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# 2023 Capital Markets Fact Book

July 2023

The SIFMA Research Capital Markets Fact Book provides a comprehensive look at U.S. capital markets, as well as a look into global markets. Inside this report, we recap:

- **Global Capital Markets:** Equity and fixed income markets (outstanding, issuance, volumes); investment banking landscape; international securities transactions; etc.
- **U.S. Capital Markets:** Equity, fixed income, derivatives and private placement markets (outstanding, issuance, volumes, index prices); investment banking landscape; mutual fund and ETF statistics; etc.
- **U.S. Investor Participation:** Household liquid financial asset breakout; household equity ownership; and holders of equities
- **U.S. Savings & Investment:** Retirement asset breakout and mix across asset classes; savings rates and other economic indicators; and federal balance sheet overview
- **U.S. Securities Industry:** Number of broker-dealers, registered representatives, registered investment advisors, and branch offices; industry financial overview; and state maps showing number firms/ reps

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## Executive Summary

Capital markets recognize and drive funds to the best ideas and enterprises. Coupled with the free flow of capital, innovation is an integral component of job creation, economic development, and prosperity. Markets facilitate the transfer of funds from those who seek a return on their assets to those who need capital to expand.

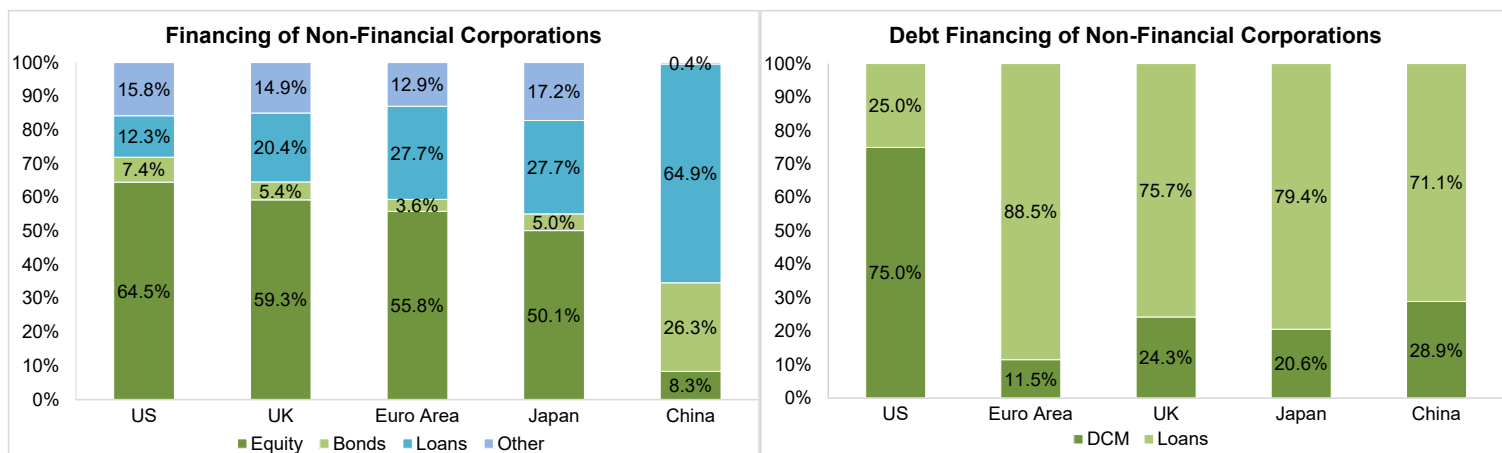
Clients benefiting from healthy capital markets include not just individual investors but also institutional investors, governments, and corporations. Capital, raised through equity and debt, can be used to grow businesses, finance investments in new property, equipment, technology, and fund infrastructure projects. This funding creates jobs and pours money into the economy. Additionally, individuals and businesses can invest in securities to generate wealth.

In short, U.S. capital markets are the bedrock of our nation's economy.

### Capital Markets Fuel Economies

In the U.S., capital markets fuel the economy, providing 71.9% of equity and debt financing for non-financial corporations. Capital markets enable debt issuance, a more efficient, stable, and less restrictive form of lending for corporations. Debt capital markets are more dominant in the U.S. at 75.0% of total financing, whereas bank lending is more dominant in other regions, at 21.3% on average.

On the equities side, companies need capital for various business purposes – investing in growth, funding mergers and acquisitions, etc. Firms have several ways to generate capital, including issuing IPOs. IPOs allow businesses to grow, innovate and better serve their customers.



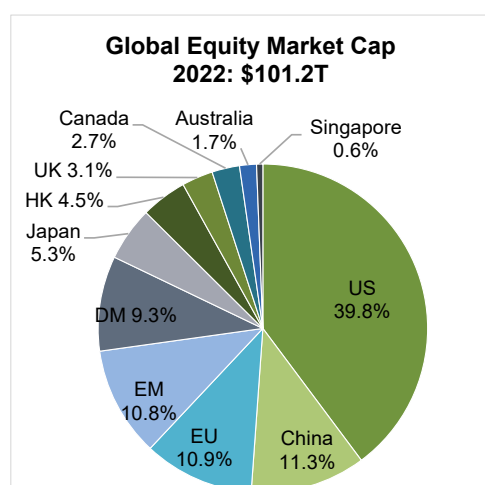
Source: OECD, Federal Reserve, ECB, Bank of Japan, National Bureau of Statistics of China, SIFMA estimates

Note: As of 2022, China 2020; Economic activity defined as financing of non-financial corporations. Euro Area = 19 EU-member states using the Euro. Other financing, ex-China = insurance reserves, trade credits and trade advances; other financing, China = bankers' acceptances, FDI, other foreign A/D, misc. and errors; DCM = debt capital markets, corporate bonds only

## US Capital Markets Are the Largest in the World

The U.S. capital markets are the largest in the world and continue to be among the deepest, most liquid, and most efficient.

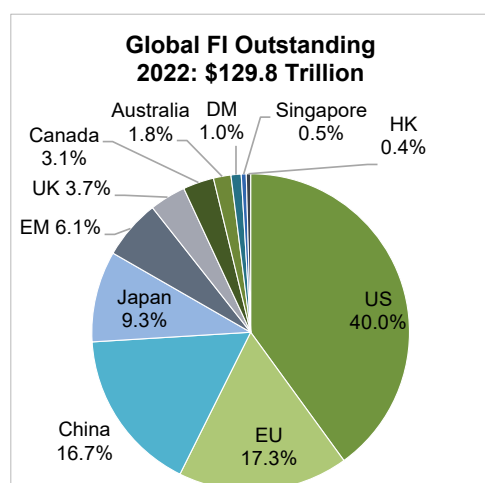
**Equities:** U.S. equity markets represent 39.8% of the \$101.2 trillion in global equity market cap, or \$40.3 trillion; this is 3.5x the next largest market, China.



Source: World Federation of Exchanges, SIFMA estimates

Note: Market capitalization of listed domestic companies. DM = developed markets, EM = emerging markets, DM/EM exclude countries listed in the chart. HK = Hong Kong

**Fixed Income:** U.S. fixed income markets comprise 40.0% of the \$129.8 trillion securities outstanding across the globe, or \$51.9 trillion; this is 2.3x the next largest market, the EU.



Source: Bank of International Settlements (BIS), SIFMA estimates

Note: DM = developed markets, EM = emerging markets, DM/EM exclude countries listed in the chart. HK = Hong Kong

### Highlights: Global Capital Markets

Global fixed income markets outstanding decreased 3.2 % Y/Y to \$129.8 trillion in 2022, while global long-term fixed income issuance decreased 17.5% to \$22.5 trillion.

Global equity market capitalization decreased 16.2% Y/Y to \$101.2 trillion in 2022, as global equity issuance drops to \$0.4 trillion, a decrease of 61.2% Y/Y.

U.S. gross activity (purchases and sales) in foreign securities increased to \$53.3 trillion in 2022, an increase of 1.0% Y/Y, while foreign gross activity in U.S. securities shrunk to \$123.2 trillion, a decrease of 2.7% Y/Y in 2022.

### Highlights: US Capital Markets

In 2022, U.S. Treasury securities issuance dropped to \$3.8 trillion, a 25.5% decrease from the prior year. Long-term fixed income issuance declined 34.2% Y/Y to \$8.9 trillion. Mortgage-backed securities (MBS) issuance decreased 53.2% Y/Y to \$2.1 trillion, while corporate bonds fell 31.0% Y/Y to \$1.4 trillion. U.S. long-term municipal bond issuance decreased 19.2% Y/Y to \$390.8 billion, and asset-backed securities issuance volume decreased to 48.0% Y/Y to \$302.8 billion. Federal agency securities increased 19.9% Y/Y to \$830.9 billion.

Initial public offering (IPO) volume<sup>1</sup> was \$8.5 billion, down 94.4% from the previous year. Secondary, or follow-on, offerings totaled \$78.5 billion, down 64.8% Y/Y. Total equity issuance, including common and preferred stock, totaled \$99.4 billion in 2022, a 77.1% decrease Y/Y. Announced U.S. merger and acquisition (M&A) deals totaled \$1.6 trillion in 2022, a 42.6% Y/Y decrease, while the value of completed M&A deals decreased 37.5% Y/Y to \$16.9 trillion.

U.S. stock markets – in terms of index prices – fell in 2022 from record highs in 2021: the Dow Jones Industrial Average (DJIA) fell 8.8% Y/Y, ending the year at 3,147.25; the S&P 500 closed 2022 down 19.4% Y/Y at 3,839.50; the Nasdaq Composite decreased 33.1% Y/Y to close the year at 10,466.48; while the Russell 2000 fell 21.6% Y/Y to end the year at 1,761.25. In 2022, the average daily trading volume for equities was 11.9 billion shares, an increase of 4.1% Y/Y.

### Highlights: US Investor Participation

Federal Reserve Board data showed the value of U.S. households' liquid assets decreased 11.0% Y/Y to \$58.6 trillion. Of the total liquid assets held by U.S. households, 45.0% were in equities, 25.3% in bank deposits and CDs, and 16.5% in mutual funds, with the remaining 13.2% split between U.S. Treasury securities, agency and GSE securities, municipal bonds, money market funds, and corporate bonds. The latest data shows that 52.6% of households own equities<sup>2</sup>.

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<sup>1</sup> Excludes BDCs, SPACs, ETFs, CLEFs, and rights issues

<sup>2</sup> Includes direct and indirect holdings; as of 2019, as this survey occurs every three years



### Highlights: Savings & Investment

The total value of U.S. retirement assets decreased 8.7% Y/Y to \$41.8 trillion in 2022. Total pension assets went down by 11.0% Y/Y to \$11.9 trillion, while assets held in individual retirement accounts (IRAs) decreased 17.4% Y/Y to \$12.0 trillion. Of total U.S. retirement assets, 27.5% were in IRAs, followed by 28.4% in private pensions (defined benefit and contribution plans).

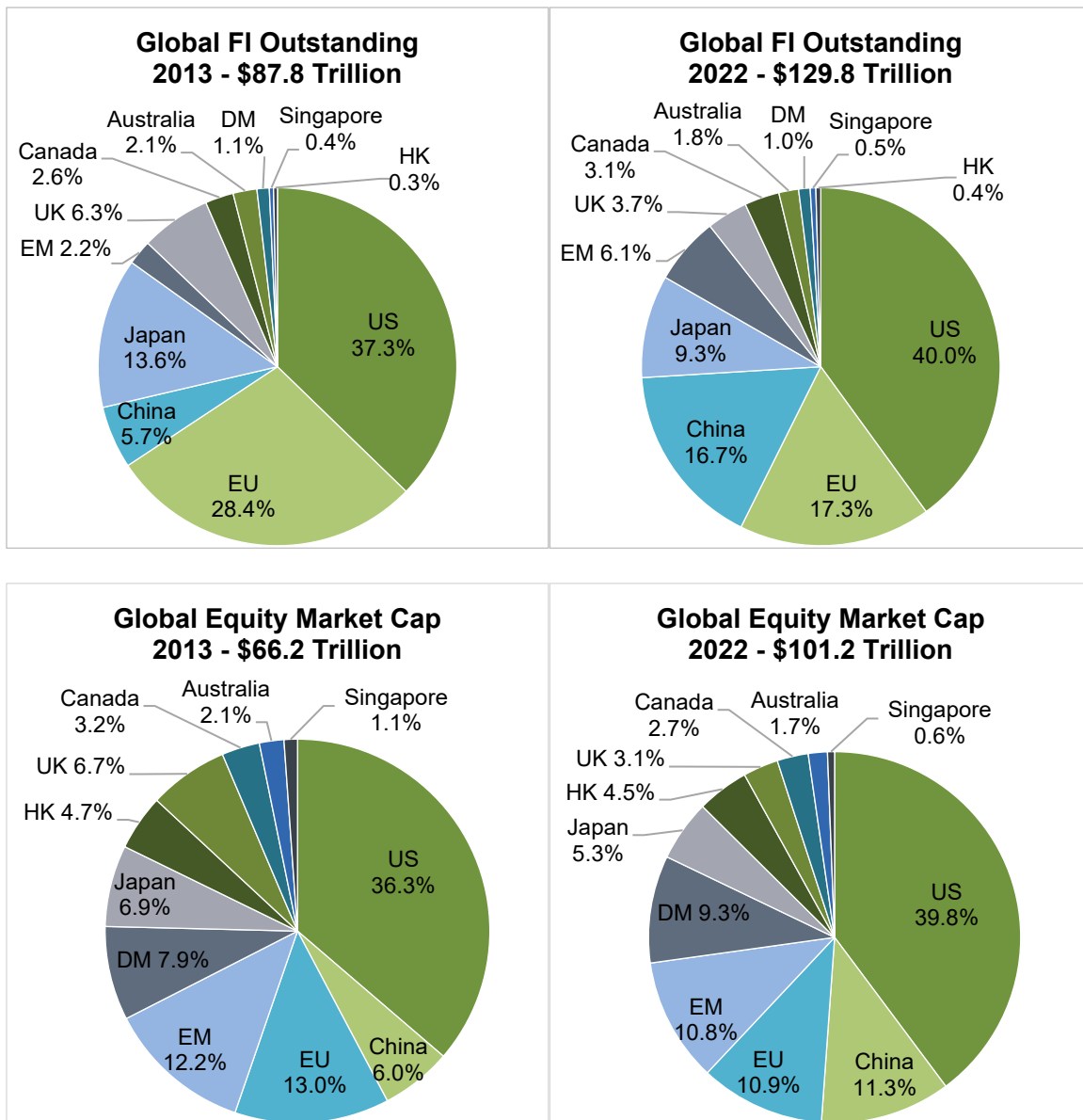
### Highlights: US Securities Industry

The number of FINRA registered broker-dealers decreased 0.5% Y/Y to 3,378 in 2022. Gross revenues for FINRA registered broker-dealers totaled \$350.5 billion in 2022, a decrease of 12.1% Y/Y, while total expenses increased 0.4% Y/Y to \$308.2 billion. As such, pre-tax net income fell to \$42.3 billion in 2021, a decrease of 53.8% Y/Y.

National securities industry employment reached 1,073,500 jobs in 2022, an increase of 4.2% Y/Y.

## Section I: Global Capital Markets

### Global Fixed Income Markets Outstanding and Global Equity Market Capitalization – Charts



Source: Bank of International Settlements (BIS), World Federation of Exchanges

Note: Market capitalization of listed domestic companies. DM = developed markets, EM = emerging markets, HK = Hong Kong. DM/EM exclude countries listed in the chart

## Global Fixed Income Markets Outstanding – Value

## Global FI Market Outstanding: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2008	1,145.3	1,369.7	2,228.0	20,224.8	105.6	12,329.9	167.6	3,991.2	27,890.9	602.5	898.2	70,953.8
2009	1,529.5	1,671.6	2,577.9	24,069.2	154.2	12,268.5	185.0	5,122.8	28,584.3	776.1	1,044.0	77,983.0
2010	1,749.0	1,866.6	3,065.3	23,281.7	186.7	14,604.1	219.0	5,012.3	29,670.8	833.5	1,250.4	81,739.5
2011	1,879.8	1,963.4	3,528.4	23,413.7	214.0	15,809.1	240.9	5,350.9	30,442.8	837.4	1,737.0	85,417.3
2012	2,045.6	2,173.5	4,294.1	24,259.9	253.3	14,247.8	294.8	5,657.8	31,690.2	955.7	2,009.9	87,882.5
2013	1,885.9	2,241.9	4,960.8	24,951.5	306.7	11,900.5	331.4	5,555.1	32,719.7	970.7	1,967.5	87,791.6
2014	1,923.8	2,206.1	5,835.4	22,007.4	345.1	10,548.3	349.3	5,845.7	33,760.7	898.5	2,074.1	85,794.4
2015	1,827.2	2,767.5	7,752.5	19,784.0	374.0	10,631.3	322.3	5,565.1	34,842.7	866.1	2,279.9	87,012.5
2016	1,825.7	2,943.5	9,408.8	19,319.5	405.7	11,241.3	326.4	5,142.2	36,054.8	962.0	2,573.9	90,203.7
2017	1,997.8	3,267.4	11,757.1	22,054.2	474.0	11,913.4	412.2	5,712.9	37,280.3	1,082.4	3,042.2	98,994.0
2018	1,892.2	3,151.0	12,906.9	21,352.9	513.5	12,459.8	441.1	5,434.6	38,778.4	1,063.8	6,375.5	104,369.6
2019	1,943.7	3,371.1	14,725.9	21,690.9	534.0	12,815.4	492.9	5,965.1	40,603.4	1,185.7	6,825.7	110,153.5
2020	2,490.6	3,914.4	18,555.6	27,739.6	558.7	14,669.6	542.8	6,868.5	46,602.2	1,409.9	7,080.4	130,432.2
2021	2,413.8	4,074.6	21,816.4	26,283.9	582.1	13,373.5	612.4	6,821.9	49,287.8	1,421.6	7,386.1	134,074.1
2022	2,311.0	4,085.8	21,660.0	22,494.5	572.6	12,056.2	656.6	4,793.5	51,936.9	1,345.7	7,892.2	129,805.0
Average	1,924.1	2,737.9	9,671.5	22,861.8	372.0	12,724.6	373.0	5,522.6	36,676.4	1,014.1	3,629.1	97,507.1
Y/Y Change	-4.3%	0.3%	-0.7%	-14.4%	-1.6%	-9.8%	7.2%	-29.7%	5.4%	-5.3%	6.9%	-3.2%
5Y CAGR	4.1%	5.3%	10.9%	1.0%	2.2%	-0.7%	8.3%	-2.5%	6.0%	4.8%	4.4%	4.5%
10Y CAGR	2.1%	6.2%	15.9%	-1.0%	6.4%	0.1%	7.1%	-1.5%	4.7%	3.3%	14.9%	4.0%

## Global FI Market Outstanding: % Change Y/Y

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2009	33.5%	22.0%	15.7%	19.0%	46.1%	-0.5%	10.4%	28.4%	2.5%	28.8%	16.2%	9.9%
2010	14.4%	11.7%	18.9%	-3.3%	21.1%	19.0%	18.4%	-2.2%	3.8%	7.4%	19.8%	4.8%
2011	7.5%	5.2%	15.1%	0.6%	14.6%	8.3%	10.0%	6.8%	2.6%	0.5%	38.9%	4.5%
2012	8.8%	10.7%	21.7%	3.6%	18.4%	-9.9%	22.4%	5.7%	4.1%	14.1%	15.7%	2.9%
2013	-7.8%	3.1%	15.5%	2.9%	21.1%	-16.5%	12.4%	-1.8%	3.2%	1.6%	-2.1%	-0.1%
2014	2.0%	-1.6%	17.6%	-11.8%	12.5%	-11.4%	5.4%	5.2%	3.2%	-7.4%	5.4%	-2.3%
2015	-5.0%	25.4%	32.9%	-10.1%	8.4%	0.8%	-7.7%	-4.8%	3.2%	-3.6%	9.9%	1.4%
2016	-0.1%	6.4%	21.4%	-2.3%	8.5%	5.7%	1.3%	-7.6%	3.5%	11.1%	12.9%	3.7%
2017	9.4%	11.0%	25.0%	14.2%	16.8%	6.0%	26.3%	11.1%	3.4%	12.5%	18.2%	9.7%
2018	-5.3%	-3.6%	9.8%	-3.2%	8.3%	4.6%	7.0%	-4.9%	4.0%	-1.7%	109.6%	5.4%
2019	2.7%	7.0%	14.1%	1.6%	4.0%	2.9%	11.7%	9.8%	4.7%	11.5%	7.1%	5.5%
2020	28.1%	16.1%	26.0%	27.9%	4.6%	14.5%	10.1%	15.1%	14.8%	18.9%	3.7%	18.4%
2021	-3.1%	4.1%	17.6%	-5.2%	4.2%	-8.8%	12.8%	-0.7%	5.8%	0.8%	4.3%	2.8%
2022	-4.3%	0.3%	-0.7%	-14.4%	-1.6%	-9.8%	7.2%	-29.7%	5.4%	-5.3%	6.9%	-3.2%

Source: Bank of International Settlements (BIS)

Note: EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets. DM/EM exclude countries listed in the chart

## Global Fixed Income Markets Outstanding – Share of Total

Global Fixed Income Market Outstanding: % of Total

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM
2008	1.6%	1.9%	3.1%	28.5%	0.1%	17.4%	0.2%	5.6%	39.3%	0.8%	1.3%
2009	2.0%	2.1%	3.3%	30.9%	0.2%	15.7%	0.2%	6.6%	36.7%	1.0%	1.3%
2010	2.1%	2.3%	3.8%	28.5%	0.2%	17.9%	0.3%	6.1%	36.3%	1.0%	1.5%
2011	2.2%	2.3%	4.1%	27.4%	0.3%	18.5%	0.3%	6.3%	35.6%	1.0%	2.0%
2012	2.3%	2.5%	4.9%	27.6%	0.3%	16.2%	0.3%	6.4%	36.1%	1.1%	2.3%
2013	2.1%	2.6%	5.7%	28.4%	0.3%	13.6%	0.4%	6.3%	37.3%	1.1%	2.2%
2014	2.2%	2.6%	6.8%	25.7%	0.4%	12.3%	0.4%	6.8%	39.4%	1.0%	2.4%
2015	2.1%	3.2%	8.9%	22.7%	0.4%	12.2%	0.4%	6.4%	40.0%	1.0%	2.6%
2016	2.0%	3.3%	10.4%	21.4%	0.4%	12.5%	0.4%	5.7%	40.0%	1.1%	2.9%
2017	2.0%	3.3%	11.9%	22.3%	0.5%	12.0%	0.4%	5.8%	37.7%	1.1%	3.1%
2018	1.8%	3.0%	12.4%	20.5%	0.5%	11.9%	0.4%	5.2%	37.2%	1.0%	6.1%
2019	1.8%	3.1%	13.4%	19.7%	0.5%	11.6%	0.4%	5.4%	36.9%	1.1%	6.2%
2020	1.9%	3.0%	14.2%	21.3%	0.4%	11.2%	0.4%	5.3%	35.7%	1.1%	5.4%
2021	1.8%	3.0%	16.3%	19.6%	0.4%	10.0%	0.5%	5.1%	36.8%	1.1%	5.5%
2022	1.8%	3.1%	16.7%	17.3%	0.4%	9.3%	0.5%	3.7%	40.0%	1.0%	6.1%
Average	2.0%	2.8%	9.1%	24.1%	0.4%	13.5%	0.4%	5.8%	37.7%	1.0%	3.4%
Y/Y Change	-0.02%	0.11%	0.4%	-2.3%	0.0%	-0.7%	0.05%	-1.4%	3.2%	0.0%	0.6%

Source: Bank of International Settlements (BIS)

Note: EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets. DM/EM exclude countries listed in the chart

## Global Equity Market Capitalization – Value

## Global Equity Markets Capitalization: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2008	683.9	1,033.4	1,778.8	5,656.7	1,328.8	3,263.3	265.0	1,868.2	11,590.3	2,124.0	3,457.3	33,049.5
2009	1,261.9	1,676.8	3,573.2	7,664.0	2,305.1	3,444.4	481.2	2,796.4	15,077.3	3,567.2	7,205.1	49,052.7
2010	1,454.5	2,170.4	4,027.8	7,160.9	2,711.3	4,099.6	647.2	3,613.1	17,283.5	4,387.4	9,275.7	56,831.5
2011	1,198.2	1,912.1	3,412.1	5,962.0	2,258.0	3,540.8	598.3	3,266.4	15,640.7	3,798.9	8,001.6	49,589.1
2012	1,386.9	2,058.8	3,697.4	6,847.1	2,831.9	3,681.0	765.1	3,396.5	18,668.3	4,449.1	8,367.1	56,149.1
2013	1,366.0	2,113.8	3,949.1	8,611.6	3,100.8	4,543.2	744.4	4,429.0	24,034.9	5,240.3	8,077.3	66,210.3
2014	1,288.8	2,095.4	6,004.9	7,844.3	3,233.0	4,378.0	752.8	4,012.9	26,330.6	5,292.9	8,415.7	69,649.3
2015	1,187.2	1,593.5	8,188.0	7,580.0	3,184.9	4,894.9	640.0	3,878.8	25,067.5	5,107.2	7,253.0	68,575.0
2016	1,316.9	2,041.5	7,320.7	7,669.6	3,193.2	5,061.5	649.5	3,467.4	27,352.2	5,274.7	8,202.6	71,549.9
2017	1,508.6	2,367.1	8,711.3	9,787.6	4,350.5	6,222.8	787.3	4,455.4	32,120.7	6,436.3	10,919.7	87,667.2
2018	1,262.8	1,937.9	6,324.9	8,136.0	3,819.2	5,296.8	687.3	3,638.0	30,436.3	5,661.4	9,620.9	76,821.6
2019	1,487.6	2,409.1	8,569.5	9,733.6	4,899.2	6,191.1	697.3	4,182.9	34,085.7	8,709.3	8,819.8	89,785.2
2020	1,720.6	2,608.4	12,276.8	11,148.1	6,130.4	6,718.2	652.6	4,045.6	41,569.9	9,756.0	10,089.6	106,716.1
2021	1,887.4	3,264.1	14,437.4	13,811.0	5,434.2	6,544.3	663.4	3,799.5	48,548.5	10,965.0	11,465.1	120,820.0
2022	1,679.2	2,744.7	11,469.3	10,988.4	4,566.8	5,380.5	619.4	3,096.0	40,298.0	9,462.8	10,930.1	101,235.2
Average	1,379.4	2,135.1	6,916.1	8,573.4	3,556.5	4,884.0	643.4	3,596.4	27,207.0	6,015.5	8,673.4	73,580.1
Y/Y Change	-11.0%	-15.9%	-20.6%	-20.4%	-16.0%	-17.8%	-6.6%	-18.5%	-17.0%	-13.7%	-4.7%	-16.2%
5Y CAGR	5.9%	7.2%	12.6%	6.2%	3.6%	0.3%	-2.1%	-3.2%	10.8%	2.6%	5.7%	5.7%
10Y CAGR	2.1%	2.6%	11.3%	2.5%	3.9%	1.7%	-1.8%	-3.5%	5.3%	6.1%	3.1%	4.3%

## Global Equity Markets Capitalization: % Change Y/Y

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2009	84.5%	62.3%	100.9%	35.5%	73.5%	5.6%	81.6%	49.7%	30.1%	67.9%	108.4%	48.4%
2010	15.3%	29.4%	12.7%	-6.6%	17.6%	19.0%	34.5%	29.2%	14.6%	23.0%	28.7%	15.9%
2011	-17.6%	-11.9%	-15.3%	-16.7%	-16.7%	-13.6%	-7.6%	-9.6%	-9.5%	-13.4%	-13.7%	-12.7%
2012	15.7%	7.7%	8.4%	14.8%	25.4%	4.0%	27.9%	4.0%	19.4%	17.1%	4.6%	13.2%
2013	-1.5%	2.7%	6.8%	25.8%	9.5%	23.4%	-2.7%	30.4%	28.7%	17.8%	-3.5%	17.9%
2014	-5.7%	-0.9%	52.1%	-8.9%	4.3%	-3.6%	1.1%	-9.4%	9.6%	1.0%	4.2%	5.2%
2015	-7.9%	-24.0%	36.4%	-3.4%	-1.5%	11.8%	-15.0%	-3.3%	-4.8%	-3.5%	-13.8%	-1.5%
2016	10.9%	28.1%	-10.6%	1.2%	0.3%	3.4%	1.5%	-10.6%	9.1%	3.3%	13.1%	4.3%
2017	14.6%	15.9%	19.0%	27.6%	36.2%	22.9%	21.2%	28.5%	17.4%	22.0%	33.1%	22.5%
2018	-16.3%	-18.1%	-27.4%	-16.9%	-12.2%	-14.9%	-12.7%	-18.3%	-5.2%	-12.0%	-11.9%	-12.4%
2019	17.8%	24.3%	35.5%	19.6%	28.3%	16.9%	1.5%	15.0%	12.0%	53.8%	-8.3%	16.9%
2020	15.7%	8.3%	43.3%	14.5%	25.1%	8.5%	-6.4%	-3.3%	22.0%	12.0%	14.4%	18.9%
2021	9.7%	25.1%	17.6%	23.9%	-11.4%	-2.6%	1.7%	-6.1%	16.8%	12.4%	13.6%	13.2%
2022	-11.0%	-15.9%	-20.6%	-20.4%	-16.0%	-17.8%	-6.6%	-18.5%	-17.0%	-13.7%	-4.7%	-16.2%

Source: World Federation of Exchanges

Note: Market capitalization of listed domestic companies. EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets, DM/EM exclude countries listed in the table

## Global Equity Market Capitalization – Share of Total

## Global Equity Markets Capitalization: % of Total

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM
2008	2.1%	3.1%	5.4%	17.1%	4.0%	9.9%	0.8%	5.7%	35.1%	6.4%	10.5%
2009	2.6%	3.4%	7.3%	15.6%	4.7%	7.0%	1.0%	5.7%	30.7%	7.3%	14.7%
2010	2.6%	3.8%	7.1%	12.6%	4.8%	7.2%	1.1%	6.4%	30.4%	7.7%	16.3%
2011	2.4%	3.9%	6.9%	12.0%	4.6%	7.1%	1.2%	6.6%	31.5%	7.7%	16.1%
2012	2.5%	3.7%	6.6%	12.2%	5.0%	6.6%	1.4%	6.0%	33.2%	7.9%	14.9%
2013	2.1%	3.2%	6.0%	13.0%	4.7%	6.9%	1.1%	6.7%	36.3%	7.9%	12.2%
2014	1.9%	3.0%	8.6%	11.3%	4.6%	6.3%	1.1%	5.8%	37.8%	7.6%	12.1%
2015	1.7%	2.3%	11.9%	11.1%	4.6%	7.1%	0.9%	5.7%	36.6%	7.4%	10.6%
2016	1.8%	2.9%	10.2%	10.7%	4.5%	7.1%	0.9%	4.8%	38.2%	7.4%	11.5%
2017	1.7%	2.7%	9.9%	11.2%	5.0%	7.1%	0.9%	5.1%	36.6%	7.3%	12.5%
2018	1.6%	2.5%	8.2%	10.6%	5.0%	6.9%	0.9%	4.7%	39.6%	7.4%	12.5%
2019	1.7%	2.7%	9.5%	10.8%	5.5%	6.9%	0.8%	4.7%	38.0%	9.7%	9.8%
2020	1.6%	2.4%	11.5%	10.4%	5.7%	6.3%	0.6%	3.8%	39.0%	9.1%	9.5%
2021	1.6%	2.7%	11.9%	11.4%	4.5%	5.4%	0.5%	3.1%	40.2%	9.1%	9.5%
2022	1.7%	2.7%	11.3%	10.9%	4.5%	5.3%	0.6%	3.1%	39.8%	9.3%	10.8%
Average	2.0%	3.0%	8.8%	12.1%	4.8%	6.9%	0.9%	5.2%	36.2%	8.0%	12.2%
Y/Y Change	0.1%	0.0%	-0.6%	-0.6%	0.0%	-0.1%	0.1%	-0.1%	-0.4%	0.3%	1.3%

Source: World Federation of Exchanges

Note: Market capitalization of listed domestic companies. EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets, DM/EM exclude countries listed in the table

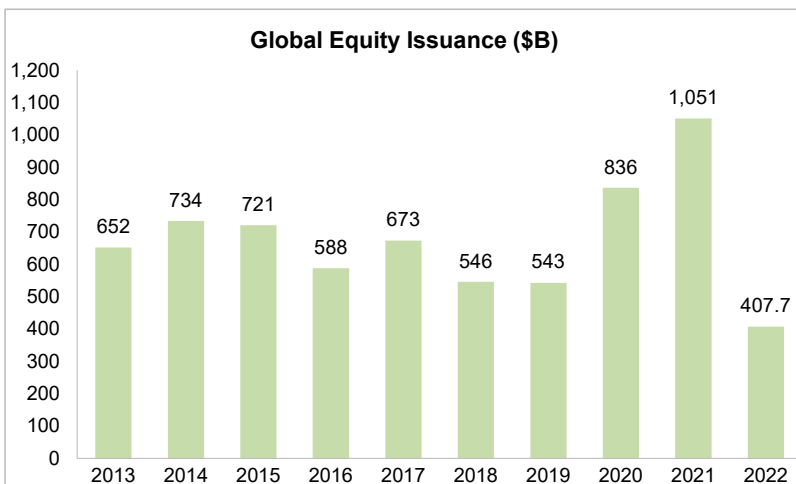
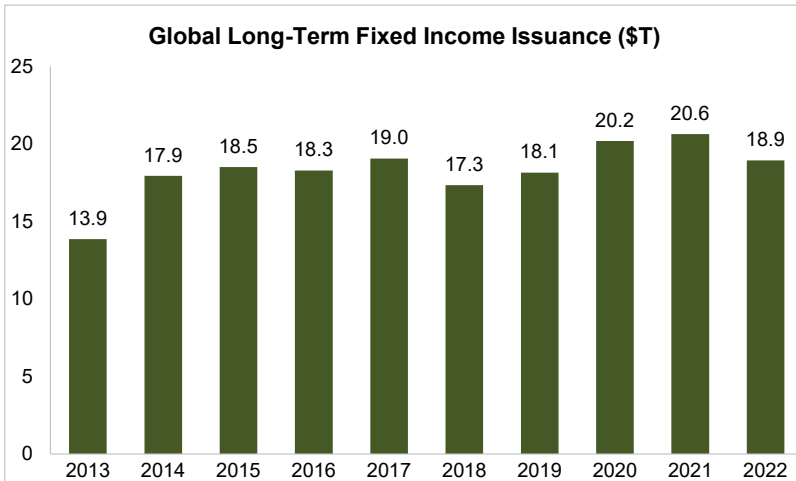
## Global Derivatives Market Outstanding – Notional Principal

Global Derivatives Outstanding: \$ Billions				Global Derivatives Outstanding: % Change Y/Y			
	Exchange Traded	Over-the-Counter	Total		Exchange Traded	Over-the-Counter	Total
2008	52,963.0	598,141.0	651,103.9				
2009	67,416.4	603,893.3	671,309.7	2009	27.3%	1.0%	3.1%
2010	62,309.9	601,042.8	663,352.7	2010	-7.6%	-0.5%	-1.2%
2011	53,692.9	647,807.0	701,499.9	2011	-13.8%	7.8%	5.8%
2012	49,033.2	635,681.0	684,714.1	2012	-8.7%	-1.9%	-2.4%
2013	57,459.4	710,092.3	767,551.7	2013	17.2%	11.7%	12.1%
2014	57,594.2	627,786.0	685,380.2	2014	0.2%	-11.6%	-10.7%
2015	63,485.8	492,536.2	556,022.0	2015	10.2%	-21.5%	-18.9%
2016	67,244.9	482,421.1	549,665.9	2016	5.9%	-2.1%	-1.1%
2017	80,984.1	531,911.1	612,895.1	2017	20.4%	10.3%	11.5%
2018	94,849.7	544,383.3	639,233.0	2018	17.1%	2.3%	4.3%
2019	95,812.8	558,512.7	654,325.5	2019	1.0%	2.6%	2.4%
2020	65,949.7	582,055.3	648,005.1	2020	-31.2%	4.2%	-1.0%
2021	80,091.8	598,416.0	678,507.7	2021	21.4%	2.8%	4.7%
2022	80,628.2	617,958.9	698,587.1	2022	0.7%	3.3%	3.0%
Average	68,634.4	588,842.5	657,476.9				
Y/Y Change	0.7%	3.3%	3.0%				
5Y CAGR	-3.2%	2.6%	1.8%				
10Y CAGR	3.4%	-1.4%	-0.9%				

Source: Bank for International Settlements (BIS)

Note: Includes interest rates, foreign exchange, equity linked, commodities, credit, and credit default swaps

Global Fixed Income and Equity Issuance – Charts



Source: Bloomberg, Refinitiv, Dealogic

Note: Long-term includes securities with maturity >13 months; global equity issuance includes non-convertible IPOs and follow-on equity deals, excludes preferred shares, rights issues, closed-end funds, business development companies, and special purpose acquisition companies



## Global Long-Term Fixed Income Issuance – Value

## Global Long-Term Fixed Income Issuance: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2008	175.7	382.0	524.7	3,431.1	10.5	2,432.7	21.1	1,122.9	4,493.8	394.2	863.2	13,851.9
2009	265.9	439.8	524.5	4,339.8	25.4	3,235.9	28.7	1,212.2	6,164.3	453.6	1,240.3	17,930.5
2010	322.3	472.9	704.5	3,667.4	30.2	3,593.6	37.6	686.5	6,726.2	471.2	1,791.8	18,504.3
2011	342.1	554.2	900.8	3,708.6	33.1	4,046.9	33.1	735.2	5,656.3	528.8	1,733.2	18,272.3
2012	348.7	516.9	792.0	3,741.8	46.9	4,289.1	42.9	746.2	6,069.4	546.4	1,905.7	19,046.0
2013	328.3	575.5	978.1	3,614.9	38.4	3,748.2	43.7	662.0	5,060.3	540.6	1,745.9	17,335.9
2014	319.0	549.0	1,608.5	3,707.9	54.2	3,472.3	39.6	655.0	5,281.1	573.8	1,872.2	18,132.5
2015	244.3	502.9	2,442.5	2,995.0	46.4	3,223.4	36.0	509.1	7,805.3	567.4	1,809.2	20,181.3
2016	305.0	504.1	3,673.1	2,953.0	64.4	3,437.2	52.9	505.5	6,338.2	554.0	2,243.3	20,630.6
2017	307.2	596.5	2,812.2	3,062.9	66.8	3,240.0	35.9	475.1	5,637.7	559.6	2,125.2	18,919.1
2018	264.1	524.6	2,931.8	2,900.5	46.5	3,039.5	54.4	561.7	5,499.2	553.5	1,989.1	18,364.8
2019	235.1	539.9	3,810.5	3,048.3	88.5	3,130.8	55.3	427.1	8,617.8	586.7	2,491.8	23,031.8
2020	489.9	748.2	5,159.5	3,984.7	82.4	3,382.1	37.8	800.8	9,495.1	736.4	3,092.7	28,009.7
2021	277.9	745.8	5,476.7	3,668.2	108.0	3,664.4	61.3	735.4	9,101.8	699.0	2,780.3	27,318.8
2022	283.1	666.9	5,806.0	2,881.8	81.5	2,958.3	46.0	323.3	6,604.6	568.9	2,307.4	22,527.8
Average	300.6	554.6	2,543.0	3,447.1	54.9	3,393.0	41.7	677.2	6,570.1	555.6	1,999.4	20,137.2
Y/Y Change	1.9%	-10.6%	6.0%	-21.4%	-24.6%	-19.3%	-25.0%	-56.0%	-27.4%	-18.6%	-17.0%	-17.5%
5Y CAGR	-1.6%	2.3%	15.6%	-1.2%	4.1%	-1.8%	5.1%	-7.4%	3.2%	0.3%	1.7%	3.6%
10Y CAGR	-2.1%	2.6%	22.0%	-2.6%	5.7%	-3.6%	0.7%	-8.0%	0.8%	0.4%	1.9%	1.7%

