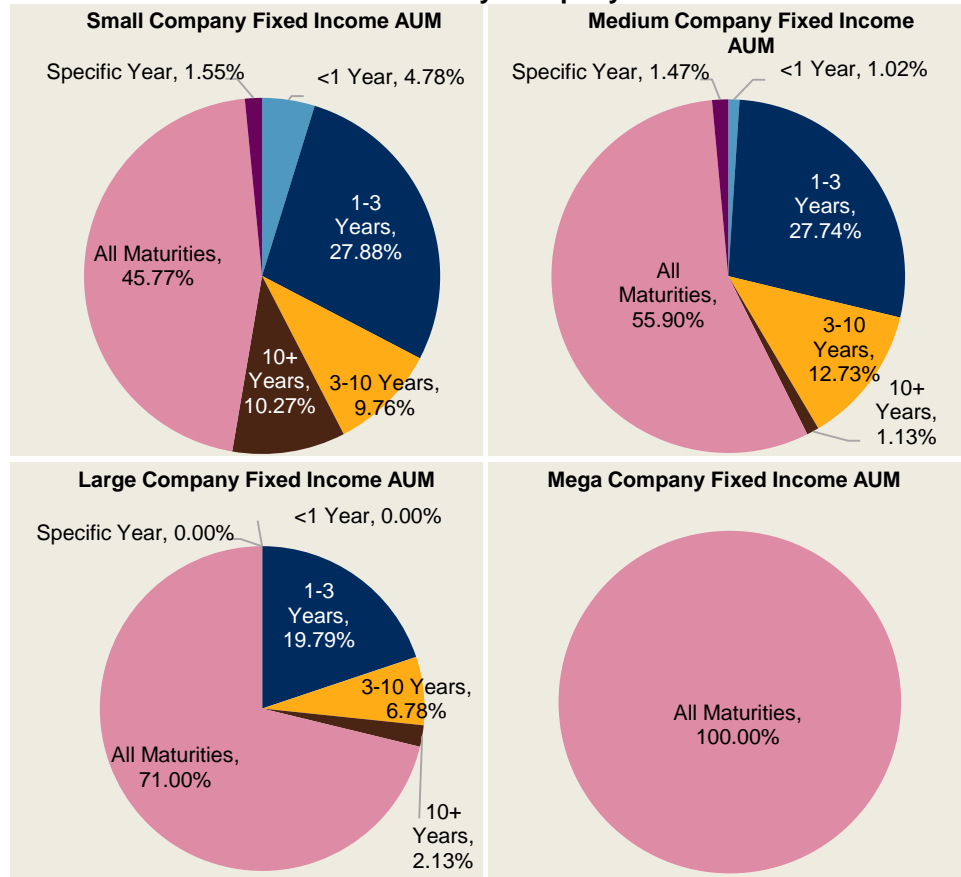


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

The use of specific maturity ETFs happens mostly in Small and Mid-Size companies.

Exhibit 44: Fixed Income Maturities by Company Size

Use of maturity specific ETFs increase inversely with company size

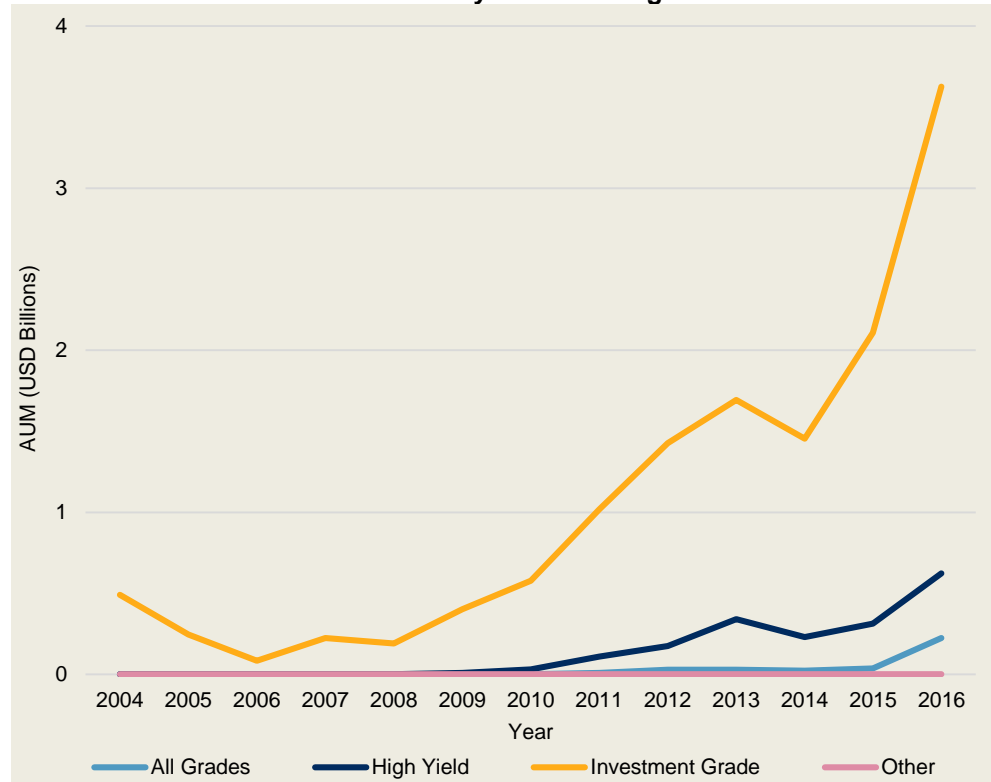


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Insurance companies have mostly invested in Investment Grade Fixed Income ETFs. However, as the use of ETFs has increased, they have begun to use more High Yield ETFs. The use of High Yield Fixed Income ETFs does not vary much by company size or type.

As the use of ETFs has increased, insurance companies have begun to use more High Yield ETFs.

Exhibit 45: Fixed Income ETF AUM by Credit Rating



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

ANALYSIS OF SMART BETA ETFS

We classify ETFs in three ways.⁷

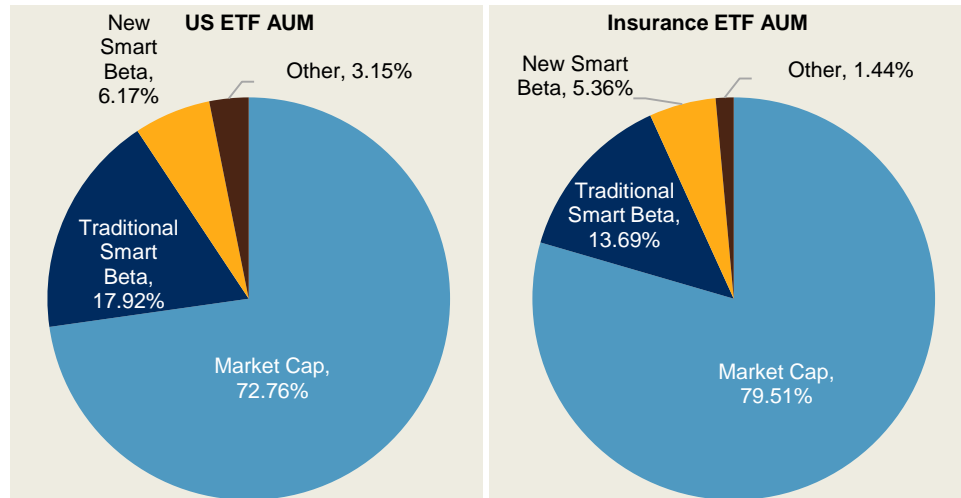
- Market Cap: Market capitalization weighted
- Traditional Smart Beta: Value, Growth, Dividend, or Equal weighted
- New Smart Beta: All other Smart Beta strategies, such as Momentum, Low Volatility, Single, and Multi-Factor

We again see that the insurance market and the U.S. ETF market have similar Smart Beta allocations. Roughly 75%-80% are held in Market Cap ETFs, approximately 15% are in Traditional Smart Beta ETFs, and approximately 5% are in New Smart Beta ETFs.

⁷ See Appendix 1.5

Market Cap ETFs continue to dominate insurance investments.

