Asset Class Summaries
December 2018

FNBC BANK&TRUST
WEALTH MANAGEMENT

Treasury Inflation Protected Securities (TIPS)

TIPS are inflation-indexed securities issued by the U.S. Treasury in 5-year, 10-year and 20-year maturities. The principal value of the securities increase (or decrease) with the CPI (or the Consumer Price Index). The coupon rates are issued with fixed percentage rates, but the securities generate varying levels of income when the rates are multiplied by the inflation-adjusted principal.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
3.1%	10.7%

Historical Total Returns as of 12/31/18

Bloomberg Barclays U.S. TIPS

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-1.3%	2.1%	1.7%	3.6%	3.8%
Annualized Standard Deviation	2.8%	3.1%	3.6%	4.9%	5.7%

Pros:

- *Inflation Protection*: Provides a stated return above inflation (if security is held to maturity). Protects against unanticipated inflation.
- *High Quality*: Issued and backed by U.S. Treasury (AAA-rated).
- *Diversification Benefits*: Near zero historical correlation to equity markets and (relatively) low correlation to other fixed income asset classes.
- *Deflation floor*: At maturity, TIPS will be redeemed by U.S. Treasury at the greater of the inflation-adjusted principal or par amount at issuance.

Cons:

- *Interest Rate Risk:* Subject to (real) interest rate risk. Real interest rates rise (fall) when nominal interest rates rise (fall) more than implied inflation expectations.
- *Limited History*: First introduced to the U.S. markets in 1997.
- *Liquidity*: Less supply and more thinly traded than the nominal U.S. Treasury counterpart.
- *Volatility*: Due to longer maturity and duration, the TIPS index has a higher volatility than U.S. nominal bond index (Barclays Aggregate U.S. Bond Index).

Highest Correlation:

Muni Bonds
Foreign Bonds
Commodities
EM Bonds

Lowest Correlation:

US Large Cap
US Small Cap
US All Cap

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Municipal Bonds

Municipal bonds are issued by state or local governments, government related entities and nonprofit organizations (public hospitals, schools, etc.).

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
2.4%	4.8%

Historical Returns as of 12/31/18

Bloomberg Barclays Municipal Bond: 5 Year (4-6)

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	1.7%	1.5%	2.0%	3.1%	3.3%
Annualized Standard Deviation	1.9%	2.6%	2.3%	2.7%	2.9%

Pros:

- *Tax Advantaged Investments:* Interest income from municipal bonds is generally exempt from federal income taxes. May be exempt from state and local income taxes as well. Leads to high demand amongst highest tax bracket investors.
- *High Quality*: Investment grade with high credit ratings. Lower default risk and history of bankruptcy filings.
- *Insured:* Some municipal bonds are insured by commercial insurance companies.

Cons:

- *Interest Rate Risk*: Bond prices fall in a rising interest rate (and/ or inflationary) environment.
- *Call Risk*: Carry provisions that allow the issuer to call or redeem the bond prior to the actual maturity date.
- *Revenue Sources Risk*: With revenue bonds, the interest and principal are dependent on the revenues from taxes, facility users and economic health of issuer or region.

Highest Correlation:

US Bond
TIPS
Foreign Bonds
HY Bond
EM Bond

Lowest Correlation:

US Small Cap
EM Equity
Intl Dev Equity
Non-US (ACWI)

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High Yield Municipal Bonds

High Yield Municipal bonds are issued by state or local governments, government related entities and nonprofit organizations (public hospitals, schools, etc.) and are rated below investment grade (BB and below). A majority of the asset class comprises revenue-backed obligations.

10 Year Forecasts

2019-2028

Annual Return	*Annual St. Dev*
5.1%	15.4%

Historical Returns as of 12/31/18

Bloomberg Barclays HY Muni Index

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	4.8%	5.8%	6.5%	9.1%	5.6%
Annualized Standard Deviation	3.3%	5.0%	5.0%	6.5%	7.0%

Pros:

- *Tax Advantaged Investments:* Interest income from municipal bonds is generally exempt from federal income taxes. May be exempt from state and local income taxes as well. Leads to high demand amongst highest tax bracket investors.
- *Less Default Risk*: High-yield municipal issuers have exhibited about a quarter of the default risk relative to high-yield corporate issuers.
- *After-Tax Yield:* The asset class maintains a comparable after-tax yield advantage relative to the corporate market.