## Global Long-Term Fixed Income Issuance: % Change Y/Y

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2009	51.3%	15.1%	0.0%	26.5%	141.0%	33.0%	36.2%	7.9%	37.2%	15.1%	43.7%	29.4%
2010	21.2%	7.5%	34.3%	-15.5%	19.0%	11.1%	31.1%	-43.4%	9.1%	3.9%	44.5%	3.2%
2011	6.1%	17.2%	27.9%	1.1%	9.6%	12.6%	-12.1%	7.1%	-15.9%	12.2%	-3.3%	-1.3%
2012	2.0%	-6.7%	-12.1%	0.9%	41.7%	6.0%	29.7%	1.5%	7.3%	3.3%	10.0%	4.2%
2013	-5.8%	11.3%	23.5%	-3.4%	-18.2%	-12.6%	1.9%	-11.3%	-16.6%	-1.1%	-8.4%	-9.0%
2014	-2.8%	-4.6%	64.4%	2.6%	41.1%	-7.4%	-9.4%	-1.1%	4.4%	6.1%	7.2%	4.6%
2015	-23.4%	-8.4%	51.9%	-19.2%	-14.4%	-7.2%	-9.1%	-22.3%	47.8%	-1.1%	-3.4%	11.3%
2016	24.8%	0.3%	50.4%	-1.4%	38.8%	6.6%	47.0%	-0.7%	-18.8%	-2.4%	24.0%	2.2%
2017	0.7%	18.3%	-23.4%	3.7%	3.7%	-5.7%	-32.2%	-6.0%	-11.1%	1.0%	-5.3%	-8.3%
2018	-14.0%	-12.1%	4.3%	-5.3%	-30.4%	-6.2%	51.7%	18.2%	-2.5%	-1.1%	-6.4%	-2.9%
2019	-11.0%	2.9%	30.0%	5.1%	90.4%	3.0%	1.7%	-24.0%	56.7%	6.0%	25.3%	25.4%
2020	108.4%	38.6%	35.4%	30.7%	-6.9%	8.0%	-31.6%	87.5%	10.2%	25.5%	24.1%	21.6%
2021	-43.3%	-0.3%	6.1%	-7.9%	31.1%	8.3%	62.2%	-8.2%	-4.1%	-5.1%	-10.1%	-2.5%
2022	1.9%	-10.6%	6.0%	-21.4%	-24.6%	-19.3%	-25.0%	-56.0%	-27.4%	-18.6%	-17.0%	-17.5%

Source: Bloomberg, Refinitiv

Note: Long-term includes securities with maturity &gt;13 months; includes corporate, municipal and sovereign issuance. EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets. DM/EM exclude countries listed in the table

## Global Equity Issuance – Value

## Global Equity Issuance: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2008	16.8	18.2	2.1	28.3	12.8	8.4	1.7	21.8	201.6	3.7	43.7	359.0
2009	22.3	32.0	30.2	34.0	50.4	58.7	4.2	28.8	257.9	16.2	56.8	591.5
2010	20.3	38.7	73.1	50.9	78.3	56.0	8.2	26.4	213.0	8.2	108.1	681.3
2011	10.9	28.6	42.1	56.1	44.7	17.9	10.2	25.9	179.4	4.6	59.2	479.6
2012	10.5	29.0	40.2	47.1	51.0	22.4	6.1	19.9	230.0	7.5	70.6	534.3
2013	21.3	25.7	29.7	95.2	41.2	42.8	9.2	41.8	254.8	15.7	74.9	652.4
2014	27.5	33.2	66.1	114.6	56.8	31.0	4.5	56.1	265.4	10.3	68.7	734.3
2015	20.2	27.6	111.0	122.2	70.0	35.3	1.3	54.9	216.7	9.7	51.8	720.7
2016	14.1	33.7	159.0	62.9	35.3	20.9	2.6	28.5	178.1	7.4	45.8	588.2
2017	13.1	26.8	114.6	95.6	31.5	44.9	4.4	38.0	194.0	16.5	93.9	673.2
2018	10.9	16.2	49.7	59.7	57.0	46.7	3.7	31.7	204.5	10.1	55.9	545.9
2019	17.8	13.2	47.9	49.8	51.6	20.0	5.3	31.9	194.1	12.0	99.3	543.1
2020	27.1	15.5	107.5	67.8	83.1	37.7	3.8	44.7	343.7	20.0	85.5	836.4
2021	28.7	20.4	172.1	114.8	95.7	36.2	3.9	51.1	376.7	20.0	131.0	1,050.7
2022	10.0	10.4	132.2	32.8	19.0	9.4	0.7	12.6	87.1	9.9	83.5	407.7
Average	18.1	24.6	78.5	68.8	51.9	32.6	4.7	34.3	226.5	11.5	75.2	626.6
Y/Y Change	-65.0%	-49.0%	-23.2%	-71.4%	-80.2%	-74.1%	-82.6%	-75.3%	-76.9%	-50.6%	-36.3%	-61.2%
5Y CAGR	-5.2%	-17.2%	2.9%	-19.3%	-9.6%	-26.9%	-31.5%	-19.7%	-14.8%	-9.7%	-2.3%	-9.5%
10Y CAGR	-0.5%	-9.8%	12.7%	-3.5%	-9.4%	-8.3%	-19.8%	-4.4%	-9.3%	2.8%	1.7%	-2.7%

## Global Equity Issuance: % Change Y/Y

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	US	DM	EM	Total
2009	33.3%	76.3%	1356.8%	20.3%	292.3%	598.4%	147.0%	32.3%	27.9%	342.3%	29.9%	64.8%
2010	-9.3%	20.7%	142.4%	49.8%	55.5%	-4.7%	94.7%	-8.1%	-17.4%	-49.2%	90.5%	15.2%
2011	-46.2%	-26.1%	-42.4%	10.1%	-42.9%	-68.1%	24.8%	-2.2%	-15.7%	-43.7%	-45.2%	-29.6%
2012	-3.4%	1.5%	-4.7%	-16.0%	14.1%	25.3%	-40.3%	-22.9%	28.2%	62.0%	19.2%	11.4%
2013	102.7%	-11.6%	-25.9%	102.2%	-19.2%	91.2%	50.4%	109.9%	10.8%	109.0%	6.2%	22.1%
2014	29.1%	29.2%	122.2%	20.4%	37.8%	-27.5%	-50.5%	34.1%	4.2%	-34.2%	-8.3%	12.6%
2015	-26.8%	-16.8%	67.9%	6.6%	23.3%	13.9%	-70.5%	-2.1%	-18.4%	-6.3%	-24.6%	-1.9%
2016	-29.9%	22.0%	43.3%	-48.5%	-49.6%	-40.8%	91.6%	-48.2%	-17.8%	-23.6%	-11.7%	-18.4%
2017	-7.4%	-20.4%	-28.0%	51.9%	-10.7%	114.6%	72.7%	33.4%	8.9%	122.6%	105.2%	14.4%
2018	-16.6%	-39.7%	-56.6%	-37.6%	81.1%	4.0%	-16.3%	-16.6%	5.4%	-38.6%	-40.5%	-18.9%
2019	63.5%	-18.0%	-3.6%	-16.6%	-9.5%	-57.1%	43.6%	0.9%	-5.1%	18.9%	77.8%	-0.5%
2020	51.7%	17.1%	124.4%	36.2%	61.1%	88.2%	-28.4%	40.0%	77.1%	66.6%	-13.9%	54.0%
2021	6.0%	31.6%	60.1%	69.3%	15.3%	-4.0%	1.1%	14.3%	9.6%	0.1%	53.3%	25.6%
2022	-65.0%	-49.0%	-23.2%	-71.4%	-80.2%	-74.1%	-82.6%	-75.3%	-76.9%	-50.6%	-36.3%	-61.2%

Source: Dealogic

Note: By exchange nationality. Includes rank eligible, non-convertible IPOs and follow-on equity deals; excludes preferred shares, rights issued, closed-end funds, business development companies, and special purpose acquisition companies. Developed/Emerging Markets excludes countries listed in the table. EU = European Union, HK = Hong Kong, DM = developed markets, EM = emerging markets. DM/EM exclude countries listed in the table

## International Security Offerings by All Issuers – Value

## International Security Offerings by All Issuers: \$ Billions

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2008	1,804.3	53.6	1,858.0	272.3	10.7	283.0	2,140.9
2009	2,568.0	55.5	2,623.6	396.1	13.7	409.8	3,033.4
2010	2,335.5	51.9	2,387.4	365.6	6.6	372.2	2,759.7
2011	2,263.9	36.4	2,300.3	235.1	10.5	245.7	2,546.0
2012	2,695.1	44.0	2,739.0	236.2	15.6	251.7	2,990.8
2013	2,736.0	54.8	2,790.8	307.2	8.3	315.5	3,106.3
2014	3,082.9	56.1	3,139.0	351.2	15.6	366.8	3,505.8
2015	2,534.8	38.4	2,573.2	393.6	14.4	408.0	2,981.2
2016	2,640.8	42.3	2,683.1	225.5	7.3	232.8	2,915.9
2017	3,164.6	35.6	3,200.2	348.6	24.1	372.6	3,572.8
2018	2,729.9	31.8	2,761.7	293.2	8.2	301.4	3,063.1
2019	3,025.4	70.3	3,095.7	286.9	6.2	293.1	3,388.8
2020	3,571.2	131.5	3,702.7	390.4	6.3	396.7	4,099.5
2021	3,712.4	137.1	3,849.6	525.1	10.5	535.6	4,385.2
2022	2,571.3	51.8	2,623.1	194.5	2.6	197.2	2,820.2
Average	2,762.4	59.4	2,821.8	321.4	10.7	332.1	3,154.0
Y/Y Change	-30.7%	-62.2%	-31.9%	-63.0%	-74.9%	-63.2%	-35.7%
5Y CAGR	-4.1%	7.8%	-3.9%	-11.0%	-35.7%	-12.0%	-4.6%
10Y CAGR	-0.5%	1.7%	-0.4%	-1.9%	-16.3%	-2.4%	-0.6%

## International Security Offerings by All Issuers: % Change Y/Y

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2009	42.3%	3.6%	41.2%	45.5%	27.9%	44.8%	41.7%
2010	-9.1%	-6.6%	-9.0%	-7.7%	-51.4%	-9.2%	-9.0%
2011	-3.1%	-29.8%	-3.6%	-35.7%	58.5%	-34.0%	-7.7%
2012	19.0%	20.8%	19.1%	0.5%	47.7%	2.5%	17.5%
2013	1.5%	24.6%	1.9%	30.0%	-46.5%	25.3%	3.9%
2014	12.7%	2.4%	12.5%	14.3%	87.3%	16.3%	12.9%
2015	-17.8%	-31.5%	-18.0%	12.1%	-7.8%	11.2%	-15.0%
2016	4.2%	10.1%	4.3%	-42.7%	-49.5%	-42.9%	-2.2%
2017	19.8%	-15.9%	19.3%	54.6%	231.5%	60.1%	22.5%
2018	-13.7%	-10.6%	-13.7%	-15.9%	-65.9%	-19.1%	-14.3%
2019	10.8%	121.2%	12.1%	-2.2%	-24.5%	-2.8%	10.6%
2020	18.0%	87.0%	19.6%	36.1%	2.3%	35.4%	21.0%
2021	4.0%	4.3%	4.0%	34.5%	65.7%	35.0%	7.0%
2022	-30.7%	-62.2%	-31.9%	-63.0%	-74.9%	-63.2%	-35.7%

Source: Refinitiv

Note: Foreign entity issuing securities outside of its domestic market.

## International Security Offerings by All Issuers – Number of Issues

## International Security Offerings by All Issuers: # Issues

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2008	3,518	130	3,648	857	47	904	4,552
2009	3,597	201	3,798	1,515	65	1,580	5,378
2010	4,615	444	5,059	1,820	44	1,864	6,923
2011	4,160	429	4,589	1,439	57	1,496	6,085
2012	5,149	273	5,422	1,584	99	1,683	7,105
2013	5,132	316	5,448	1,909	92	2,001	7,449
2014	5,701	259	5,960	2,050	96	2,146	8,106
2015	4,690	127	4,817	2,188	61	2,249	7,066
2016	4,865	112	4,977	2,046	37	2,083	7,060
2017	5,640	102	5,742	2,581	56	2,637	8,379
2018	4,941	155	5,096	2,298	42	2,340	7,436
2019	5,297	244	5,541	2,394	25	2,419	7,960
2020	5,503	310	5,813	3,025	18	3,043	8,856
2021	6,094	310	6,404	3,692	37	3,729	10,133
2022	4,433	133	4,566	2,337	23	2,360	6,926
Average	4,889	236	5,125	2,116	53	2,169	7,294
Y/Y Change	-27.3%	-57.1%	-28.7%	-36.7%	-37.8%	-36.7%	-31.6%
5Y CAGR	-4.7%	5.5%	-4.5%	-2.0%	-16.3%	-2.2%	-3.7%
10Y CAGR	-1.5%	-6.9%	-1.7%	4.0%	-13.6%	3.4%	-0.3%

## International Security Offerings by All Issuers: % Change Y/Y

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2009	2.2%	54.6%	4.1%	76.8%	38.3%	74.8%	18.1%
2010	28.3%	120.9%	33.2%	20.1%	-32.3%	18.0%	28.7%
2011	-9.9%	-3.4%	-9.3%	-20.9%	29.5%	-19.7%	-12.1%
2012	23.8%	-36.4%	18.2%	10.1%	73.7%	12.5%	16.8%
2013	-0.3%	15.8%	0.5%	20.5%	-7.1%	18.9%	4.8%
2014	11.1%	-18.0%	9.4%	7.4%	4.3%	7.2%	8.8%
2015	-17.7%	-51.0%	-19.2%	6.7%	-36.5%	4.8%	-12.8%
2016	3.7%	-11.8%	3.3%	-6.5%	-39.3%	-7.4%	-0.1%
2017	15.9%	-8.9%	15.4%	26.1%	51.4%	26.6%	18.7%
2018	-12.4%	52.0%	-11.3%	-11.0%	-25.0%	-11.3%	-11.3%
2019	7.2%	57.4%	8.7%	4.2%	-40.5%	3.4%	7.0%
2020	3.9%	27.0%	4.9%	26.4%	-28.0%	25.8%	11.3%
2021	10.7%	0.0%	10.2%	22.0%	105.6%	22.5%	14.4%
2022	-27.3%	-57.1%	-28.7%	-36.7%	-37.8%	-36.7%	-31.6%

Source: Refinitiv

Note: Foreign entity issuing securities outside of its domestic market.

## International Security Offerings by US Issuers – Value

## International Security Offerings by US Issuers: \$ Billions

	Convertible			Common Stock	Preferred Stock	Total Equity	Total
	Straight Debt	Debt	Total Debt				
2008	189.7	0.0	189.7	20.1	2.1	22.2	211.9
2009	232.8	0.2	233.0	1.8	1.1	3.0	236.0
2010	316.2	0.0	316.2	1.9	0.0	1.9	318.1
2011	249.7	1.1	250.8	0.9	1.8	2.7	253.5
2012	419.4	4.0	423.4	2.2	1.8	4.0	427.4
2013	449.5	4.8	454.2	1.7	1.7	3.4	457.6
2014	583.3	4.1	587.4	1.7	0.2	1.9	589.3
2015	620.0	1.9	622.0	1.3	3.4	4.7	626.7
2016	600.1	0.4	600.5	1.2	0.1	1.3	601.8
2017	742.4	0.4	742.8	4.4	0.8	5.2	748.0
2018	557.5	1.8	559.4	1.9	3.4	5.3	564.7
2019	681.9	33.9	715.8	1.5	3.1	4.7	720.5
2020	831.8	74.7	906.5	2.0	2.7	4.7	911.1
2021	1,023.5	73.7	1,097.2	4.2	3.3	7.6	1,104.8
2022	573.1	26.4	599.5	1.1	0.0	1.1	600.6
Average	538	15	553	3	2	5	558
Y/Y Change	-44.0%	-64.2%	-45.4%	-73.7%	-100.0%	-85.3%	-45.6%
5Y CAGR	-5.0%	133.4%	-4.2%	-24.1%	-100.0%	-26.6%	-4.3%
10Y CAGR	3.2%	20.8%	3.5%	-6.5%	-100.0%	-12.1%	3.5%

## International Security Offerings by US Issuers: % Change Y/Y

	Convertible			Common Stock	Preferred Stock	Total Equity	Total
	Straight Debt	Debt	Total Debt				
2009	22.7%	535.6%	22.8%	-90.9%	-46.9%	-86.6%	11.4%
2010	35.8%	-91.5%	35.7%	4.4%	-97.7%	-34.8%	34.8%
2011	-21.0%	5202.8%	-20.7%	-51.7%	6636.7%	39.0%	-20.3%
2012	68.0%	266.3%	68.8%	136.5%	4.5%	49.7%	68.6%
2013	7.2%	19.1%	7.3%	-23.7%	-6.7%	-15.9%	7.1%
2014	29.8%	-13.9%	29.3%	3.4%	-90.9%	-44.5%	28.8%
2015	6.3%	-52.7%	5.9%	-27.3%	2089.7%	149.2%	6.3%
2016	-3.2%	-79.0%	-3.4%	-6.0%	-96.7%	-72.5%	-4.0%
2017	23.7%	-6.7%	23.7%	275.6%	637.8%	307.2%	24.3%
2018	-24.9%	384.2%	-24.7%	-58.1%	312.2%	0.5%	-24.5%
2019	22.3%	1740.8%	28.0%	-17.0%	-8.2%	-11.3%	27.6%
2020	22.0%	120.1%	26.6%	29.1%	-14.8%	-0.4%	26.5%
2021	23.0%	-1.3%	21.0%	113.6%	24.3%	62.4%	21.3%
2022	-44.0%	-64.2%	-45.4%	-73.7%	-100.0%	-85.3%	-45.6%

Source: Refinitiv

Note: U.S. entity issuing securities outside of U.S.

## International Security Offerings by US Issuers – Number of Issues

## International Security Offerings by US Issuers: # of issues

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2008	458	7	465	14	7	21	486
2009	397	5	402	34	9	43	445
2010	700	7	707	40	3	43	750
2011	569	40	609	31	17	48	657
2012	835	80	915	30	33	63	978
2013	871	70	941	35	41	76	1,017
2014	1,058	51	1,109	28	25	53	1,162
2015	1,002	8	1,010	24	14	38	1,048
2016	1,024	2	1,026	25	3	28	1,054
2017	1,211	3	1,214	37	6	43	1,257
2018	967	9	976	51	11	62	1,038
2019	1,046	97	1,143	47	6	53	1,196
2020	1,254	149	1,403	55	2	57	1,460
2021	1,651	137	1,788	63	5	68	1,856
2022	977	56	1,033	32	0	32	1,065
Average	935	48	983	36	12	49	1,031
Y/Y Change	-40.8%	-59.1%	-42.2%	-49.2%	-100.0%	-52.9%	-42.6%
5Y CAGR	-4.2%	79.6%	-3.2%	-2.9%	-100.0%	-5.7%	-3.3%
10Y CAGR	1.6%	-3.5%	1.2%	0.6%	-100.0%	-6.5%	0.9%

## International Security Offerings by US Issuers: % Change Y/Y

	Straight Debt	Convertible Debt	Total Debt	Common Stock	Preferred Stock	Total Equity	Total
2009	-13.3%	-28.6%	-13.5%	142.9%	28.6%	104.8%	-8.4%
2010	76.3%	40.0%	75.9%	17.6%	-66.7%	0.0%	68.5%
2011	-18.7%	471.4%	-13.9%	-22.5%	466.7%	11.6%	-12.4%
2012	46.7%	100.0%	50.2%	-3.2%	94.1%	31.3%	48.9%
2013	4.3%	-12.5%	2.8%	16.7%	24.2%	20.6%	4.0%
2014	21.5%	-27.1%	17.9%	-20.0%	-39.0%	-30.3%	14.3%
2015	-5.3%	-84.3%	-8.9%	-14.3%	-44.0%	-28.3%	-9.8%
2016	2.2%	-75.0%	1.6%	4.2%	-78.6%	-26.3%	0.6%
2017	18.3%	50.0%	18.3%	48.0%	100.0%	53.6%	19.3%
2018	-20.1%	200.0%	-19.6%	37.8%	83.3%	44.2%	-17.4%
2019	8.2%	977.8%	17.1%	-7.8%	-45.5%	-14.5%	15.2%
2020	19.9%	53.6%	22.7%	17.0%	-66.7%	7.5%	22.1%
2021	31.7%	-8.1%	27.4%	14.5%	150.0%	19.3%	27.1%
2022	-40.8%	-59.1%	-42.2%	-49.2%	-100.0%	-52.9%	-42.6%

Source: Refinitiv

Note: U.S. entity issuing securities outside of U.S.

## Major Global Stock Market Index Prices

## Major Global Stock Market Indexes: Local Currency Price

	US: S&P 500	Canada: S&P/TSX	France: CAC 40	Germany: DAX	Hong Kong: Hang Seng	Japan: Nikkei 225	UK: FTSE 100
2008	903.25	8,987.70	3,217.97	4,810.20	14,387.48	8,859.56	4,434.17
2009	1,115.10	11,746.11	3,936.33	5,957.43	21,872.50	10,546.44	5,412.88
2010	1,257.64	13,443.22	3,804.78	6,914.19	23,035.45	10,228.92	5,899.94
2011	1,257.61	11,955.09	3,159.81	5,898.35	18,434.39	8,455.35	5,572.28
2012	1,426.19	12,433.53	3,641.07	7,612.39	22,656.92	10,395.18	5,897.81
2013	1,848.36	13,621.55	4,295.95	9,552.16	23,306.39	16,291.31	6,749.09
2014	2,058.90	14,632.44	4,272.75	9,805.55	23,605.04	17,450.77	6,566.09
2015	2,043.94	13,009.95	4,637.06	10,743.01	21,914.40	19,033.71	6,242.32
2016	2,238.83	15,287.59	4,862.31	11,481.06	22,000.56	19,114.37	7,142.83
2017	2,673.61	16,209.13	5,312.56	12,917.64	29,919.15	22,764.94	7,687.77
2018	2,506.85	14,322.86	4,730.69	10,558.96	25,845.70	20,014.77	6,728.13
2019	3,230.78	17,063.43	5,978.06	13,249.01	28,189.75	23,656.62	7,542.44
2020	3,756.07	17,433.36	5,551.41	13,718.78	27,231.13	27,444.17	6,460.52
2021	4,766.18	21,222.84	7,153.03	15,884.86	23,397.67	28,791.71	7,384.54
2022	3,839.50	19,384.92	6,473.76	13,923.59	19,781.41	26,094.50	7,451.74
Average	2,328.19	14,716.91	4,735.17	10,201.81	23,038.53	17,942.82	6,478.17
Y/Y Change	-19.4%	-8.7%	-9.5%	-12.3%	-15.5%	-9.4%	0.9%
5Y CAGR	7.5%	3.6%	4.0%	1.5%	-7.9%	2.8%	-0.6%
10Y CAGR	10.4%	4.5%	5.9%	6.2%	-1.3%	9.6%	2.4%

## Major Global Stock Market Indexes: % Change Y/Y

	US: S&P 500	Canada: S&P/TSX	France: CAC 40	Germany: DAX	Hong Kong: Hang Seng	Japan: Nikkei 225	UK: FTSE 100
2009	23.5%	30.7%	22.3%	23.8%	52.0%	19.0%	22.1%
2010	12.8%	14.4%	-3.3%	16.1%	5.3%	-3.0%	9.0%
2011	0.0%	-11.1%	-17.0%	-14.7%	-20.0%	-17.3%	-5.6%
2012	13.4%	4.0%	15.2%	29.1%	22.9%	22.9%	5.8%
2013	29.6%	9.6%	18.0%	25.5%	2.9%	56.7%	14.4%
2014	11.4%	7.4%	-0.5%	2.7%	1.3%	7.1%	-2.7%
2015	-0.7%	-11.1%	8.5%	9.6%	-7.2%	9.1%	-4.9%
2016	9.5%	17.5%	4.9%	6.9%	0.4%	0.4%	14.4%
2017	19.4%	6.0%	9.3%	12.5%	36.0%	19.1%	7.6%
2018	-6.2%	-11.6%	-11.0%	-18.3%	-13.6%	-12.1%	-12.5%
2019	28.9%	19.1%	26.4%	25.5%	9.1%	18.2%	12.1%
2020	16.3%	2.2%	-7.1%	3.5%	-3.4%	16.0%	-14.3%
2021	26.9%	21.7%	28.9%	15.8%	-14.1%	4.9%	14.3%
2022	-19.4%	-8.7%	-9.5%	-12.3%	-15.5%	-9.4%	0.9%

Source: Bloomberg (end of year closing price)

## Foreign Exchange Rates

Foreign Exchange Rates: Foreign Currency Units Per US

	Canadian Dollar	Euro	Japanese Yen	British Pound	Index
2008	1.0670	0.6832	103.3700	0.5456	90.8715
2009	1.1405	0.7189	93.6000	0.6405	96.7576
2010	1.0302	0.7553	87.7300	0.6475	93.0441
2011	0.9891	0.7189	79.7000	0.6236	88.8188
2012	0.9996	0.7781	79.8400	0.6310	91.6112
2013	1.0300	0.7531	97.6300	0.6395	92.7596
2014	1.1046	0.7540	105.9200	0.6074	95.6123
2015	1.2790	0.9013	121.0400	0.6544	108.1304
2016	1.3248	0.9039	108.7800	0.7407	113.1539
2017	1.2982	0.8868	112.1500	0.7765	112.8429
2018	1.2961	0.8477	110.4600	0.7500	112.0005
2019	1.3268	0.8935	109.0300	0.7837	115.7238
2020	1.3409	0.8771	106.7700	0.7796	117.6988
2021	1.2537	0.8459	109.8500	0.7271	113.0947
2022	1.3019	0.9514	131.5500	0.8117	120.6713
Average	1.1855	0.8179	103.8280	0.6906	104.1861
Y/Y Change	3.8%	12.5%	19.8%	11.6%	6.7%
5Y CAGR	0.1%	2.3%	3.6%	1.6%	1.5%
10Y CAGR	2.7%	2.4%	3.0%	2.4%	2.7%

Foreign Exchange Rates: % Change Y/Y

	Canadian Dollar	Euro	Japanese Yen	British Pound	Index
2009	6.9%	5.2%	-9.5%	17.4%	6.5%
2010	-9.7%	5.1%	-6.3%	1.1%	-3.8%
2011	-4.0%	-4.8%	-9.2%	-3.7%	-4.5%
2012	1.1%	8.2%	0.2%	1.2%	3.1%
2013	3.0%	-3.2%	22.3%	1.3%	1.3%
2014	7.2%	0.1%	8.5%	-5.0%	3.1%
2015	15.8%	19.5%	14.3%	7.7%	13.1%
2016	3.6%	0.3%	-10.1%	13.2%	4.6%
2017	-2.0%	-1.9%	3.1%	4.8%	-0.3%
2018	-0.2%	-4.4%	-1.5%	-3.4%	-0.7%
2019	2.4%	5.4%	-1.3%	4.5%	3.3%
2020	1.1%	-1.8%	-2.1%	-0.5%	1.7%
2021	-6.5%	-3.6%	2.9%	-6.7%	-3.9%
2022	3.8%	12.5%	19.8%	11.6%	6.7%

Source: The Federal Reserve

Note: Averages used. Index = Nominal Advanced Foreign Economies Dollar Index, includes trade-weighted (goods only) value of the dollar



## American Depositary Receipts (ADRs)

### American Depositary Receipts (ADRs)

	Sponsored	Un-sponsored	Share Volume (B)	Dollar Volume (\$B)
2008	2,157	n/a	118	3,700
2009	2,110	1,060	135	2,700
2010	2,217	1,116	147	3,500
2011	2,289	1,229	157	3,467
2012	2,287	1,391	134	2,535
2013	2,230	1,532	134	2,510
2014	2,152	1,600	143	3,166
2015	1,976	1,626	156	3,053
2016	1,876	1,516	150	2,842
2017	1,652	1,613	136	3,336
2018	1,579	1,461	162	4,280
2019	1,449	1,497	162	3,510
2020	1,442	1,449	250	5,881
2021	1,403	1,475	299	8,003
2022	1,343	1,460	287	5,437

Average	1,877.5	1,430.4	171.3	3,861.4
Y/Y Change	-4.3%	-1.0%	-4.1%	-32.1%
5Y CAGR	-4.1%	-2.0%	16.2%	10.3%
10Y CAGR	-5.2%	0.5%	8.0%	7.9%

### American Depositary Receipts (ADRs) % Change Y/Y

	Sponsored	Un-sponsored	Share Volume (B)	Dollar Volume (\$B)
2009	-2.2%	n/a	14.4%	-27.0%
2010	5.1%	5.3%	8.9%	29.6%
2011	3.2%	10.1%	6.7%	-0.9%
2012	-0.1%	13.2%	-14.9%	-26.9%
2013	-2.5%	10.1%	0.2%	-1.0%
2014	-3.5%	4.4%	7.1%	26.1%
2015	-8.2%	1.6%	8.9%	-3.6%
2016	-5.1%	-6.8%	-3.7%	-6.9%
2017	-11.9%	6.4%	-9.8%	17.4%
2018	-4.4%	-9.4%	19.5%	28.3%
2019	-8.2%	2.5%	-0.1%	-18.0%
2020	-0.5%	-3.2%	54.3%	67.6%
2021	-2.7%	1.8%	19.9%	36.1%
2022	-4.3%	-1.0%	-4.1%	-32.1%

Source: Deutsche Bank

Note: Trading volume includes both sponsored and un-sponsored ADRs global traded amounts

## US Holdings of Foreign Securities

## US Foreign Securities Holdings: \$ Billions

	Stocks	Bonds	Total
2008	2,748.4	1,341.9	4,090.3
2009	3,995.3	1,693.0	5,688.3
2010	4,900.2	1,903.1	6,803.3
2011	4,501.4	2,107.5	6,609.0
2012	5,321.9	2,334.6	7,656.5
2013	6,472.9	2,366.8	8,839.6
2014	6,770.6	2,587.0	9,357.6
2015	6,756.2	2,427.2	9,183.3
2016	7,146.3	2,504.3	9,650.7
2017	9,118.1	2,950.2	12,068.4
2018	7,899.6	2,984.6	10,884.1
2019	9,478.0	3,266.9	12,744.9
2020	10,615.0	3,536.2	14,151.2
2021	12,022.1	3,810.7	15,832.7
2022	10,271.4	3,434.6	13,706.0

Average	7,201.2	2,616.6	9,817.7
Y/Y Change	-14.6%	-9.9%	-13.4%
5Y CAGR	5.4%	2.8%	4.7%
10Y CAGR	4.7%	3.8%	4.5%

## US Foreign Securities Holdings: % Change Y/Y

	Stocks	Bonds	Total
2009	45.4%	26.2%	39.1%
2010	22.7%	12.4%	19.6%
2011	-8.1%	10.7%	-2.9%
2012	18.2%	10.8%	15.8%
2013	21.6%	1.4%	15.5%
2014	4.6%	9.3%	5.9%
2015	-0.2%	-6.2%	-1.9%
2016	5.8%	3.2%	5.1%
2017	27.6%	17.8%	25.1%
2018	-13.4%	1.2%	-9.8%
2019	20.0%	9.5%	17.1%
2020	12.0%	8.2%	11.0%
2021	13.3%	7.8%	11.9%
2022	-14.6%	-9.9%	-13.4%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Holding of foreign corporate equities, investment shares, and bonds by U.S. residents; includes American Depository Receipts (ADR)

## US Gross Activity in Foreign Securities

## US Foreign Securities Gross Activity: \$ Billions

	Stocks	Bonds	Total
2008	10,860.9	4,465.8	15,326.8
2009	6,396.3	3,991.9	10,388.2
2010	7,404.1	7,320.3	14,724.4
2011	8,000.5	7,054.9	15,055.4
2012	6,909.5	7,824.3	14,733.8
2013	7,850.7	8,609.6	16,460.3
2014	8,892.2	9,287.3	18,179.4
2015	9,694.7	11,501.0	21,195.7
2016	8,805.5	11,104.5	19,910.0
2017	9,798.2	17,387.2	27,185.3
2018	11,907.8	21,865.7	33,773.5
2019	11,082.2	25,856.9	36,939.0
2020	14,437.1	31,616.3	46,053.3
2021	16,967.2	35,792.1	52,759.3
2022	14,260.7	39,005.1	53,265.9

Average	10,217.8	16,178.8	26,396.7
Y/Y Change	-16.0%	9.0%	1.0%
5Y CAGR	7.8%	12.3%	9.5%
10Y CAGR	6.2%	16.3%	12.5%

## US Foreign Securities Gross Activity: % Change Y/Y

	Stocks	Bonds	Total
2009	-41.1%	-10.6%	-32.2%
2010	15.8%	83.4%	41.7%
2011	8.1%	-3.6%	2.2%
2012	-13.6%	10.9%	-2.1%
2013	13.6%	10.0%	11.7%
2014	13.3%	7.9%	10.4%
2015	9.0%	23.8%	16.6%
2016	-9.2%	-3.4%	-6.1%
2017	11.3%	56.6%	36.5%
2018	21.5%	25.8%	24.2%
2019	-6.9%	18.3%	9.4%
2020	30.3%	22.3%	24.7%
2021	17.5%	13.2%	14.6%
2022	-16.0%	9.0%	1.0%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Gross activity = purchases + sales

## US Net Purchases of Foreign Securities

## US Foreign Securities Net Purchases: \$ Billions

	Stocks	Bonds	Total
2008	-20.2	-42.5	-62.7
2009	59.6	123.9	183.5
2010	59.9	75.4	135.3
2011	69.8	88.8	158.6
2012	41.3	1.4	42.7
2013	174.0	76.4	250.4
2014	107.7	-94.0	13.8
2015	114.0	-251.3	-137.3
2016	55.8	-233.2	-177.4
2017	106.3	-217.8	-111.5
2018	-44.0	-291.7	-335.6
2019	-50.0	-113.6	-163.6
2020	-109.1	-178.0	-287.1
2021	54.2	-299.4	-245.2
2022	-45.0	-236.4	-281.4

Average	38.3	-106.1	-67.8
Y/Y Change	-99.3	63.1	-36.2

## US Foreign Securities Net Purchases: % Change Y/Y

	Stocks	Bonds	Total
2009	395.2%	391.7%	392.8%
2010	0.5%	-39.1%	-26.3%
2011	16.5%	17.8%	17.2%
2012	-40.8%	-98.5%	-73.1%
2013	321.1%	5517.4%	486.7%
2014	-38.1%	-223.0%	-94.5%
2015	5.8%	-167.5%	-1097.5%
2016	-51.0%	7.2%	-29.2%
2017	90.3%	6.6%	37.2%
2018	-141.4%	-33.9%	-201.1%
2019	-13.8%	61.1%	51.3%
2020	-118.0%	-56.7%	-75.5%
2021	149.7%	-68.2%	14.6%
2022	-183.0%	21.1%	-14.8%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Net purchases = purchases - sales

## US Gross Activity in Foreign Equities by Region/Country

## US Gross Activity in Foreign Equities by Region/Country: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	Total
2008	230.7	613.3	11.6	1,092.0	648.9	784.7	150.2	3,520.8	10,860.9
2009	157.4	425.9	19.5	627.1	508.5	366.5	86.0	1,992.1	6,396.3
2010	153.7	490.8	22.5	673.2	612.4	374.2	89.6	2,289.6	7,404.1
2011	135.2	581.3	25.1	724.4	638.2	390.7	104.6	2,552.0	8,000.5
2012	106.2	487.1	17.1	657.1	545.3	304.7	99.7	2,274.4	6,909.5
2013	111.0	526.4	26.2	634.7	719.3	504.9	116.8	2,456.1	7,850.7
2014	97.7	750.8	28.0	751.6	707.1	361.6	137.8	2,760.2	8,892.2
2015	115.1	846.2	46.4	861.9	728.3	390.0	171.7	2,616.6	9,694.7
2016	110.3	679.5	30.5	1,013.1	614.7	417.3	180.3	2,510.4	8,805.5
2017	114.5	744.2	32.9	1,149.3	705.4	459.0	188.2	2,811.3	9,798.2
2018	127.0	878.5	51.8	1,369.8	886.4	565.4	249.1	3,768.8	11,907.8
2019	129.6	818.4	53.1	1,204.5	832.4	441.7	231.6	3,356.3	11,082.2
2020	159.3	1,080.1	84.6	1,668.0	1,179.7	474.9	325.7	4,450.2	14,437.1
2021	201.3	1,346.2	96.7	1,868.2	1,349.6	468.7	389.0	5,210.7	16,967.2
2022	205.2	1,391.3	52.2	1,580.7	911.5	398.2	303.6	4,105.6	14,260.7
Average	143.6	777.3	39.9	1,058.4	772.5	446.8	188.3	3,111.7	10,217.8
Y/Y Change	1.9%	3.4%	-46.0%	-15.4%	-32.5%	-15.0%	-22.0%	-21.2%	-16.0%
5Y CAGR	12.4%	13.3%	9.7%	6.6%	5.3%	-2.8%	10.0%	7.9%	7.8%
10Y CAGR	6.8%	11.1%	11.8%	9.2%	5.3%	2.7%	11.8%	6.1%	7.5%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Gross activity = purchases + sales. EU = European Union, HK = Hong Kong, China includes Mainland only.