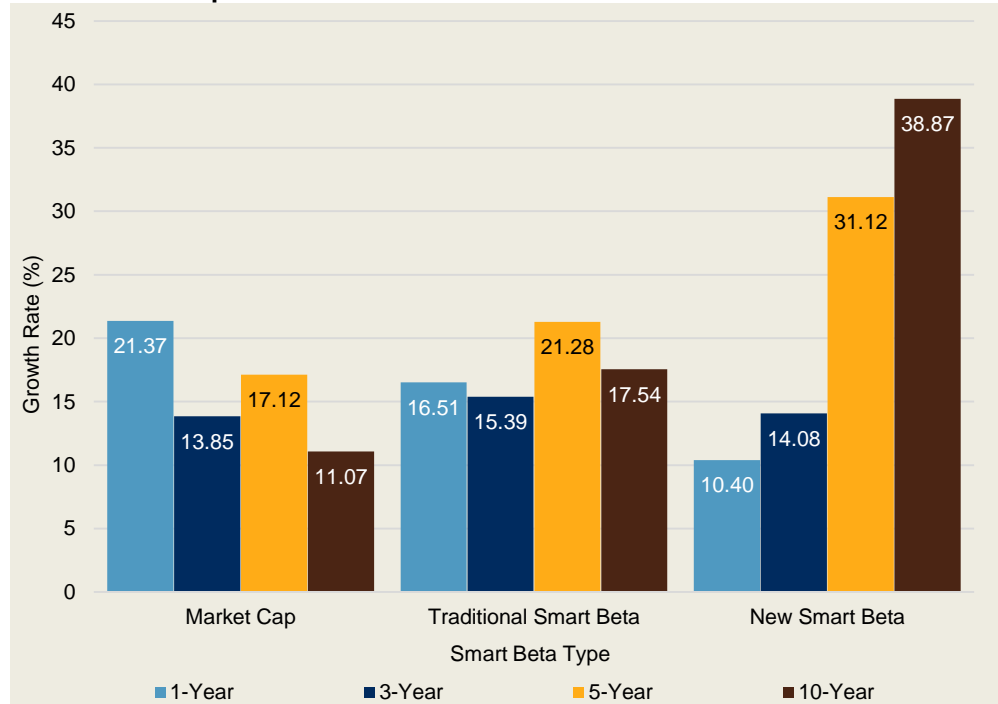
Exhibit 46: Smart Beta ETF AUM



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

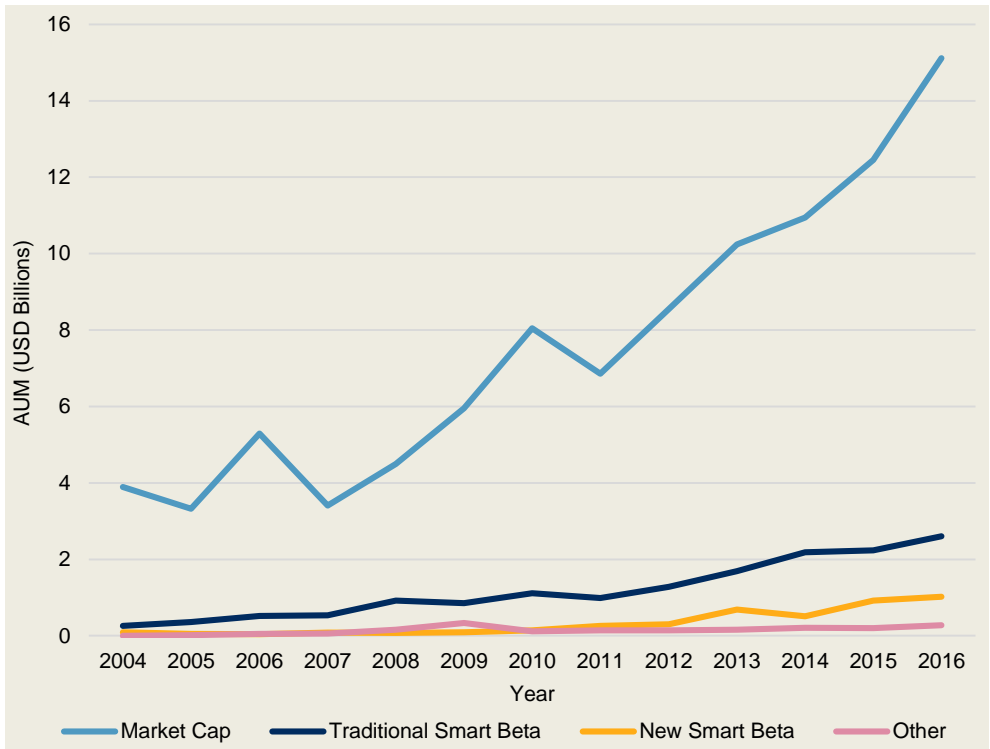
Market Cap ETFs continue to dominate insurance investments. While New Smart Beta has had stronger growth over the longer term, Market Cap and Traditional Smart Beta have shown better growth in recent years.

Exhibit 47: Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Exhibit 48: Insurance ETF AUM

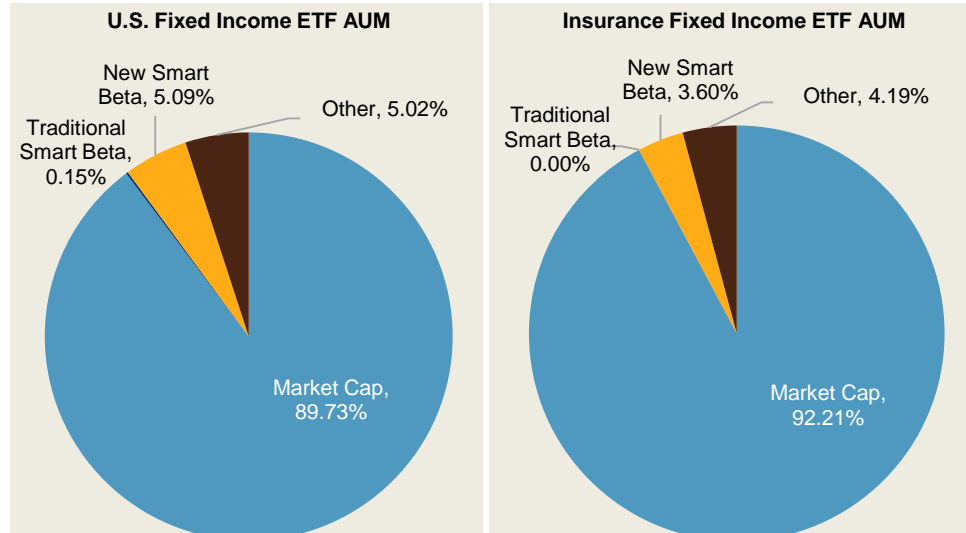


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Smart Beta investments in insurance general accounts are similar to the overall ETF market.

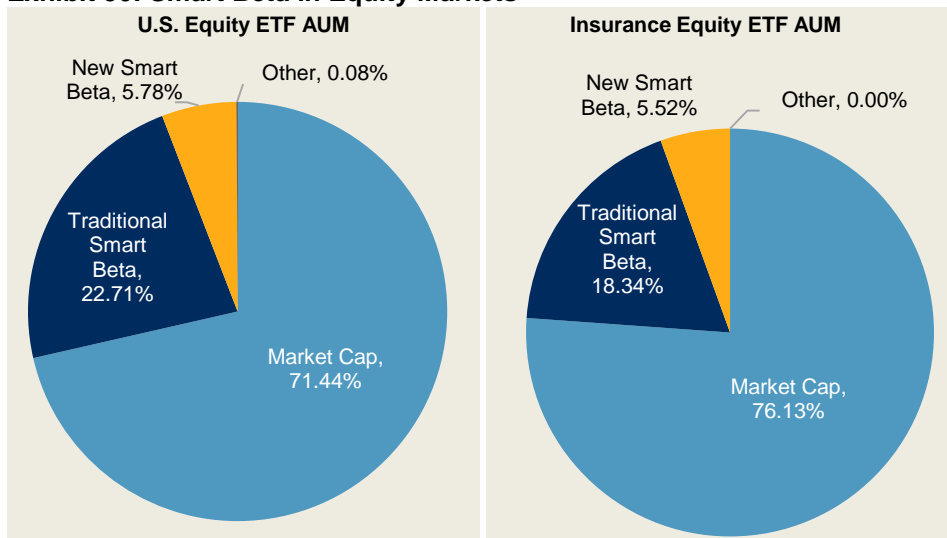
Exhibit 49: Smart Beta in Fixed Income Markets

In Fixed Income and Equity, the insurance market has a similar profile to the general market.