Cons:

- *Interest Rate Risk*: Bond prices fall in a rising interest rate (and/ or inflationary) environment.
- *Revenue Sources Risk*: With revenue bonds, the interest and principal are dependent on the revenues from taxes, facility users and economic health of issuer or region.
- *Market Fragmentation*: Because the market is smaller and less efficient, bond prices may be more susceptible to adverse market movements and investor flows.

Highest Correlation:

HY Bonds
Muni Bonds
TIPS

Lowest Correlation:

Foreign Bonds
EM Bonds
US Small Cap

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US Investment Grade Bonds

Represented by the Barclays U.S. Aggregate Bond Index, the category represents investment grade bonds traded in United States. The index

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in the US. Municipal bonds and TIPS are excluded from the index.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
3.5%	7.0%

Historical Returns as of 12/31/18

Bloomberg Barclays US Aggregate Bond Index

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	0.0%	2.1%	2.5%	3.5%	3.9%
Annualized Standard Deviation	3.1%	2.9%	2.8%	2.8%	3.2%

Pros:

- *Intermediate Duration:* Relatively modest average duration (typically between 3 - 5 years) moderates volatility.
- *High Quality:* Heavy exposure to highest quality (AAA) U.S. fixed income market segments. No high yield (BB or lower) exposure.
- *Deflation/Disinflation Protection:* Declining (investment grade) interest rates lead to short-term price gains.
- *Crisis Resistant:* Capable of generating positive returns in times of economic and/ or financial turmoil.

Cons:

- *Modest Return Potential:* Heavy exposure to U.S. Treasury & Agency issues moderates return potential. Relatively low exposure to corporate debt.
- *Credit Risk:* Subject to some relatively modest credit risk.
- *Interest Rate Risk:* Bond prices fall in a rising interest rate (and/ or inflationary) environment.

Highest Correlation:

Muni Bonds
TIPS
Foreign Bonds
Commodities
EM Bonds

Lowest Correlation:

EM Equity
Alternatives
Non-US (ACWI)
Global Equity

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Foreign Bonds

Bonds issued in foreign developed countries including Japan, United Kingdom, France, Germany, Italy, Spain, Canada, Netherlands, Belgium, Australia, Denmark and Sweden.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
2.7%	9.1%

Historical Returns as of 12/31/18

Citigroup Non-U.S. Dollar World Govt Bond (50-50 H & UH)

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	0.8%	3.5%	2.4%	2.6%	3.6%
Annualized Standard Deviation	3.8%	4.9%	4.3%	4.5%	4.6%

Pros:

- *Large Opportunity Set:* Majority of the world's bond issues are outside the United States.
- *Non-U.S. Interest Rate Exposure:* Offers some potential insulation from rising U.S. interest rate environment.
- *Diversification Benefits:* Historically offered low correlation to other fixed income asset classes and global equities.
- *Foreign Currency Exposure:* Unhedged currency can provide for protection against weakening U.S. dollar.

Cons:

- *Volatility:* Non-currency hedged bonds can be volatile given foreign currency fluctuations relative to the dollar.
- *Risk:* Subject to foreign financial, economic and geopolitical risk.
- *Non-U.S. Interest Rate Exposure:* Potential exposure to rising interest rates outside the U.S., resulting in price depreciation.

Highest Correlation:

TIPS
US Bonds
Muni Bonds
Intl Equity
Non US (ACWI)

Lowest Correlation:

US Small Cap
Alternatives
US Mid Cap
US All Cap

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High Yield Bonds

High yield bonds are bonds that are rated below investment grade (BB or lower). These bonds have higher default or other credit event risk, but typically pay higher yields than higher rated bonds to attract investors.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
5.9%	14.4%

Historical Returns as of 12/31/18

Bloomberg Barclays U.S. Corporate High Yield

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-2.1%	7.2%	3.8%	11.1%	7.0%
Annualized Standard Deviation	3.6%	4.7%	5.1%	7.7%	9.0%

Pros:

- *High Current Income:* Offer yield spreads above Treasuries and investment grade corporate bonds.
- *Lower Duration:* Typically shorter maturities and lower interest rate sensitivity. Changes in credit spreads drive volatility (more than changes in interest rates).
- *Diversification Benefits:* Historically offered relatively low correlation to investment grade fixed income and modest correlation to equities.

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Cons:

- *Volatility:* More volatile than investment grade bonds.
- *Spread Risk:* Rising credit spreads adversely affects prices (and returns).
- *Credit/Default Risk:* Higher probability of defaults (with lower recovery rates) than investment grade bonds.
- *Correlation to Equities:* Higher correlation to equities (particularly in stress environments) than to other fixed income asset classes.