## US Net Purchases of Foreign Equities by Region/Country

## US Net Purchases of Foreign Equities by Region/Country: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	Total
2008	0.8	2.2	0.3	-16.5	-12.1	-21.7	-5.6	1.7	-20.2
2009	5.9	7.2	-2.4	-11.7	9.5	2.5	-0.8	24.0	59.6
2010	0.2	2.8	-0.6	-6.9	26.0	13.0	-2.2	-3.8	59.9
2011	-0.3	1.4	5.4	12.1	0.2	-4.1	2.2	3.0	69.8
2012	0.1	0.8	-1.2	2.0	15.6	9.2	-4.6	13.1	41.3
2013	4.0	6.4	-4.0	30.3	6.7	32.9	-5.0	96.8	174.0
2014	7.9	9.9	0.2	6.3	15.3	1.2	5.8	47.8	107.7
2015	4.6	7.7	2.5	6.0	20.8	-2.4	4.5	40.9	114.0
2016	7.4	3.2	0.2	5.8	1.8	-14.2	0.0	23.3	55.8
2017	-1.2	-17.3	-0.4	-0.5	29.2	2.5	0.8	95.1	106.3
2018	-0.2	-35.6	-3.2	14.6	25.6	-10.0	-8.4	-2.5	-44.0
2019	-2.0	-28.9	-1.5	-16.9	29.9	-1.2	-1.2	16.9	-50.0
2020	-1.8	-39.6	-2.4	-32.4	-26.4	-16.4	2.8	31.3	-109.1
2021	7.5	8.1	0.0	-12.8	2.1	-5.5	-9.3	52.4	54.2
2022	13.5	-15.9	0.6	-20.9	-1.4	-13.9	-3.3	-1.2	-45.0
Average	3.1	-5.8	-0.4	-2.8	9.5	-1.9	-1.6	29.2	38.3
Y/Y Change	6.0	-24.0	0.6	-8.1	-3.4	-8.3	6.1	-53.6	-99.3

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Net purchases = purchases - sales; EU = European Union, HK = Hong Kong, China includes Mainland only.

## Foreign Holdings of US Securities

Foreign Holdings of US Securities: \$ Billions

	Stocks	Corporates	UST	Agency & MBS	Total
2008	1,929.9	2,383.9	3,253.0	1,402.2	8,968.9
2009	2,657.4	2,483.5	3,670.6	1,150.0	9,961.5
2010	3,213.5	2,523.1	4,458.8	1,095.8	11,291.2
2011	3,397.2	2,491.0	5,004.4	1,078.2	11,970.8
2012	3,953.0	2,615.0	5,571.5	1,001.2	13,140.7
2013	5,205.4	2,735.4	5,792.6	883.8	14,617.2
2014	5,920.6	2,924.4	6,158.0	899.6	15,902.6
2015	5,500.9	3,079.6	6,146.2	916.5	15,643.2
2016	5,782.7	3,429.8	6,002.8	991.6	16,206.9
2017	7,019.4	3,877.3	6,211.3	1,012.2	18,120.2
2018	6,629.5	3,602.6	6,270.1	1,087.0	17,589.3
2019	8,278.5	3,979.5	6,917.8	1,230.7	20,406.5
2020	10,673.4	4,481.7	7,291.6	1,276.4	23,723.1
2021	13,447.9	4,351.6	7,747.7	1,250.3	26,797.5
2022	10,828.9	3,739.9	7,314.6	1,298.7	23,182.1
Average	6,295.9	3,246.6	5,854.1	1,104.9	16,501.4
Y/Y Change	-19.5%	-14.1%	-5.6%	3.9%	-13.5%
5Y CAGR	9.1%	-0.7%	3.3%	5.1%	5.1%
10Y CAGR	10.6%	3.6%	2.8%	2.6%	5.8%

Foreign Holdings of US Securities: % Change Y/Y

	Stocks	Corporates	UST	Agency & MBS	Total
2009	37.7%	4.2%	12.8%	-18.0%	11.1%
2010	20.9%	1.6%	21.5%	-4.7%	13.3%
2011	5.7%	-1.3%	12.2%	-1.6%	6.0%
2012	16.4%	5.0%	11.3%	-7.1%	9.8%
2013	31.7%	4.6%	4.0%	-11.7%	11.2%
2014	13.7%	6.9%	6.3%	1.8%	8.8%
2015	-7.1%	5.3%	-0.2%	1.9%	-1.6%
2016	5.1%	11.4%	-2.3%	8.2%	3.6%
2017	21.4%	13.0%	3.5%	2.1%	11.8%
2018	-5.6%	-7.1%	0.9%	7.4%	-2.9%
2019	24.9%	10.5%	10.3%	13.2%	16.0%
2020	28.9%	12.6%	5.4%	3.7%	16.3%
2021	26.0%	-2.9%	6.3%	-2.0%	13.0%
2022	-19.5%	-14.1%	-5.6%	3.9%	-13.5%

Source: The Federal Reserve - Financial Accounts of the United States

Note: UST = U.S. Treasuries, MBS = mortgage-backed securities, agency = federal agency debt. Corporates = corporate bonds, includes asset-backed securities (ABS) and MBS

## Foreign Gross Activity in US Securities

Foreign Gross Activity in US Securities: \$ Billions

	Stocks	Corporates	UST	Agency	Total
2008	24,030.8	2,838.1	28,924.7	5,209.1	61,002.6
2009	13,155.0	2,414.1	22,628.9	2,086.3	40,284.3
2010	13,384.6	1,951.7	31,653.7	2,095.9	49,086.0
2011	15,413.4	2,032.3	35,439.6	2,167.2	55,052.4
2012	14,706.1	1,759.7	29,075.0	2,890.1	48,430.8
2013	15,435.8	1,856.7	35,386.7	2,671.9	55,351.1
2014	17,861.9	2,145.2	33,243.8	2,143.0	55,393.9
2015	22,233.5	2,232.8	32,490.6	2,616.6	59,573.5
2016	23,065.8	2,298.8	30,510.3	3,260.2	59,135.1
2017	26,592.2	2,967.9	29,511.7	3,475.6	62,547.5
2018	36,291.1	2,776.4	30,100.6	3,633.4	72,801.5
2019	37,228.8	3,481.1	36,646.7	4,850.6	82,207.1
2020	48,547.7	5,224.6	38,020.1	6,539.4	98,331.8
2021	61,181.3	5,097.3	50,659.2	9,783.7	126,721.5
2022	62,914.0	4,400.2	50,297.9	5,634.9	123,247.1
Average	28,802.8	2,898.5	34,306.0	3,937.2	69,944.4
Y/Y Change	2.8%	-13.7%	-0.7%	-42.4%	-2.7%
5Y CAGR	18.8%	8.2%	11.3%	10.1%	14.5%
10Y CAGR	15.6%	9.6%	5.6%	6.9%	9.8%

Foreign Gross Activity in US Securities: % Change Y/Y

	Stocks	Corporates	UST	Agency	Total
2009	-45.3%	-14.9%	-21.8%	-59.9%	-34.0%
2010	1.7%	-19.2%	39.9%	0.5%	21.8%
2011	15.2%	4.1%	12.0%	3.4%	12.2%
2012	-4.6%	-13.4%	-18.0%	33.4%	-12.0%
2013	5.0%	5.5%	21.7%	-7.5%	14.3%
2014	15.7%	15.5%	-6.1%	-19.8%	0.1%
2015	24.5%	4.1%	-2.3%	22.1%	7.5%
2016	3.7%	3.0%	-6.1%	24.6%	-0.7%
2017	15.3%	29.1%	-3.3%	6.6%	5.8%
2018	36.5%	-6.5%	2.0%	4.5%	16.4%
2019	2.6%	25.4%	21.7%	33.5%	12.9%
2020	30.4%	50.1%	3.7%	34.8%	19.6%
2021	26.0%	-2.4%	33.2%	49.6%	28.9%
2022	2.8%	-13.7%	-0.7%	-42.4%	-2.7%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Gross activity = purchases + sales. UST = U.S. Treasuries, agency = federal agency debt, corporates = corporate bonds



## Foreign Net Purchases of US Securities

Foreign Net Purchases of US Securities: \$ Billions

	Stocks	Corporates	UST	Agency	Total
2008	44.8	93.3	315.3	-37.7	415.7
2009	152.7	-39.7	538.3	-9.9	641.5
2010	109.8	-11.4	703.5	109.3	911.1
2011	24.7	-42.6	421.0	81.9	485.0
2012	107.8	-22.8	417.4	131.7	634.1
2013	-43.0	9.3	43.6	72.4	82.3
2014	-15.4	23.3	178.1	75.8	261.8
2015	-114.7	134.7	-15.0	158.2	163.2
2016	-6.3	125.0	-311.8	266.3	73.1
2017	119.4	132.3	25.0	136.4	413.1
2018	-129.8	56.9	8.8	230.5	166.3
2019	0.9	16.1	-131.4	299.9	185.4
2020	366.9	-145.3	-537.4	469.6	153.9
2021	47.8	146.7	82.4	321.5	598.6
2022	-226.8	164.3	757.4	303.1	997.9
Average	29.2	42.7	166.4	173.9	412.2
Y/Y Change	-574.2%	12.0%	818.7%	-5.7%	66.7%

Foreign Net Purchases of US Securities: % Change Y/Y

	Stocks	Corporates	UST	Agency	Total
2009	241.2%	-142.5%	70.7%	73.8%	54.3%
2010	-28.1%	71.2%	30.7%	1207.3%	42.0%
2011	-77.5%	-273.2%	-40.2%	-25.1%	-46.8%
2012	336.1%	46.5%	-0.9%	60.8%	30.7%
2013	-139.9%	140.9%	-89.5%	-45.0%	-87.0%
2014	64.2%	149.8%	308.1%	4.7%	218.0%
2015	-644.9%	478.5%	-108.4%	108.7%	-37.7%
2016	94.5%	-7.2%	-1979.7%	68.3%	-55.2%
2017	1981.4%	5.8%	108.0%	-48.8%	465.0%
2018	-208.7%	-57.0%	-64.9%	69.0%	-59.7%
2019	100.7%	-71.7%	-1597.1%	30.1%	11.5%
2020	42265.1%	-1004.1%	-309.0%	56.6%	-17.0%
2021	-87.0%	201.0%	115.3%	-31.5%	289.0%
2022	-574.2%	12.0%	818.7%	-5.7%	66.7%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Net purchases = purchases – sales. UST = U.S. Treasuries, agency = federal agency debt, corporates = corporate bonds

## Foreign Gross Activity in US Equities by Region/Country

## Foreign Gross Activity in US Equities by Region/Country: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	Total
2008	74.7	765.4	32.1	5,517.5	128.7	104.4	105.5	3,689.5	24,030.8
2009	45.5	619.1	34.5	2,713.7	63.9	127.5	78.7	1,749.6	13,155.0
2010	53.6	731.5	38.0	2,394.0	73.8	132.7	79.8	1,843.2	13,384.6
2011	64.5	974.4	34.0	2,543.0	89.5	166.1	91.8	2,593.0	15,413.4
2012	62.4	1,176.5	44.1	2,457.6	88.0	154.7	99.1	2,388.4	14,706.1
2013	82.8	793.6	49.0	2,018.2	160.1	179.9	132.2	3,101.2	15,435.8
2014	89.2	867.2	46.8	1,852.9	207.0	158.7	126.2	3,589.9	17,861.9
2015	80.3	833.9	50.4	1,834.3	183.8	133.3	147.2	5,360.1	22,233.5
2016	72.5	985.1	32.6	2,126.1	185.1	124.5	145.6	6,637.3	23,065.8
2017	85.9	1,173.2	45.5	2,031.4	234.6	155.7	211.8	8,295.3	26,592.2
2018	98.6	1,549.7	110.5	3,203.8	377.2	193.1	380.4	12,978.0	36,291.1
2019	104.0	1,516.8	106.5	3,943.5	362.4	193.4	417.2	11,677.0	37,228.8
2020	164.6	2,536.3	159.7	5,510.4	651.1	347.8	597.1	12,483.0	48,547.7
2021	216.5	2,883.0	169.9	6,755.3	797.6	375.6	651.3	16,653.6	61,181.3
2022	212.0	2,651.6	172.9	6,239.6	693.5	260.0	503.6	16,625.2	62,914.0
Average	100.5	1,337.2	75.1	3,409.4	286.4	187.2	251.2	7,311.0	28,802.8
Y/Y Change	-2.1%	-8.0%	1.7%	-7.6%	-13.0%	-30.8%	-22.7%	-0.2%	2.8%
5Y CAGR	19.8%	11.3%	9.4%	14.3%	13.0%	6.1%	5.8%	5.1%	11.6%
10Y CAGR	13.0%	12.8%	13.4%	11.9%	15.8%	3.7%	14.3%	18.3%	15.1%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Gross activity = purchases + sales. EU = European Union, HK = Hong Kong

## Foreign Net Purchases of US Equities by Region/Country

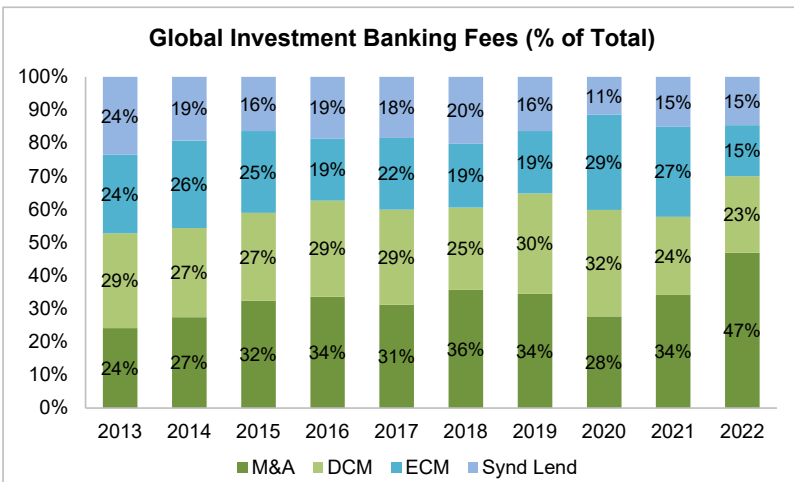
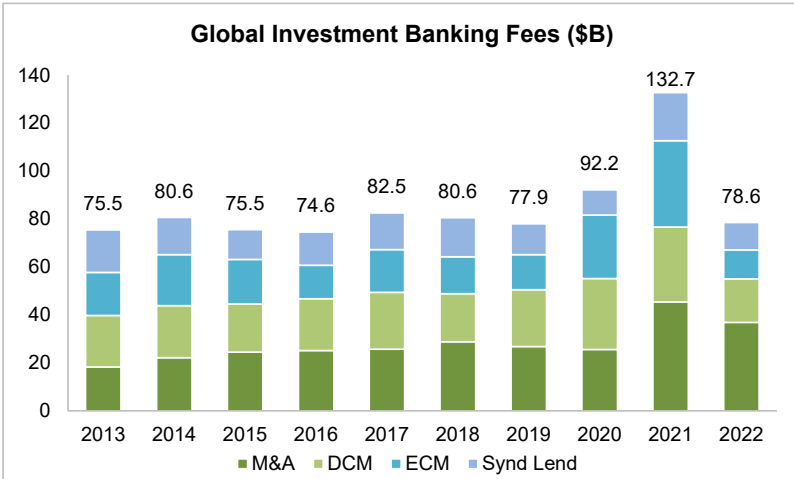
## Foreign Net Purchases of US Equities by Region/Country: \$ Billions

	Australia	Canada	China	EU	HK	Japan	Singapore	UK	Total
2008	0.1	7.2	-0.7	-32.7	27.4	23.0	7.1	30.9	44.8
2009	3.0	-1.6	4.0	15.7	6.3	13.8	12.0	33.7	152.7
2010	2.0	6.5	2.8	14.4	9.8	4.6	-4.4	27.8	109.8
2011	0.3	14.1	0.4	-35.0	6.5	3.4	-6.7	3.0	24.7
2012	1.0	14.7	-1.5	22.1	0.1	-8.1	-0.9	34.2	107.8
2013	-0.6	-3.2	2.8	11.7	-4.0	-26.4	-3.8	-0.3	-43.0
2014	0.9	10.2	-1.7	28.6	-6.6	-9.2	-11.0	-19.7	-15.4
2015	0.1	-12.2	-4.5	-25.3	-16.2	9.5	-5.5	-15.5	-114.7
2016	0.4	2.3	-3.3	-20.6	-12.3	9.1	-0.6	13.5	-6.3
2017	6.8	53.0	2.1	-2.6	-4.6	3.0	-7.3	33.5	119.4
2018	2.9	0.8	2.0	-4.8	-28.9	5.9	-2.9	-106.4	-129.8
2019	4.3	21.1	-3.5	17.7	7.0	0.0	16.6	-15.7	0.9
2020	-2.1	72.8	0.4	107.5	23.6	14.0	22.0	-20.3	366.9
2021	11.5	76.6	-7.0	72.1	-4.2	-24.2	14.9	-64.5	47.8
2022	-2.6	-77.2	-4.1	21.6	-6.1	-9.0	-51.5	-46.5	-226.8
Average	1.9	12.3	-0.8	12.7	-0.1	0.6	-1.5	-7.5	29.2
Y/Y Change	-122.3%	-200.8%	41.2%	-70.0%	-44.6%	62.9%	-444.8%	27.9%	-574.2%

Source: U.S. Treasury, Treasury International Capital (TIC) System

Note: Net purchases = purchases - sales; EU = European Union, HK = Hong Kong

Global Investment Banking Revenues by Product – Charts



Source: Dealogic Investment Banking Revenue Analytics

Note: M&A = mergers & acquisition; DCM = debt capital markets; ECM = equity capital markets

## Global Investment Banking Revenues by Region

### Global IB Net Revenues: \$ Billions

	US	UK	Europe	Japan	China	Australia	Canada	Latin America	Middle East	Other	Total
2018	39.2	4.9	14.8	3.4	6.8	1.7	4.1	1.5	0.7	3.6	80.6
2019	39.3	3.9	13.1	3.0	7.6	1.4	3.5	1.8	1.0	3.4	77.9
2020	47.2	4.6	15.1	3.7	10.6	1.7	3.5	1.4	1.0	3.5	92.2
2021	70.8	7.1	21.8	3.9	12.0	2.5	5.4	2.3	1.6	5.3	132.7
2022	35.9	4.1	15.4	2.4	8.4	2.3	4.0	1.4	1.1	3.7	78.6
Average	46.5	4.9	16.0	3.3	9.1	1.9	4.1	1.7	1.1	3.9	92.4
Y/Y Change	-49.2%	-43.2%	-29.4%	-38.4%	-30.2%	-9.7%	-26.1%	-39.0%	-31.3%	-29.6%	-40.8%

### Global IB Net Revenues: % Change Y/Y

	US	UK	Europe	Japan	China	Australia	Canada	Latin America	Middle East	Other	Total
2019	0.1%	-20.0%	-11.8%	-12.2%	11.8%	-15.2%	-14.3%	20.9%	51.7%	-4.9%	-3.3%
2020	20.1%	18.1%	15.4%	22.8%	38.6%	21.3%	0.4%	-19.5%	-2.3%	2.3%	18.3%
2021	50.1%	54.5%	44.6%	6.0%	13.2%	45.8%	54.9%	62.6%	60.9%	52.7%	43.9%
2022	-49.2%	-43.2%	-29.4%	-38.4%	-30.2%	-9.7%	-26.1%	-39.0%	-31.3%	-29.6%	-40.8%

### Global IB Net Revenues: % of Total

	US	UK	Europe	Japan	China	Australia	Canada	Latin America	Middle East	Other
2018	48.7%	6.1%	18.4%	4.2%	8.5%	2.1%	5.0%	1.8%	0.8%	4.4%
2019	50.4%	5.0%	16.7%	3.8%	9.8%	1.8%	4.5%	2.3%	1.3%	4.3%
2020	51.2%	5.0%	16.3%	4.0%	11.5%	1.9%	3.8%	1.5%	1.1%	3.8%
2021	53.4%	5.4%	16.4%	2.9%	9.0%	1.9%	4.1%	1.7%	1.2%	4.0%
2022	45.7%	5.2%	19.6%	3.1%	10.6%	2.9%	5.1%	1.8%	1.4%	4.7%
Average	49.9%	5.3%	17.5%	3.6%	9.9%	2.1%	4.5%	1.8%	1.2%	4.3%
Y/Y Change	-7.6%	-0.2%	3.1%	0.1%	1.6%	1.0%	1.0%	0.1%	0.2%	0.7%

Source: Dealogic Investment Banking Revenue Analytics

Note: Includes M&A, debt capital markets, equity capital markets, syndicated lending

## Global Mergers and Acquisitions – Announced and Completed

Global M&A: Announced			Global M&A: Completed		
	Value (\$ Billions)	# of Deals		Value (\$ Billions)	# of Deals
2008	3,172.9	42,538	2008	3,568.5	43,305
2009	2,299.5	37,646	2009	2,370.1	37,175
2010	2,721.6	42,372	2010	2,489.3	41,997
2011	2,769.3	45,571	2011	2,910.9	45,545
2012	2,661.1	43,990	2012	2,558.9	43,934
2013	2,790.3	38,445	2013	2,752.0	38,637
2014	3,627.6	41,625	2014	3,056.4	41,267
2015	4,556.0	40,657	2015	4,136.9	40,551
2016	3,768.2	38,899	2016	3,909.6	39,316
2017	3,562.9	40,878	2017	3,702.7	41,182
2018	4,114.6	36,364	2018	4,312.1	36,388
2019	3,968.4	37,143	2019	3,831.9	37,177
2020	3,625.6	35,392	2020	3,538.1	35,112
2021	5,926.9	44,254	2021	5,510.0	43,820
2022	3,778.7	43,317	2022	4,234.9	42,201
Average	3,556.2	40,606.1	Average	3,525.5	40,507.1
Y/Y Change	-36.2%	-2.1%	Y/Y Change	-23.1%	-3.7%
5Y CAGR	1.2%	1.2%	5Y CAGR	2.7%	0.5%
10Y CAGR	3.6%	-0.2%	10Y CAGR	5.2%	-0.4%

	Announced		Completed	
	Value	# of Deals	Value	# of Deals
2009	-27.5%	-11.5%	-33.6%	-14.2%
2010	18.4%	12.6%	5.0%	13.0%
2011	1.8%	7.5%	16.9%	8.4%
2012	-3.9%	-3.5%	-12.1%	-3.5%
2013	4.9%	-12.6%	7.5%	-12.1%
2014	30.0%	8.3%	11.1%	6.8%
2015	25.6%	-2.3%	35.4%	-1.7%
2016	-17.3%	-4.3%	-5.5%	-3.0%
2017	-5.4%	5.1%	-5.3%	4.7%
2018	15.5%	-11.0%	16.5%	-11.6%
2019	-3.6%	2.1%	-11.1%	2.2%
2020	-8.6%	-4.7%	-7.7%	-5.6%
2021	63.5%	25.0%	55.7%	24.8%
2022	-36.2%	-2.1%	-23.1%	-3.7%

Source: Dealogic

## Section II: US Capital Markets

### US Equity and Debt Outstanding

#### US Equity and Debt Outstanding: \$ Billions

	Equity	UST	MBS	Corporates	Munis	ABS	Agency	MMs
2008	16,263.5	5,783.6	9,467.4	5,367.0	3,672.2	1,829.5	3,208.5	1,599.8
2009	20,649.0	7,260.6	9,352.5	5,544.2	3,858.5	1,712.1	2,726.3	1,138.0
2010	24,077.2	8,853.0	9,258.4	6,193.1	3,976.3	1,507.8	2,537.5	1,057.6
2011	23,333.6	9,928.4	9,075.5	6,265.0	3,938.6	1,359.0	2,326.9	969.3
2012	26,833.5	11,046.1	8,838.1	6,714.9	3,949.4	1,280.3	2,095.8	937.9
2013	34,445.8	11,854.4	8,742.6	7,121.1	3,888.2	1,285.7	2,058.3	941.3
2014	38,096.4	12,504.8	8,842.0	7,465.0	3,853.0	1,349.4	2,028.7	920.1
2015	37,211.1	13,191.6	8,894.8	7,702.8	3,873.6	1,376.6	1,995.4	931.2
2016	40,168.0	13,908.2	9,023.2	7,955.5	3,923.0	1,391.8	1,971.7	874.6
2017	47,919.8	14,468.8	9,304.5	8,305.9	3,940.7	1,457.9	1,934.7	955.6
2018	43,715.3	15,608.0	9,732.3	8,507.8	3,896.0	1,615.6	1,841.6	985.7
2019	54,644.0	16,673.3	10,229.5	8,857.2	3,906.3	1,663.2	1,726.2	1,038.5
2020	65,523.2	20,973.1	11,214.0	9,807.6	3,992.0	1,535.5	1,688.6	925.5
2021	80,002.9	22,584.0	12,201.6	10,058.4	4,069.4	1,585.3	1,433.3	1,089.4
2022	64,670.0	23,934.5	n/a	10,223.5	4,015.6	n/a	1,935.7	1,241.3

Average	41,170.2	13,904.8	9,584.0	7,739.3	3,916.8	1,496.4	2,100.6	1,040.4
Y/Y Change	-19.2%	6.0%	n/a	1.6%	-1.3%	n/a	35.1%	13.9%
5Y CAGR	6.2%	10.6%	n/a	4.2%	0.4%	n/a	0.0%	5.4%
10Y CAGR	9.2%	8.0%	n/a	4.3%	0.2%	n/a	-0.8%	2.8%

#### US Equity and Debt Outstanding: % Change Y/Y

	Equity	UST	MBS	Corporates	Munis	ABS	Agency	MMs
2009	27.0%	25.5%	-1.2%	3.3%	5.1%	-6.4%	-15.0%	-28.9%
2010	16.6%	21.9%	-1.0%	11.7%	3.1%	-11.9%	-6.9%	-7.1%
2011	-3.1%	12.1%	-2.0%	1.2%	-0.9%	-9.9%	-8.3%	-8.3%
2012	15.0%	11.3%	-2.6%	7.2%	0.3%	-5.8%	-9.9%	-3.2%
2013	28.4%	7.3%	-1.1%	6.0%	-1.5%	0.4%	-1.8%	0.4%
2014	10.6%	5.5%	1.1%	4.8%	-0.9%	5.0%	-1.4%	-2.3%
2015	-2.3%	5.5%	0.6%	3.2%	0.5%	2.0%	-1.6%	1.2%
2016	7.9%	5.4%	1.4%	3.3%	1.3%	1.1%	-1.2%	-6.1%
2017	19.3%	4.0%	3.1%	4.4%	0.5%	4.8%	-1.9%	9.3%
2018	-8.8%	7.9%	4.6%	2.4%	-1.1%	10.8%	-4.8%	3.1%
2019	25.0%	6.8%	5.1%	4.1%	0.3%	2.9%	-6.3%	5.4%
2020	19.9%	25.8%	9.6%	10.7%	2.2%	-7.7%	-2.2%	-10.9%
2021	22.1%	7.7%	8.8%	2.6%	1.9%	3.2%	-15.1%	17.7%
2022	-19.2%	6.0%	n/a	1.6%	-1.3%	n/a	35.1%	13.9%

Source: Bloomberg, Federal Agencies, Refinitiv, SIFMA, The Federal Reserve, US Department of Treasury

Note: ABS and MBS statistics are as of 2021. Corporate equities include both listed on exchanges and closely held common and preferred shares issued by domestic corporations and US purchases of shares issued by foreign corporations; UST = US Treasuries, MBS = mortgage-backed securities, Corporates = corporate bonds, munis = municipal securities, agency = federal agency securities, ABS = asset-backed securities, MMs = money market funds

## US Stock Market Capitalization

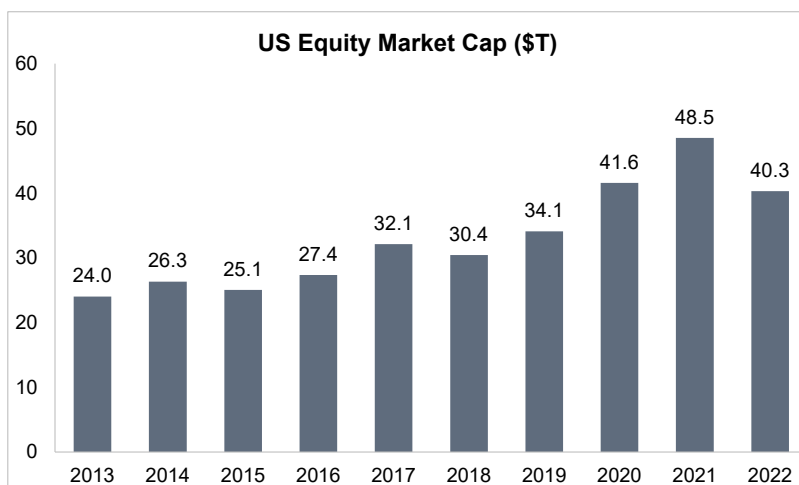
## US Stock Market Capitalization: \$ Billions

	NYSE	Nasdaq	Total
2008	9,341	2,249.0	11590.3
2009	11,838	3,239.5	15077.3
2010	13,394	3,889.4	17283.5
2011	11,796	3,845.1	15640.7
2012	14,086	4,582.4	18668.3
2013	17,950	6,085.0	24034.9
2014	19,351	6,979.2	26330.6
2015	17,787	7,280.8	25067.5
2016	19,573	7,779.1	27352.2
2017	22,081	10,039.3	32120.7
2018	20,679	9,756.8	30436.3
2019	21,084	13,002.0	34085.7
2020	22,509	19,060.4	41569.9
2021	23,991	24,557.1	48548.5
2022	24,060	16,237.6	40298.0

## US Stock Market Capitalization: % Change Y/Y

	NYSE	Nasdaq	Total
2009	26.7%	44.0%	30.1%
2010	13.1%	20.1%	14.6%
2011	-11.9%	-1.1%	-9.5%
2012	19.4%	19.2%	19.4%
2013	27.4%	32.8%	28.7%
2014	7.8%	14.7%	9.6%
2015	-8.1%	4.3%	-4.8%
2016	10.0%	6.8%	9.1%
2017	12.8%	29.1%	17.4%
2018	-6.3%	-2.8%	-5.2%
2019	2.0%	33.3%	12.0%
2020	6.8%	46.6%	22.0%
2021	6.6%	28.8%	16.8%
2022	0.3%	-33.9%	-17.0%

Average	17,968.1	9,238.8	27,207.0
Y/Y Change	0.3%	-33.9%	-17.0%
5Y CAGR	3.1%	10.7%	5.8%
10Y CAGR	3.0%	10.3%	5.3%

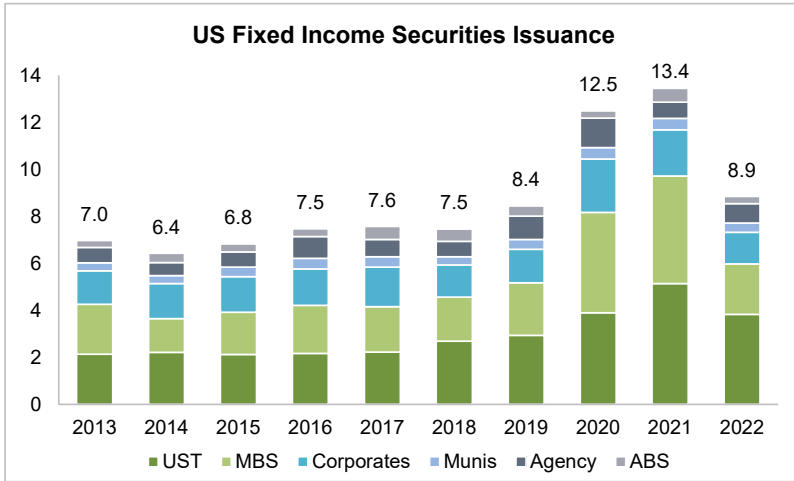


Source: World Federation of Exchanges

Note: Includes market capitalization of domestic companies only



US Fixed Income Securities Issuance – Chart



Source: Bloomberg, Refinitiv, Treasury, US Agencies

Note: UST = US Treasuries, MBS = mortgage-backed securities, Corporates = corporate bonds, munis = municipal securities, agency = federal agency securities, ABS = asset-backed securities. Includes long-term securities only

## US Fixed Income Securities Issuance – Value

## US FI Securities Issuance: \$ Billions

	UST	MBS	Corporates	Munis	Agency	ABS	Total
2008	1,029.4	1,394.0	759.3	389.3	924.8	215.2	4,712.0
2009	2,197.2	2,172.1	975.7	409.6	1,244.4	177.9	7,177.0
2010	2,319.8	2,012.6	1,088.6	433.3	1,362.1	125.9	7,342.4
2011	2,103.3	1,724.8	1,047.4	295.1	1,025.3	151.0	6,346.8
2012	2,304.6	2,195.1	1,394.7	382.7	925.5	259.0	7,461.6
2013	2,140.0	2,120.2	1,424.5	335.4	652.9	304.1	6,977.1
2014	2,215.2	1,439.6	1,481.1	339.1	558.7	393.4	6,427.1
2015	2,122.4	1,800.7	1,514.4	405.1	645.5	333.4	6,821.5
2016	2,169.4	2,044.2	1,550.7	451.9	927.9	325.4	7,469.6
2017	2,224.3	1,934.7	1,677.5	449.0	731.3	550.3	7,567.1
2018	2,684.7	1,874.7	1,377.6	346.8	653.6	516.9	7,454.2
2019	2,935.5	2,242.6	1,418.2	426.4	989.3	434.7	8,446.6
2020	3,895.8	4,271.0	2,274.9	485.2	1,251.3	304.3	12,482.5
2021	5,139.1	4,584.4	1,960.8	483.4	692.9	581.9	13,442.6
2022	3,826.8	2,145.4	1,353.8	390.8	830.9	302.8	8,850.5

Average	2,620.5	2,263.7	1,419.9	401.5	894.4	331.7	7,931.9
Y/Y Change	-25.5%	-53.2%	-31.0%	-19.2%	19.9%	-48.0%	-34.2%
5Y CAGR	11.5%	2.1%	-4.2%	-2.7%	2.6%	-11.3%	3.2%
10Y CAGR	5.2%	-0.2%	-0.3%	0.2%	-1.1%	1.6%	1.7%

## US FI Securities Issuance: % Change Y/Y

	UST	MBS	Corporates	Munis	Agency	ABS	Total
2009	113.4%	55.8%	28.5%	5.2%	34.6%	-17.3%	52.3%
2010	5.6%	-7.3%	11.6%	5.8%	9.5%	-29.2%	2.3%
2011	-9.3%	-14.3%	-3.8%	-31.9%	-24.7%	19.9%	-13.6%
2012	9.6%	27.3%	33.2%	29.7%	-9.7%	71.6%	17.6%
2013	-7.1%	-3.4%	2.1%	-12.3%	-29.5%	17.4%	-6.5%
2014	3.5%	-32.1%	4.0%	1.1%	-14.4%	29.3%	-7.9%
2015	-4.2%	25.1%	2.2%	19.5%	15.5%	-15.2%	6.1%
2016	2.2%	13.5%	2.4%	11.6%	43.7%	-2.4%	9.5%
2017	2.5%	-5.4%	8.2%	-0.6%	-21.2%	69.1%	1.3%
2018	20.7%	-3.1%	-17.9%	-22.8%	-10.6%	-6.1%	-1.5%
2019	9.3%	19.6%	2.9%	22.9%	51.4%	-15.9%	13.3%
2020	32.7%	90.4%	60.4%	13.8%	26.5%	-30.0%	47.8%
2021	31.9%	7.3%	-13.8%	-0.4%	-44.6%	91.2%	7.7%
2022	-25.5%	-53.2%	-31.0%	-19.2%	19.9%	-48.0%	-34.2%

Source: Bloomberg, Refinitiv, Treasury, US Agencies

Note: UST = US Treasuries, MBS = mortgage-backed securities, Corporates = corporate bonds, munis = municipal securities, agency = federal agency securities, ABS = asset-backed securities. Includes long-term securities only

## US Fixed Income Securities Issuance – Number of Issues

## US FI Securities Issuance: # of Issues

	UST	MBS	Corporates	Munis	ABS
2008	261	133	1,135	10,781	313
2009	287	174	1,454	11,691	289
2010	301	210	1,725	13,804	318
2011	266	159	1,496	10,583	313
2012	267	211	1,953	13,150	503
2013	264	339	1,874	11,503	626
2014	270	389	1,694	11,141	738
2015	275	443	1,413	13,302	733
2016	263	345	1,519	13,556	740
2017	277	402	1,781	12,060	1,166
2018	282	438	1,385	9,611	1,080
2019	327	518	1,408	11,602	903
2020	502	413	2,092	13,345	604
2021	446	149	1,894	13,133	1,063
2022	380	n/a	1,034	9,183	n/a

Average	311	309	1,590	11,896	671
Y/Y Change	-14.8%	n/a	-45.4%	-30.1%	n/a
5Y CAGR	6.5%	n/a	-10.3%	-5.3%	n/a
10Y CAGR	3.6%	n/a	-6.2%	-3.5%	n/a

## US FI Securities Issuance: % Change Y/Y

	UST	MBS	Corporates	MBS	ABS
2009	10.0%	30.8%	28.1%	8.4%	-7.7%
2010	4.9%	20.7%	18.6%	18.1%	10.0%
2011	-11.6%	-24.3%	-13.3%	-23.3%	-1.6%
2012	0.4%	32.7%	30.5%	24.3%	60.7%
2013	-1.1%	60.7%	-4.0%	-12.5%	24.5%
2014	2.3%	14.7%	-9.6%	-3.1%	17.9%
2015	1.9%	13.9%	-16.6%	19.4%	-0.7%
2016	-4.4%	-22.1%	7.5%	1.9%	1.0%
2017	5.3%	16.5%	17.2%	-11.0%	57.6%
2018	1.8%	9.0%	-22.2%	-20.3%	-7.4%
2019	16.0%	18.3%	1.7%	20.7%	-16.4%
2020	53.5%	-20.3%	48.6%	15.0%	-33.1%
2021	-11.2%	-63.9%	-9.5%	-1.6%	76.0%
2022	-14.8%	n/a	-45.4%	-30.1%	n/a

Source: Bloomberg, Refinitiv

Note: ABS and MBS statistics are as of 2021. UST = US Treasuries, MBS = mortgage-backed securities, Corporates = corporate bonds, munis = municipal securities, ABS = asset-backed securities. Includes long-term securities only.