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Exhibit 50: Smart Beta in Equity Markets

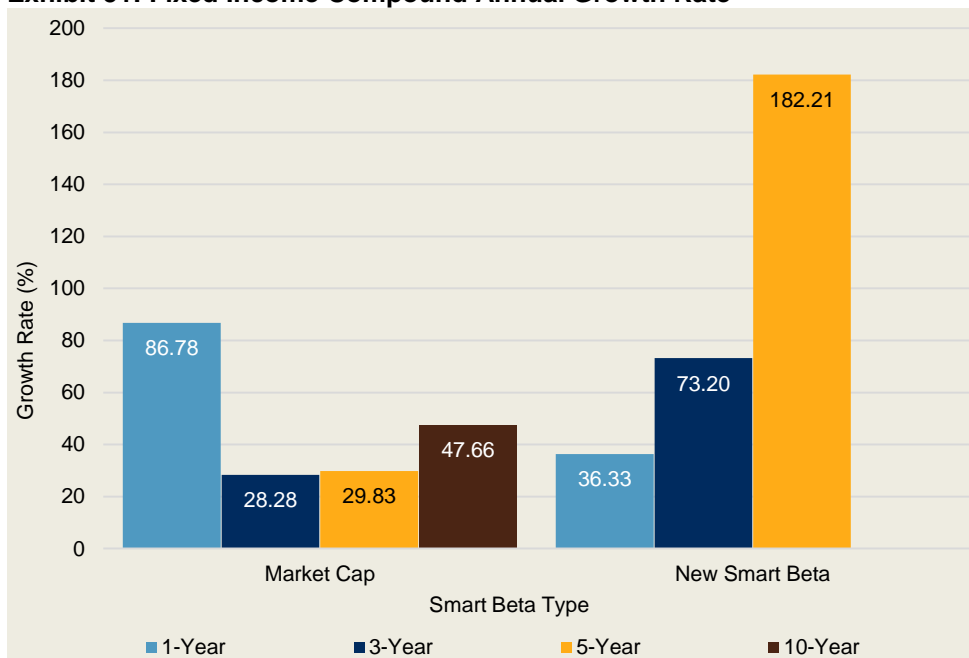


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Since they began investing in Fixed Income ETFs, insurance companies have mostly invested in Market Cap Fixed Income ETFs. In recent years, some companies have started to use New Smart Beta Fixed Income ETFs.

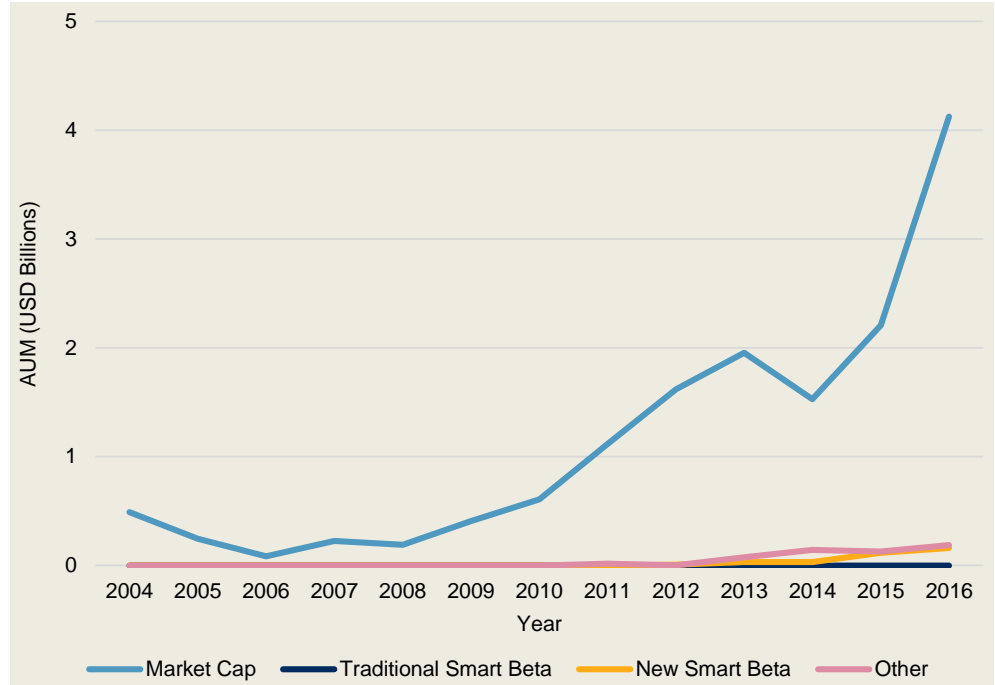
Exhibit 51: Fixed Income Compound Annual Growth Rate

New Smart Beta Fixed Income ETFs have shown greater growth, but on a smaller base.



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Exhibit 52: Insurance Fixed Income ETF AUM

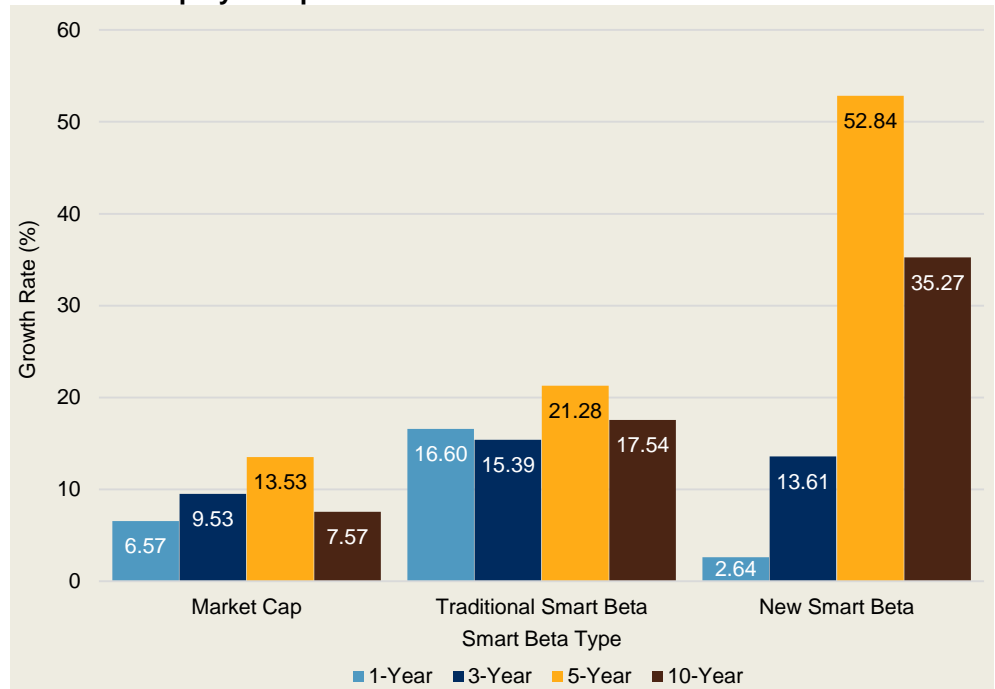


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

However, insurance companies have shown a preference for using Smart Beta ETFs in their Equity portfolio.