## US Long-Term Municipal Bond Issuance – Value

## US LT Municipal Bond: \$ Billions

	Revenue Competitive	Revenue Negotiated	Total Revenue	GO Competitive	GO Negotiated	Total GO	Private Placements	Total
2008	15.5	260.5	276.0	37.8	72.4	110.2	3.2	389.3
2009	11.8	239.3	251.1	46.1	108.7	154.8	3.7	409.6
2010	24.2	254.2	278.4	49.0	98.0	146.9	7.9	433.3
2011	18.7	161.4	180.1	40.8	64.2	105.1	9.9	295.1
2012	26.4	208.1	234.6	47.7	87.5	135.3	12.8	382.7
2013	18.1	170.1	188.2	51.3	73.3	124.6	22.7	335.4
2014	20.5	161.3	181.8	51.4	81.5	132.8	24.5	339.1
2015	23.3	200.3	223.6	63.9	89.8	153.8	27.8	405.1
2016	29.4	219.2	248.5	69.3	106.0	175.3	28.1	451.9
2017	29.4	218.3	247.6	68.9	91.9	160.8	40.6	449.0
2018	26.5	175.6	202.0	58.1	62.8	120.9	23.9	346.8
2019	27.2	219.1	246.2	72.0	88.5	160.5	19.6	426.4
2020	24.9	236.5	261.3	68.1	121.9	190.0	33.9	485.2
2021	28.8	252.9	281.7	70.8	104.6	175.4	26.3	483.4
2022	18.6	201.3	219.9	59.8	80.1	140.0	30.9	390.8
Average	22.9	211.9	234.7	57.0	88.8	145.8	21.0	401.5
Y/Y Change	-35.3%	-20.4%	-21.9%	-15.5%	-23.4%	-20.2%	17.5%	-19.2%
5Y CAGR	-8.7%	-1.6%	-2.3%	-2.8%	-2.7%	-2.7%	-5.3%	-2.7%
10Y CAGR	-3.4%	-0.3%	-0.6%	2.3%	-0.9%	0.3%	9.2%	0.2%

## US LT Municipal Bond: % Change Y/Y

	Revenue Competitive	Revenue Negotiated	Total Revenue	GO Competitive	GO Negotiated	Total GO	Private Placements	Total
2009	-23.9%	-8.1%	-9.0%	22.0%	50.2%	40.5%	15.9%	5.2%
2010	105.0%	6.2%	10.9%	6.2%	-9.9%	-5.1%	114.2%	5.8%
2011	-22.6%	-36.5%	-35.3%	-16.6%	-34.4%	-28.5%	25.2%	-31.9%
2012	41.2%	28.9%	30.2%	16.9%	36.2%	28.7%	29.6%	29.7%
2013	-31.5%	-18.3%	-19.8%	7.4%	-16.3%	-7.9%	76.7%	-12.3%
2014	13.0%	-5.1%	-3.4%	0.2%	11.1%	6.6%	8.2%	1.1%
2015	14.0%	24.2%	23.0%	24.5%	10.3%	15.8%	13.2%	19.5%
2016	25.9%	9.4%	11.2%	8.4%	18.0%	14.0%	1.2%	11.6%
2017	0.0%	-0.4%	-0.4%	-0.6%	-13.2%	-8.2%	44.4%	-0.6%
2018	-9.8%	-19.6%	-18.4%	-15.7%	-31.7%	-24.8%	-41.2%	-22.8%
2019	2.6%	24.8%	21.9%	24.0%	40.9%	32.8%	-17.8%	22.9%
2020	-8.5%	7.9%	6.1%	-5.4%	37.7%	18.3%	73.1%	13.8%
2021	15.8%	6.9%	7.8%	4.0%	-14.2%	-7.6%	-22.5%	-0.4%
2022	-35.3%	-20.4%	-21.9%	-15.5%	-23.4%	-20.2%	17.5%	-19.2%

Source: Refinitiv

Note: Includes securities issued by a state, territory, municipality, county, or certain non-profit organizations; excludes securities with maturities &lt;13 months. GO = general obligation

## US Long-Term Municipal Bond Issuance – Number of Issues

## US LT Municipal Bond: # of Deals

	Revenue Competitive	Revenue Negotiated	Total Revenue	GO Competitive	GO Negotiated	Total GO	Private Placements	Total
2008	482	4,240	4,722	2,870	2,825	5,695	364	10,781
2009	515	3,727	4,242	3,125	3,992	7,117	332	11,691
2010	791	4,434	5,225	3,437	4,769	8,206	373	13,804
2011	552	3,009	3,561	2,942	3,666	6,608	414	10,583
2012	760	3,541	4,301	3,530	4,731	8,261	588	13,150
2013	548	3,012	3,560	3,272	3,741	7,013	930	11,503
2014	559	2,821	3,380	3,257	3,527	6,784	977	11,141
2015	663	3,576	4,239	3,778	4,063	7,841	1,222	13,302
2016	790	3,650	4,440	3,847	3,984	7,831	1,285	13,556
2017	549	3,350	3,899	3,467	3,220	6,687	1,474	12,060
2018	516	2,760	3,276	3,201	2,072	5,273	1,062	9,611
2019	610	3,337	3,947	3,487	3,173	6,660	995	11,602
2020	601	3,521	4,122	3,761	3,967	7,728	1,495	13,345
2021	563	4,012	4,575	3,718	3,569	7,287	1,271	13,133
2022	404	2,551	2,955	2,922	2,036	4,958	1,270	9,183
Average	593.5	3,436.1	4,029.6	3,374.3	3,555.7	6,929.9	936.8	11,896.3
Y/Y Change	-28.2%	-36.4%	-35.4%	-21.4%	-43.0%	-32.0%	-0.1%	-30.1%
5Y CAGR	-5.9%	-5.3%	-5.4%	-3.4%	-8.8%	-5.8%	-2.9%	-5.3%
10Y CAGR	-6.1%	-3.2%	-3.7%	-1.9%	-8.1%	-5.0%	8.0%	-3.5%

## US LT Municipal Bond: % Change Y/Y

	Revenue Competitive	Revenue Negotiated	Total Revenue	GO Competitive	GO Negotiated	Total GO	Private Placements	Total
2009	6.8%	-12.1%	-10.2%	8.9%	41.3%	25.0%	-8.8%	8.4%
2010	53.6%	19.0%	23.2%	10.0%	19.5%	15.3%	12.3%	18.1%
2011	-30.2%	-32.1%	-31.8%	-14.4%	-23.1%	-19.5%	11.0%	-23.3%
2012	37.7%	17.7%	20.8%	20.0%	29.1%	25.0%	42.0%	24.3%
2013	-27.9%	-14.9%	-17.2%	-7.3%	-20.9%	-15.1%	58.2%	-12.5%
2014	2.0%	-6.3%	-5.1%	-0.5%	-5.7%	-3.3%	5.1%	-3.1%
2015	18.6%	26.8%	25.4%	16.0%	15.2%	15.6%	25.1%	19.4%
2016	19.2%	2.1%	4.7%	1.8%	-1.9%	-0.1%	5.2%	1.9%
2017	-30.5%	-8.2%	-12.2%	-9.9%	-19.2%	-14.6%	14.7%	-11.0%
2018	-6.0%	-17.6%	-16.0%	-7.7%	-35.7%	-21.1%	-28.0%	-20.3%
2019	18.2%	20.9%	20.5%	8.9%	53.1%	26.3%	-6.3%	20.7%
2020	-1.5%	5.5%	4.4%	7.9%	25.0%	16.0%	50.3%	15.0%
2021	-6.3%	13.9%	11.0%	-1.1%	-10.0%	-5.7%	-15.0%	-1.6%
2022	-28.2%	-36.4%	-35.4%	-21.4%	-43.0%	-32.0%	-0.1%	-30.1%

Source: Refinitiv

Note: Includes securities issued by a state, territory, municipality, county, or certain non-profit organizations; excludes securities with maturities &lt;13 months. GO = general obligation

## US Long-Term Municipal Bond Issuance – Number of Issuers

## US LT Municipal Bond: # of Issuers

	Total	Unique	Unique % Total
2008	10,781	6,853	63.6%
2009	11,691	7,361	63.0%
2010	13,804	8,235	59.7%
2011	10,583	7,143	67.5%
2012	13,150	8,839	67.2%
2013	11,503	7,665	66.6%
2014	11,141	7,397	66.4%
2015	13,302	8,585	64.5%
2016	13,556	8,891	65.6%
2017	12,060	7,576	62.8%
2018	9,611	6,303	65.6%
2019	11,602	7,421	64.0%
2020	13,346	8,387	62.8%
2021	13,133	8,201	62.4%
2022	9,183	6,040	65.8%

## US LT Municipal Bond: % Change Y/Y

	Total	Unique	Unique % Total
2009	8.4%	7.4%	-0.6%
2010	18.1%	11.9%	-3.3%
2011	-23.3%	-13.3%	7.8%
2012	24.3%	23.7%	-0.3%
2013	-12.5%	-13.3%	-0.6%
2014	-3.1%	-3.5%	-0.2%
2015	19.4%	16.1%	-1.9%
2016	1.9%	3.6%	1.0%
2017	-11.0%	-14.8%	-2.8%
2018	-20.3%	-16.8%	2.8%
2019	20.7%	17.7%	-1.6%
2020	15.0%	13.0%	-1.1%
2021	-1.6%	-2.2%	-0.4%
2022	-30.1%	-26.4%	3.3%

Average	11,896.4	7,659.8	0.6
Y/Y Change	-30.1%	-26.4%	5.3%
5Y CAGR	-5.3%	-4.4%	0.9%
10Y CAGR	-3.5%	-3.7%	-0.2%

Source: Refinitiv

Note: Includes securities issued by a state, territory, municipality, county, or certain non-profit organizations; excludes securities with maturities &lt;13 months

## US Municipal Bond Issuance – Bank Qualified

## Bank Qualified US Municipal Bond: Issuance

	# Deals	Volume (\$M)	Deal Size (\$M)
2008	4,169	15,267.6	3.7
2009	5,992	33,028.6	5.5
2010	6,712	36,792.9	5.5
2011	5,155	18,827.8	3.7
2012	6,352	25,120.9	4.0
2013	5,247	20,249.1	3.9
2014	4,941	20,013.3	4.1
2015	5,422	22,670.7	4.2
2016	5,358	22,838.8	4.3
2017	4,217	17,662.0	4.2
2018	3,070	11,962.7	3.9
2019	3,702	14,901.2	4.0
2020	4,164	16,506.2	4.0
2021	3,848	15,404.0	4.0
2022	2,446	9,728.0	4.0

Average	4,719.7	20,064.9	4.2
Y/Y Change	-36.4%	-36.8%	-0.6%
5Y CAGR	-10.3%	-11.2%	-1.0%
10Y CAGR	-9.1%	-9.1%	0.1%

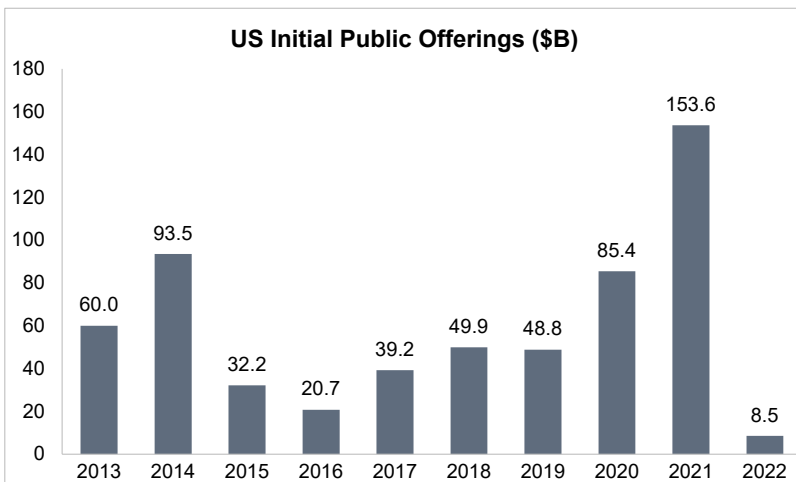
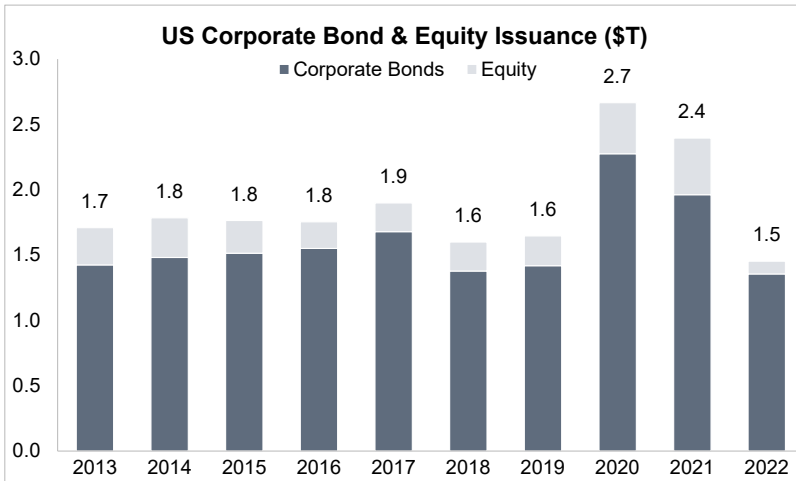
## Bank Qualified US Municipal Bond: % Change Y/Y

	# Deals	Volume (\$M)	Deal Size (\$M)
2009	43.7%	116.3%	50.5%
2010	12.0%	11.4%	-0.6%
2011	-23.2%	-48.8%	-33.4%
2012	23.2%	33.4%	8.3%
2013	-17.4%	-19.4%	-2.4%
2014	-5.8%	-1.2%	5.0%
2015	9.7%	13.3%	3.2%
2016	-1.2%	0.7%	1.9%
2017	-21.3%	-22.7%	-1.7%
2018	-27.2%	-32.3%	-7.0%
2019	20.6%	24.6%	3.3%
2020	12.5%	10.8%	-1.5%
2021	-7.6%	-6.7%	1.0%
2022	-36.4%	-36.8%	-0.6%

Source: Refinitiv

Note: Deal size = average. Bank qualified municipal bonds are defined as short-term and long-term municipal bonds under the Tax Reform Act of 1986 (265b) where, when purchased by a commercial bank for its portfolio, the bank may deduct a portion of interest cost of carry for the position

US Corporate Bonds and Equity Issuance – Charts



Source: Bloomberg, Dealogic, Refinitiv

Note: Corporates include underwritten, privately placed, and medium-term notes; US IPOs include rank eligible deals, exclude BDCs, SPACs, ETFs, CLEFs and rights offers



## US Corporate Bonds and Equity Issuance – Value

## US Corp Bond and Equity: \$ Billions

	Corporates	Equity	Total
2008	759.3	256.4	1,015.6
2009	975.7	264.9	1,240.6
2010	1,088.6	219.2	1,307.8
2011	1,047.4	184.9	1,232.3
2012	1,394.7	264.6	1,659.3
2013	1,424.5	285.0	1,709.4
2014	1,481.1	304.0	1,785.1
2015	1,514.4	248.8	1,763.2
2016	1,550.7	203.0	1,753.7
2017	1,677.5	219.8	1,897.2
2018	1,377.6	221.6	1,599.2
2019	1,418.2	228.1	1,646.2
2020	2,274.9	390.3	2,665.2
2021	1,960.8	434.7	2,395.6
2022	1,353.8	99.4	1,453.2

## US Corp Bond and Equity: % Change Y/Y

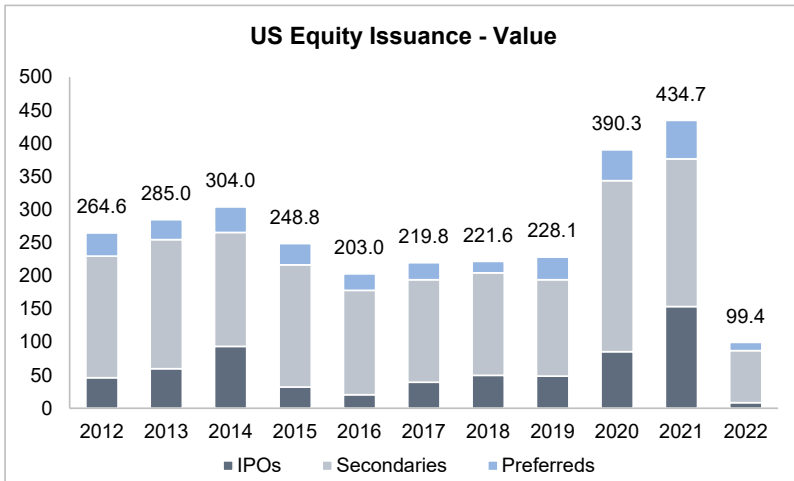
	Corporates	Equity	Total
2009	28.5%	3.3%	22.2%
2010	11.6%	-17.3%	5.4%
2011	-3.8%	-15.6%	-5.8%
2012	33.2%	43.1%	34.6%
2013	2.1%	7.7%	3.0%
2014	4.0%	6.7%	4.4%
2015	2.2%	-18.1%	-1.2%
2016	2.4%	-18.4%	-0.5%
2017	8.2%	8.3%	8.2%
2018	-17.9%	0.8%	-15.7%
2019	2.9%	2.9%	2.9%
2020	60.4%	71.1%	61.9%
2021	-13.8%	11.4%	-10.1%
2022	-31.0%	-77.1%	-39.3%

Average	1,419.9	255.0	1,674.9
Y/Y Change	-31.0%	-77.1%	-39.3%
5Y CAGR	-4.2%	-14.7%	-5.2%
10Y CAGR	-0.3%	-9.3%	-1.3%

Source: Bloomberg, Dealogic, Refinitiv

Note: Corporates include underwritten, privately placed, and medium-term notes; US IPOs include rank eligible deals, exclude BDCs, SPACs, ETFs, CLEFs and rights offers

US Equity Issuance – Chart



Source: Dealogic

Note: Includes rank eligible deals, excludes BDCs, SPACs, ETFs, CLEFs and rights offers. IPO = initial public offering, secondaries = secondary offerings or follow-ons, preferreds = preferred stock

## US Equity Issuance – Value

## US Equity Issuance: \$ Billions

	IPOs	Secondaries	Total CS	Preferreds	Total
2008	26.7	174.9	201.6	54.7	256.4
2009	27.0	230.8	257.9	7.0	264.9
2010	43.5	169.5	213.0	6.2	219.2
2011	40.1	139.3	179.4	5.5	184.9
2012	46.2	183.7	230.0	34.6	264.6
2013	60.0	194.8	254.8	30.2	285.0
2014	93.5	171.9	265.4	38.5	304.0
2015	32.2	184.5	216.7	32.1	248.8
2016	20.7	157.3	178.1	25.0	203.0
2017	39.2	154.8	194.0	25.8	219.8
2018	49.9	154.6	204.5	17.2	221.6
2019	48.8	145.3	194.1	34.0	228.1
2020	85.4	258.3	343.7	46.6	390.3
2021	153.6	223.1	376.7	58.0	434.7
2022	8.5	78.5	87.1	12.4	99.4

Average	51.7	174.8	226.5	28.5	255.0
Y/Y Change	-94.4%	-64.8%	-76.9%	-78.7%	-77.1%
5Y CAGR	-26.3%	-12.7%	-14.8%	-13.7%	-14.7%
10Y CAGR	-15.5%	-8.1%	-9.3%	-9.8%	-9.3%

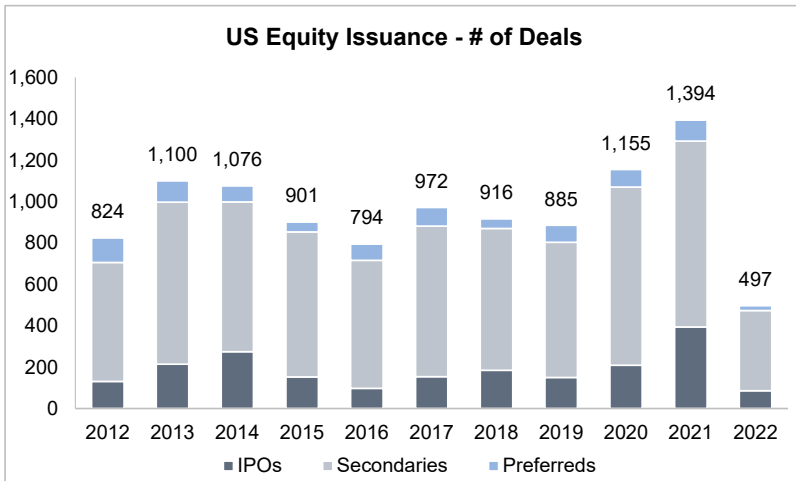
## US Equity Issuance: % Change Y/Y

	IPOs	Secondaries	Total CS	Preferreds	Total
2009	1.2%	32.0%	27.9%	-87.2%	3.3%
2010	60.8%	-26.6%	-17.4%	-11.4%	-17.3%
2011	-7.6%	-17.8%	-15.7%	-11.5%	-15.6%
2012	15.2%	31.9%	28.2%	528.9%	43.1%
2013	29.7%	6.0%	10.8%	-12.9%	7.7%
2014	55.9%	-11.7%	4.2%	27.8%	6.7%
2015	-65.6%	7.3%	-18.4%	-16.6%	-18.1%
2016	-35.5%	-14.7%	-17.8%	-22.3%	-18.4%
2017	89.2%	-1.6%	8.9%	3.4%	8.3%
2018	27.1%	-0.1%	5.4%	-33.5%	0.8%
2019	-2.1%	-6.0%	-5.1%	98.0%	2.9%
2020	75.1%	77.7%	77.1%	37.1%	71.1%
2021	79.7%	-13.6%	9.6%	24.6%	11.4%
2022	-94.4%	-64.8%	-76.9%	-78.7%	-77.1%

Source: Dealogic

Note: Includes rank eligible deals, excludes BDCs, SPACs, ETFs, CLEFs and rights offers. IPO = initial public offering, secondaries = secondary offerings or follow-ons, CS = common stock, preferreds = preferred stock

US Equity Issuance – Number of Issues: Chart



Source: Dealogic

Note: Includes rank eligible deals, excludes BDCs, SPACs, ETFs, CLEFs and rights offers. IPO = initial public offering, secondaries = secondary offerings or follow-ons, CS = common stock, preferreds = preferred stock

## US Equity Issuance – Number of Issues - Value

## US Equity Issuance: # of Deals

	IPOs	Secondaries	Total CS	Preferreds	Total
2008	33	267	300	43	343
2009	63	653	716	14	730
2010	158	600	758	23	781
2011	124	502	626	37	663
2012	131	575	706	118	824
2013	215	782	997	103	1,100
2014	275	724	999	77	1,076
2015	153	701	854	47	901
2016	98	618	716	78	794
2017	154	728	882	90	972
2018	185	685	870	46	916
2019	151	652	803	82	885
2020	209	861	1,070	85	1,155
2021	394	898	1,292	102	1,394
2022	86	388	474	23	497

Average	161.9	642.3	804.2	64.5	868.7
Y/Y Change	-78.2%	-56.8%	-63.3%	-77.5%	-64.3%
5Y CAGR	-11.0%	-11.8%	-11.7%	-23.9%	-12.6%
10Y CAGR	-4.1%	-3.9%	-3.9%	-15.1%	-4.9%

## US Equity Issuance: % Change Y/Y

	IPOs	Secondaries	Total CS	Preferreds	Total
2009	90.9%	144.6%	138.7%	-67.4%	112.8%
2010	150.8%	-8.1%	5.9%	64.3%	7.0%
2011	-21.5%	-16.3%	-17.4%	60.9%	-15.1%
2012	5.6%	14.5%	12.8%	218.9%	24.3%
2013	64.1%	36.0%	41.2%	-12.7%	33.5%
2014	27.9%	-7.4%	0.2%	-25.2%	-2.2%
2015	-44.4%	-3.2%	-14.5%	-39.0%	-16.3%
2016	-35.9%	-11.8%	-16.2%	66.0%	-11.9%
2017	57.1%	17.8%	23.2%	15.4%	22.4%
2018	20.1%	-5.9%	-1.4%	-48.9%	-5.8%
2019	-18.4%	-4.8%	-7.7%	78.3%	-3.4%
2020	38.4%	32.1%	33.3%	3.7%	30.5%
2021	88.5%	4.3%	20.7%	20.0%	20.7%
2022	-78.2%	-56.8%	-63.3%	-77.5%	-64.3%

Source: Dealogic

Note: Includes rank eligible deals, excludes BDCs, SPACs, ETFs, CLEFs and rights offers. IPO = initial public offering, secondaries = secondary offerings or follow-ons, CS = common stock, preferreds = preferred stock

## US Private Placements – Value

## US Private Placements: \$ Billions

	Debt	Equity	Total
2008	112.0	53.1	165.1
2009	157.9	8.2	166.0
2010	140.3	27.2	167.6
2011	114.4	25.9	140.2
2012	135.1	13.4	148.5
2013	132.2	45.4	177.6
2014	130.9	7.8	138.7
2015	131.8	12.0	143.7
2016	133.9	19.2	153.0
2017	221.1	14.2	235.2
2018	213.5	12.3	225.8
2019	283.0	20.3	303.3
2020	314.3	15.8	330.1
2021	415.1	18.3	433.4
2022	176.5	6.9	183.4

Average	187.5	20.0	207.4
Y/Y Change	-57.5%	-62.2%	-57.7%
5Y CAGR	-4.4%	-13.4%	-4.9%
10Y CAGR	2.7%	-6.4%	2.1%

## US Private Placements: % Change Y/Y

	Debt	Equity	Total
2009	41.0%	-84.6%	0.6%
2010	-11.1%	234.1%	0.9%
2011	-18.5%	-5.0%	-16.3%
2012	18.1%	-48.1%	5.9%
2013	-2.1%	238.1%	19.6%
2014	-0.9%	-82.9%	-21.9%
2015	0.6%	54.7%	3.6%
2016	1.6%	59.9%	6.5%
2017	65.1%	-26.2%	53.7%
2018	-3.4%	-13.4%	-4.0%
2019	32.5%	65.5%	34.3%
2020	11.1%	-22.1%	8.8%
2021	32.1%	15.8%	31.3%
2022	-57.5%	-62.2%	-57.7%

## US Private Placements: % of Total

	Debt	Equity
2008	67.8%	32.2%
2009	95.1%	4.9%
2010	83.7%	16.3%
2011	81.6%	18.4%
2012	91.0%	9.0%
2013	74.4%	25.6%
2014	94.4%	5.6%
2015	91.7%	8.3%
2016	87.5%	12.5%
2017	94.0%	6.0%
2018	94.6%	5.4%
2019	93.3%	6.7%
2020	95.2%	4.8%
2021	95.8%	4.2%
2022	96.2%	3.8%

Average	89.1%	10.9%
Y/Y Change	0.5%	-10.7%

Source: Refinitiv

Note: Includes private placements in the U.S. from all issuers

## US Private Placements – Number of Issues

## US Private Placements: # of Deals

	Debt	Equity	Total
2008	473	855	1328
2009	495	523	1018
2010	536	652	1188
2011	482	547	1029
2012	500	347	847
2013	549	206	755
2014	491	127	618
2015	481	192	673
2016	462	248	710
2017	601	102	703
2018	581	42	623
2019	652	57	709
2020	647	55	702
2021	809	35	844
2022	473	20	493

Average	548.8	267.2	816.0
Y/Y Change	-41.5%	-42.9%	-41.6%
5Y CAGR	-4.7%	-27.8%	-6.9%
10Y CAGR	-0.6%	-24.8%	-5.3%

## US Private Placements: % Change Y/Y

	Debt	Equity	Total
2009	4.7%	-38.8%	-23.3%
2010	8.3%	24.7%	16.7%
2011	-10.1%	-16.1%	-13.4%
2012	3.7%	-36.6%	-17.7%
2013	9.8%	-40.6%	-10.9%
2014	-10.6%	-38.3%	-18.1%
2015	-2.0%	51.2%	8.9%
2016	-4.0%	29.2%	5.5%
2017	30.1%	-58.9%	-1.0%
2018	-3.3%	-58.8%	-11.4%
2019	12.2%	35.7%	13.8%
2020	-0.8%	-3.5%	-1.0%
2021	25.0%	-36.4%	20.2%
2022	-41.5%	-42.9%	-41.6%

## US Private Placements: % of Total

	Debt	Equity
2008	35.6%	64.4%
2009	48.6%	51.4%
2010	45.1%	54.9%
2011	46.8%	53.2%
2012	59.0%	41.0%
2013	72.7%	27.3%
2014	79.4%	20.6%
2015	71.5%	28.5%
2016	65.1%	34.9%
2017	85.5%	14.5%
2018	93.3%	6.7%
2019	92.0%	8.0%
2020	92.2%	7.8%
2021	95.9%	4.1%
2022	95.9%	4.1%

Average	71.9%	28.1%
Y/Y Change	0.1%	-2.2%

Source: Refinitiv

Note: Includes private placements in the U.S. from all issuers

## US Fixed Income Securities Average Daily Trading Volume (ADV)

## US FI Securities ADV: \$ Billions

	UST	MBS	Corporates	Munis	Agency	ABS
2008	553.3	344.9	14.3	19.4	n/a	n/a
2009	409.8	299.9	19.9	12.5	n/a	n/a
2010	523.8	320.6	20.5	13.3	11.5	n/a
2011	571.0	249.5	20.6	11.3	9.9	1.5
2012	519.5	284.4	22.6	11.3	10.7	1.5
2013	546.5	225.9	24.7	11.2	7.3	1.3
2014	505.0	181.1	26.7	9.9	6.0	1.5
2015	490.0	195.3	27.9	8.6	5.2	1.4
2016	519.1	212.3	30.0	11.1	5.4	1.3
2017	505.2	211.0	30.9	10.8	4.2	1.4
2018	547.8	220.6	31.5	11.6	3.5	1.4
2019	593.6	250.4	34.3	11.5	4.2	1.5
2020	603.2	293.0	38.9	12.0	5.3	1.9
2021	624.1	280.7	37.0	8.8	3.2	1.4
2022	614.3	242.0	38.6	14.1	2.5	1.6

Average	541.7	254.1	27.9	11.8	6.1	1.5
Y/Y Change	-1.6%	-13.8%	4.3%	59.8%	-22.1%	17.8%
5Y CAGR	4.0%	2.8%	4.5%	5.6%	-9.5%	2.9%
10Y CAGR	1.7%	-1.6%	5.5%	2.3%	-13.5%	0.7%

## US FI Securities ADV: % Change Y/Y

	UST	MBS	Corporates	Munis	Agency	ABS
2009	-25.9%	-13.1%	39.2%	-35.6%	n/a	n/a
2010	27.8%	6.9%	2.5%	6.9%	n/a	n/a
2011	9.0%	-22.2%	1.0%	-15.2%	-13.4%	n/a
2012	-9.0%	14.0%	9.5%	-0.3%	7.8%	3.6%
2013	5.2%	-20.6%	9.2%	-0.8%	-31.9%	-15.7%
2014	-7.6%	-19.8%	8.1%	-11.7%	-17.1%	16.9%
2015	-3.0%	7.9%	4.7%	-12.7%	-13.2%	-4.4%
2016	5.9%	8.7%	7.4%	28.4%	3.0%	-7.6%
2017	-2.7%	-0.6%	3.1%	-2.7%	-23.2%	6.5%
2018	8.4%	4.5%	1.9%	7.9%	-15.9%	0.4%
2019	8.4%	13.5%	8.7%	-1.0%	19.3%	7.5%
2020	1.6%	17.0%	13.7%	4.2%	28.3%	23.2%
2021	3.5%	-4.2%	-5.0%	-26.4%	-39.6%	-26.5%
2022	-1.6%	-13.8%	4.3%	59.8%	-22.1%	17.8%

Source: Federal Reserve Bank of New York, Municipal Securities Rulemaking Board, FINRA TRACE

Note: UST = U.S. Treasuries, trading volumes from U.S. primary dealers. MBS = mortgage-backed securities; starting in 2011 includes non-agency MBS and CMBS, daily figures include 144A trades but not subcategories with <5 trades per day; new issue transactions sometimes included. Corporates = corporate bonds, include public and 144A trades. Munis = municipal securities, annual daily average figures. Agency = federal agency securities. ABS = asset-backed securities; do not include CMBS but do include CDOs and other, daily figures include 144A trades but not subcategories with <5 trades per day, new issue transactions sometimes included



## US Municipal Bond Average Daily Trading – Dollar Volume

## Municipal Bond AVD: \$ Millions

	Retail	Institutional	Total
2008	1,209.1	20,587.0	21,796.1
2009	1,107.2	13,937.9	15,045.1
2010	1,101.3	13,778.8	14,880.1
2011	1,084.6	11,953.7	13,038.3
2012	1,028.8	11,772.0	12,800.8
2013	1,119.6	11,260.6	12,380.2
2014	928.3	10,076.6	11,004.9
2015	979.2	8,616.8	9,596.0
2016	992.9	11,448.0	12,440.9
2017	1,048.5	10,824.7	11,873.2
2018	1,080.4	11,186.2	12,266.6
2019	893.7	11,066.9	11,960.6
2020	834.2	11,575.5	12,409.7
2021	747.2	8,217.6	8,964.8
2022	1,339.9	13,135.4	14,475.3

Average	1,033.0	11,962.5	12,995.5
Y/Y Change	79.3%	59.8%	61.5%
5Y CAGR	5.0%	3.9%	4.0%
10Y CAGR	2.7%	1.1%	1.2%

## Municipal Bond AVD: % of Total

	Retail	Institutional
2008	5.5%	94.5%
2009	7.4%	92.6%
2010	7.4%	92.6%
2011	8.3%	91.7%
2012	8.0%	92.0%
2013	9.0%	91.0%
2014	8.4%	91.6%
2015	10.2%	89.8%
2016	8.0%	92.0%
2017	8.8%	91.2%
2018	8.8%	91.2%
2019	7.5%	92.5%
2020	6.7%	93.3%
2021	8.3%	91.7%
2022	9.3%	90.7%

Average	8.1%	91.9%
Y/Y Change	0.9%	-0.9%

## Municipal Bond AVD: % Change Y/Y

	Retail	Institutional	Total
2009	-8.4%	-32.3%	-31.0%
2010	-0.5%	-1.1%	-1.1%
2011	-1.5%	-13.2%	-12.4%
2012	-5.1%	-1.5%	-1.8%
2013	8.8%	-4.3%	-3.3%
2014	-17.1%	-10.5%	-11.1%
2015	5.5%	-14.5%	-12.8%
2016	1.4%	32.9%	29.6%
2017	5.6%	-5.4%	-4.6%
2018	3.0%	3.3%	3.3%
2019	-17.3%	-1.1%	-2.5%
2020	-6.7%	4.6%	3.8%
2021	-10.4%	-29.0%	-27.8%
2022	49.9%	18.7%	21.0%

Source: Municipal Securities Rulemaking Board

Note: Institutional trades defined as trade sizes greater than \$100,000

## US Municipal Bond Average Daily Trading – Number of Trades

## Municipal Bond ADV: # of Trades

	Retail	Institutional	Total
2008	32,854	10,533	43,387
2009	33,304	7,805	41,109
2010	33,941	7,716	41,657
2011	34,030	7,226	41,256
2012	31,148	7,396	38,544
2013	35,008	7,180	42,188
2014	28,764	6,596	35,360
2015	29,921	6,814	36,735
2016	29,712	7,422	37,134
2017	31,745	7,652	39,397
2018	32,638	7,736	40,374
2019	27,252	7,486	34,738
2020	26,199	7,404	33,603
2021	24,253	6,094	30,347
2022	41,483	9,110	50,593

Average	31,483.5	7,611.3	39,094.8
Y/Y Change	71.0%	49.5%	66.7%
5Y CAGR	5.5%	3.5%	5.1%
10Y CAGR	2.9%	2.1%	2.8%

## Municipal Bond ADV: % of Total

	Retail	Institutional
2008	75.7%	24.3%
2009	81.0%	19.0%
2010	81.5%	18.5%
2011	82.5%	17.5%
2012	80.8%	19.2%
2013	83.0%	17.0%
2014	81.3%	18.7%
2015	81.5%	18.5%
2016	80.0%	20.0%
2017	80.6%	19.4%
2018	80.8%	19.2%
2019	78.5%	21.5%
2020	78.0%	22.0%
2021	79.9%	20.1%
2022	82.0%	18.0%

Average	80.5%	19.5%
Y/Y Change	2.1%	-2.1%

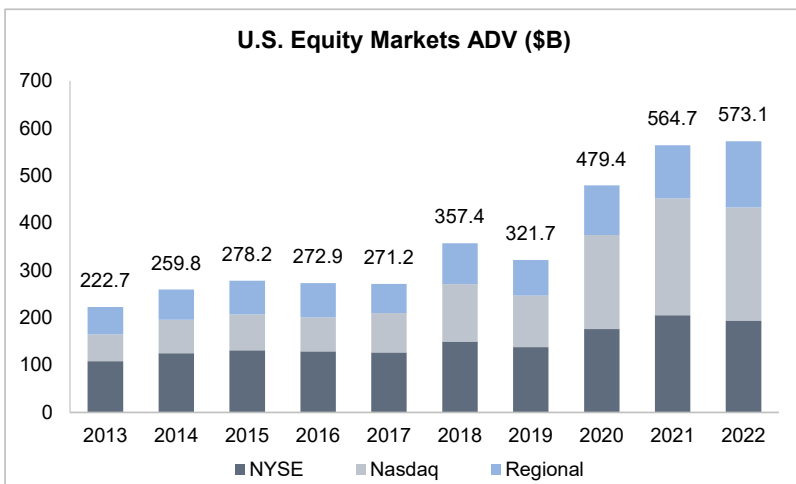
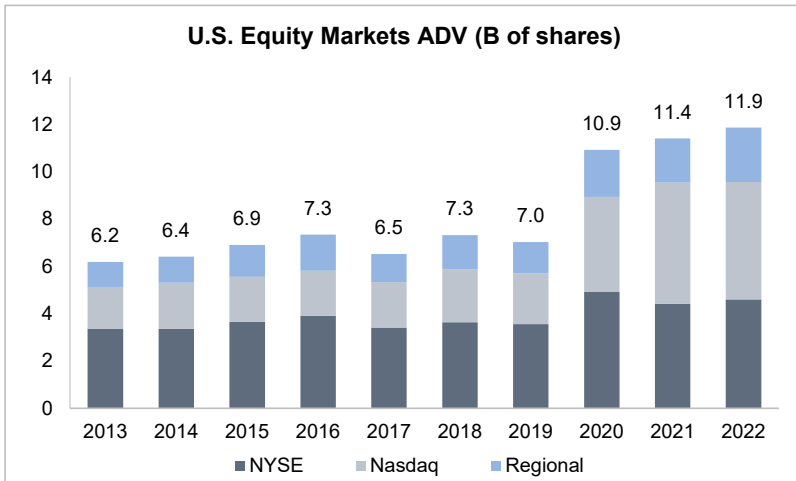
## Municipal Bond ADV: % Change Y/Y

	Retail	Institutional	Total
2009	1.4%	-25.9%	-5.3%
2010	1.9%	-1.1%	1.3%
2011	0.3%	-6.4%	-1.0%
2012	-8.5%	2.4%	-6.6%
2013	12.4%	-2.9%	9.5%
2014	-17.8%	-8.1%	-16.2%
2015	4.0%	3.3%	3.9%
2016	-0.7%	8.9%	1.1%
2017	6.8%	3.1%	6.1%
2018	2.8%	1.1%	2.5%
2019	-16.5%	-3.2%	-14.0%
2020	-3.9%	-1.1%	-3.3%
2021	-7.4%	-17.7%	-9.7%
2022	71.0%	49.5%	66.7%

Source: Municipal Securities Rulemaking Board

Note: Institutional trades defined as trade sizes greater than \$100,000

US Equity Markets Average Daily Trading Volume (ADV) – Charts



Source: Cboe Global Markets

## US Equity Markets Average Daily Trading Volume (ADV) – Dollar Volume

## US Equity ADV: Dollar Volume (\$ Billions)

	NYSE	Regional	Nasdaq	Total
2008	n/a	n/a	n/a	n/a
2009	111.1	67.7	41.7	220.5
2010	117.3	66.5	50.8	234.6
2011	121.2	76.7	55.2	253.1
2012	102.7	54.7	53.5	210.8
2013	108.0	58.2	56.4	222.7
2014	124.9	64.0	70.8	259.8
2015	131.2	71.6	75.4	278.2
2016	129.0	72.4	71.5	272.9
2017	126.4	61.3	83.4	271.2
2018	149.7	86.5	121.1	357.4
2019	137.9	75.2	108.6	321.7
2020	175.8	104.6	199.0	479.4
2021	205.3	112.3	247.1	564.7
2022	193.7	139.9	239.5	573.1

## US Equity ADV: (Dollar Volume) % Change Y/Y

	NYSE	Regional	Nasdaq	Total
2009	n/a	n/a	n/a	n/a
2010	5.6%	-1.8%	21.9%	6.4%
2011	3.3%	15.4%	8.7%	7.9%
2012	-15.3%	-28.7%	-3.2%	-16.7%
2013	5.3%	6.5%	5.5%	5.6%
2014	15.6%	10.1%	25.5%	16.7%
2015	5.0%	11.7%	6.5%	7.1%
2016	-1.7%	1.2%	-5.2%	-1.9%
2017	-2.0%	-15.3%	16.7%	-0.6%
2018	18.4%	41.1%	45.2%	31.8%
2019	-7.9%	-13.1%	-10.3%	-10.0%
2020	27.5%	39.2%	83.2%	49.0%
2021	16.8%	7.3%	24.2%	17.8%
2022	10.2%	33.7%	20.4%	19.5%

Average	140.2	80.3	110.2	330.7
Y/Y Change	-5.7%	24.6%	-3.1%	1.5%
5Y CAGR	8.9%	17.9%	23.5%	16.1%
10Y CAGR	6.6%	9.9%	16.2%	10.5%

Source: Cboe Global Markets

## US Equity Markets Average Daily Trading Volume (ADV) – Share Volume

## US Equity ADV: Share Volume (Billions of Shares)

	NYSE	Regional	Nasdaq	Total
2008	5.1	1.5	2.3	8.8
2009	5.6	1.9	2.2	9.8
2010	4.8	1.5	2.2	8.5
2011	4.3	1.5	2.0	7.8
2012	3.6	1.1	1.7	6.4
2013	3.4	1.1	1.8	6.2
2014	3.4	1.1	2.0	6.4
2015	3.7	1.4	1.9	6.9
2016	3.9	1.5	1.9	7.3
2017	3.4	1.2	1.9	6.5
2018	3.6	1.4	2.3	7.3
2019	3.6	1.3	2.1	7.0
2020	4.9	2.0	4.0	10.9
2021	4.4	1.9	5.1	11.4
2022	4.6	2.3	5.0	11.9

Average	4.0	1.5	2.6	8.1
Y/Y Change	4.2%	23.8%	-3.1%	4.1%
5Y CAGR	6.1%	14.2%	20.9%	12.7%
10Y CAGR	2.4%	8.2%	11.0%	6.3%

## US Equity ADV: (Share Volume) % Change Y/Y

	NYSE	Regional	Nasdaq	Total
2009	11.5%	26.8%	-2.6%	10.4%
2010	-14.4%	-23.0%	-1.9%	-13.2%
2011	-10.1%	1.3%	-7.8%	-7.5%
2012	-16.3%	-28.5%	-13.5%	-17.9%
2013	-7.4%	0.7%	0.7%	-3.9%
2014	-0.1%	3.6%	10.8%	3.7%
2015	8.9%	23.4%	-3.1%	7.8%
2016	6.6%	13.4%	0.7%	6.3%
2017	-12.4%	-22.7%	0.7%	-11.2%
2018	6.3%	20.9%	17.3%	12.2%
2019	-2.1%	-7.7%	-4.6%	-4.0%
2020	38.3%	50.2%	86.9%	55.4%
2021	-10.3%	-6.4%	27.7%	4.4%
2022	-6.5%	15.9%	23.8%	8.7%

Source: Cboe Global Markets

## US Equity Markets Average Daily Trading Volume (ADV) – NYSE Listed Stocks

## Trading Activity of NYSE Listed Stocks

	Annual Volume (M shares)	Annual Value (\$B)	ADV (M shares)	ADV (\$B)
2008	1,279,583.9	n/a	5,057.6	n/a
2009	1,420,980.0	27,997.2	5,638.8	111.1
2010	1,216,840.7	29,563.7	4,828.7	117.3
2011	1,094,331.9	30,543.8	4,342.6	121.2
2012	908,892.1	25,663.6	3,635.6	102.7
2013	848,097.9	27,227.2	3,365.5	108.0
2014	847,593.6	31,475.1	3,363.5	124.9
2015	923,306.2	33,055.9	3,663.9	131.2
2016	984,312.3	32,510.2	3,906.0	129.0
2017	858,465.0	31,738.4	3,420.2	126.4
2018	912,321.7	37,583.6	3,634.7	149.7
2019	896,772.6	34,756.3	3,558.6	137.9
2020	1,245,380.7	44,481.4	4,922.5	175.8
2021	1,113,120.5	51,734.3	4,417.1	205.3
2022	1,155,350.7	48,611.2	4,603.0	193.7
Average	1,047,023.3	34,781.6	4,157.2	138.2
Y/Y Change	3.8%	-6.0%	4.2%	-5.7%
5Y CAGR	6.1%	8.9%	6.1%	8.9%
10Y CAGR	2.4%	6.6%	2.4%	6.6%

## Trading Activity of NYSE-Listed Stocks: % Change Y/Y

	Annual Volume (M shares)	Annual Value (\$B)	ADV (M shares)	ADV (\$B)
2009	0.1	n/a	0.1	n/a
2010	-14.4%	5.6%	-14.4%	5.6%
2011	-10.1%	3.3%	-10.1%	3.3%
2012	-16.9%	-16.0%	-16.3%	-15.3%
2013	-6.7%	6.1%	-7.4%	5.3%
2014	-0.1%	15.6%	-0.1%	15.6%
2015	8.9%	5.0%	8.9%	5.0%
2016	6.6%	-1.7%	6.6%	-1.7%
2017	-12.8%	-2.4%	-12.4%	-2.0%
2018	6.3%	18.4%	6.3%	18.4%
2019	-1.7%	-7.5%	-2.1%	-7.9%
2020	38.9%	28.0%	38.3%	27.5%
2021	-10.6%	16.3%	-10.3%	16.8%
2022	3.8%	-6.0%	4.2%	-5.7%

Source: Cboe Global Markets, Nasdaq

## US Equity Markets Average Daily Trading Volume (ADV) – Nasdaq Listed

## Trading Activity of Nasdaq-listed stocks

	Annual Volume (M shares)	Annual Value (\$B)	ADV (M shares)	ADV (\$B)
2008	580,908.8	n/a	2,296.1	n/a
2009	563,398.0	10,512.4	2,235.7	41.7
2010	552,466.0	12,810.7	2,192.3	50.8
2011	509,522.9	13,919.7	2,021.9	55.2
2012	437,351.9	13,373.2	1,749.4	53.5
2013	444,114.3	14,223.1	1,762.4	56.4
2014	492,188.1	17,852.2	1,953.1	70.8
2015	477,057.8	19,009.6	1,893.1	75.4
2016	480,484.2	18,014.8	1,906.7	71.5
2017	481,992.6	20,934.5	1,920.3	83.4
2018	565,172.6	30,406.8	2,251.7	121.1
2019	541,092.0	27,374.8	2,147.2	108.6
2020	1,015,286.6	50,345.0	4,013.0	199.0
2021	1,291,448.8	62,259.1	5,124.8	247.1
2022	1,246,601.6	60,114.0	4,966.5	239.5
Average	645,272.4	26,510.7	2,562.3	105.3
Y/Y Change	-3.5%	-3.4%	-3.1%	-3.1%
5Y CAGR	20.9%	23.5%	20.9%	23.5%
10Y CAGR	11.0%	16.2%	11.0%	16.2%

## Trading Activity of Nasdaq-listed stocks: % Change Y/Y

	Annual Volume (M shares)	Annual Value (\$B)	ADV (M shares)	ADV (\$B)
2009	-3.0%	n/a	-2.6%	n/a
2010	-1.9%	21.9%	-1.9%	21.9%
2011	-7.8%	8.7%	-7.8%	8.7%
2012	-14.2%	-3.9%	-13.5%	-3.2%
2013	1.5%	6.4%	0.7%	5.5%
2014	10.8%	25.5%	10.8%	25.5%
2015	-3.1%	6.5%	-3.1%	6.5%
2016	0.7%	-5.2%	0.7%	-5.2%
2017	0.3%	16.2%	0.7%	16.7%
2018	17.3%	45.2%	17.3%	45.2%
2019	-4.3%	-10.0%	-4.6%	-10.3%
2020	87.6%	83.9%	86.9%	83.2%
2021	27.2%	23.7%	27.7%	24.2%
2022	-3.5%	-3.4%	-3.1%	-3.1%

Source: Cboe Global Markets, Nasdaq

## Futures Contracts Traded on US Exchanges

## Futures Contracts Traded on US Exchanges: Millions

	Agriculture	Currency	Energy	Equity Index	Individual Equity	Interest Rates	Precious Metals	Non-Precious Metals	Other	Total
2008	215.4	155.8	285.9	904.9	3.7	1,213.1	56.2	4.6	13.0	2,852.5
2009	196.6	156.3	313.1	744.7	2.7	854.6	48.8	6.4	4.8	2,328.1
2010	239.5	229.0	350.6	740.6	4.8	1,123.0	63.8	10.4	3.1	2,764.8
2011	265.9	231.6	374.1	813.9	3.6	1,277.6	76.3	12.6	1.0	3,056.5
2012	280.7	210.7	428.3	650.8	6.4	1,008.3	63.7	16.2	0.9	2,666.0
2013	264.5	208.9	627.4	663.0	6.7	1,202.0	68.6	17.2	0.9	3,059.3
2014	273.9	186.0	553.8	675.0	8.0	1,401.9	60.2	14.7	1.1	3,174.8
2015	315.8	212.0	619.7	667.3	8.8	1,312.5	61.3	17.3	1.5	3,216.3
2016	333.4	205.4	746.6	731.0	9.7	1,440.4	82.9	21.9	1.7	3,573.0
2017	342.0	220.0	778.8	639.6	12.2	1,524.8	103.8	27.4	2.7	3,651.4
2018	382.4	243.8	751.1	816.6	5.9	1,900.5	113.6	33.1	2.9	4,249.9
2019	383.1	211.9	694.9	822.0	6.3	1,911.5	124.6	24.4	2.7	4,181.3
2020	375.8	217.5	713.2	1,358.9	2.5	1,572.7	134.8	24.9	2.1	4,402.4
2021	345.9	207.1	646.0	1,303.3	0.0	1,819.0	100.1	25.3	2.3	4,449.0
2022	329.8	277.3	627.6	1,720.3	0.0	2,141.1	92.5	23.1	2.6	5,214.2
Average	303.0	211.6	567.4	883.5	5.4	1,446.9	83.4	18.6	2.9	3,522.6
Y/Y Change	-4.7%	33.9%	-2.8%	32.0%	0.0%	17.7%	-7.6%	-8.5%	15.0%	17.2%
5Y CAGR	-0.7%	4.7%	-4.2%	21.9%	-100.0%	7.0%	-2.3%	-3.3%	-0.7%	7.4%
10Y CAGR	1.6%	2.8%	3.9%	10.2%	-100.0%	7.8%	3.8%	3.6%	11.6%	6.9%

## Futures Contracts Traded on US Exchanges: % Change Y/Y

	Agriculture	Currency	Energy	Equity Index	Individual Equity	Interest Rates	Precious Metals	Non-Precious Metals	Other	Total
2009	-8.7%	0.3%	9.5%	-17.7%	-26.4%	-29.6%	-13.2%	38.6%	-62.6%	-18.4%
2010	21.8%	46.5%	12.0%	-0.5%	76.1%	31.4%	30.9%	61.3%	-36.7%	18.8%
2011	11.0%	1.1%	6.7%	9.9%	-24.2%	13.8%	19.6%	21.3%	-68.5%	10.6%
2012	5.6%	-9.0%	14.5%	-20.0%	76.6%	-21.1%	-16.6%	29.2%	-10.2%	-12.8%
2013	-5.8%	-0.9%	46.5%	1.9%	4.8%	19.2%	7.8%	6.1%	3.3%	14.8%
2014	3.5%	-11.0%	-11.7%	1.8%	18.8%	16.6%	-12.3%	-14.7%	25.6%	3.8%
2015	15.3%	14.0%	11.9%	-1.1%	9.8%	-6.4%	1.9%	17.3%	32.2%	1.3%
2016	5.6%	-3.1%	20.5%	9.5%	10.2%	9.7%	35.2%	27.1%	12.5%	11.1%
2017	2.6%	7.1%	4.3%	-12.5%	26.1%	5.9%	25.1%	25.0%	61.1%	2.2%
2018	11.8%	10.8%	-3.6%	27.7%	-51.5%	24.6%	9.5%	20.8%	8.1%	16.4%
2019	0.2%	-13.1%	-7.5%	0.7%	5.3%	0.6%	9.7%	-26.1%	-8.2%	-1.6%
2020	-1.9%	2.7%	2.6%	65.3%	-60.3%	-17.7%	8.2%	1.8%	-23.0%	5.3%
2021	-8.0%	-4.7%	-9.4%	-4.1%	-100.0%	15.7%	-25.7%	1.6%	9.7%	1.1%
2022	-4.7%	33.9%	-2.8%	32.0%	0.0%	17.7%	-7.6%	-8.5%	15.0%	17.2%

Source: Futures Industry Association



## Options Contracts Traded on US Exchanges

## Options Contracts Traded on US Exchanges: Millions

	Agriculture	Currency	Energy	Equity Index	Individual Equity	Interest Rates	Precious Metals	Non-Precious Metals	Other	Total
2008	56.7	11.2	79.1	336.7	3,284.8	326.4	6.1	0.0	0.5	4,101.5
2009	43.3	6.2	64.5	276.1	3,367.0	223.9	5.8	0.0	0.3	3,987.1
2010	56.0	11.9	71.3	328.3	3,610.4	268.7	9.4	0.0	0.3	4,356.5
2011	68.1	10.9	74.2	398.7	4,224.6	274.0	12.4	0.0	0.2	5,063.2
2012	70.6	11.0	84.3	381.6	3,681.8	227.8	11.5	0.0	0.2	4,468.9
2013	61.9	16.3	119.5	1,930.2	2,273.8	285.9	13.1	0.1	0.1	4,700.8
2014	69.0	18.8	104.6	2,054.2	2,342.9	364.9	10.8	0.0	0.1	4,965.5
2015	75.1	24.7	117.4	2,105.3	2,180.3	388.2	9.1	0.1	0.1	4,900.2
2016	76.0	23.5	126.3	2,251.0	1,975.5	454.3	11.7	0.1	0.1	4,918.6
2017	70.5	26.7	131.6	2,269.1	2,092.1	531.2	11.8	0.2	0.1	5,133.3
2018	79.2	27.8	117.0	2,781.9	2,565.7	607.7	14.4	0.4	0.1	6,194.1
2019	77.6	20.4	89.7	2,422.9	2,641.0	696.4	19.2	0.7	0.2	5,968.0
2020	75.6	21.3	108.9	3,212.1	4,438.3	459.6	17.5	0.4	0.0	8,333.8
2021	82.6	21.3	101.8	3,395.1	6,668.8	499.9	12.4	0.8	0.1	10,782.7
2022	82.5	20.8	121.2	5,039.5	5,588.2	574.8	14.4	1.1	0.1	11,442.5
Average	69.7	18.2	100.7	1,945.5	3,395.7	412.2	12.0	0.3	0.2	5,954.4
Y/Y Change	-0.1%	-2.4%	19.1%	48.4%	-16.2%	15.0%	15.7%	45.5%	-32.5%	6.1%
5Y CAGR	3.2%	-4.9%	-1.6%	17.3%	21.7%	1.6%	4.0%	46.5%	-8.0%	17.4%
10Y CAGR	1.6%	6.5%	3.7%	29.4%	4.3%	9.7%	2.3%	40.6%	-9.5%	9.9%

## Options Contracts Traded on US Exchanges: % Change Y/Y

	Agriculture	Currency	Energy	Equity Index	Individual Equity	Interest Rates	Precious Metals	Non-Precious Metals	Other	Total
2009	-23.7%	-45.3%	-18.4%	-18.0%	2.5%	-31.4%	-17.7%	-4.8%	-41.0%	-2.8%
2010	29.4%	93.8%	10.5%	18.9%	7.2%	20.0%	-1.2%	61.2%	2.2%	9.3%
2011	21.4%	-8.3%	4.2%	21.4%	17.0%	2.0%	-11.6%	32.1%	-27.2%	16.2%
2012	3.7%	1.0%	13.5%	-4.3%	-12.8%	-16.9%	127.0%	-7.4%	-34.1%	-11.7%
2013	-12.3%	47.3%	41.8%	405.8%	-38.2%	25.5%	49.9%	14.0%	-23.0%	5.2%
2014	11.5%	15.7%	-12.5%	6.4%	3.0%	27.6%	-9.5%	-17.9%	4.2%	5.6%
2015	8.7%	31.4%	12.2%	2.5%	-6.9%	6.4%	135.5%	-15.7%	-9.0%	-1.3%
2016	1.3%	-4.8%	7.6%	6.9%	-9.4%	17.0%	3.0%	28.6%	-35.9%	0.4%
2017	-7.3%	13.7%	4.2%	0.8%	5.9%	16.9%	35.8%	1.4%	19.6%	4.4%
2018	12.4%	3.8%	-11.1%	22.6%	22.6%	14.4%	121.8%	21.7%	-7.2%	20.7%
2019	-2.0%	-26.4%	-23.4%	-12.9%	2.9%	14.6%	97.7%	33.4%	85.3%	-3.6%
2020	-2.5%	4.3%	21.4%	32.6%	68.1%	-34.0%	-38.3%	-9.0%	-78.5%	39.6%
2021	9.2%	-0.2%	-6.5%	5.7%	50.3%	8.8%	71.6%	-28.9%	165.2%	29.4%
2022	-0.1%	-2.4%	19.1%	48.4%	-16.2%	15.0%	45.5%	15.7%	-32.5%	6.1%

Source: Futures Industry Association

## US Equity Market Index Prices

## US Stock Market Indices: Value (At Year-End)

	DJIA	S&P 500	Nasdaq	Russell 2000
2008	8,776.39	903.25	1,577.03	499.45
2009	10,428.05	1,115.10	2,269.15	625.39
2010	11,577.51	1,257.64	2,652.87	783.65
2011	12,217.56	1,257.61	2,605.15	740.92
2012	13,104.14	1,426.19	3,019.51	849.35
2013	16,576.66	1,848.36	4,176.59	1,163.64
2014	17,823.07	2,058.90	4,736.05	1,204.70
2015	17,425.03	2,043.94	5,007.41	1,135.89
2016	19,762.60	2,238.83	5,383.12	1,357.13
2017	24,719.22	2,673.61	6,903.39	1,535.51
2018	23,327.46	2,506.85	6,635.28	1,348.56
2019	28,538.44	3,230.78	8,972.60	1,668.47
2020	30,606.48	3,756.07	12,888.28	1,974.86
2021	36,338.30	4,766.18	15,644.97	2,245.31
2022	33,147.25	3,839.50	10,466.48	1,761.25
Average	20,291.2	2,328.2	6,195.9	1,259.6
Y/Y Change	-8.8%	-19.4%	-33.1%	-21.6%
5Y CAGR	6.0%	7.5%	8.7%	2.8%
10Y CAGR	9.7%	10.4%	13.2%	7.6%

## US Stock Market Indices: % Change Y/Y

	DJIA	S&P 500	Nasdaq	Russell 2000
2009	18.8%	23.5%	43.9%	25.2%
2010	11.0%	12.8%	16.9%	25.3%
2011	5.5%	0.0%	-1.8%	-5.5%
2012	7.3%	13.4%	15.9%	14.6%
2013	26.5%	29.6%	38.3%	37.0%
2014	7.5%	11.4%	13.4%	3.5%
2015	-2.2%	-0.7%	5.7%	-5.7%
2016	13.4%	9.5%	7.5%	19.5%
2017	25.1%	19.4%	28.2%	13.1%
2018	-5.6%	-6.2%	-3.9%	-12.2%
2019	22.3%	28.9%	35.2%	23.7%
2020	7.2%	16.3%	43.6%	18.4%
2021	18.7%	26.9%	21.4%	13.7%
2022	-8.8%	-19.4%	-33.1%	-21.6%

Source: Bloomberg

Note: DJIA = Dow Jones Industrial Average

## US Interest Rates and Bond Yields

## US Interest Rates and Bond Yields: Annual Average %

	3M UST	2Y UST	10Y UST	30Y UST	Aaa Corporates	Baa Corporates	20Y HG Munis	Prime	Fed Funds
2008	1.397	2.011	3.664	4.278	5.63	7.44	4.80	5.07	1.939
2009	0.151	0.958	3.264	4.077	5.31	7.29	4.64	3.25	0.160
2010	0.138	0.703	3.215	4.251	4.94	6.04	4.16	3.24	0.177
2011	0.053	0.449	2.782	3.911	4.64	5.66	4.29	3.25	0.102
2012	0.088	0.276	1.803	2.922	3.67	4.94	3.25	3.25	0.142
2013	0.057	0.307	2.350	3.446	4.23	5.10	3.96	3.25	0.108
2014	0.033	0.462	2.540	3.338	4.16	4.85	3.78	3.25	0.089
2015	0.053	0.687	2.138	2.841	3.89	5.00	3.48	3.26	0.134
2016	0.319	0.834	1.837	2.594	3.66	4.71	3.07	3.51	0.395
2017	0.949	1.399	2.329	2.894	3.74	4.44	3.36	4.08	1.004
2018	1.972	2.527	2.911	3.112	3.93	4.80	3.53	4.88	1.831
2019	2.106	1.969	2.141	2.580	3.39	4.37	3.38	5.29	2.163
2020	0.360	0.389	0.889	1.556	2.48	3.60	2.41	3.53	0.363
2021	0.045	0.265	1.447	2.056	2.71	3.40	2.01	3.24	0.079
2022	2.085	2.986	2.951	3.113	4.08	5.08	3.85	4.83	1.676
Average	0.654	1.082	2.418	3.131	4.030	5.115	3.597	3.812	0.691
Y/Y Change	2.040	2.721	1.504	1.058	1.373	1.683	1.845	1.592	1.597

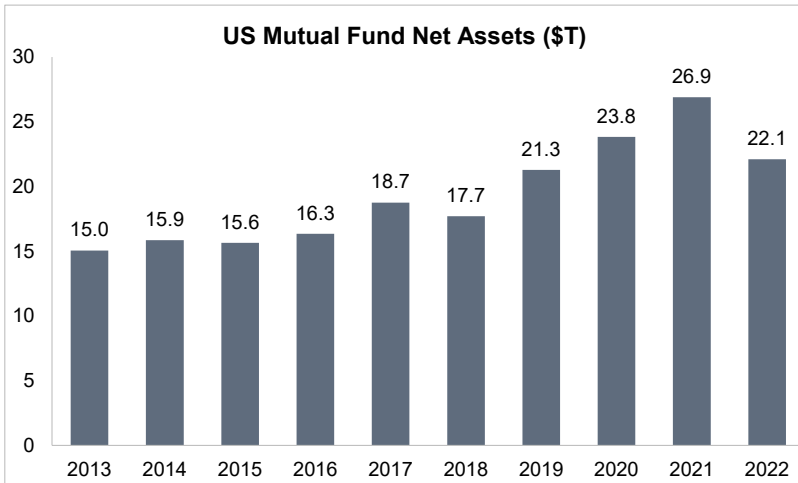
## US Interest Rates and Bond Yields: Y/Y Change (pps)

	3M UST	2Y UST	10Y UST	30Y UST	Aaa Corporates	Baa Corporates	20Y HG Munis	Prime	Fed Funds
2009	(1.246)	(1.053)	(0.400)	(0.201)	(0.31)	(0.15)	(0.16)	(1.82)	(1.779)
2010	(0.012)	(0.255)	(0.049)	0.174	(0.37)	(1.25)	(0.48)	(0.01)	0.017
2011	(0.086)	(0.254)	(0.433)	(0.340)	(0.30)	(0.38)	0.13	0.01	(0.075)
2012	0.035	(0.173)	(0.978)	(0.989)	(0.97)	(0.72)	(1.04)	0.00	0.040
2013	(0.031)	0.031	0.547	0.524	0.56	0.16	0.71	0.00	(0.034)
2014	(0.024)	0.155	0.189	(0.108)	(0.07)	(0.25)	(0.18)	0.00	(0.019)
2015	0.020	0.225	(0.401)	(0.497)	(0.27)	0.15	(0.30)	0.01	0.045
2016	0.267	0.147	(0.301)	(0.247)	(0.23)	(0.29)	(0.41)	0.25	0.260
2017	0.630	0.565	0.492	0.300	0.08	(0.27)	0.29	0.57	0.609
2018	1.023	1.128	0.582	0.218	0.19	0.36	0.17	0.80	0.827
2019	0.134	(0.558)	(0.770)	(0.531)	(0.54)	(0.43)	(0.15)	0.40	0.332
2020	(1.745)	(1.580)	(1.252)	(1.024)	(0.91)	(0.77)	(0.97)	(1.76)	(1.800)
2021	(0.315)	(0.123)	0.558	0.499	0.23	(0.21)	(0.40)	(0.29)	(0.284)
2022	2.040	2.721	1.504	1.058	1.37	1.68	1.85	1.59	1.597

Source: Federal Reserve Board, St. Louis Federal Reserve Bank, S&P Dow Jones Indices

Note: UST = U.S. Treasuries. HG = high grade. Rated by Moody's = Aaa, Baa corporates. Rated by S&P = 20Y HG munis. Prime = the interest rate banks lend to customers with good credit

US Mutual Funds: Total Net Assets – Chart



Source: Investment Company Institute

Note: Data for funds that invest primarily in other mutual funds were excluded

## US Mutual Funds: Total Net Assets – Value

## US Mutual Fund Net Assets: \$ Billions

	Equity	Hybrid	Bond	MM	Total
2008	3,654.6	562.2	1,569.7	3,832.2	9,618.6
2009	4,871.5	717.3	2,204.0	3,315.9	11,108.7
2010	5,596.2	841.7	2,589.2	2,803.5	11,830.5
2011	5,212.9	883.4	2,842.6	2,690.9	11,629.8
2012	5,938.9	1,031.7	3,389.1	2,693.2	13,052.8
2013	7,762.7	1,283.8	3,283.7	2,717.8	15,048.0
2014	8,305.5	1,378.3	3,458.6	2,724.6	15,867.1
2015	8,140.5	1,340.6	3,411.9	2,754.7	15,647.7
2016	8,567.0	1,399.1	3,648.1	2,728.1	16,342.3
2017	10,291.4	1,546.1	4,065.2	2,847.3	18,749.9
2018	9,216.4	1,383.0	4,060.9	3,037.0	17,697.3
2019	11,362.3	1,578.1	4,704.1	3,632.0	21,276.6
2020	12,716.7	1,570.3	5,213.7	4,333.3	23,833.9
2021	14,715.2	1,807.8	5,624.8	4,755.7	26,903.4
2022	11,353.9	1,487.8	4,491.6	4,776.7	22,110.1
Average	8,513.7	1,254.1	3,637.1	3,309.5	16,714.4
Y/Y Change	-22.8%	-17.7%	-20.1%	0.4%	-17.8%
5Y CAGR	2.0%	-0.8%	2.0%	10.9%	3.4%
10Y CAGR	6.7%	3.7%	2.9%	5.9%	5.4%

## US Mutual Fund Net Assets: % Change Y/Y

	Equity	Hybrid	Bond	MM	Total
2009	33.3%	27.6%	40.4%	-13.5%	15.5%
2010	14.9%	17.3%	17.5%	-15.5%	6.5%
2011	-6.8%	5.0%	9.8%	-4.0%	-1.7%
2012	13.9%	16.8%	19.2%	0.1%	12.2%
2013	30.7%	24.4%	-3.1%	0.9%	15.3%
2014	7.0%	7.4%	5.3%	0.3%	5.4%
2015	-2.0%	-2.7%	-1.4%	1.1%	-1.4%
2016	5.2%	4.4%	6.9%	-1.0%	4.4%
2017	20.1%	10.5%	11.4%	4.4%	14.7%
2018	-10.4%	-10.5%	-0.1%	6.7%	-5.6%
2019	23.3%	14.1%	15.8%	19.6%	20.2%
2020	11.9%	-0.5%	10.8%	19.3%	12.0%
2021	15.7%	15.1%	7.9%	9.7%	12.9%
2022	-22.8%	-17.7%	-20.1%	0.4%	-17.8%

Source: Investment Company Institute

Note: Data for funds that invest primarily in other mutual funds were excluded. MM = money market

## US Mutual Funds: Net New Cash Flows

## US Mutual Fund Net New Cash Flow: \$ Billions

	Equity	Hybrid	Bond	MM	Total
2008	-216.5	-25.6	31.2	637.7	426.8
2009	2.2	19.6	371.4	-539.2	-146.0
2010	-24.4	35.5	232.4	-525.1	-281.6
2011	-129.5	39.6	118.0	-124.1	-96.0
2012	-152.7	46.2	306.5	-0.2	199.8
2013	159.5	74.7	-71.2	15.1	178.1
2014	25.1	30.4	43.9	6.2	105.6
2015	-75.8	-19.0	-24.9	21.5	-98.2
2016	-258.3	-41.8	107.0	-30.2	-223.3
2017	-159.6	-28.4	259.7	106.9	178.6
2018	-256.9	-91.4	2.1	158.8	-187.4
2019	-361.8	-49.2	312.4	552.7	454.1
2020	-644.2	-87.4	244.4	690.8	203.6
2021	-435.2	-18.7	389.4	422.1	357.6
2022	-471.6	-103.5	-541.8	-3.9	-1,120.8
Average	-200.0	-14.6	118.7	92.6	-3.3
Y/Y Change	-8.4%	-453.5%	-239.1%	-100.9%	-413.4%

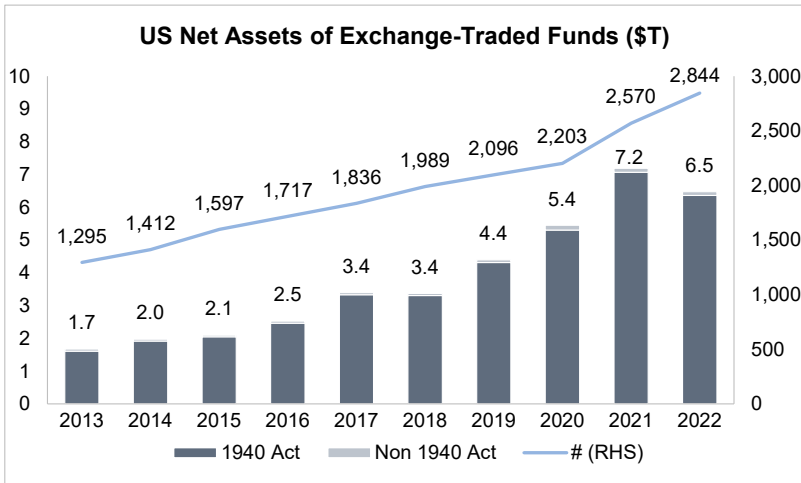
## US Mutual Fund Net New Cash Flow: % Change Y/Y

	Equity	Hybrid	Bond	MM	Total
2009	101.0%	176.6%	1090.4%	-184.6%	-134.2%
2010	-1209.1%	81.1%	-37.4%	2.6%	-92.9%
2011	-430.7%	11.5%	-49.2%	76.4%	65.9%
2012	-17.9%	16.7%	159.7%	99.8%	308.1%
2013	204.5%	61.7%	-123.2%	7650.0%	-10.9%
2014	-84.3%	-59.3%	161.7%	-58.9%	-40.7%
2015	-402.0%	-162.5%	-156.7%	246.8%	-193.0%
2016	-240.8%	-120.0%	529.7%	-240.5%	-127.4%
2017	38.2%	32.1%	142.7%	454.0%	180.0%
2018	-61.0%	-221.8%	-99.2%	48.6%	-204.9%
2019	-40.8%	46.2%	14776.2%	248.0%	342.3%
2020	-78.1%	-77.6%	-21.8%	25.0%	-55.2%
2021	32.4%	78.6%	59.3%	-38.9%	75.6%
2022	-8.4%	-453.5%	-239.1%	-100.9%	-413.4%

Source: Investment Company Institute

Note: Net new cash flow is the dollar value of new sales minus redemptions, combined with net exchanges. Data for funds that invest primarily in other mutual funds were excluded. MM = money market

US Exchange-Traded Funds (ETFs): Net Assets and Number – Chart



Source: Investment Company Institute and Strategic Insight Simfund

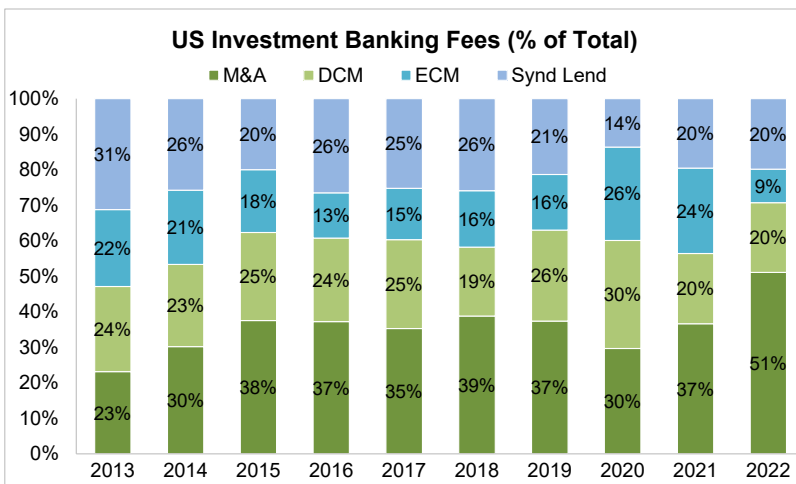
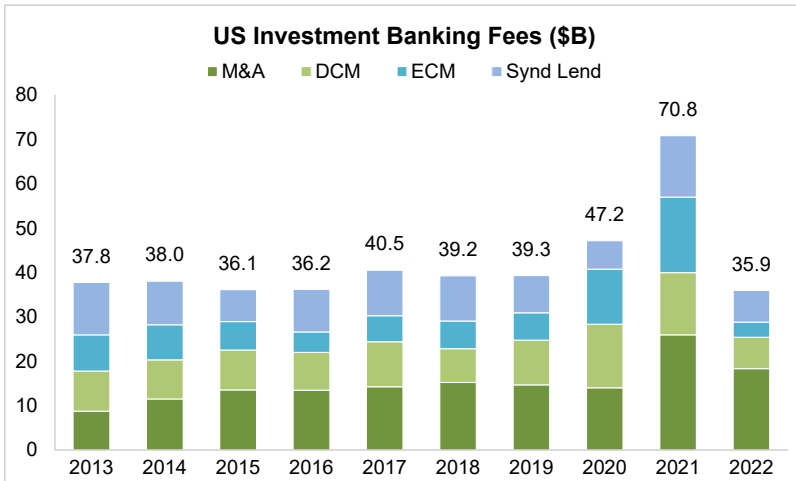
## Exchange-Traded Funds (ETFs): Net Assets and Number – Values

ETF Net Assets (\$ Billions)				ETF Count	
	1940 Act	Non 1940 Act	Total		#
2008	495.6	35.7	531.3	2008	728
2009	702.6	74.5	777.1	2009	797
2010	890.9	101.1	992.0	2010	923
2011	939.3	108.9	1,048.1	2011	1,135
2012	1,217.2	119.9	1,337.1	2012	1,195
2013	1,610.8	63.9	1,674.7	2013	1,295
2014	1,918.0	56.5	1,974.6	2014	1,412
2015	2,052.2	48.5	2,100.7	2015	1,597
2016	2,462.9	61.6	2,524.5	2016	1,717
2017	3,333.7	67.3	3,401.0	2017	1,836
2018	3,308.7	62.4	3,371.2	2018	1,989
2019	4,314.6	81.6	4,396.2	2019	2,096
2020	5,304.3	145.1	5,449.4	2020	2,203
2021	7,065.4	125.2	7,190.5	2021	2,570
2022	6,357.3	119.4	6,476.8	2022	2,844
Average	2,798.2	84.8	2,883.0	Average	1,622.5
Y/Y Change	-10.0%	-4.6%	-9.9%	Y/Y Change	10.7%
5Y CAGR	13.8%	12.1%	13.7%	5Y CAGR	9.1%
10Y CAGR	18.0%	0.0%	17.1%	10Y CAGR	9.1%

Source: Investment Company Institute and Strategic Insight Simfund



US Investment Banking Revenues by Product – Charts



Source: Dealogic Investment Banking Revenue Analytics

Note: M&A = mergers & acquisitions; DCM = debt capital markets; ECM = equity capital markets, synd lend = syndicated lending