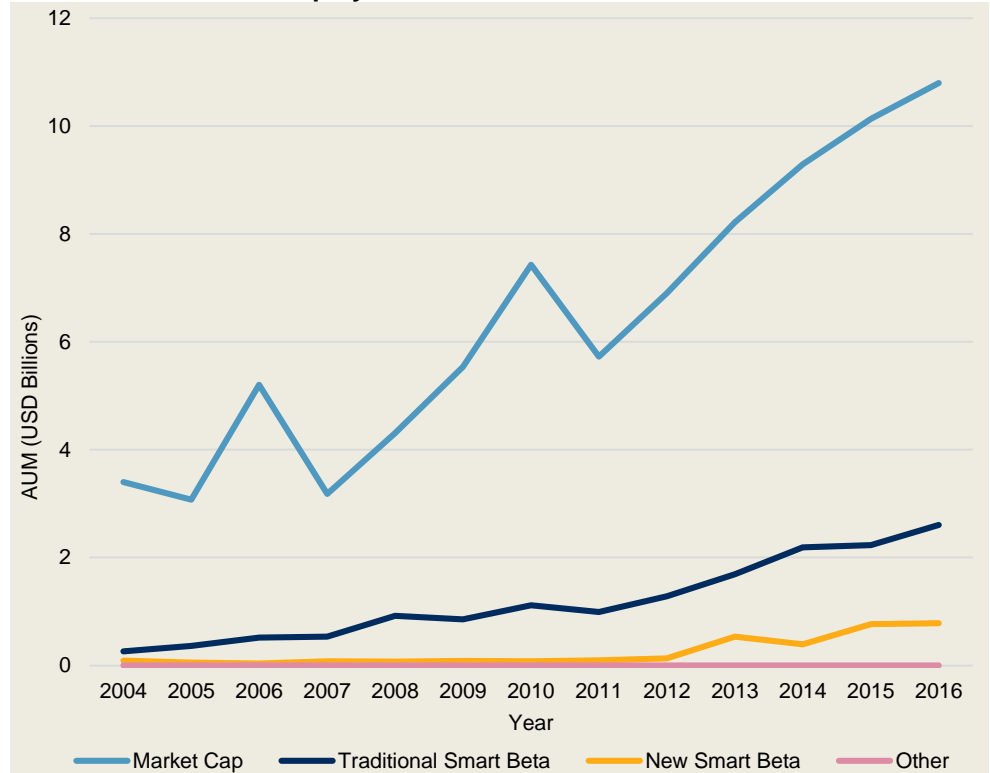
Insurance companies have shown a preference for using Smart Beta ETFs in their equity portfolio.

Exhibit 53: Equity Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Exhibit 54: Insurance Equity ETF AUM

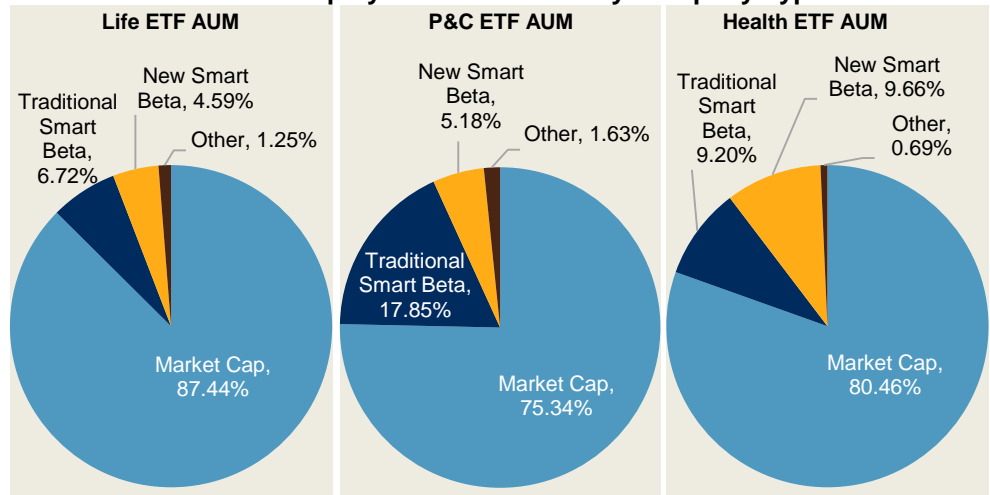


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

P&C companies have the most Smart Beta, while Life companies have the least.

Exhibit 55: Smart Beta Equity ETF Investment by Company Type

P&C companies have the most Smart Beta.

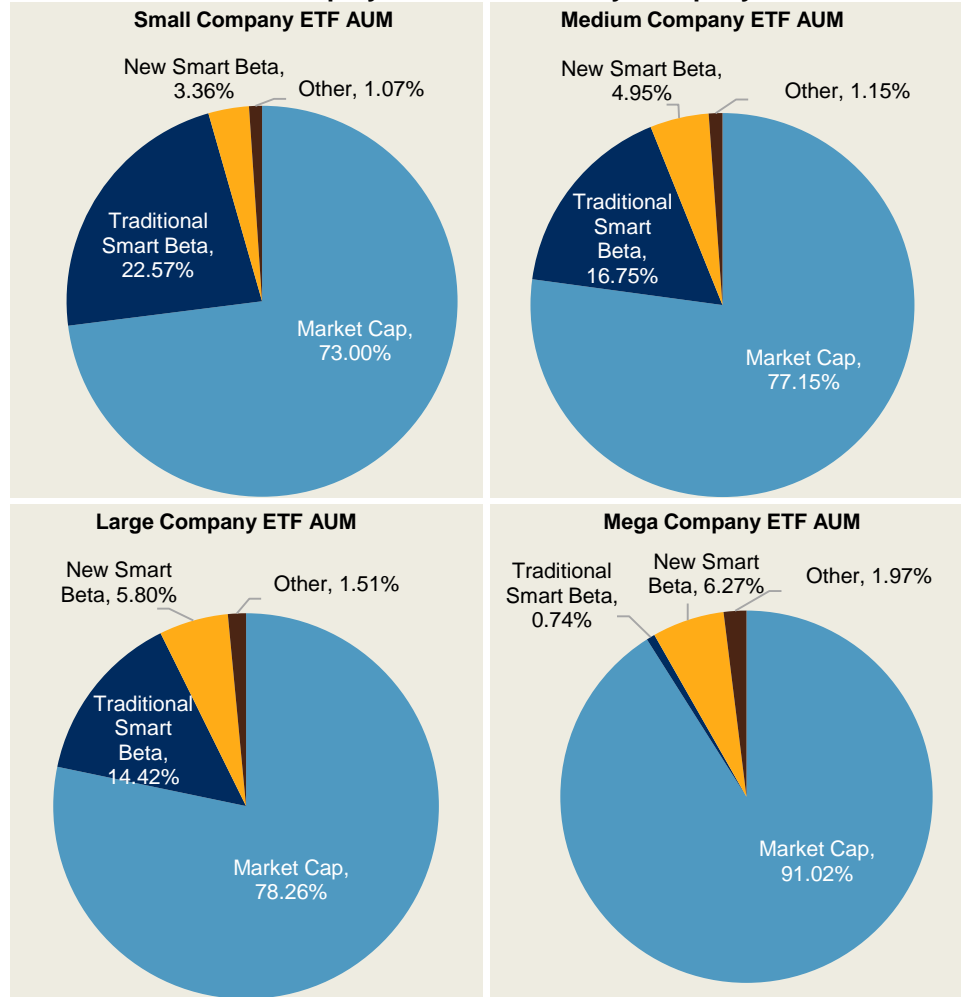


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Small companies use the most Smart Beta, but Mega companies use the least.

Small companies are more likely to use Smart Beta ETFs.