## US Mergers and Acquisitions – Announced and Completed

US M&A: Announced			US M&A: Completed		
	Value (\$ Billions)	# of Deals		Value (\$ Billions)	# of Deals
2008	1,021.5	8,989	2008	1,146.1	9,236
2009	802.9	7,498	2009	794.3	7,386
2010	898.4	10,231	2010	820.9	10,239
2011	999.0	10,717	2011	992.9	10,696
2012	977.5	12,461	2012	1,041.8	12,344
2013	1,125.6	10,366	2013	1,030.2	10,421
2014	1,509.5	10,959	2014	1,249.5	10,793
2015	2,075.5	10,717	2015	1,764.4	10,654
2016	1,735.5	9,799	2016	1,699.8	9,927
2017	1,403.1	10,467	2017	1,625.7	10,582
2018	1,776.0	8,652	2018	1,919.2	8,609
2019	1,869.3	10,065	2019	1,763.8	10,100
2020	1,561.5	9,009	2020	1,507.6	8,998
2021	2,730.4	13,374	2021	2,700.8	13,237
2022	1,567.5	12,406	2022	1,686.8	12,302
Average	1,470.2	10,380.7	Average	1,449.6	10,368.3
Y/Y Change	-42.6%	-7.2%	Y/Y Change	-37.5%	-7.1%
5Y CAGR	2.2%	3.5%	5Y CAGR	0.7%	3.1%
10Y CAGR	4.8%	0.0%	10Y CAGR	4.9%	0.0%

## US M&amp;A: % Change Y/Y

	Announced Value	Announced # of Deals	Completed Value	Completed # of Deals
2009	-21.4%	-16.6%	-30.7%	-20.0%
2010	11.9%	36.4%	3.4%	38.6%
2011	11.2%	4.8%	21.0%	4.5%
2012	-2.2%	16.3%	4.9%	15.4%
2013	15.2%	-16.8%	-1.1%	-15.6%
2014	34.1%	5.7%	21.3%	3.6%
2015	37.5%	-2.2%	41.2%	-1.3%
2016	-16.4%	-8.6%	-3.7%	-6.8%
2017	-19.2%	6.8%	-4.4%	6.6%
2018	26.6%	-17.3%	18.1%	-18.6%
2019	5.3%	16.3%	-8.1%	17.3%
2020	-16.5%	-10.5%	-14.5%	-10.9%
2021	74.9%	48.5%	79.1%	47.1%
2022	-42.6%	-7.2%	-37.5%	-7.1%

Source: Dealogic

## Section III: US Investor Participation

### US Holdings of Equities – Value

#### US Holdings of Equities: \$ Billions

	Households	Institutions	Total
2008	5,734.7	10,528.9	16,263.5
2009	7,222.8	13,426.2	20,649.0
2010	8,584.2	15,493.0	24,077.2
2011	8,138.8	15,194.8	23,333.6
2012	9,434.1	17,399.4	26,833.5
2013	12,226.1	22,219.7	34,445.8
2014	13,985.6	24,110.9	38,096.4
2015	13,802.7	23,408.4	37,211.1
2016	15,250.5	24,917.5	40,168.0
2017	18,038.7	29,881.2	47,919.8
2018	16,357.6	27,357.8	43,715.3
2019	21,081.8	33,562.2	54,644.0
2020	26,064.6	39,458.6	65,523.2
2021	31,921.3	48,081.6	80,002.9
2022	26,366.2	38,303.8	64,670.0

#### US Holdings of Equities: % Change Y/Y

	Households	Institutions	Total
2009	26.0%	27.5%	27.0%
2010	18.8%	15.4%	16.6%
2011	-5.2%	-1.9%	-3.1%
2012	15.9%	14.5%	15.0%
2013	29.6%	27.7%	28.4%
2014	14.4%	8.5%	10.6%
2015	-1.3%	-2.9%	-2.3%
2016	10.5%	6.4%	7.9%
2017	18.3%	19.9%	19.3%
2018	-9.3%	-8.4%	-8.8%
2019	28.9%	22.7%	25.0%
2020	23.6%	17.6%	19.9%
2021	22.5%	21.9%	22.1%
2022	-17.4%	-20.3%	-19.2%

Average	15,614.0	25,556.3	41,170.2
Y/Y Change	-17.4%	-20.3%	-19.2%
5Y CAGR	7.9%	5.1%	6.2%
10Y CAGR	10.8%	8.2%	9.2%

#### US Holdings of Equities: % of Total

	Households	Institutions
2008	35.3%	64.7%
2009	35.0%	65.0%
2010	35.7%	64.3%
2011	34.9%	65.1%
2012	35.2%	64.8%
2013	35.5%	64.5%
2014	36.7%	63.3%
2015	37.1%	62.9%
2016	38.0%	62.0%
2017	37.6%	62.4%
2018	37.4%	62.6%
2019	38.6%	61.4%
2020	39.8%	60.2%
2021	39.9%	60.1%
2022	40.8%	59.2%

Average	37.2%	62.8%
Y/Y Change	0.9%	-0.9%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Household sector includes nonprofit organizations; includes only directly held equities

## US Households Owning Stocks

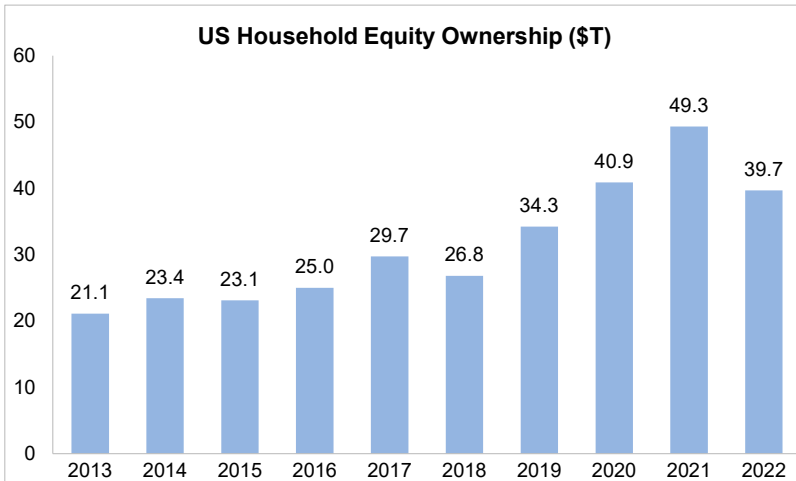
### US Household Stock Ownership

	2001	2004	2007	2010	2013	2016	2019	Average
Families with stock holdings, direct or indirect (% of all families)	53.0%	50.3%	53.2%	49.8%	48.8%	51.9%	52.6%	51.4%
Median value of stock held among families (thousands of dollars)	50.5	44.6	42.0	34.2	39.3	42.5	40.0	41.9
Stock held by families (% of total family financial assets)	56.7%	51.3%	53.6%	46.8%	51.3%	53.2%	54.6%	52.5%

Source: The Federal Reserve, 2019 Survey of Consumer Finances (triennial survey)

Note: Includes both directly and indirectly held publicly traded stock (i.e. through mutual funds or retirement accounts); 2019 is the latest data available at the time of publication. The 2022 survey results is expected to be published in late 2023.

### US Household Equity Ownership – Value



	\$ Billions
2008	9,742.4
2009	12,633.7
2010	14,888.2
2011	14,094.3
2012	16,251.3
2013	21,127.2
2014	23,433.6
2015	23,103.2
2016	25,023.3
2017	29,747.6
2018	26,823.6
2019	34,254.1
2020	40,910.0
2021	49,336.0
2022	39,713.5

Average	25,405.5
Y/Y Change	-19.5%
5Y CAGR	5.9%
10Y CAGR	9.3%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Household sector includes nonprofit organizations; includes both directly and indirectly held equities (i.e. through mutual funds)

## US Household Liquid Financial Assets – Value

## US Household Liquid Financial Assets: \$ Billions

	Equities	Deposits	MFs	UST, Agency	Munis	MMFs	Corporates	Total
2008	5,734.7	6,564.9	2,911.7	1,419.2	1,529.9	2,358.4	998.2	21,517.1
2009	7,222.8	6,689.4	4,045.2	1,031.4	1,866.2	1,962.3	1,022.8	23,840.1
2010	8,584.2	6,663.7	4,730.1	1,271.3	1,900.3	1,790.0	1,176.5	26,116.0
2011	8,138.8	7,322.9	4,710.9	1,336.5	2,062.0	1,711.7	1,364.0	26,646.8
2012	9,434.1	7,682.4	5,578.2	1,414.3	2,039.3	1,749.3	1,361.8	29,259.5
2013	12,226.1	7,990.7	6,637.2	1,024.2	1,855.1	1,680.3	919.2	32,332.8
2014	13,985.6	8,500.7	7,105.4	943.9	1,964.8	1,676.8	996.0	35,173.1
2015	13,802.7	9,184.1	6,997.7	1,437.9	1,931.6	1,723.6	495.0	35,572.6
2016	15,250.5	9,825.1	7,350.0	1,464.0	1,914.6	1,580.2	188.0	37,572.4
2017	18,038.7	10,177.4	8,706.3	1,439.2	1,930.9	1,653.1	200.5	42,146.1
2018	16,357.6	10,433.7	8,046.0	2,120.8	1,884.3	1,822.0	217.2	40,881.5
2019	21,081.8	11,046.2	10,008.7	2,388.4	1,910.2	2,273.4	228.0	48,936.7
2020	26,064.6	13,484.2	10,957.0	1,825.7	1,932.7	2,690.7	284.9	57,239.8
2021	31,921.3	15,247.3	12,687.3	1,112.8	1,796.8	2,793.3	255.9	65,814.7
2022	26,366.2	14,813.3	9,690.4	2,797.9	1,609.7	3,066.2	258.5	58,602.1
Average	15,614.0	9,708.4	7,344.2	1,535.2	1,875.2	2,035.4	664.4	38,776.8
Y/Y Change	-17.4%	-2.8%	-23.6%	151.4%	-10.4%	9.8%	1.0%	-11.0%
5Y CAGR	7.9%	7.8%	2.2%	14.2%	-3.6%	13.2%	5.2%	6.8%
10Y CAGR	10.8%	6.8%	5.7%	7.1%	-2.3%	5.8%	-15.3%	7.2%

## US Household Liquid Financial Assets: % Change Y/Y

	Equities	Deposits	MFs	UST, Agency	Munis	MMFs	Corporates	Total
2009	26.0%	1.9%	38.9%	-27.3%	22.0%	-16.8%	2.5%	10.8%
2010	18.8%	-0.4%	16.9%	23.3%	1.8%	-8.8%	15.0%	9.5%
2011	-5.2%	9.9%	-0.4%	5.1%	8.5%	-4.4%	15.9%	2.0%
2012	15.9%	4.9%	18.4%	5.8%	-1.1%	2.2%	-0.2%	9.8%
2013	29.6%	4.0%	19.0%	-27.6%	-9.0%	-3.9%	-32.5%	10.5%
2014	14.4%	6.4%	7.1%	-7.8%	5.9%	-0.2%	8.4%	8.8%
2015	-1.3%	8.0%	-1.5%	52.3%	-1.7%	2.8%	-50.3%	1.1%
2016	10.5%	7.0%	5.0%	1.8%	-0.9%	-8.3%	-62.0%	5.6%
2017	18.3%	3.6%	18.5%	-1.7%	0.9%	4.6%	6.7%	12.2%
2018	-9.3%	2.5%	-7.6%	47.4%	-2.4%	10.2%	8.3%	-3.0%
2019	28.9%	5.9%	24.4%	12.6%	1.4%	24.8%	5.0%	19.7%
2020	23.6%	22.1%	9.5%	-23.6%	1.2%	18.4%	25.0%	17.0%
2021	22.5%	13.1%	15.8%	-39.0%	-7.0%	3.8%	-10.2%	15.0%
2022	-17.4%	-2.8%	-23.6%	151.4%	-10.4%	9.8%	1.0%	-11.0%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Households include nonprofit organizations. Liquid financial assets exclude pension fund reserves, equity in non-corporate business, etc. Deposits = bank deposits and CDs; MFs = mutual funds; UST (U.S. Treasuries), Agency includes GSE securities; Munis = municipal bonds; MMFs = money market funds

## US Household Liquid Financial Assets – Share of Total

## US Household Liquid Financial Assets: % of total

	Equities	Deposits	MFs	UST, Agency	Munis	MMFs	Corporates
2008	26.7%	30.5%	13.5%	6.6%	7.1%	11.0%	4.6%
2009	30.3%	28.1%	17.0%	4.3%	7.8%	8.2%	4.3%
2010	32.9%	25.5%	18.1%	4.9%	7.3%	6.9%	4.5%
2011	30.5%	27.5%	17.7%	5.0%	7.7%	6.4%	5.1%
2012	32.2%	26.3%	19.1%	4.8%	7.0%	6.0%	4.7%
2013	37.8%	24.7%	20.5%	3.2%	5.7%	5.2%	2.8%
2014	39.8%	24.2%	20.2%	2.7%	5.6%	4.8%	2.8%
2015	38.8%	25.8%	19.7%	4.0%	5.4%	4.8%	1.4%
2016	40.6%	26.1%	19.6%	3.9%	5.1%	4.2%	0.5%
2017	42.8%	24.1%	20.7%	3.4%	4.6%	3.9%	0.5%
2018	40.0%	25.5%	19.7%	5.2%	4.6%	4.5%	0.5%
2019	43.1%	22.6%	20.5%	4.9%	3.9%	4.6%	0.5%
2020	45.5%	23.6%	19.1%	3.2%	3.4%	4.7%	0.5%
2021	48.5%	23.2%	19.3%	1.7%	2.7%	4.2%	0.4%
2022	45.0%	25.3%	16.5%	4.8%	2.7%	5.2%	0.4%
Average	38.3%	25.5%	18.7%	4.2%	5.4%	5.6%	2.2%
Y/Y Change	-3.5%	2.1%	-2.7%	3.1%	0.0%	1.0%	0.1%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Households include nonprofit organizations. Liquid financial assets exclude pension fund reserves, equity in non-corporate business, etc. Deposits = bank deposits and CDs; MFs = mutual funds; UST (U.S. Treasuries), Agency includes GSE securities; Munis = municipal bonds; MMFs = money market funds

## US Holdings of Equities by Type of Holder – Value

## US Holdings of Equities by Type of Holder: \$ Billions

	2017	2018	2019	2020	2021	2022	Y/Y		
							Average	Change	5Y CAGR
Households	18,038.7	16,357.6	21,081.8	26,064.6	31,921.3	26,366.2	23,305.0	-17.4%	7.9%
Institutions	29,881.2	27,357.8	33,562.2	39,458.6	48,081.6	38,303.8	36,107.5	-20.3%	5.1%
Mutual Funds	10,819.6	9,657.5	11,934.5	13,391.1	15,533.8	11,867.0	12,200.6	-23.6%	1.9%
Foreign	7,019.4	6,629.5	8,278.5	10,673.4	13,447.9	10,828.9	9,479.6	-19.5%	9.1%
Exchange-Traded Funds	2,771.6	2,659.0	3,476.2	4,229.4	5,803.5	5,059.2	3,999.8	-12.8%	12.8%
Private Pension Funds	2,713.0	2,448.0	2,961.8	3,395.7	4,093.3	3,089.7	3,116.9	-24.5%	2.6%
State & Local Gov't Retirement Funds	2,706.8	2,478.6	2,523.5	2,902.2	3,377.1	2,921.4	2,818.3	-13.5%	1.5%
Nonfinancial corporate business	1,949.3	1,789.9	2,317.7	2,543.2	3,144.9	2,376.2	2,353.5	-24.4%	4.0%
Life Insurance Companies	623.8	538.8	645.4	730.6	763.4	621.7	654.0	-18.6%	-0.1%
Property Casualty Companies	410.6	392.1	493.9	518.6	642.8	532.9	498.5	-17.1%	5.4%
Federal Gov't Retirement Funds	324.2	292.1	370.7	418.6	524.0	419.3	391.5	-20.0%	5.3%
Broker/Dealers	182.7	147.7	167.0	214.3	233.9	170.3	186.0	-27.2%	-1.4%
State & Local Governments	185.8	169.6	214.1	250.0	306.4	239.3	227.5	-21.9%	5.2%
U.S. Chartered Depository Institutions	31.8	30.7	38.4	43.7	54.1	45.8	40.7	-15.3%	7.6%
Closed-End Funds	109.3	91.2	107.2	105.9	123.4	99.0	106.0	-19.7%	-2.0%
Federal Government	33.2	33.2	33.2	33.2	33.2	33.2	33.2	0.0%	0.0%
Other	0.0	0.0	0.0	8.8	0.0	0.0	1.5	n/a	n/a
Monetary Authority	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a	n/a
<b>Total US Holdings</b>	<b>47,919.8</b>	<b>43,715.3</b>	<b>54,644.0</b>	<b>65,523.2</b>	<b>80,002.9</b>	<b>64,670.0</b>	<b>59,412.5</b>	<b>-19.2%</b>	<b>6.2%</b>

Source: The Federal Reserve - Financial Accounts of the United States

Note: Households include non-profit organizations. Other contains foreign banking offices in the U.S. and funding corporations



## US Holdings of Equities by Type of Holder – Share of Total

## US Holdings of Equities by Type of Holder

	2017	2018	2019	2020	2021	2022	Average	Y/Y Change
Households	37.6%	37.4%	38.6%	39.8%	39.9%	40.8%	39.0%	0.9%
Institutions	62.4%	62.6%	61.4%	60.2%	60.1%	59.2%	61.0%	-0.9%
Mutual Funds	22.6%	22.1%	21.8%	20.4%	19.4%	18.4%	20.8%	-1.1%
Foreign	14.6%	15.2%	15.1%	16.3%	16.8%	16.7%	15.8%	-0.1%
Exchange-Traded Funds	5.8%	6.1%	6.4%	6.5%	7.3%	7.8%	6.6%	0.6%
Private Pension Funds	5.7%	5.6%	5.4%	5.2%	5.1%	4.8%	5.3%	-0.3%
State & Local Govt Retirement Funds	5.6%	5.7%	4.6%	4.4%	4.2%	4.5%	4.9%	0.3%
Nonfinancial corporate business	4.1%	4.1%	4.2%	3.9%	3.9%	3.7%	4.0%	-0.3%
Life Insurance Companies	1.3%	1.2%	1.2%	1.1%	1.0%	1.0%	1.1%	0.0%
Property Casualty Companies	0.9%	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.0%
Federal Govt Retirement Funds	0.7%	0.7%	0.7%	0.6%	0.7%	0.6%	0.7%	0.0%
Broker/Dealers	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.0%
State & Local Governments	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.0%
U.S. Chartered Depository Institutions	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
Closed-End Funds	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%
Federal Government	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Monetary Authority	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Households include non-profit organizations. Other contains foreign banking offices in the US and funding corporations

## US Net Acquisitions of Corporate Equities by Type of Holder

## US Net Acquisitions of Corporate Equities by Type of Holder: \$ Billions

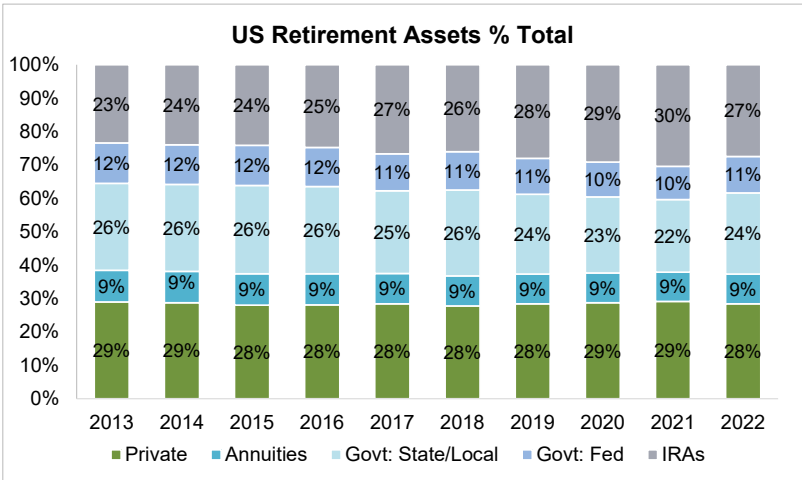
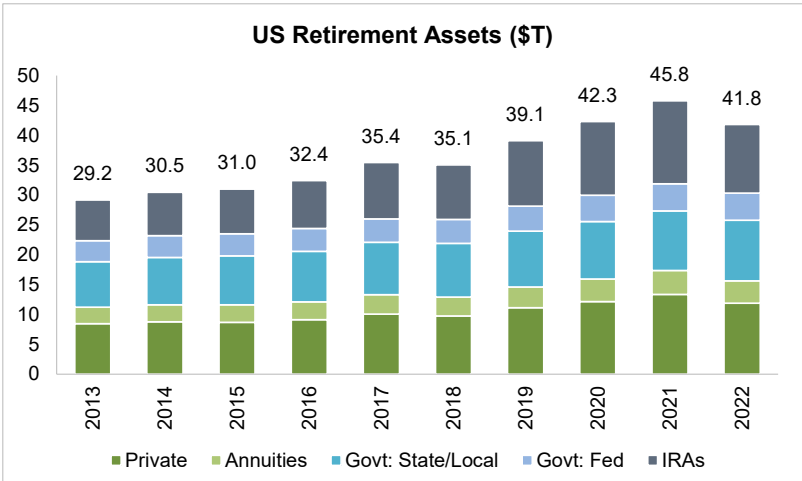
	2017	2018	2019	2020	2021	2022	Y/Y	
							Average	Change
Households	168.5	-132.3	295.7	601.3	790.7	713.8	406.3	9.7%
Institutions	103.2	-72.0	-464.2	155.5	-107.6	-561.1	-157.7	421.7%
Foreign	116.9	110.9	-249.2	669.2	-82.7	-260.4	50.8	215.0%
Mutual Funds	-133.6	-121.0	-219.2	-481.4	-317.3	-388.7	-276.9	22.5%
Exchange-Traded Funds	346.7	204.2	166.0	260.2	731.8	416.3	354.2	43.1%
Nonfinancial corporate business	-89.9	-40.7	10.2	-136.0	-101.4	-161.2	-86.5	59.0%
Private Pension Funds	-53.1	-80.0	-168.8	-98.6	-109.1	-153.6	-110.5	40.7%
Federal Govt Retirement Funds	6.5	-21.6	-5.0	-23.9	10.2	-5.5	-6.6	154.0%
Property Casualty Companies	9.8	20.1	-1.8	-21.8	2.6	38.5	7.9	1361.0%
Other	0.0	0.0	0.0	8.8	-8.8	0.0	0.0	100.0%
Broker/Dealers	-26.3	-19.9	-22.4	6.8	-33.7	-13.7	-18.2	59.5%
State & Local Govt Retirement Funds	-61.9	-82.3	24.7	-30.3	-126.5	-24.7	-50.2	80.4%
State & Local Governments	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	0.0%
U.S. Chartered Depository Institutions	-2.0	2.5	0.8	2.9	2.4	-1.9	0.8	178.9%
Closed-End Funds	-0.5	-0.4	2.6	1.9	8.0	0.1	2.0	98.3%
Life Insurance Companies	-5.9	-44.4	1.2	1.1	-79.6	-3.0	-21.8	96.3%
Federal Government	-0.1	4.0	0.0	0.0	0.0	0.0	0.6	100.0%
Monetary Authority	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
<b>Total Net Issuance</b>	<b>271.7</b>	<b>-204.2</b>	<b>-168.5</b>	<b>756.8</b>	<b>683.2</b>	<b>152.6</b>	<b>248.6</b>	<b>77.7%</b>

Source: The Federal Reserve - Financial Accounts of the United States

Note: Households include non-profit organizations. Other contains foreign banking offices in the US and funding corporations

# Section IV: US Savings & Investment

## US Retirement Assets – Charts



Source: The Federal Reserve - Financial Accounts of the United States

Note: Private = defined benefit and contribution pension plans, includes claims of pension funds on sponsor (unfunded defined benefit entitlements). Annuities = annuity reserves held by life insurance companies. Govt = government pension plans. Fed = federal. IRA = individual retirement account

## US Retirement Assets – Value

## US Retirement Assets: \$ Billions

	Private	Annuities	Govt:		IRAs	Total
			State/Local	Govt: Fed		
2008	5,331.6	1,939.2	5,507.4	2,769.4	3,681.0	19,228.7
2009	5,988.2	2,075.6	5,788.7	2,911.3	4,488.0	21,251.8
2010	6,640.7	2,287.8	6,275.3	3,143.8	5,029.0	23,376.6
2011	6,774.1	2,287.0	6,443.5	3,243.6	5,153.0	23,901.1
2012	7,295.8	2,477.5	6,647.2	3,366.8	5,785.0	25,572.3
2013	8,457.1	2,753.3	7,602.9	3,524.9	6,819.0	29,157.2
2014	8,756.4	2,869.3	7,930.3	3,612.5	7,292.0	30,460.5
2015	8,686.0	2,908.8	8,195.1	3,709.3	7,477.0	30,976.3
2016	9,110.1	3,003.4	8,468.3	3,808.4	8,015.0	32,405.1
2017	10,056.7	3,221.9	8,788.7	3,925.5	9,439.0	35,431.8
2018	9,732.4	3,175.3	8,999.3	4,017.3	9,135.0	35,059.3
2019	11,097.4	3,504.0	9,337.3	4,201.8	10,949.0	39,089.5
2020	12,137.7	3,794.0	9,637.1	4,391.3	12,333.0	42,293.1
2021	13,351.0	4,008.2	9,956.1	4,563.5	13,913.0	45,791.8
2022	11,882.8	3,723.5	10,167.9	4,536.4	11,484.0	41,794.6
Average	9,019.8	2,935.3	7,983.0	3,715.1	8,066.1	31,719.3
Y/Y Change	-11.0%	-7.1%	2.1%	-0.6%	-17.5%	-8.7%
5Y CAGR	3.4%	2.9%	3.0%	2.9%	4.0%	3.4%
10Y CAGR	5.0%	4.2%	4.3%	3.0%	7.1%	5.0%

## US Retirement Assets: % Change Y/Y

	Private	Annuities	Govt:		IRAs	Total
			State/Local	Govt: Fed		
2009	12.3%	7.0%	5.1%	5.1%	21.9%	10.5%
2010	10.9%	10.2%	8.4%	8.0%	12.1%	10.0%
2011	2.0%	0.0%	2.7%	3.2%	2.5%	2.2%
2012	7.7%	8.3%	3.2%	3.8%	12.3%	7.0%
2013	15.9%	11.1%	14.4%	4.7%	17.9%	14.0%
2014	3.5%	4.2%	4.3%	2.5%	6.9%	4.5%
2015	-0.8%	1.4%	3.3%	2.7%	2.5%	1.7%
2016	4.9%	3.2%	3.3%	2.7%	7.2%	4.6%
2017	10.4%	7.3%	3.8%	3.1%	17.8%	9.3%
2018	-3.2%	-1.4%	2.4%	2.3%	-3.2%	-1.1%
2019	14.0%	10.3%	3.8%	4.6%	19.9%	11.5%
2020	9.4%	8.3%	3.2%	4.5%	12.6%	8.2%
2021	10.0%	5.6%	3.3%	3.9%	12.8%	8.3%
2022	-11.0%	-7.1%	2.1%	-0.6%	-17.5%	-8.7%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Private = defined benefit and contribution pension plans, includes claims of pension funds on sponsor (unfunded defined benefit entitlements). Annuities = annuity reserves held by life insurance companies. Govt = government pension plans. Fed = federal. IRA = individual retirement account

## US Retirement Assets – Share of Total

## US Retirement Assets: % of Total

	Private	Annuities	Govt:		IRAs
			State/Local	Govt: Fed	
2008	27.7%	10.1%	28.6%	14.4%	19.1%
2009	28.2%	9.8%	27.2%	13.7%	21.1%
2010	28.4%	9.8%	26.8%	13.4%	21.5%
2011	28.3%	9.6%	27.0%	13.6%	21.6%
2012	28.5%	9.7%	26.0%	13.2%	22.6%
2013	29.0%	9.4%	26.1%	12.1%	23.4%
2014	28.7%	9.4%	26.0%	11.9%	23.9%
2015	28.0%	9.4%	26.5%	12.0%	24.1%
2016	28.1%	9.3%	26.1%	11.8%	24.7%
2017	28.4%	9.1%	24.8%	11.1%	26.6%
2018	27.8%	9.1%	25.7%	11.5%	26.1%
2019	28.4%	9.0%	23.9%	10.7%	28.0%
2020	28.7%	9.0%	22.8%	10.4%	29.2%
2021	29.2%	8.8%	21.7%	10.0%	30.4%
2022	28.4%	8.9%	24.3%	10.9%	27.5%
Average	28.4%	9.3%	25.6%	12.0%	24.7%
Y/Y Change	-0.7%	0.2%	2.6%	0.9%	-2.9%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Private = defined benefit and contribution pension plans, includes claims of pension funds on sponsor (unfunded defined benefit entitlements). Annuities = annuity reserves held by life insurance companies. Govt = government pension plans. Fed = federal. IRA = individual retirement accounts

## US Private Pension Funds: Total Assets

## US Retirement Assets: \$ Billions

	Govt:					Total
	Private	Annuities	State/Local	Govt: Fed	IRAs	
2008	5,331.6	1,939.2	5,507.4	2,769.4	3,681.0	19,228.7
2009	5,988.2	2,075.6	5,788.7	2,911.3	4,488.0	21,251.8
2010	6,640.7	2,287.8	6,275.3	3,143.8	5,029.0	23,376.6
2011	6,774.1	2,287.0	6,443.5	3,243.6	5,153.0	23,901.1
2012	7,295.8	2,477.5	6,647.2	3,366.8	5,785.0	25,572.3
2013	8,457.1	2,753.3	7,602.9	3,524.9	6,819.0	29,157.2
2014	8,756.4	2,869.3	7,930.3	3,612.5	7,292.0	30,460.5
2015	8,686.0	2,908.8	8,195.1	3,709.3	7,477.0	30,976.3
2016	9,110.1	3,003.4	8,468.3	3,808.4	8,015.0	32,405.1
2017	10,056.7	3,221.9	8,788.7	3,925.5	9,439.0	35,431.8
2018	9,732.4	3,175.3	8,999.3	4,017.3	9,135.0	35,059.3
2019	11,097.4	3,504.0	9,337.3	4,201.8	10,949.0	39,089.5
2020	12,137.7	3,794.0	9,637.1	4,391.3	12,333.0	42,293.1
2021	13,351.0	4,008.2	9,956.1	4,563.5	13,913.0	45,791.8
2022	11,882.8	3,723.5	10,167.9	4,536.4	11,484.0	41,794.6
Average	9,019.8	2,935.3	7,983.0	3,715.1	8,066.1	31,719.3
Y/Y Change	-11.0%	-7.1%	2.1%	-0.6%	-17.5%	-8.7%
5Y CAGR	3.4%	2.9%	3.0%	2.9%	4.0%	3.4%
10Y CAGR	5.0%	4.2%	4.3%	3.0%	7.1%	5.0%

## US Retirement Assets: % Change Y/Y

	Govt:					Total
	Private	Annuities	State/Local	Govt: Fed	IRAs	
2009	12.3%	7.0%	5.1%	5.1%	21.9%	10.5%
2010	10.9%	10.2%	8.4%	8.0%	12.1%	10.0%
2011	2.0%	0.0%	2.7%	3.2%	2.5%	2.2%
2012	7.7%	8.3%	3.2%	3.8%	12.3%	7.0%
2013	15.9%	11.1%	14.4%	4.7%	17.9%	14.0%
2014	3.5%	4.2%	4.3%	2.5%	6.9%	4.5%
2015	-0.8%	1.4%	3.3%	2.7%	2.5%	1.7%
2016	4.9%	3.2%	3.3%	2.7%	7.2%	4.6%
2017	10.4%	7.3%	3.8%	3.1%	17.8%	9.3%
2018	-3.2%	-1.4%	2.4%	2.3%	-3.2%	-1.1%
2019	14.0%	10.3%	3.8%	4.6%	19.9%	11.5%
2020	9.4%	8.3%	3.2%	4.5%	12.6%	8.2%
2021	10.0%	5.6%	3.3%	3.9%	12.8%	8.3%
2022	-11.0%	-7.1%	2.1%	-0.6%	-17.5%	-8.7%

## US Retirement Assets: % of Total

	Govt:				
	Private	Annuities	State/Local	Govt: Fed	IRAs
2008	27.7%	10.1%	28.6%	14.4%	19.1%
2009	28.2%	9.8%	27.2%	13.7%	21.1%
2010	28.4%	9.8%	26.8%	13.4%	21.5%
2011	28.3%	9.6%	27.0%	13.6%	21.6%
2012	28.5%	9.7%	26.0%	13.2%	22.6%
2013	29.0%	9.4%	26.1%	12.1%	23.4%
2014	28.7%	9.4%	26.0%	11.9%	23.9%
2015	28.0%	9.4%	26.5%	12.0%	24.1%
2016	28.1%	9.3%	26.1%	11.8%	24.7%
2017	28.4%	9.1%	24.8%	11.1%	26.6%
2018	27.8%	9.1%	25.7%	11.5%	26.1%
2019	28.4%	9.0%	23.9%	10.7%	28.0%
2020	28.7%	9.0%	22.8%	10.4%	29.2%
2021	29.2%	8.8%	21.7%	10.0%	30.4%
2022	28.4%	8.9%	24.3%	10.9%	27.5%
Average	28.4%	9.3%	25.6%	12.0%	24.7%
Y/Y Change	-0.7%	0.2%	2.6%	0.9%	-2.9%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Includes claims of pension funds on sponsor (i.e. unfunded defined benefit pension entitlements)

## US Private Pension Funds: Asset Mix

US Private Pension Fund Assets Investment Mix: \$ Billions

	Equity	Bonds	MFs	Cash	Claims	Other	Total
2008	1,275.0	673.1	1,480.2	244.1	687.7	936.2	5,296.3
2009	1,504.4	722.8	1,955.3	236.8	466.2	1,066.3	5,951.8
2010	1,778.1	829.1	2,220.2	226.1	437.5	1,113.2	6,604.1
2011	1,680.4	915.0	2,200.0	252.6	497.9	1,191.5	6,737.5
2012	1,890.7	1,049.5	2,481.5	225.2	377.9	1,234.4	7,259.2
2013	2,243.8	1,045.5	3,006.9	248.0	592.0	1,284.5	8,420.6
2014	2,284.3	1,166.5	3,190.2	256.6	504.1	1,318.2	8,719.9
2015	2,220.4	1,136.2	3,127.9	248.0	609.0	1,307.9	8,649.4
2016	2,329.9	1,192.5	3,352.8	248.4	582.3	1,367.5	9,073.4
2017	2,713.0	1,348.3	3,886.6	261.5	326.7	1,484.0	10,020.1
2018	2,448.0	1,378.5	3,594.6	245.2	601.7	1,427.8	9,695.8
2019	2,961.8	1,530.7	4,320.2	269.5	414.5	1,564.3	11,060.9
2020	3,395.7	1,678.9	4,917.6	301.4	118.9	1,688.6	12,101.2
2021	4,093.3	1,639.8	5,500.5	329.8	-76.2	1,827.2	13,314.5
2022	3,089.7	1,464.8	4,417.4	365.4	623.5	1,885.5	11,846.3

Average	2,393.9	1,184.8	3,310.1	263.9	450.9	1,379.8	8,983.4
Y/Y Change	-24.5%	-10.7%	-19.7%	10.8%	-918.0%	3.2%	-11.0%
5Y CAGR	2.6%	1.7%	2.6%	6.9%	13.8%	4.9%	3.4%
10Y CAGR	5.0%	3.4%	5.9%	5.0%	5.1%	4.3%	5.0%

US Private Pension Fund Assets Investment Mix: % Change Y/Y

	Equity	Bonds	MFs	Cash	Claims	Other	Total
2009	18.0%	7.4%	32.1%	-3.0%	-32.2%	13.9%	12.4%
2010	18.2%	14.7%	13.5%	-4.5%	-6.2%	4.4%	11.0%
2011	-5.5%	10.4%	-0.9%	11.7%	13.8%	7.0%	2.0%
2012	12.5%	14.7%	12.8%	-10.9%	-24.1%	3.6%	7.7%
2013	18.7%	-0.4%	21.2%	10.1%	56.6%	4.1%	16.0%
2014	1.8%	11.6%	6.1%	3.5%	-14.9%	2.6%	3.6%
2015	-2.8%	-2.6%	-2.0%	-3.4%	20.8%	-0.8%	-0.8%
2016	4.9%	5.0%	7.2%	0.2%	-4.4%	4.6%	4.9%
2017	16.4%	13.1%	15.9%	5.3%	-43.9%	8.5%	10.4%
2018	-9.8%	2.2%	-7.5%	-6.2%	84.2%	-3.8%	-3.2%
2019	21.0%	11.0%	20.2%	9.9%	-31.1%	9.6%	14.1%
2020	14.6%	9.7%	13.8%	11.8%	-71.3%	8.0%	9.4%
2021	20.5%	-2.3%	11.9%	9.4%	-164.1%	8.2%	10.0%
2022	-24.5%	-10.7%	-19.7%	10.8%	-918.0%	3.2%	-11.0%

US Private Pension Fund Assets Investment Mix: % Change Y/Y

	Equity	Bonds	MFs	Cash	Claims	Other
2008	24.1%	12.7%	27.9%	4.6%	13.0%	17.7%
2009	25.3%	12.1%	32.9%	4.0%	7.8%	17.9%
2010	26.9%	12.6%	33.6%	3.4%	6.6%	16.9%
2011	24.9%	13.6%	32.7%	3.7%	7.4%	17.7%
2012	26.0%	14.5%	34.2%	3.1%	5.2%	17.0%
2013	26.6%	12.4%	35.7%	2.9%	7.0%	15.3%
2014	26.2%	13.4%	36.6%	2.9%	5.8%	15.1%
2015	25.7%	13.1%	36.2%	2.9%	7.0%	15.1%
2016	25.7%	13.1%	37.0%	2.7%	6.4%	15.1%
2017	27.1%	13.5%	38.8%	2.6%	3.3%	14.8%
2018	25.2%	14.2%	37.1%	2.5%	6.2%	14.7%
2019	26.8%	13.8%	39.1%	2.4%	3.7%	14.1%
2020	28.1%	13.9%	40.6%	2.5%	1.0%	14.0%
2021	30.7%	12.3%	41.3%	2.5%	-0.6%	13.7%
2022	26.1%	12.4%	37.3%	3.1%	5.3%	15.9%

Average	26.4%	13.2%	36.1%	3.1%	5.7%	15.7%
Y/Y % Change	-4.7%	0.0%	-4.0%	0.6%	5.8%	2.2%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Bonds include UST, Agency, GSE-backed securities, corporate & foreign bonds. MF = mutual funds. Cash includes checkable deposits and currency, time and savings deposits, money market mutual fund shares, repo and reverse repo agreements, and commercial paper. Claims include total liabilities of pension entitlements. Other = mortgages, unallocated insurance contracts, contributions receivable, and unidentified miscellaneous assets

## US Defined Benefit Plans: Asset Mix

US Defined Benefit Plan Asset Investment Mix: \$ Billions

	Equity	Bonds	MFs	Cash	Claims	Other	Total
2008	726.1	480.8	258.5	102.2	687.7	317.6	2,572.9
2009	863.8	517.9	321.9	106.7	466.2	339.9	2,616.4
2010	1,010.7	577.8	348.1	102.8	437.5	358.9	2,835.7
2011	929.5	665.9	356.3	106.5	497.9	391.1	2,947.2
2012	1,048.0	746.6	359.3	94.2	377.9	392.9	3,018.8
2013	1,165.0	750.5	407.9	109.6	592.0	389.9	3,414.8
2014	1,137.9	835.5	425.6	118.3	504.1	405.6	3,427.0
2015	1,086.9	804.6	382.9	105.9	609.0	410.5	3,399.7
2016	1,099.1	829.5	385.1	102.5	582.3	434.4	3,432.9
2017	1,210.9	946.7	411.5	115.3	326.7	468.4	3,479.5
2018	1,055.5	972.1	344.9	96.8	601.7	424.7	3,495.7
2019	1,210.1	1,079.6	360.9	101.7	414.5	467.3	3,634.1
2020	1,331.1	1,163.6	406.6	120.3	118.9	479.5	3,620.0
2021	1,537.2	1,134.6	433.9	131.4	-76.2	505.3	3,666.1
2022	1,092.0	992.9	327.7	147.9	623.5	522.9	3,706.9
Average	1,100.2	833.2	368.7	110.8	450.9	420.6	3,284.5
Y/Y Change	-29.0%	-12.5%	-24.5%	12.5%	-918.0%	3.5%	1.1%
5Y CAGR	-2.0%	1.0%	-4.5%	5.1%	13.8%	2.2%	1.3%
10Y CAGR	0.4%	2.9%	-0.9%	4.6%	5.1%	2.9%	2.1%

US Defined Benefit Plan Asset Investment Mix: % Change Y/Y

	Equity	Bonds	MFs	Cash	Claims	Other	Total
2009	19.0%	7.7%	24.6%	4.4%	-32.2%	7.0%	1.7%
2010	17.0%	11.6%	8.1%	-3.7%	-6.2%	5.6%	8.4%
2011	-8.0%	15.3%	2.3%	3.6%	13.8%	9.0%	3.9%
2012	12.7%	12.1%	0.8%	-11.6%	-24.1%	0.4%	2.4%
2013	11.2%	0.5%	13.5%	16.3%	56.6%	-0.8%	13.1%
2014	-2.3%	11.3%	4.3%	8.0%	-14.9%	4.0%	0.4%
2015	-4.5%	-3.7%	-10.1%	-10.5%	20.8%	1.2%	-0.8%
2016	1.1%	3.1%	0.6%	-3.2%	-4.4%	5.8%	1.0%
2017	10.2%	14.1%	6.9%	12.5%	-43.9%	7.8%	1.4%
2018	-12.8%	2.7%	-16.2%	-16.1%	84.2%	-9.3%	0.5%
2019	14.6%	11.1%	4.6%	5.1%	-31.1%	10.0%	4.0%
2020	10.0%	7.8%	12.7%	18.2%	-71.3%	2.6%	-0.4%
2021	15.5%	-2.5%	6.7%	9.3%	-164.1%	5.4%	1.3%
2022	-29.0%	-12.5%	-24.5%	12.5%	-918.0%	3.5%	1.1%

US Defined Benefit Plan Asset Investment Mix: % of Total

	Equity	Bonds	MFs	Cash	Claims	Other
2008	28.2%	18.7%	10.0%	4.0%	26.7%	12.3%
2009	33.0%	19.8%	12.3%	4.1%	17.8%	13.0%
2010	35.6%	20.4%	12.3%	3.6%	15.4%	12.7%
2011	31.5%	22.6%	12.1%	3.6%	16.9%	13.3%
2012	34.7%	24.7%	11.9%	3.1%	12.5%	13.0%
2013	34.1%	22.0%	11.9%	3.2%	17.3%	11.4%
2014	33.2%	24.4%	12.4%	3.5%	14.7%	11.8%
2015	32.0%	23.7%	11.3%	3.1%	17.9%	12.1%
2016	32.0%	24.2%	11.2%	3.0%	17.0%	12.7%
2017	34.8%	27.2%	11.8%	3.3%	9.4%	13.5%
2018	30.2%	27.8%	9.9%	2.8%	17.2%	12.1%
2019	33.3%	29.7%	9.9%	2.8%	11.4%	12.9%
2020	36.8%	32.1%	11.2%	3.3%	3.3%	13.2%
2021	41.9%	30.9%	11.8%	3.6%	-2.1%	13.8%
2022	29.5%	26.8%	8.8%	4.0%	16.8%	14.1%
Average	33.4%	25.0%	11.3%	3.4%	14.2%	12.8%
Y/Y Change	-12.5%	-4.2%	-3.0%	0.4%	18.9%	0.3%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Bonds include UST, Agency, GSE-backed securities, corporate & foreign bonds. MF = mutual funds. Cash includes checkable deposits and currency, time and savings deposits, money market mutual fund shares, repo and reverse repo agreements, and commercial paper. Claims include total liabilities of pension entitlements. Other = mortgages, unallocated insurance contracts, contributions receivable, and unidentified miscellaneous assets



## US Defined Contribution Plans: Asset Mix

US Defined Contribution Plan: \$ Billions

	Equity	Bonds	MFs	Cash	Other	Total
2008	548.9	192.3	1,221.7	141.9	618.6	2,723.3
2009	640.6	205.0	1,633.4	130.1	726.3	3,335.4
2010	767.4	251.4	1,872.0	123.3	754.3	3,768.4
2011	750.9	249.2	1,843.7	146.1	800.4	3,790.3
2012	842.7	302.9	2,122.2	131.0	841.5	4,240.4
2013	1,078.8	295.0	2,598.9	138.4	894.6	5,005.8
2014	1,146.4	331.0	2,764.6	138.3	912.6	5,292.9
2015	1,133.5	331.7	2,745.0	142.1	897.4	5,249.7
2016	1,230.8	363.0	2,967.7	145.9	933.1	5,640.6
2017	1,502.1	401.6	3,475.1	146.2	1,015.6	6,540.6
2018	1,392.5	406.4	3,249.7	148.5	1,003.1	6,200.1
2019	1,751.7	451.1	3,959.3	167.8	1,096.9	7,426.8
2020	2,064.6	515.3	4,511.0	181.1	1,209.1	8,481.2
2021	2,556.2	505.3	5,066.6	198.4	1,321.9	9,648.3
2022	1,997.7	472.0	4,089.7	217.4	1,362.6	8,139.4
Average	1,293.7	351.5	2,941.4	153.1	959.2	5,698.9
Y/Y Change	-21.8%	-6.6%	-19.3%	9.6%	3.1%	-15.6%
5Y CAGR	5.9%	3.3%	3.3%	8.3%	6.1%	4.5%
10Y CAGR	9.0%	4.5%	6.8%	5.2%	4.9%	6.7%

US Defined Contribution Plan: % Change Y/Y

	Equity	Bonds	MFs	Cash	Other	Total
2009	16.7%	6.6%	33.7%	-8.3%	17.4%	22.5%
2010	19.8%	22.7%	14.6%	-5.2%	3.8%	13.0%
2011	-2.1%	-0.9%	-1.5%	18.5%	6.1%	0.6%
2012	12.2%	21.6%	15.1%	-10.3%	5.1%	11.9%
2013	28.0%	-2.6%	22.5%	5.7%	6.3%	18.0%
2014	6.3%	12.2%	6.4%	-0.1%	2.0%	5.7%
2015	-1.1%	0.2%	-0.7%	2.7%	-1.7%	-0.8%
2016	8.6%	9.5%	8.1%	2.7%	4.0%	7.4%
2017	22.0%	10.6%	17.1%	0.2%	8.8%	16.0%
2018	-7.3%	1.2%	-6.5%	1.5%	-1.2%	-5.2%
2019	25.8%	11.0%	21.8%	13.0%	9.4%	19.8%
2020	17.9%	14.2%	13.9%	8.0%	10.2%	14.2%
2021	23.8%	-2.0%	12.3%	9.6%	9.3%	13.8%
2022	-21.8%	-6.6%	-19.3%	9.6%	3.1%	-15.6%

US Defined Contribution Plan: % of Total

	Equity	Bonds	MFs	Cash	Other
2008	20.2%	7.1%	44.9%	5.2%	22.7%
2009	19.2%	6.1%	49.0%	3.9%	21.8%
2010	20.4%	6.7%	49.7%	3.3%	20.0%
2011	19.8%	6.6%	48.6%	3.9%	21.1%
2012	19.9%	7.1%	50.0%	3.1%	19.8%
2013	21.6%	5.9%	51.9%	2.8%	17.9%
2014	21.7%	6.3%	52.2%	2.6%	17.2%
2015	21.6%	6.3%	52.3%	2.7%	17.1%
2016	21.8%	6.4%	52.6%	2.6%	16.5%
2017	23.0%	6.1%	53.1%	2.2%	15.5%
2018	22.5%	6.6%	52.4%	2.4%	16.2%
2019	23.6%	6.1%	53.3%	2.3%	14.8%
2020	24.3%	6.1%	53.2%	2.1%	14.3%
2021	26.5%	5.2%	52.5%	2.1%	13.7%
2022	24.5%	5.8%	50.2%	2.7%	16.7%
Average	22.0%	6.3%	51.1%	2.9%	17.7%
Y/Y Change	-1.9%	0.6%	-2.3%	0.6%	3.0%

Source: The Federal Reserve - Financial Accounts of the United States

Note: Bonds include UST, Agency, GSE-backed securities, corporate & foreign bonds. MF = mutual funds. Cash includes checkable deposits and currency, time and savings deposits, money market mutual fund shares, repo and reverse repo agreements, and commercial paper. Claims include total liabilities of pension entitlements. Other = mortgages, unallocated insurance contracts, contributions receivable, and unidentified miscellaneous assets

## US Individual Retirement Account (IRA) Assets

## US IRA Assets: \$ Billions

	MFs	Deposits	Annuities	Other	Total
2008	1,692	391	295	1,303	3,681
2009	2,114	431	291	1,652	4,488
2010	2,418	461	313	1,837	5,029
2011	2,409	482	308	1,954	5,153
2012	2,752	508	323	2,201	5,785
2013	3,322	508	351	2,639	6,819
2014	3,524	506	368	2,894	7,292
2015	3,493	523	383	3,078	7,477
2016	3,708	561	397	3,350	8,015
2017	4,279	548	417	4,196	9,439
2018	3,994	568	430	4,143	9,135
2019	4,820	558	468	5,103	10,949
2020	5,456	685	516	6,004	12,661
2021	6,212	676	546	7,026	14,460
2022	5,007	644	553	5,747	11,950

Average	3,680	537	397	3,542	8,156
Y/Y Change	-19.4%	-4.7%	1.3%	-18.2%	-17.4%
5Y CAGR	3.2%	3.3%	5.8%	6.5%	4.8%
10Y CAGR	6.2%	2.4%	5.5%	10.1%	7.5%

## US IRA: % of Total IRA Assets

	MFs	Deposits	Annuities	Other
2008	46.0%	10.6%	8.0%	35.4%
2009	47.1%	9.6%	6.5%	36.8%
2010	48.1%	9.2%	6.2%	36.5%
2011	46.7%	9.4%	6.0%	37.9%
2012	47.6%	8.8%	5.6%	38.0%
2013	48.7%	7.4%	5.1%	38.7%
2014	48.3%	6.9%	5.0%	39.7%
2015	46.7%	7.0%	5.1%	41.2%
2016	46.3%	7.0%	5.0%	41.8%
2017	45.3%	5.8%	4.4%	44.5%
2018	43.7%	6.2%	4.7%	45.4%
2019	44.0%	5.1%	4.3%	46.6%
2020	43.1%	5.4%	4.1%	47.4%
2021	43.0%	4.7%	3.8%	48.6%
2022	41.9%	5.4%	4.6%	48.1%

Average	45.8%	7.2%	5.2%	41.8%
Y/Y Change	-1.1%	0.7%	0.9%	-0.5%

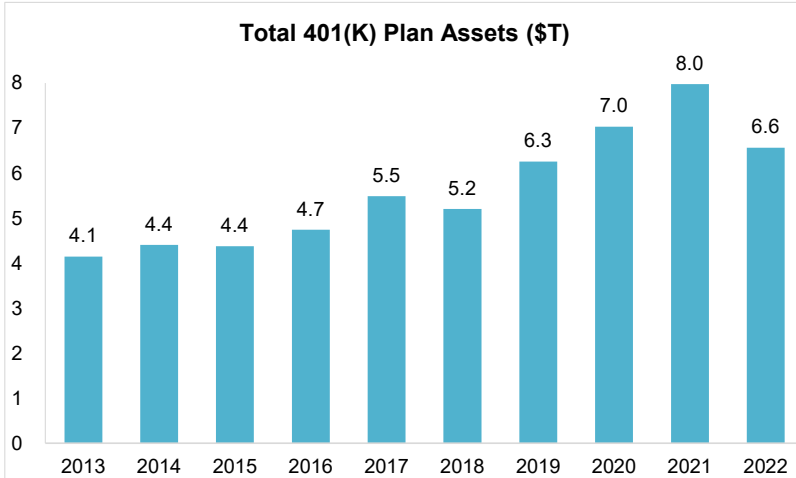
## US IRA: % Change Y/Y

	MFs	Deposits	Annuities	Other	Total
2009	24.9%	10.2%	-1.4%	26.8%	21.9%
2010	14.4%	7.0%	7.6%	11.2%	12.1%
2011	-0.4%	4.6%	-1.6%	6.4%	2.5%
2012	14.2%	5.4%	4.9%	12.6%	12.3%
2013	20.7%	0.0%	8.7%	19.9%	17.9%
2014	6.1%	-0.4%	4.8%	9.7%	6.9%
2015	-0.9%	3.4%	4.1%	6.4%	2.5%
2016	6.2%	7.3%	3.7%	8.8%	7.2%
2017	15.4%	-2.3%	5.0%	25.3%	17.8%
2018	-6.7%	3.6%	3.1%	-1.3%	-3.2%
2019	20.7%	-1.8%	8.8%	23.2%	19.9%
2020	13.2%	22.8%	10.3%	17.7%	15.6%
2021	13.9%	-1.3%	5.8%	17.0%	14.2%
2022	-19.4%	-4.7%	1.3%	-18.2%	-17.4%

Source: Investment Company Institute

Note: Bank and thrift deposits include Keogh deposits; 2021 and 2022 data are estimates. Other was not identified

## US 401(K) Assets



	\$ Billions
2008	2,203
2009	2,718
2010	3,119
2011	3,112
2012	3,495
2013	4,148
2014	4,406
2015	4,377
2016	4,741
2017	5,486
2018	5,207
2019	6,256
2020	7,033
2021	7,975
2022	6,565

Average	4,723
Y/Y Change	-17.7%
5Y CAGR	3.7%
10Y CAGR	6.5%

Source: Investment Company Institute

## US Household Saving Rates versus Other Major Nations

US Household Saving Rates vs. Other Nations: % Disposable Household Income

	US	Canada	France	Germany	Japan	UK
2008	4.8%	3.3%	9.3%	10.9%	3.4%	2.8%
2009	6.1%	4.5%	10.6%	10.4%	4.3%	5.6%
2010	6.5%	4.3%	10.5%	10.3%	3.3%	6.8%
2011	7.0%	4.2%	9.9%	10.0%	3.6%	4.0%
2012	8.9%	4.7%	10.0%	9.7%	2.3%	3.1%
2013	6.3%	4.7%	8.5%	9.3%	0.1%	2.8%
2014	7.3%	3.5%	8.9%	9.8%	-0.8%	1.7%
2015	7.8%	4.1%	8.3%	10.1%	0.1%	4.2%
2016	7.2%	1.6%	8.2%	10.2%	1.9%	0.6%
2017	7.5%	1.9%	8.4%	10.6%	1.6%	-0.7%
2018	7.8%	0.7%	8.7%	11.3%	1.8%	-0.8%
2019	9.1%	2.0%	9.2%	10.8%	3.4%	-0.7%
2020	17.5%	13.9%	15.5%	16.4%	11.4%	10.2%
2021	12.4%	10.5%	12.8%	15.1%	7.8%	6.9%
2022	3.7%	5.8%	17.2%	11.4%	5.4%	8.5%
Average	8.0%	4.6%	10.4%	11.1%	3.3%	3.7%
Y/Y Change	-8.7%	-4.8%	4.4%	-3.7%	-2.4%	1.6%

US Household Saving Rates vs. Other Nations: % Change Y/Y

	US	Canada	France	Germany	Japan	UK
2009	1.3%	1.2%	1.3%	-0.5%	0.9%	2.7%
2010	0.4%	-0.2%	-0.1%	-0.1%	-1.0%	1.2%
2011	0.5%	-0.1%	-0.5%	-0.3%	0.3%	-2.7%
2012	1.8%	0.6%	0.1%	-0.4%	-1.2%	-0.9%
2013	-2.5%	0.0%	-1.5%	-0.4%	-2.3%	-0.3%
2014	1.0%	-1.2%	0.3%	0.5%	-0.8%	-1.1%
2015	0.5%	0.5%	-0.5%	0.2%	0.9%	2.5%
2016	-0.6%	-2.5%	-0.1%	0.1%	1.8%	-3.7%
2017	0.3%	0.2%	0.2%	0.4%	-0.3%	-1.3%
2018	0.3%	-1.2%	0.3%	0.7%	0.2%	-0.1%
2019	1.3%	1.4%	0.6%	-0.5%	1.6%	0.2%
2020	8.4%	11.8%	6.2%	5.6%	8.1%	10.9%
2021	-5.1%	-3.3%	-2.7%	-1.3%	-3.7%	-3.3%
2022	-8.7%	-4.8%	4.4%	-3.7%	-2.4%	1.6%

Source: OECD Database, OECD Economic Outlook

Note: Net savings rate; actual data in black, forecast in grey

## US Economic Indicators

## US Economic Indicators

	CPI	Core CPI	UE Rate	Savings Rate	Nominal GDP (\$B)	Real GDP (\$B)
2008	3.8%	2.3%	5.8%	4.6%	14,769.9	15,643.0
2009	-0.4%	1.7%	9.3%	5.9%	14,478.1	15,236.3
2010	1.6%	1.0%	9.6%	6.2%	15,049.0	15,649.0
2011	3.2%	1.7%	9.0%	6.8%	15,599.7	15,891.5
2012	2.1%	2.1%	8.1%	8.6%	16,254.0	16,254.0
2013	1.5%	1.8%	7.4%	6.1%	16,843.2	16,553.3
2014	1.6%	1.7%	6.2%	7.1%	17,550.7	16,932.1
2015	0.1%	1.8%	5.3%	7.5%	18,206.0	17,390.3
2016	1.3%	2.2%	4.9%	7.0%	18,695.1	17,680.3
2017	2.1%	1.8%	4.4%	7.3%	19,477.3	18,076.7
2018	2.4%	2.1%	3.9%	7.6%	20,533.1	18,609.1
2019	1.8%	2.2%	3.7%	8.8%	21,381.0	19,036.1
2020	1.2%	1.7%	8.1%	17.0%	21,060.5	18,509.1
2021	4.7%	3.6%	5.4%	12.0%	23,315.1	19,609.8
2022	8.0%	6.2%	3.7%	3.5%	25,462.7	20,014.1
Average	2.3%	2.3%	6.3%	7.7%	18,578.4	17,405.6
Y/Y Change	3.3%	2.6%	-1.7%	-8.5%	9.2%	2.1%
5Y CAGR					5.5%	2.1%
10Y CAGR					4.6%	2.1%

## US Economic Indicators: % Change Y/Y

	CPI	Core CPI	UE Rate	Savings Rate	Nominal GDP (\$B)	Real GDP (\$B)
2009	-4.2%	-0.6%	3.5%	1.3%	-2.0%	-2.6%
2010	2.0%	-0.7%	0.3%	0.3%	3.9%	2.7%
2011	1.5%	0.7%	-0.7%	0.6%	3.7%	1.5%
2012	-1.1%	0.5%	-0.9%	1.8%	4.2%	2.3%
2013	-0.6%	-0.3%	-0.7%	-2.5%	3.6%	1.8%
2014	0.2%	0.0%	-1.2%	1.0%	4.2%	2.3%
2015	-1.5%	0.1%	-0.9%	0.4%	3.7%	2.7%
2016	1.1%	0.4%	-0.4%	-0.5%	2.7%	1.7%
2017	0.9%	-0.4%	-0.5%	0.3%	4.2%	2.2%
2018	0.3%	0.3%	-0.4%	0.3%	5.4%	2.9%
2019	-0.6%	0.1%	-0.2%	1.2%	4.1%	2.3%
2020	-0.6%	-0.5%	4.4%	8.2%	-1.5%	-2.8%
2021	3.5%	1.9%	-2.7%	-5.0%	10.7%	5.9%
2022	3.3%	2.6%	-1.7%	-8.5%	9.2%	2.1%

Source: U.S. Bureau of Economic Analysis; U.S. Department of Labor

Note: CPI, unemployment not seasonally adjusted. CPI = consumer price index, % change Y/Y. UE = unemployment rate for civilians. Savings rate = personal, % of disposable income. GDP = gross domestic product, real GDP = 2012

## US Federal Receipts, Outlays, Deficit, and Debt – Value

## US Federal Receipts, Outlays, Deficit and Debt: \$ Billions

	GDP	Receipts	Outlays	Surplus/ (Deficit)	Total Debt	Debt Held by
2008	14,796.6	2,524.0	2,982.5	-458.6	9,986.1	5,803.1
2009	14,467.3	2,105.0	3,517.7	-1,412.7	11,875.9	7,544.7
2010	14,884.4	2,162.7	3,457.1	-1,294.4	13,528.8	9,018.9
2011	15,466.5	2,303.5	3,603.1	-1,299.6	14,764.2	10,128.2
2012	16,109.4	2,450.0	3,526.6	-1,076.6	16,050.9	11,281.1
2013	16,665.1	2,775.1	3,454.9	-679.8	16,719.4	11,982.7
2014	17,370.8	3,021.5	3,506.3	-484.8	17,794.5	12,779.9
2015	18,086.1	3,249.9	3,691.9	-442.0	18,120.1	13,116.7
2016	18,536.1	3,268.0	3,852.6	-584.7	19,539.5	14,167.6
2017	19,245.7	3,316.2	3,981.6	-665.5	20,205.7	14,665.4
2018	20,302.0	3,329.9	4,109.0	-779.1	21,462.3	15,749.6
2019	21,159.2	3,463.4	447.0	-983.6	2,269.5	16,800.7
2020	21,060.9	3,421.2	6,553.6	-3,132.5	26,902.5	21,016.7
2021	22,654.0	4,047.1	6,822.5	-2,775.4	28,385.6	22,282.8
2022	25,000.4	4,897.4	6,273.3	-1,375.9	30,838.6	24,252.4
Average	18,387.0	3,089.0	3,985.3	-1,163.0	17,896.2	14,039.4
Y/Y Change	10.4%	21.0%	-8.0%	-50.4%	8.6%	8.8%
5Y CAGR	5.4%	8.1%	9.5%	15.6%	8.8%	10.6%
10Y CAGR	4.5%	7.2%	5.9%	2.5%	6.7%	8.0%

## US Federal Receipts, Outlays, Deficit and Debt: % Change Y/Y

	GDP	Receipts	Outlays	Surplus/ (Deficit)	Total Debt	Debt Held by
2009	-2.2%	-16.6%	17.9%	208.0%	18.9%	30.0%
2010	2.9%	2.7%	-1.7%	-8.4%	13.9%	19.5%
2011	3.9%	6.5%	4.2%	0.4%	9.1%	12.3%
2012	4.2%	6.4%	-2.1%	-17.2%	8.7%	11.4%
2013	3.4%	13.3%	-2.0%	-36.9%	4.2%	6.2%
2014	4.2%	8.9%	1.5%	-28.7%	6.4%	6.7%
2015	4.1%	7.6%	5.3%	-8.8%	1.8%	2.6%
2016	2.5%	0.6%	4.4%	32.3%	7.8%	8.0%
2017	3.8%	1.5%	3.3%	13.8%	3.4%	3.5%
2018	5.5%	0.4%	3.2%	17.1%	6.2%	7.4%
2019	4.2%	4.0%	-89.1%	26.2%	-89.4%	6.7%
2020	-0.5%	-1.2%	1366.1%	218.5%	1085.4%	25.1%
2021	7.6%	18.3%	4.1%	-11.4%	5.5%	6.0%
2022	10.4%	21.0%	-8.0%	-50.4%	8.6%	8.8%

Source: Economic Report of the President

Note: Fiscal year data. GDP = gross domestic product

## US Federal Receipts, Outlays, Deficit, and Debt – % of GDP

## Debt/GDP

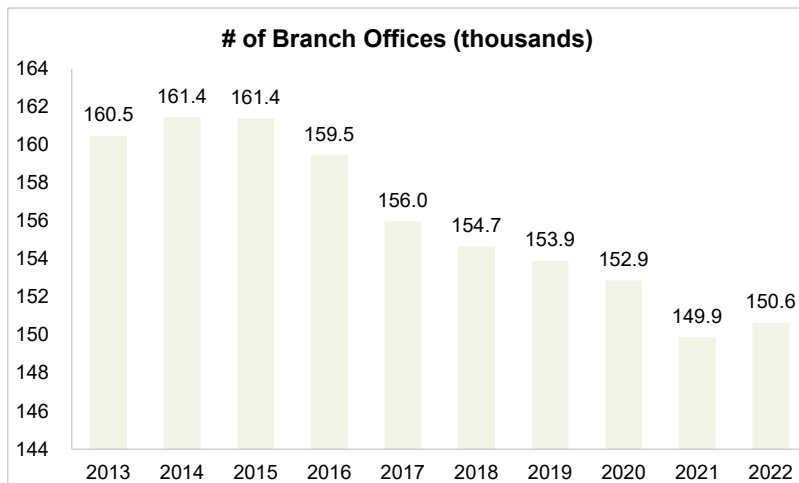
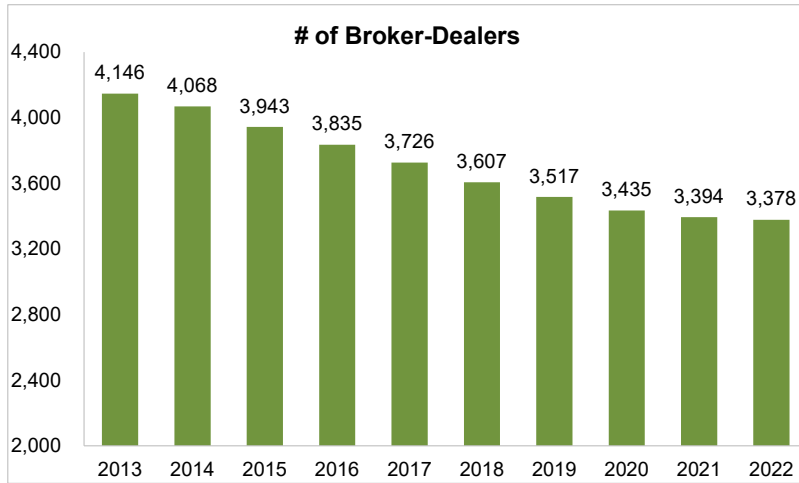
	Total Debt	Debt Held by Public
2008	67.5%	39.2%
2009	82.1%	52.2%
2010	90.9%	60.6%
2011	95.5%	65.5%
2012	99.6%	70.0%
2013	100.3%	71.9%
2014	102.4%	73.6%
2015	100.2%	72.5%
2016	105.4%	76.4%
2017	105.0%	76.2%
2018	105.7%	77.6%
2019	107.7%	79.4%
2020	127.7%	99.8%
2021	125.3%	98.4%
2022	123.4%	97.0%
Average	96.1%	74.0%
Y/Y Change	-1.9%	-1.4%

Source: Economic Report of the President

Note: Fiscal year data. GDP = gross domestic product

## Section V: US Securities Industry

### FINRA Registered Firms and Representatives – Broker Dealers

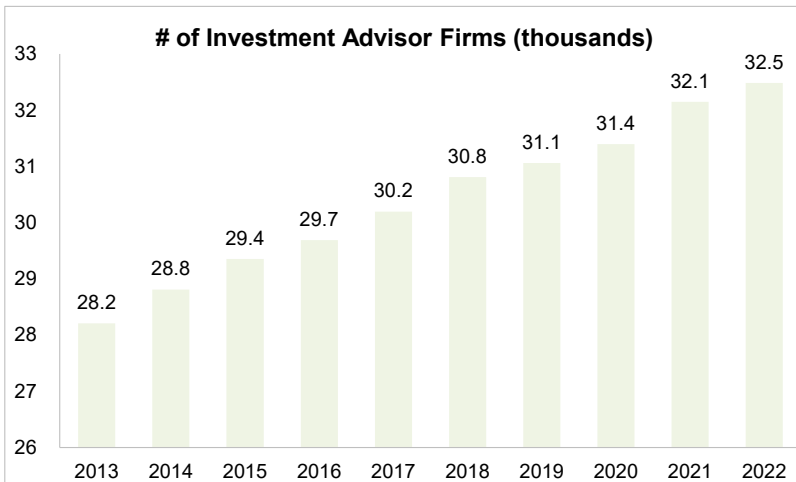
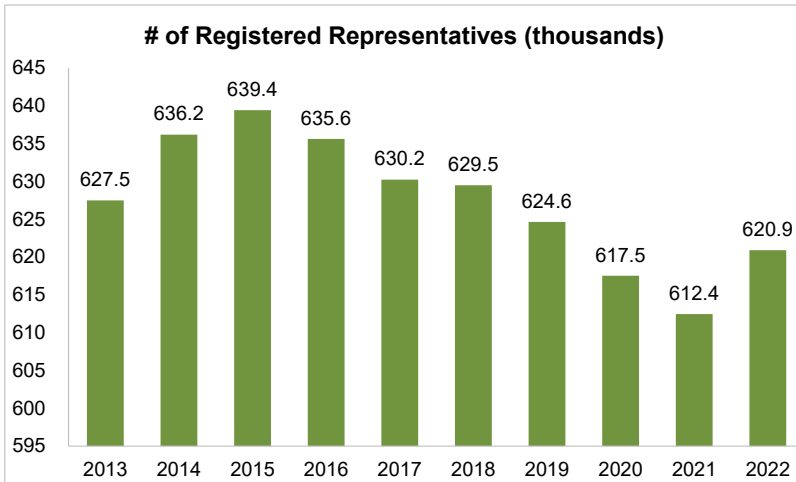


Source: FINRA

Note: Includes all FINRA registered broker-dealers doing business in the U.S.



**FINRA Registered Firms and Representatives – Registered Reps & Investment Advisors**



Source: FINRA

## FINRA Registered Firms and Registered Representatives – Values

## Broker-Dealers &amp; Registered Representatives Data: Total

	Broker-Dealers	Branch Offices	Investment Advisor Firms	Registered Representatives
2008	4,896	171,659	25,073	656,381
2009	4,717	166,699	25,587	669,794
2010	4,577	162,711	26,159	662,899
2011	4,455	160,403	26,306	630,904
2012	4,289	161,149	27,875	628,462
2013	4,146	160,478	28,209	627,474
2014	4,068	161,446	28,811	636,159
2015	3,943	161,392	29,352	639,418
2016	3,835	159,464	29,690	635,598
2017	3,726	155,967	30,196	630,215
2018	3,607	154,661	30,808	629,475
2019	3,517	153,907	31,063	624,620
2020	3,435	152,861	31,396	617,507
2021	3,394	149,887	32,149	612,435
2022	3,378	150,647	32,484	620,882

Average	3,998.9	158,888.7	29,010.5	634,814.9
Y/Y Change	-0.5%	0.5%	1.0%	1.4%
5Y CAGR	-1.9%	-0.7%	1.5%	-0.3%
10Y CAGR	-2.4%	-0.7%	1.5%	-0.1%

## Broker-Dealers &amp; Registered Representatives Data: % Change Y/Y

	Broker-Dealers	Branch Offices	Investment Advisor Firms	Registered Representatives
2009	-3.7%	-2.9%	2.1%	2.0%
2010	-3.0%	-2.4%	2.2%	-1.0%
2011	-2.7%	-1.4%	0.6%	-4.8%
2012	-3.7%	0.5%	6.0%	-0.4%
2013	-3.3%	-0.4%	1.2%	-0.2%
2014	-1.9%	0.6%	2.1%	1.4%
2015	-3.1%	0.0%	1.9%	0.5%
2016	-2.7%	-1.2%	1.2%	-0.6%
2017	-2.8%	-2.2%	1.7%	-0.8%
2018	-3.2%	-0.8%	2.0%	-0.1%
2019	-2.5%	-0.5%	0.8%	-0.8%
2020	-2.3%	-0.7%	1.1%	-1.1%
2021	-1.2%	-1.9%	2.4%	-0.8%
2022	-0.5%	0.5%	1.0%	1.4%

Source: FINRA

Note: Includes all FINRA registered broker-dealers doing business in the U.S.

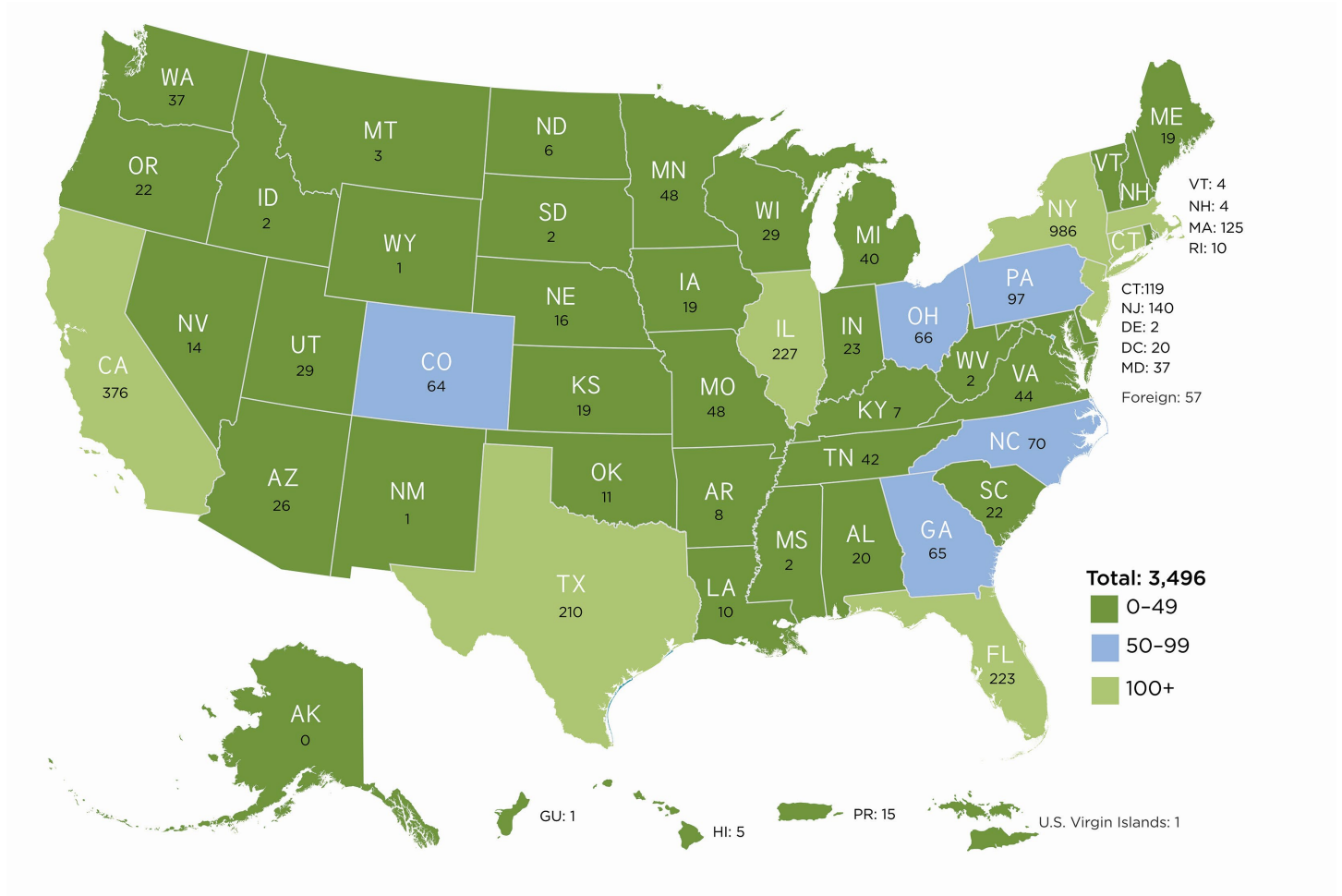
## US Securities Industry Employment

US Securities Employment: Thousands				US Securities Industry: % Change Y/Y				US Securities Industry: % of Total		
	US	NYS	NYC		US	NYS	NYC		NYS	NYC
2008	907.8	204.4	182.8					2008	22.5%	20.1%
2009	854.2	187.0	165.3	2009	-5.9%	-8.5%	-9.6%	2009	21.9%	19.4%
2010	852.7	192.1	169.8	2010	-0.2%	2.7%	2.7%	2010	22.5%	19.9%
2011	862.7	192.8	171.6	2011	1.2%	0.4%	1.1%	2011	22.3%	19.9%
2012	858.0	188.6	167.9	2012	-0.5%	-2.2%	-2.2%	2012	22.0%	19.6%
2013	872.6	189.2	168.2	2013	1.7%	0.3%	0.2%	2013	21.7%	19.3%
2014	892.3	193.4	171.3	2014	2.3%	2.2%	1.8%	2014	21.7%	19.2%
2015	923.6	198.3	176.5	2015	3.5%	2.5%	3.0%	2015	21.5%	19.1%
2016	931.4	198.1	176.6	2016	0.8%	-0.1%	0.1%	2016	21.3%	19.0%
2017	944.8	201.4	179.0	2017	1.4%	1.7%	1.4%	2017	21.3%	18.9%
2018	962.2	202.7	182.6	2018	1.8%	0.6%	2.0%	2018	21.1%	19.0%
2019	967.3	203.6	183.3	2019	0.5%	0.4%	0.4%	2019	21.0%	18.9%
2020	972.3	199.5	179.8	2020	0.5%	-2.0%	-1.9%	2020	20.5%	18.5%
2021	1,029.8	203.8	183.3	2021	5.9%	2.2%	1.9%	2021	19.8%	17.8%
2022	1,073.5	216.0	195.5	2022	4.2%	6.0%	6.7%	2022	20.1%	18.2%
Average	927.0	198.1	176.9					Average	21.4%	19.1%
Y/Y Change	4.2%	6.0%	6.7%					Y/Y % Change	0.3%	0.4%
5Y CAGR	2.6%	1.4%	1.8%							
10Y CAGR	2.3%	1.4%	1.5%							

Source: U.S. Department of Labor, Bureau of Labor Statistics

Note: Year end data, not seasonally adjusted, as per NAICS code 523; nationwide data is based on securities, commodity contracts, investments, and funds and trusts industry while state and city data is based on financial investments and related activities including financial vehicles industry. NYS = New York State, NYC = New York City

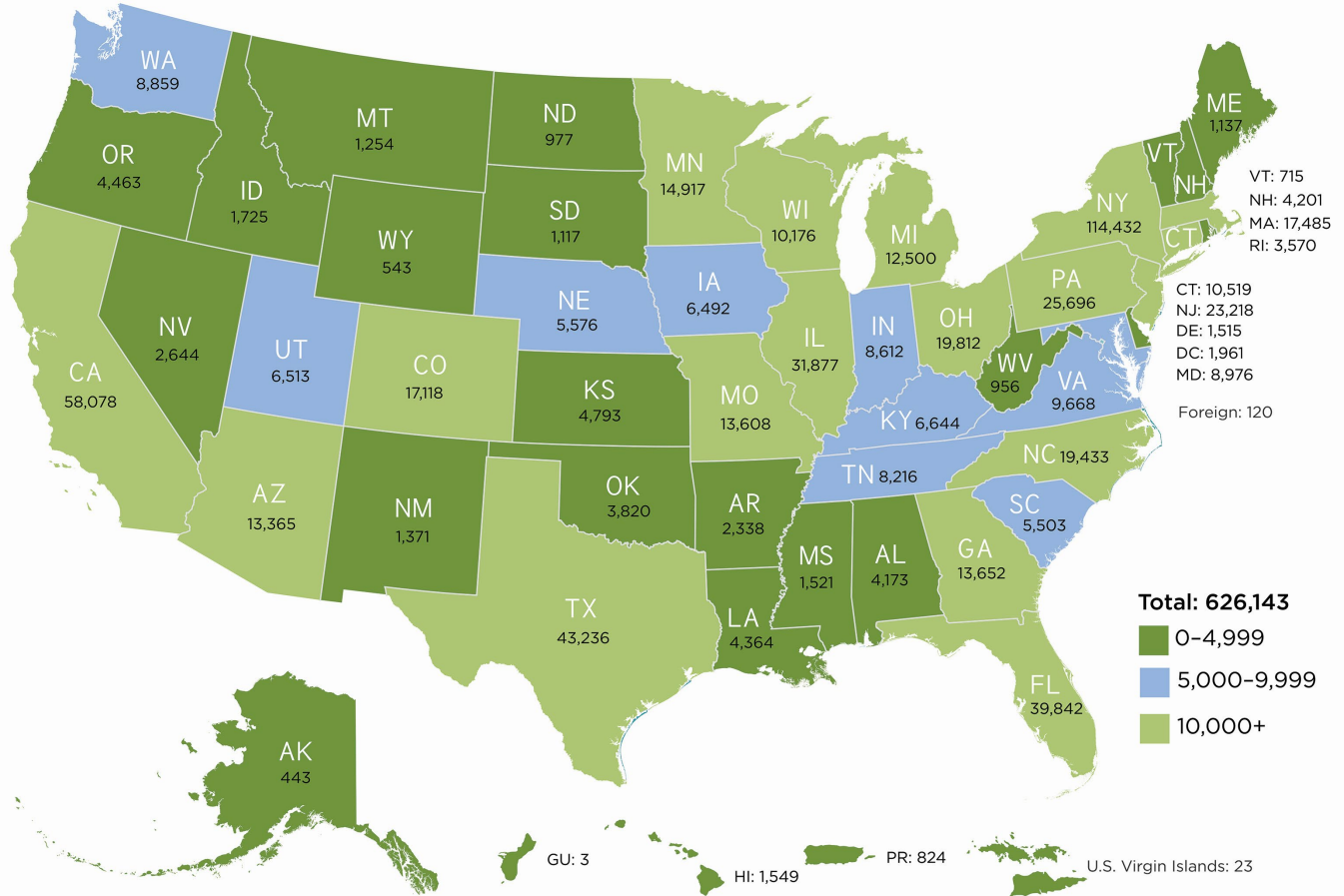
FINRA Registered Broker-Dealers by State – Map



Source: Discovery Data

Note: Based on main office location. Totals differ from FINRA-reported data due to data source.