Exhibit 56: Smart Beta Equity ETF Investment by Company Size

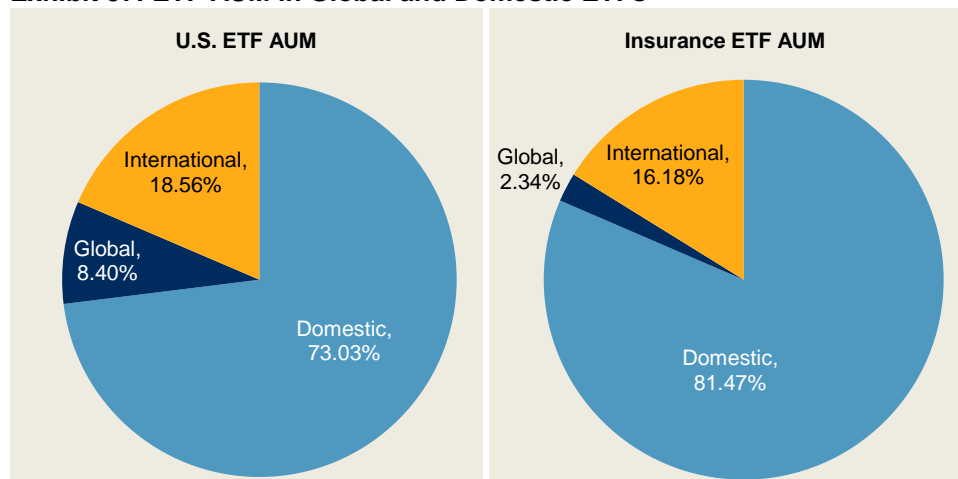


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

MISCELLANEOUS ANALYSIS

In ETF investments, U.S. insurance companies continue to show a home bias. They have slightly less invested in purely Global ETFs than the general market and materially less in purely Global ETFs.

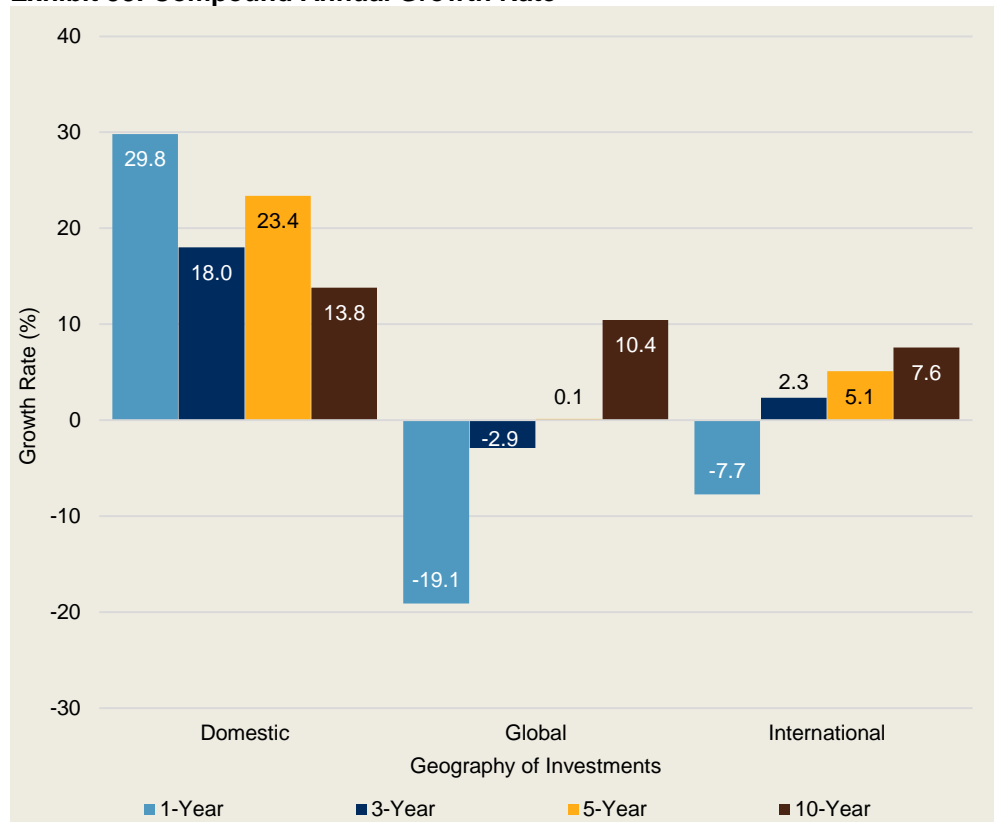
Exhibit 57: ETF AUM in Global and Domestic ETFs



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Moreover, insurance companies have begun to reduce their exposure to non-U.S. ETFs.

Exhibit 58: Compound Annual Growth Rate

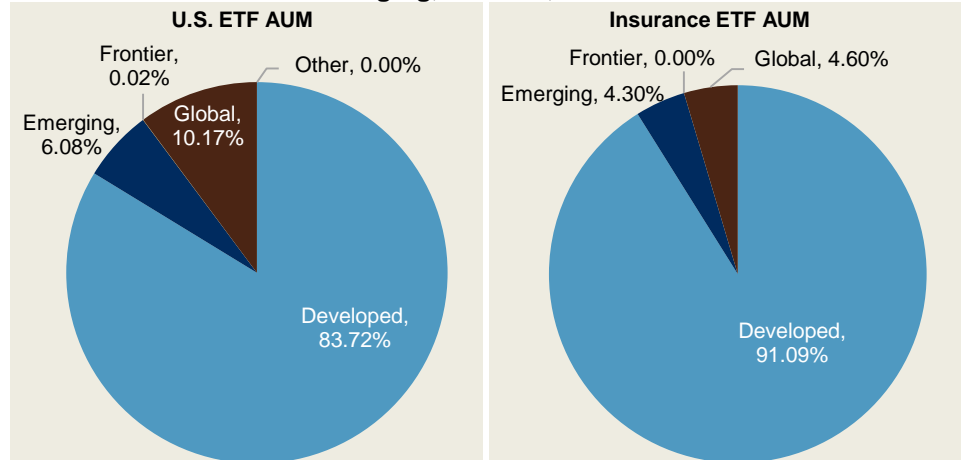


Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Similarly, U.S. insurance companies continue to favor ETFs investing in developed economies to those in emerging or frontier economies.

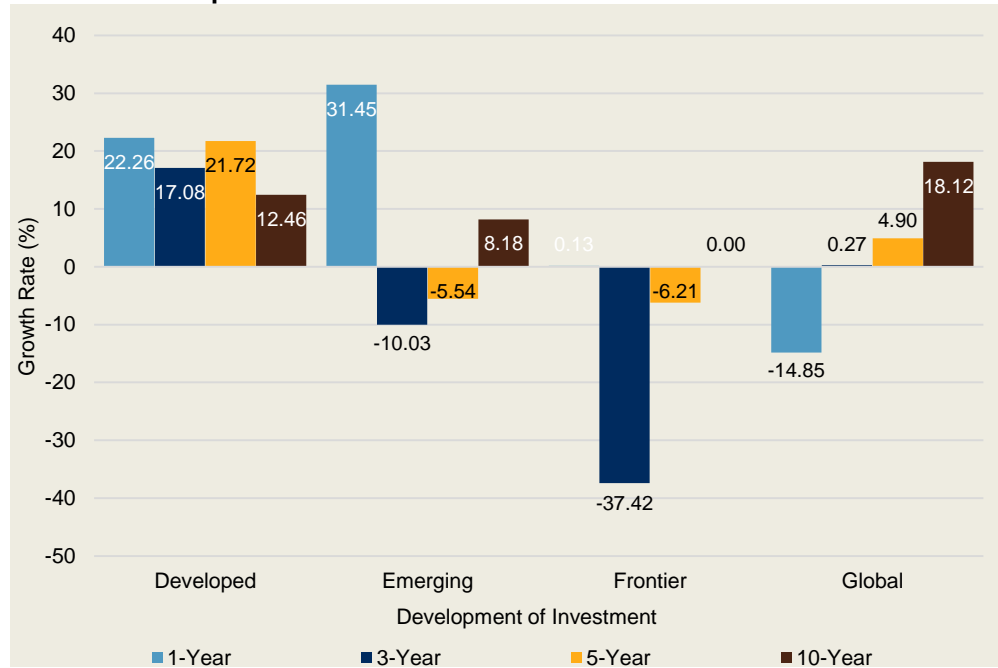
Insurance companies have begun to reduce their exposure to non-U.S. ETFs.

Exhibit 59: ETF AUM in Emerging, Frontier, and Global Markets



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Exhibit 60: Compound Annual Growth Rate



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Insurance companies make no material investments in ESG ETFs.

Insurance companies make no material investments in ESG ETFs.

Exhibit 65: Insurance Company Investments in ESG ETFs

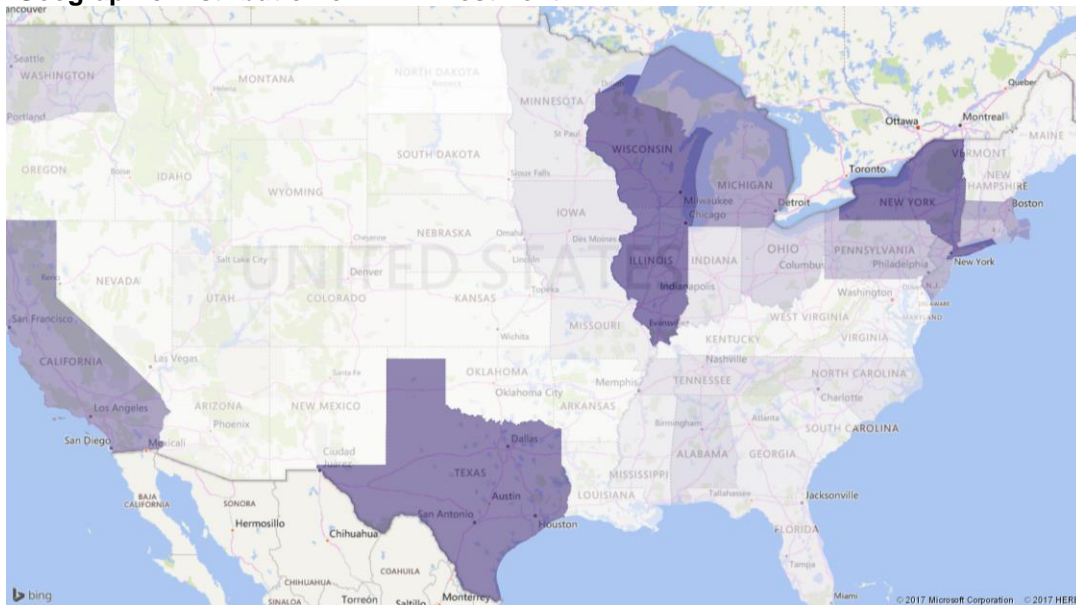
ESG TYPE	AUM
Not ESG	19,001,722,427
ESG	9,860,000
Environmental	2,513
Total	19,011,584,940

Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Table is provided for illustrative purposes.

GEOGRAPHIC DISTRIBUTION

Overall, insurance companies concentrated in states adjoining the great lakes have the largest amount invested in ETFs, with additional concentrations in Texas and California.

Exhibit 61: Geographic Distribution of ETF Investment



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

However, the geographic distribution of ETF usage varies by type of insurance company.

Exhibit 62: Geographic Distribution of ETF Investment by Insurance Company Type



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Exhibit 63: Geographic Distribution of ETF Investment by Asset Class



Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Charts are provided for illustrative purposes.

Interestingly, geographic distribution of ETF investment also varies by asset class.

APPENDIX 1 – METHODOLOGY

For all insurance company holding data, we use NAIC data as compiled by SPGMI. Insurance companies file the data with the NAIC at the end of February. SPGMI retrieves the data and loads it into their database. The completeness of the database depends on the timeliness of receiving the data from the NAIC and the amount of data checking involved. To get timely yet complete information, we retrieved the data for this analysis on April 7, 2017. In some cases, companies may not have completed their filing process, the NAIC might not have sent the data to SPGMI, or SPGMI might not have reviewed and loaded the data by this date. Still, we feel the amount of data loaded by April 7, 2017, reasonably covers the insurance industry.

From this database, we extracted a list of all ETFs held by insurance companies. We did this by matching both the tickers and CUSIP numbers of the holdings against a master ETF list. In spite of error checking, insurance companies do not always file complete or correct information. In as much as the underlying data has errors, this analysis contains errors.

We obtained a list of U.S. ETFs and characteristics of these ETFs from First Bridge. We assume accuracy and completeness of the data from First Bridge.

In some cases, we grouped the data differently than First Bridge or SPGMI. We describe these variations below.

1.1 Assets Classes

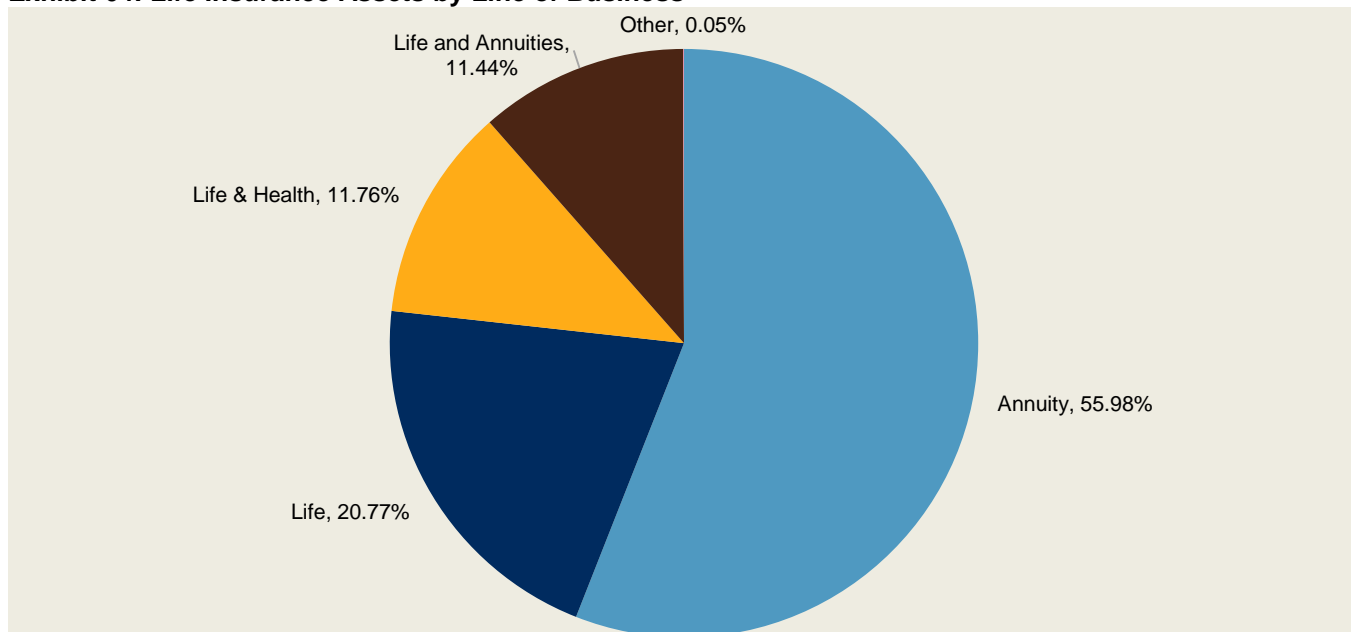
First Bridge classifies each ETF into six asset classes. We retained separate asset classes for Equity and Fixed Income and mapped the remaining four—Commodities & Metals, Currency, Target Date/Multi-Asset, and Other Asset Types—into an “Other” bucket.

1.2 Business Focus

The SPGMI data also allows us to classify companies by business focus. For Life insurance, SPGMI has 10 classifications: Annuity Focus, Credit Insurance Focus, Group A&H focus, Individual Life and A&H focus, Individual Life Focus, Life and A&H Focus, Life and Annuities Focus, Life Insurance Focus, Specialty A&H Focus, and Life Minimum NPW. We collapse these into five groups.

- Annuity: Annuity Focus
- Life: Individual Life and A&H Focus, Individual Life Focus, Life Insurance Focus, Life Minimum NPW
- Life & Health: Group A&H Focus, Specialty A&H focus, and Life and A&H focus
- Life & Annuities: Life & Annuities Focus
- Other: Credit Insurance Focus

For the Life insurance companies, Annuity companies have most of the general account assets.