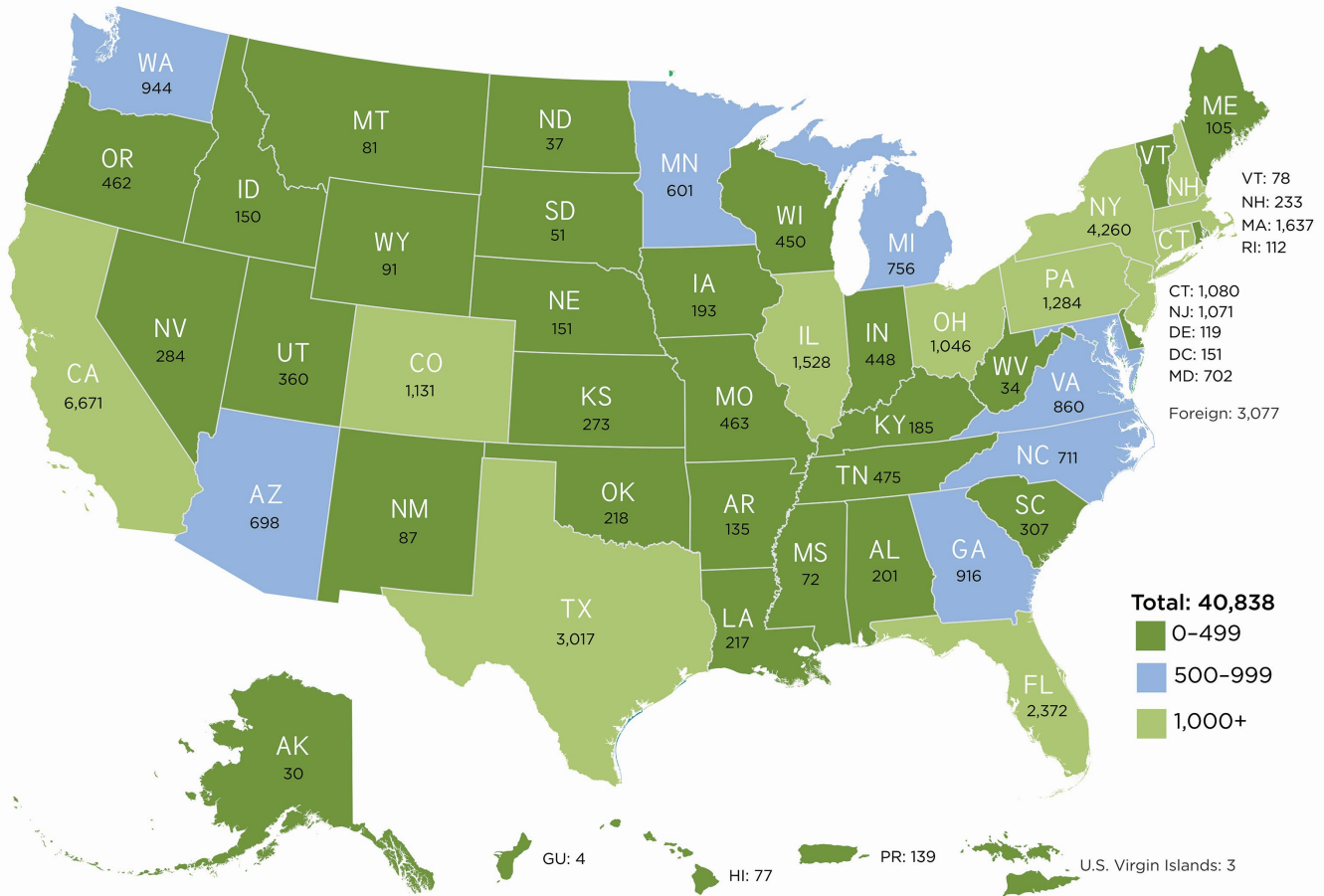
FINRA Registered Representatives by State – Map



Source: Discovery Data

Note: Based on branch office location. Totals differ from FINRA-reported data due to data source.

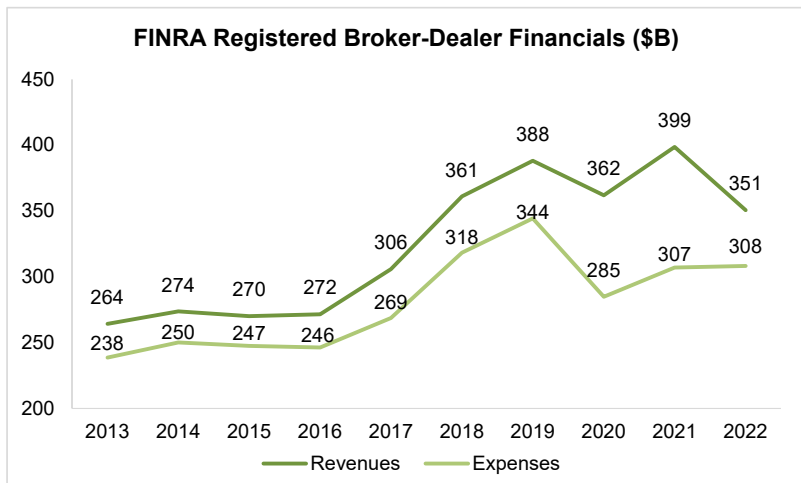
SEC and State Registered Investment Advisors by State – Map



Source: Discovery Data

Note: Based on branch office location. Totals differ from FINRA-reported data due to data source.

**FINRA Registered Broker-Dealer Financial Results – Chart**



Source: FINRA Financial and Operational Combined Uniform Single (FOCUS) Reports

## FINRA Registered Broker-Dealer Financial Results – Value

## FINRA Registered BD Financials (\$B)

	Revenues	Expenses	Pre-Tax Net Income	# Firms
2008	290.5	324.7	-34.1	4,896
2009	278.9	207.3	71.7	4,717
2010	254.8	220.0	34.8	4,577
2011	238.9	224.7	14.2	4,455
2012	256.9	224.9	32.1	4,289
2013	264.3	238.5	25.8	4,146
2014	273.7	250.0	23.7	4,068
2015	270.0	247.4	22.6	3,943
2016	271.5	246.2	25.3	3,835
2017	305.7	268.6	37.1	3,726
2018	361.1	318.3	42.8	3,607
2019	388.2	344.2	43.9	3,517
2020	362.0	284.7	77.3	3,435
2021	398.5	306.9	91.6	3,394
2022	350.5	308.2	42.3	3,378
Average	304.4	267.6	36.7	3,998.9
Y/Y Change	-12.1%	0.4%	-53.8%	-0.5%
5Y CAGR	2.8%	2.8%	2.7%	-1.9%
10Y CAGR	3.2%	3.2%	2.8%	-2.4%

## FINRA Registered BD Financials: % Change Y/Y

	Revenues	Expenses	Pre-Tax Net Income	# Firms
2009	-4.0%	-36.2%	-310.0%	-3.7%
2010	-8.7%	6.1%	-51.4%	-3.0%
2011	-6.2%	2.2%	-59.2%	-2.7%
2012	7.5%	0.1%	125.6%	-3.7%
2013	2.9%	6.1%	-19.5%	-3.3%
2014	3.6%	4.8%	-8.2%	-1.9%
2015	-1.3%	-1.0%	-4.4%	-3.1%
2016	0.6%	-0.5%	11.9%	-2.7%
2017	12.6%	9.1%	46.4%	-2.8%
2018	18.1%	18.5%	15.4%	-3.2%
2019	7.5%	8.1%	2.7%	-2.5%
2020	-6.7%	-17.3%	75.8%	-2.3%
2021	10.1%	7.8%	18.6%	-1.2%
2022	-12.1%	0.4%	-53.8%	-0.5%

Source: FINRA Financial and Operational Combined Uniform Single (FOCUS) Reports



## NYSE Member Firms Aggregate Financial Results

### NYSE Firms Aggregate: \$ Millions

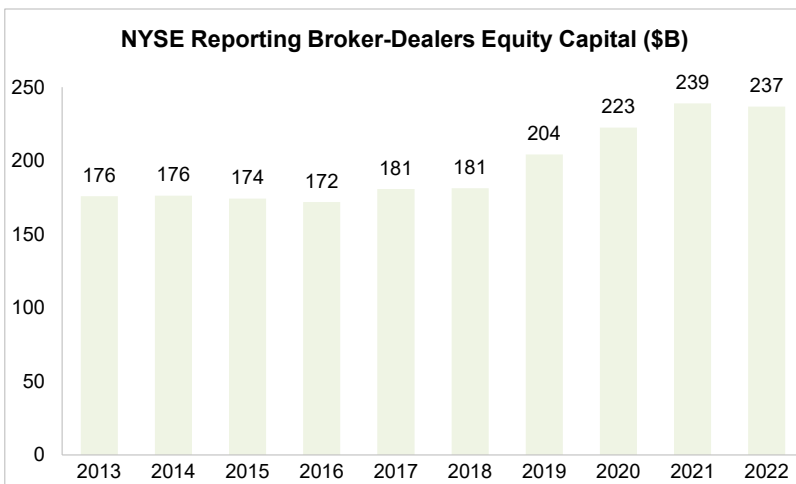
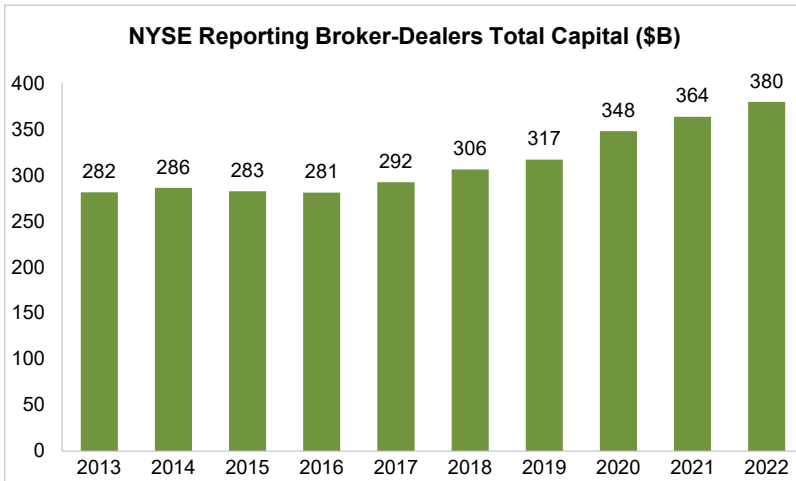
	Revenue	Pre-Tax Profit
2008	178,068	(42,587)
2009	185,267	58,576
2010	159,767	25,092
2011	147,283	7,747
2012	161,456	23,878
2013	162,359	16,719
2014	164,628	15,965
2015	161,886	14,288
2016	166,653	17,295
2017	189,702	24,526
2018	228,091	27,308
2019	250,379	28,086
2020	219,324	50,894
2021	232,598	58,358
2022	260,555	25,525
Average	191,201.0	23,444.6
Y/Y Change	12.0%	-56.3%
5Y CAGR	6.6%	0.8%
10Y CAGR	4.9%	0.7%

### NYSE Firms Aggregate: %

Pre-Tax Profit Margin	Pre-Tax ROE
-23.9%	-37.9%
31.6%	40.3%
15.7%	15.3%
5.3%	5.0%
14.8%	14.0%
10.3%	9.5%
9.7%	9.1%
8.8%	8.2%
10.4%	10.1%
12.9%	13.6%
12.0%	15.1%
11.2%	13.8%
23.2%	22.9%
25.3%	24.4%
9.8%	10.8%
11.8%	11.6%
-15.5%	-13.6%

Source: Intercontinental Exchange (ICE), FINRA

NYSE Member Firms Aggregate Total and Equity Capital – Charts



Source: Intercontinental Exchange (ICE), FINRA

### NYSE Member Firms Aggregate Total and Equity Capital – Value

#### NYSE Firms Aggregate: (\$B)

	Total Capital	Equity Capital
2008	244.5	112.5
2009	256.8	145.4
2010	280.8	164.3
2011	267.8	154.8
2012	280.1	170.3
2013	281.5	175.8
2014	286.2	176.3
2015	282.6	174.2
2016	281.1	172.0
2017	292.3	180.7
2018	306.2	181.4
2019	317.0	204.2
2020	347.9	222.6
2021	363.7	238.9
2022	379.9	236.8

#### NYSE Firms Aggregate: % Change Y/Y

	Total Capital	Equity Capital
2009	5.0%	29.3%
2010	9.4%	13.0%
2011	-4.6%	-5.8%
2012	4.6%	10.0%
2013	0.5%	3.3%
2014	1.7%	0.3%
2015	-1.3%	-1.2%
2016	-0.5%	-1.3%
2017	4.0%	5.1%
2018	4.7%	0.4%
2019	3.5%	12.6%
2020	9.8%	9.0%
2021	4.6%	7.3%
2022	4.4%	-0.9%

Average	297.9	180.7
Y/Y Change	4.4%	-0.9%
5Y CAGR	5.4%	5.6%
10Y CAGR	3.1%	3.4%

Source: Intercontinental Exchange (ICE), SIFMA DataBank

## Appendix: Definitions & Purpose

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### Equity & Related

Capital markets are split into primary and secondary markets. Companies may need capital for various business purposes – invest in growth, fund mergers and acquisitions, etc. – and firms have several ways they can generate capital. Primary markets are where securities are created (capital formation), i.e., where firms sell stocks to investors through an initial public offering (IPO), to generate funds for operations or growth. IPOs allow businesses to grow, innovate and better serve their customers.

Secondary markets are where existing stocks and bonds are traded among investors, without the issuing companies' involvement. The U.S. equity markets continue to be among the deepest, most liquid and most efficient in the world, with investors enjoying narrow spreads, low transaction costs and fast execution speeds. There is also plenty of opportunity for price improvement, especially for retail investors.

- **Capital Formation:** Companies need capital for various business purposes – invest in growth, fund mergers and acquisitions, etc. – and have several ways to generate this capital, including:
  - Secondaries, or follow-on offerings, are the issuance of shares to investors by a public company already listed on an exchange.
  - Preferreds have characteristics of both bonds and common stock and represent a class of stock with different rights from common stock (ex: higher claim to assets in the event of liquidation).
  - Initial public offerings (IPOs) are when a private company raises capital buy offering its common stock to the public for the first time in the primary markets.
  - Special purpose acquisition companies (SPAC) have no commercial operations (blank check companies) and are established solely to raise capital through an IPO for the purpose of acquiring unspecified existing companies.
  
- **Market Performance**
  - Dow Jones Industrial Average (DJIA): A price weighted index that tracks 30 large, publicly-owned companies trading on U.S. exchanges. It has historically been a widely-watched benchmark index for U.S. blue-chip stocks.
  - S&P 500: A market capitalization weighted index of the 505 largest U.S. publicly traded companies. The index is regarded as the best gauge of large-cap U.S. equities.
  - Nasdaq Composite (Nasdaq): A market capitalization weighted index made up of the 3,668 equities listed on the Nasdaq stock exchange. Its composition is over 50% technology (this percentage has come down over the years), followed by consumer services, health care and financials.
  - Russell 2000: A market capitalization weighted index representing 10% (the bottom two-thirds aggregate market cap) of the Russell 3000 index, a larger index of 3,000 publicly traded companies that represents 97% of the investable U.S. stock market. The index is regarded as a gauge of small cap, U.S. centric companies.

- **Volatility**
  - CBOE Volatility Index (VIX): A real-time market index that represents the market's expectation of 30-day forward looking volatility, as derived from the price inputs of S&P 500 index options. It measures market risk and investor sentiment (fear, stress) and is often called the fear index.
- **Volumes**
  - The U.S. equity markets every day are the largest and among the deepest, most liquid and most efficient in the world. Investors enjoy narrow spreads, low transaction costs and fast execution speeds, with plenty of opportunity for price improvement, especially for retail investors.
  - Exchange-traded funds (ETFs), or pooled investment vehicles holding an underlying basket of securities (equities, bonds, commodities, currencies), provide investors a multitude of choices to meet different investment objectives.
  - Options, or a contract to buy or sell an underlying security (stocks, ETFs) at a specified price on or before a given date, are frequently used as risk management tools by investors to hedge positions and limit portfolio losses. They also provide flexibility, enabling an investor to tailor their portfolio to investment objectives and market environment.

## Fixed Income

In general, fixed income securities are borrowed capital for the issuer to fund government operations, public projects or corporate investments, thereby fueling economic growth. The diversity of fixed income products both increases the amount of funds available to borrow and spreads credit risk across multiple market participants.

- **U.S. Treasury Securities (UST)** – UST are debt obligations of the federal government used to fund its operations. Since UST are backed by the full faith and credit of the U.S. government, these securities are considered by market participants as the benchmark credit. The U.S. government has a AAA rating, meaning it has essentially no credit risk and can easily meet its financial obligations on time and in full. In light of this, UST show a diversity of holders, in both institutional type and foreign holders.
- **Mortgage-Backed Securities (MBS)** – Since mortgages (a debt instrument collateralized by a specified real estate property) are less liquid than other investment vehicles, they can be securitized into MBS, whether in pass-throughs or collateralized mortgage obligations (CMOs).
- **Corporate Bonds (Corporates)** – Corporates are debt securities issued by public and private corporations. They are issued to raise money to fund investments or expansion plans. Corporates are considered riskier than UST, and receive ratings by credit ratings agencies to determine creditworthiness, i.e. probability of repayment of debt in a timely manner.

- **Municipal Bonds (Munis)** – Munis are debt securities issued by state/local governments or government agencies and public entities (utilities, school districts) to fund public projects, predominantly infrastructure related. Efficient muni markets enable states and municipalities to borrow at low rates and finance capital expenditures over a longer time period.
- **Federal Agency Securities (Agency)** – Agency securities are issued by quasi-governmental agencies (federal government, government sponsored enterprises) to fund operations. Unlike UST or munis, these securities are not always fully guaranteed by the U.S. or a municipal government. As such, they can hold credit and default risk.
- **Asset-Backed Securities (ABS)** – ABS are financial securities collateralized by a pool of typically illiquid assets such as auto loans, student loans, credit cards, etc. Pooling these assets creates a more liquid investment vehicle, with a valuation based on the cash flows of the underlying and the structure of the transaction.
- **Money Markets (MM)** – MMs involve highly liquid, short maturity (typically overnight to less than one year) financial instruments (certificates of deposit/CDs, bankers' acceptances, commercial paper/CP, etc.), used by investors to borrow and lend in the short term. Transactions in the money markets are wholesale, taking place only between institutional investors (no individual investors) and for large denominations.
- **Repurchase Agreements (Repos)** – Repos are financial transactions in which one party sells an asset to another party with a promise to repurchase the asset at a pre-specified later date (a reverse repo is the same transaction seen from the perspective of the security buyer). Repos can be overnight (duration one day) or term (duration up to one year, albeit some are up to two years and the majority are three months or less). The repo market enables market participants to provide collateralized loans to one another, and financial institutions predominantly use repos to manage short-term fluctuations in cash holdings, rather than general balance sheet funding. Repos aid secondary market liquidity for the cash markets (ex: UST), allowing dealers to act as market makers in a very efficient manner.
- **Secured Overnight Financing Rate (SOFR)** – In the U.S., the transition away from London Interbank Offered Rate (LIBOR) to its chosen alternative reference rate, SOFR, is underway. While LIBOR is not fully transaction based, SOFR is based on the overnight repo markets with ~ \$1 trillion of transactions per day. Publication of the SOFR rate began in April 2018. Trading and clearing of SOFR based swaps and futures began in May 2018.

- **Environmental, Social, and Governance (ESG)** – Dealogic classifies ESG bonds by:
  - Green – Any type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles (GBP)
  - Social – Any type of bond instrument where the proceeds will be exclusively applied to finance or refinance in part or in full new and/or existing eligible Social Projects and which are aligned with the four core components of the Social Bond Principles (SBP)
  - Sustainability – Bonds where the proceeds are exclusively applied to finance or refinance a combination of both Green and Social Projects
  - Region – Deal nationality is a calculated nationality that looks at the business nationality of the issuing entity with the exception of securitizations that are categorized using the nationality of business of the originator or if undisclosed the nationality of risk

## Appendix: Terms to Know

### Equity & Related

ADV	Average Daily Trading Volume	Y/Y	Year-over-Year
Algo	Algorithm (algorithmic trading)	Q/Q	Quarter-over-Quarter
AP	Authorized Participant	YTD	Year-to-Date
AT	Automated Trading	BPS	Basis Points
ATS	Alternative Trading System	PPS	Percentage Points
AUM	Assets Under Management	CAGR	Compound Annual Growth Rate
Best Ex	Best Execution		
CEF	Closed-End Fund	CFTC	Commodity Futures Trading Commission
CLOB	Central Limit Order Book	FINRA	Financial Industry Regulatory Authority
D2C	Dealer-to-Client	SEC	Securities and Exchange Commission
D2D	Dealer-to-Dealer	SRO	Self-Regulatory Organization
Dark Pool	Private trading venues	NMS	National Market System
ECN	Electronic Communication Network	Reg NMS	Regulation National Market System
EMS	Equity Market Structure	SIP	Security Information Processor
ETF	Exchange-Traded Fund		
ETP	Exchange-Traded Product		
HFT	High-Frequency Trading		
IDB	Inter-Dealer Broker		
IIV	Intraday Indicative Value		
IOI	Indication of Interest		
IPO	Initial Public Offering		
MF	Mutual Fund		
MM	Market Maker		
NAV	Net Asset Value		
OEF	Open-End Fund		
OTC	Over-the-Counter		
PCF	Portfolio Composition File		
PFOF	Payment For Order Flow		
SI	Systematic Internaliser		
Tick Size	Minimum price movement		
UIT	Unit Investment Trust		



Bid	An offer made to buy a security
Ask, Offer	The price a seller is willing to accept for a security
Spread	The difference between the bid and ask price prices for a security, an indicator of supply (ask) and demand (bid)
NBBO	National Best Bid and Offer
Locked Market	A market is locked if the bid price equals the ask price
Crossed Market	A bid is entered higher than the offer or an offer is entered lower than the bid
Opening Cross	To determine the opening price of a stock, accumulating all buy and sell interest a few minutes before the market open
Closing Cross	To determine the closing price of a stock, accumulating all buy and sell interest a few minutes before the market close

Order Types

AON	All or none; an order to buy or sell a stock that must be executed in its entirety, or not executed at all
Block	Trades with at least 10,000 shares in the order
Day	Order is good only for that trading day, else cancelled
FOK	Fill or kill; must be filled immediately and in its entirety or not at all
Limit	An order to buy or sell a security at a specific price or better
Market	An order to buy or sell a security immediately; guarantees execution but not the execution price
Stop	(or stop-loss) An order to buy or sell a stock once the price of the stock reaches the specified price, known as the stop price

Call	The right to buy the underlying security, on or before expiration
Put	The right to sell the underlying security, on or before expiration
Holder	The buyer of the contract
Writer	The seller of the contract
American	Option may be exercised on any trading day on or before expiration
European	Option may only be exercised on expiration
Exercise	To put into effect the right specified in a contract
Underlying	The instrument on which the options contract is based; the asset/security being bought or sold upon exercise notification
Expiration	The set date at which the options contract ends, or ceases to exist, or the last day it can be traded
Stock Price	The price at which the underlying stock is trading, fluctuates continuously
Strike Price	The set price at which the options contract is exercised, or acted upon
Premium	The price the option contract trades at, or the purchase price, which fluctuates constantly
Time Decay	The time value portion of an option's premium decreases as time passes; the longer the option's life, the greater the probability the option will move in the money
Intrinsic Value	The in-the-money portion of an option's premium
Time Value	(Extrinsic value) The option premium (price) of the option minus intrinsic value; assigned by external factors (passage of time, volatility, interest rates, dividends, etc.)
In-the-Money	For a call option, when the stock price is greater than the strike price; reversed for put options
At-the Money	Stock price is identical to the strike price; the option has no intrinsic value
Out-of-the-Money	For a call option, when the stock price is less than the strike price; reversed for put options

Investors

Institutional	Organization, fewer protective regulations as assumed to be more knowledgeable and better able to protect themselves*
Retail	Individual, a non-professional investor; either advised or self directed

\*Types of institutional investors: asset managers, endowment funds, mutual funds, hedge funds, pension funds, etc.

## Appendix: Terms to Know

IPO	Initial Public Offering; private company raises capital buy offering its common stock to the public for the first time in the primary markets
SPAC	Special Purpose Acquisition Company; blank check shell corporation designed to take companies public without going through the traditional IPO process
Bought Deal	underwriter purchases a company's entire IPO issue and resells it to the investing public; underwriter bears the entire risk of selling the stock issue
Best Effort Deal	Underwriter does not necessarily purchase IPO shares and only guarantees the issuer it will make a best effort attempt to sell the shares to investors at the best price possible; issuer can be stuck with unsold shares
Secondary	(Follow-on) Issuance of shares to investors by a public company already listed on an exchange
Direct Listing	(Direct placement, direct public offering) Existing private company shareholders sell their shares directly to the public without underwriters. Often used by startups or smaller companies as a lower cost alternative to a traditional IPO. Risks include, among others, no support/guarantee for the share sale and no stock price stabilization after the share listing.
Underwriting	Guarantee payment in case of damage or financial loss and accept the financial risk for liability arising from such guarantee in a financial transaction or deal
Underwriter	Investment bank administering the public issuance of securities; determines the initial offering price of the security, buys them from the issuer and sells them to investors.
Bookrunner	The main underwriter or lead manager in the deal, responsible for tracking interest in purchasing the IPO in order to help determine demand and price (can have a joint bookrunner)
Lead Left Bookrunner	Investment bank chosen by the issuer to lead the deal (identified on the offering document cover as the upper left hand bank listed)
Syndicate	Investment banks underwriting and selling all or part of an IPO
Arranger	The lead bank in the syndicate for a debt issuance deal
Pitch	Sales presentation by an investment bank to the issuer, marketing the firm's services and products to win the mandate
Mandate	The issuing company selects the investment banks to underwrite its offering
Engagement Letter	Agreement between the issuer and underwriters clarifying: terms, fees, responsibilities, expense reimbursement, confidentiality, indemnity, etc.
Letter of Intent	Investment banks' commitment to the issuer to underwrite the IPO
Underwriting Agreement	Issued after the securities are priced, underwriters become contractually bound to purchase the issue from the issuer at a specific price
Registration Statement	Split into the prospectus and private filings, or information for the SEC to review but not distributed to the public, it provides investors adequate information to perform their own due diligence prior to investing
The Prospectus	Public document issued to all investors listing: financial statements, management backgrounds, insider holdings, ongoing legal issues, IPO information and the ticker to be used once listed
Red Herring Document	An initial prospectus with company details, but not inclusive of the effective date of offering price
Roadshow	Investment bankers take issuing companies to meet institutional investors to interest them in buying the security they are bringing to market.
Non-Deal Roadshow	Research analysts and sales personnel take public companies to meet institutional investors to interest them in buying a stock or update existing investors on the status of the business and current trends.
Pricing	Underwriters and the issuer will determine the offer price, the price the shares will be sold to the public and the number of shares to be sold, based on demand gauged during the road show and market factors
Stabilization	Occurs for a short period of time after the IPO if order imbalances exist, i.e. the buy and sell orders do not match; underwriters will purchase shares at the offering price or below to move the stock price and rectify the imbalance
Quiet Period	(Cooling off period) The SEC mandates a quiet period on research recommendations, lasting 10 days (formerly 25 days) after the IPO
Reg S-K	Regulation which prescribes reporting requirements for SEC filings for public companies
Reg S-X	Regulation which lays out the specific form and content of financial reports, specifically the financial statements of public companies
Form S-1	Registration statement for U.S. companies (described above)
Form F-1	Registration statement for foreign issuers of certain securities, for which no other specialized form exists or is authorized
Form 10-Q	Quarterly report on the financial condition and state of the business (discussion of risks, legal proceedings, etc.), mandated by the SEC
Form 10-K	More detailed annual version of the 10Q, mandated by the SEC
Form 8-K	Current report to announce major events shareholders should know about (changes to business & operations, financial statements, etc.)
Greenshoe	Allows underwriters to sell more shares than originally planned by the company and then buy them back at the original IPO price if the demand for the deal is higher than expected, i.e. an over-allotment option
Tombstone	An announcement that securities are available for sale. (Also a plaque awarded to celebrate the completion of a transaction or deal)
EGC	Emerging Growth Company

## Fixed Income

Y/Y	Year-over-Year
Q/Q	Quarter-over-Quarter
YTD	Year-to-Date
BPS	Basis Points
PPS	Percentage Points
CAGR	Compound Annual Growth Rate
CUSIP	Committee on Uniform Securities Identification Procedures

CFTC	Commodity Futures Trading Commission
SEC	Securities and Exchange Commission
Fed	Federal Reserve System
FRB	Federal Reserve Bank
NY Fed	Federal Reserve Bank of New York
ARRC	Alternative Reference Rates Committee

ADV	Average Daily Trading Volume
Algo	Algorithm (algorithmic trading)
AT	Automated Trading
ATS	Alternative Trading System
AUM	Assets Under Management
Best Ex	Best Execution
CLOB	Central Limit Order Book
D2C	Dealer-to-Client
D2D	Dealer-to-Dealer
ECN	Electronic Communications Network
ETP	Electronic Trading Platforms
ETD	Exchange Traded Derivative
FI	Fixed Income
FICC	Fixed Income, Currencies and Commodities
GCF	General Collateral Financing
IDB	Inter-Dealer Broker
IIV	Intraday Indicative Value
IOI	Indication of Interest
MM	Market Maker
OI	Open Interest
OTC	Over-the-Counter
VWAP	Volume Weighted Average Price

IBOR	Interbank Offered Rate
LIBOR	London Inter-bank Offered Rate
RFR	Risk Free Rate
SOFR	Secured Overnight Financing Rate
DV01	Dollar Value of Basis Point
DVP	Delivery-versus-Payment
EFFR	Effective Fed Funds Rate
PAI	Price Alignment Interest
Repo	Repurchase Agreement

UST	U.S. Treasury Securities
MBS	Mortgage-Backed Security
Corporates	Corporate Bonds
Munis	Municipal Securities
Agency	Federal Agency Securities
ABS	Asset-Backed Securities
MM	Money Markets

FRN	Floating Rate Note
FRA	Forward Rate Agreement
T-Bill	U.S. Treasury Bill
T-Note	U.S. Treasury Note
T-Bond	U.S. Treasury Bond
TIPS	Treasury Inflation Protected Securities

ABS	Asset-Backed Security
CMO	Collateralized Mortgage Obligation
MBS	Mortgage-Backed Security
CMBS	Commercial MBS
RMBS	Residential MBS

HY	High Yield Bond
IG	Investment Grade Bond

GO	General Obligation Bond
Revenue	Revenue Bond

CD	Certificate of Deposit
CDO	Collateralized Debt Obligation
CLO	Collateralized Loan Obligation
CP	Commercial Paper
ABCP	Asset-Backed Commercial Paper
MMF	Money Market Mutual Funds

FAMC	Farmer Mac/Federal Agricultural Mortgage Corporation
FCS	Farm Credit System
FHLB	Federal Home Loan Banks
FHLMC	Freddie Mac/Federal Home Loan Mortgage Corporation
FNMA	Fannie Mae/Federal National Mortgage Association
GNMA	Ginnie Mae/Government National Mortgage Association
TVA	Tennessee Valley Authority

IR	Interest Rate
IRS	Interest Rate Swap
OIS	Overnight Index Swap
TRS	Total Return Swap
STIR	Short-Term Interest Rate

## Appendix: SIFMA Research Reports

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SIFMA Research: [www.sifma.org/research](http://www.sifma.org/research)

- **Statistics:** SIFMA Research tracks issuance, trading and outstanding data for U.S. markets, including:
  - Equities: Issuance (IPOs, etc.), trading (ADV), index prices (S&P 500, etc.) and volatility levels (the VIX). Data is downloadable by monthly, quarterly and annual statistics, including trend analysis.
  - Fixed Income: Issuance, trading, and outstanding data breaking out U.S. Treasuries, mortgage-backed securities (MBS), corporate bonds, municipal securities, federal agency securities, asset-backed securities (ABS), money markets (outstanding data only), repurchase agreements (repo, quarterly only), and ESG. Data is downloadable by monthly (issuance and trading only), quarterly, and annual statistics, including trend analysis.
  
- **Quarterly Reports**
  - Equity and related: capital formation (IPOs, other issuance statistics); market performance (index prices); volatility (VIX); cash equities, ETFs, and multi-listed options volumes; exchange market shares and landscapes; equity market cap and number of listed companies.
  - Fixed Income – Issuance & Trading: issuance and trading metrics for U.S. Treasuries, mortgage-backed securities, corporate bonds, municipal securities, federal agency securities, asset-backed securities, and secured overnight financing rate (SOFR), as well as statistics on fixed income ESG issuance for green, social, and sustainability bonds.
  - Fixed Income – Outstanding: outstanding balances for U.S. Treasuries, mortgage-backed securities, corporate bonds, municipal securities, federal agency securities, asset-backed securities, money markets, repurchase agreements, and secured overnight financing rate (SOFR).
  - Financial Institutions: financial (income statement and balance sheet metrics) and regulatory (ratios such as capital levels) data for CCAR firms, essentially a proxy for the financial services industry.
  
- **Capital Markets Fact Book:** a comprehensive look at capital markets, including:
  - Global equity and fixed income markets (outstanding, issuance, volumes); investment banking landscape; international securities transactions.
  - U.S. equity, fixed income, derivatives and private placement markets (outstanding, issuance, volumes, index prices); investment banking landscape; mutual fund and ETF statistics.
  - U.S. investor participation showing household liquid financial asset breakout; household equity ownership; and holders of equities.
  - U.S. savings & investment metrics on retirement asset breakout and mix across asset classes; savings rates and other economic indicators; and federal balance sheet overview.
  - U.S. securities industry statistics on number of broker-dealers, registered representatives, registered investment advisors, and branch offices; industry financial overview; and state maps showing number firms/ reps.

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