Exhibit 64: Life Insurance Assets by Line of Business

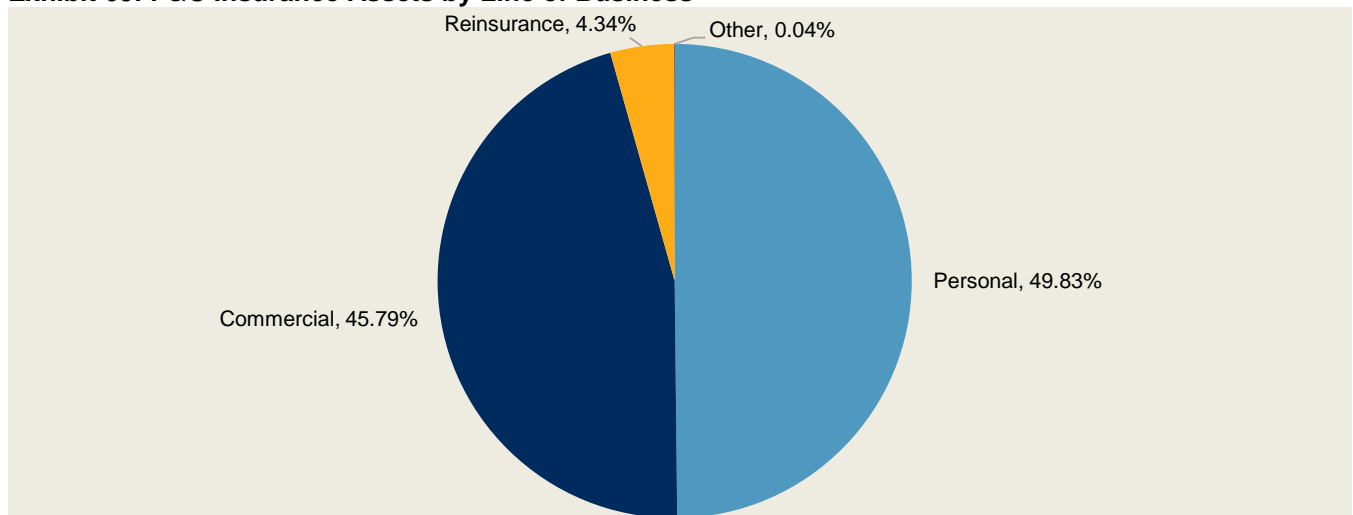
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

The SPGMI database classifies P&C companies in 12 ways: Commercial Financial Lines Focus, Commercial General Liability Focus, Commercial Lines Focus, Commercial Medical Malpractice Focus, Commercial Property Focus, Commercial Workers Compensation Focus, Accident & Health Focus, Large Reinsurance Focus, Personal Lines Focus, Personal Property Focus, Reinsurance Focus and P&C Minimum NPW. We compress these into four areas.

- Commercial: Commercial Financial Lines Focus, Commercial General Liability Focus, Commercial Lines Focus, Commercial Medical Malpractice Focus, Commercial Property Focus, Commercial Workers Compensation Focus
- Personal: Personal Lines Focus, Personal Property Focus
- Reinsurance: Reinsurance Focus, Large Reinsurance Focus
- Other: A&H Focus

Most of the P&C general account assets are in personal lines companies.

Exhibit 65: P&C Insurance Assets by Line of Business



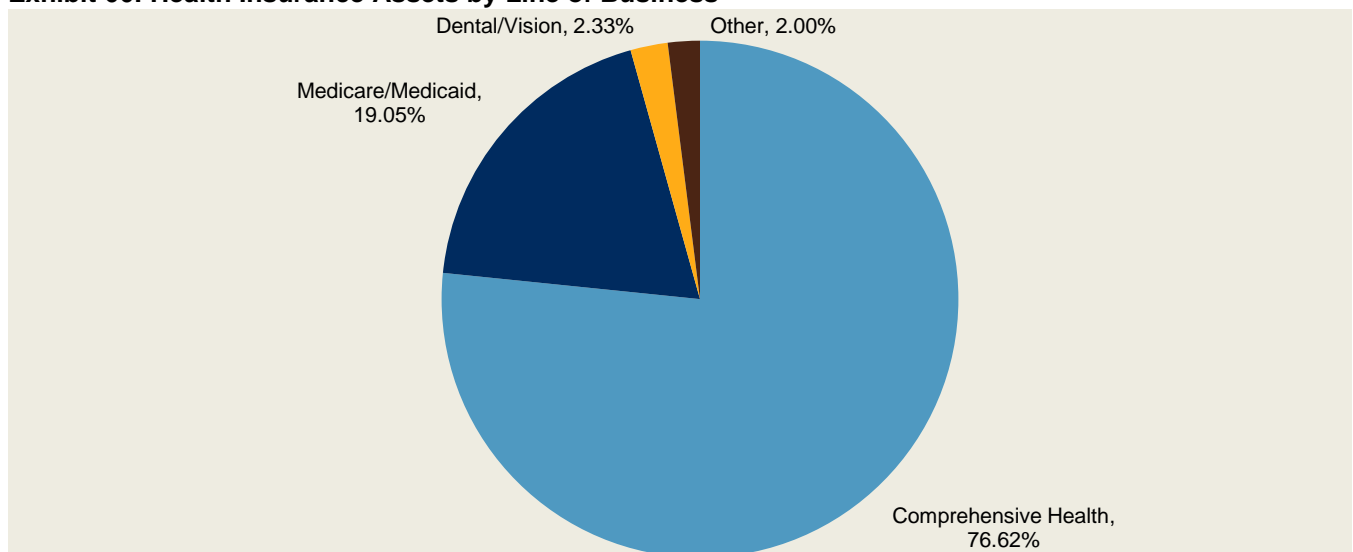
Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Health companies have six areas of business focus: Comprehensive Health, Dental/Vision, Medicaid Provider, Medicare Provider, Health-Other Focus, and Health Minimum NPW. We collapse these into four groups.

- Comprehensive Health: Comprehensive Health
- Dental/Vision: Dental/Vision
- Medicaid/Medicare: Medicaid Provider, Medicare Provider
- Other: Health-Other Focus, Health Minimum NPW

A clear majority of Health general account assets are in Comprehensive Health companies.

Exhibit 66: Health Insurance Assets by Line of Business



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

1.3 Equity Capitalization

First Bridge classifies Equity ETFs into eight capitalization buckets: Broad Market/Multi-Cap, Large & Mid Cap, Large Cap, Mega Cap, Micro Cap, Mid Cap, Small Cap, and Small & Mid Cap (SMID). We compress these into four buckets.

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

1.4 Fixed Income Type

First Bridge has seven Bond Types: Broad Market, Corporate, Treasury & Government, Convertible, Inflation Protected, Mortgage, and Municipal. We collapse the last four into the “Other” group.

1.5 Smart Beta

Most ETFs, in number and AUM, have a market capitalization weighting. Index providers and ETF sponsors have created new indices and ETFs that formulaically model some of the methodology of active managers. The earliest attempt classified equities by their price to earnings (P/E) ratio. A “Value” bucket contained low P/E stocks, while a “Growth” bucket contained stocks with high P/E ratio. The industry called these new classifications “Smart Beta.” We classify ETFs in three ways.

- Market Cap: Standard market capitalization weighting
- Traditional Smart Beta: Value, Growth, Dividend, and Equal Weighted
- New Smart Beta: All other Smart Beta strategies, such as Momentum and Low Volatility, as well as Single and Multi-Factor

Unfortunately, First Bridge does not have a built-in Smart Beta classification, so we constructed a Smart Beta tag based on three existing classifications in First Bridge: Growth/Value, Fundamental Weighting Type, and Index Weighting Scheme. Growth/Value has four factors: Growth, Value, Core/Blend, and Not Applicable. Fundamental Weighting Type has eleven factors: Dividend Weighted, Earnings Weighted, FTSE RAFI, Growth/Value Factor Weighted, Momentum Weighted, Quality Weighted, Revenue Weighted, Valuation Weighted, Other, and Not Applicable. Index Weighting Scheme has six factors: Equal Weighted, Fundamental Weighted, Market Cap Weighted, Volatility/Beta Weighted, Other, and Not Applicable.

We constructed our Smart Beta tag as follows:

- Growth/Value = Growth or Value → Traditional Smart Beta
- Fundamental Weight Type = Dividend Weighted → Traditional Smart Beta
- Index Weighting Scheme = Equal Weighted → Traditional Smart Beta
- Index Weighting Scheme = Market Cap Weighted → Market Cap
- All three classifications are “Not Applicable” → Other
- New Smart Beta if none of the above classifications apply

Unfortunately, 3.09% of total U.S. ETF AUM falls inside the “Other” classification for Smart Beta.

Exhibit 67: Smart Beta Classification							
FUNDAMENTAL WEIGHTING TYPE	EQUAL WEIGHTED	FUNDAMENTAL WEIGHTED	MARKET CAP WEIGHTED	NOT APPLICABLE	OTHER WEIGHTING	VOLATILITY/ BETA WEIGHTED	GRAND TOTAL (%)
CORE/BLEND							
Dividend Weighted	-	4.99	-	-	-	-	4.99
Earnings Weighted	-	0.11	-	-	-	-	0.11
FTSE RAFI	-	0.31	-	-	-	-	0.31
Growth/Value Factor Weighted	-	0.04	-	-	-	-	0.04
Momentum Weighted	-	0.11	-	-	-	-	0.11
Multi-Factor Weighted	-	0.29	-	-	-	-	0.29
Not Applicable (%)	1.90		55.97	0.06	1.64	1.54	61.11
Other	-	0.26	-	-	-	-	0.26
Quality Weighted	-	0.18	-	-	-	-	0.18
Revenue Weighted	-	0.05	-	-	-	-	0.05
Valuation Weighted	-	0.00	-	-	-	-	0.00
Core/Blend Total (%)	1.90	6.34	55.97	0.06	1.64	1.54	67.45
GROWTH							
Dividend Weighted	-	0.11	-	-	-	-	0.11
Growth/Value Factor Weighted	-	0.13	-	-	-	-	0.13
Multi-Factor Weighted	-	0.00	-	-	-	-	0.00
Not Applicable (%)	0.03	-	4.76	0.01	0.00	-	4.80
Other	-	0.02	-	-	-	-	0.02
Revenue Weighted	-	0.00	-	-	-	-	0.00
Growth Total (%)	0.03	0.26	4.76	0.01	0.00	-	5.06
NOT APPLICABLE							
Dividend Weighted	-	0.00	-	-	-	-	0.00
Growth/Value Factor Weighted	-	0.00	-	-	-	-	0.00
Momentum Weighted	-	0.01	-	-	-	-	0.01
Multi-Factor Weighted	-	0.00	-	-	-	-	0.00
Not Applicable (%)	0.10	-	16.78	3.09	1.57	0.00	21.55
Other	-	0.05	-	-	-	-	0.05
Not Applicable Total (%)	0.10	0.07	16.78	3.09	1.57	0.00	21.62
VALUE							
Dividend Weighted	-	0.02	-	-	-	-	0.02
Earnings Weighted	-	0.01	-	-	-	-	0.01
Growth/Value Factor Weighted	-	0.23	-	-	-	-	0.23
Multi-Factor Weighted	-	0.11	-	-	-	-	0.11
Not Applicable (%)	0.16	-	5.27	0.01	0.04	-	5.49
Value Total (%)	0.16	0.37	5.27	0.01	0.04	-	5.86
Grand Total (%)	2.20	7.04	82.79	3.18	3.25	1.54	100.00

Source: NAIC via S&P Global Market Intelligence, First Bridge. Data as of Dec. 31, 2016. Table is provided for illustrative purposes.

1.6 ESG

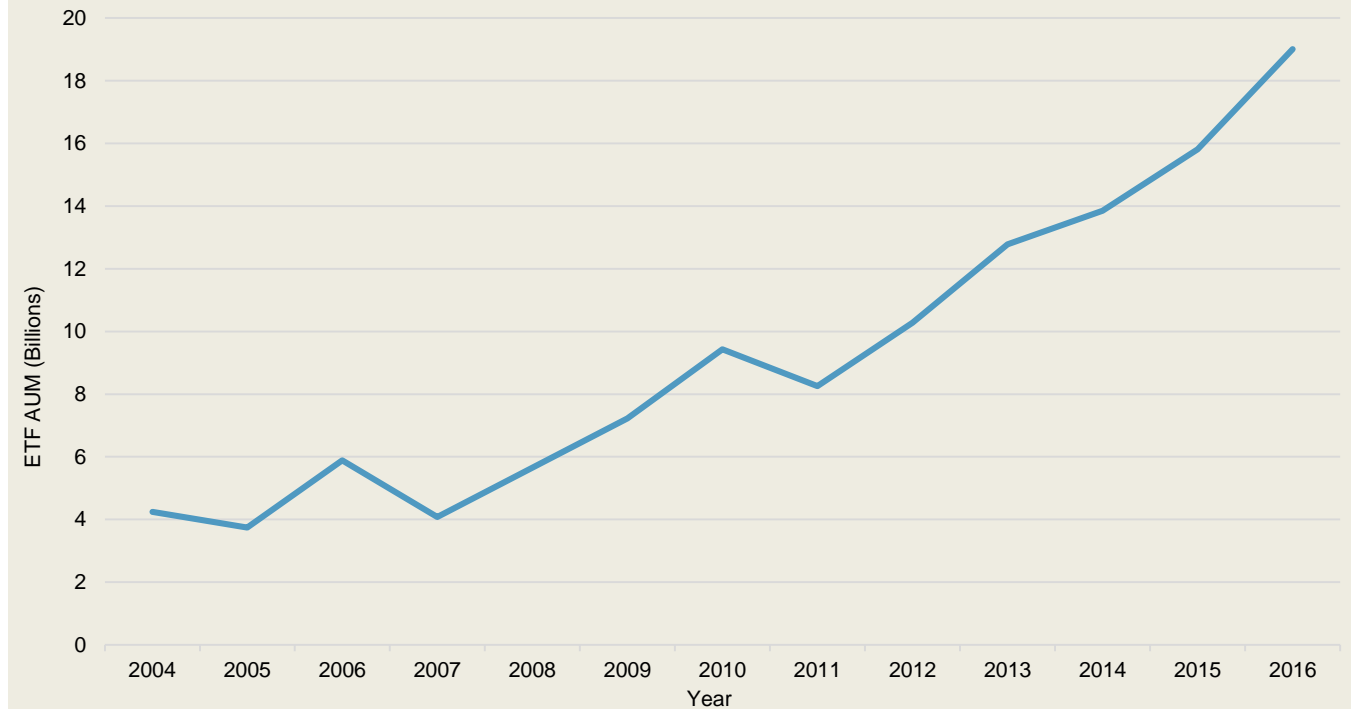
First Bridge classifies the ESG philosophy of each ETF. Their categories are: Faith Based, Corporate Governance, ESG, Waste Management, Low Carbon Footprint, Clean Energy, and Not Applicable. We group these as the following.

- Environmental: Clean Energy, Low Carbon Footprint
- ESG: ESG
- Governance: Corporate Governance
- Social: Faith Based
- Not ESG: Not Applicable

APPENDIX 2 – LINEAR REGRESSION OF AUM GROWTH

To model the growth trend of ETFs in insurance companies we apply a linear regression to the data.

Exhibit 68: Insurance Company AUM in ETFs



Source: NAIC via S&P Global Market Intelligence. Data as of Dec. 31, 2016. Chart is provided for illustrative purposes.

Based on the data, the amount of ETFs in insurance can be expressed as:

$$\ln(AUM) = 0.1339 \times Year - 246.3370$$

This model had a coefficient of determination of 93.84%. The coefficient of determination explains how well the model explains the actual results. This value can range from 0% to 100%. A value of 0% implies the independent variable (year) cannot explain the dependent variable (AUM). A value of 100% implies the model explains the dependent variable exactly.

Using this model, we estimate the future AUM, assuming the growth continues according to historical trend.

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