Highest Correlation:

US Mid Cap
US Small Cap
US All Cap
Global Equity
Real Estate

Lowest Correlation:

Foreign Bonds
Muni Bonds
Commodities

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Emerging Market Bonds

Bonds from countries located in emerging market countries. Emerging markets countries are nations with social or business activity in the process of rapid growth and industrialization. Countries included in the JPM GBI-EM Global Diversified UH (Bond) Index include Brazil, Mexico, Turkey, South Africa, Poland, Malaysia, Indonesia, Russia, Thailand, Hungary, Colombia, Peru, Philippines and Chile.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
4.5%	17.1%

Historical Returns as of 12/31/18

JPM GBI-EM Global Diversified Unhedged

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-6.2%	5.9%	-1.0%	3.5%	5.9%
Annualized Standard Deviation	11.5%	11.3%	11.0%	12.0%	12.0%

**JPM GBI-EM Global Diversified UH (2/2003-present) , JPM EMBI-Global Diversified (1/1994-1/2003)*

Highest Correlation:

EM Equity
Non-US (ACWI)
Global Equity
Intl Dev Equity
US All Cap

Lowest Correlation:

Muni Bonds
Foreign Bonds
US Bonds

Pros:

- *Diversification:* Extremely low correlation to other investment grade global fixed income asset classes.
- *Differentiated, Higher Return Potential:* Added risk premium to most developed fixed income markets.
- *Currency Appreciation:* Currency can be a significant return driver (>50% historically) of performance.
- *Lower Debt-to-GDP Ratios:* Emerging market countries have lower debt-to-GDP ratios than most developed countries.

Cons:

- *Political, Financial, Currency and Regulatory Risks*: Emerging countries have greater political, financial, currency and regulatory instability than developed markets.
- *Short History*: Local currency bond index data begins in 2003. U.S. Dollar denominated emerging market bond indexes date back to 1994.

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Large Cap US Stocks

Stocks with market capitalizations greater than $10 billion. Large cap stocks represents the vast majority of the total U.S. equity market.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
6.1%	16.7%

Historical Returns as of 12/31/18

S&P 500

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-4.4%	9.3%	8.5%	13.1%	7.8%
Annualized Standard Deviation	15.3%	11.0%	10.9%	13.6%	13.5%

Pros:

- *Large and Liquid Market:* U.S. large cap stocks represent the largest and most liquid segment of the global equity market.
- *Long Historical Data Set*: The S&P 500 Index performance history dates back to January 1, 1926.
- *Less Volatility:* Lower long-term volatility than mid cap, small cap, or foreign equity markets.

Cons:

- *Risk:* Subject to equity risk.
- *Lower Risk Premium:* Less risk, but potentially less long-term return than mid cap, small cap, or emerging market equities.

Highest Correlation:

US All Cap
US Mid Cap
Global Equity
US Small Cap
Non US (ACWI)

Lowest Correlation:

TIPS
Foreign Bonds
Muni Bonds
US Bonds
Commodities

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Mid Cap US Stocks

Stocks between $2 and $10 billion in market capitalization.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
6.3%	18.0%

Historical Returns as of 12/31/18

Russell Midcap

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-9.1%	7.0%	6.3%	14.0%	8.9%
Annualized Standard Deviation	15.5%	12.2%	11.6%	15.3%	15.9%

Pros:

- *Risk Premium:* Offers a potential risk-premium over large cap stocks.
- *Higher Growth:* Smaller companies can grow earnings faster than larger companies.
- *Less Volatility:* Lower long-term volatility than small cap stocks.

Cons:

- *Risk:* Higher volatility than large cap stocks.
- *Diversification:* High correlation to both large cap and small cap stocks. Mid cap has a very high correlation to a 60/ 40 large & small cap mix.
- *Arbitrary Classification:* Arbitrary divide between "smaller" large cap and "larger" mid cap stocks. Conflicting definitions of mid-small cap barrier.

Highest Correlation:

US All Cap
US Small Cap
US Large Cap
Global Equity
Non US (ACWI)

Lowest Correlation:

TIPS
Foreign Bonds
Muni Bonds
US Bonds
Commodities

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Small Cap US Stocks

Stocks with $2 billion (or less) in market capitalizations.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
6.3%	20.4%

Historical Returns as of 12/31/18

Russell 2000

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-11.0%	7.4%	4.4%	12.0%	7.5%
Annualized Standard Deviation	19.3%	16.0%	15.4%	18.4%	18.4%

Pros:

- *Risk Premium:* Offers a potential risk-premium over large and mid cap stocks.
- *Higher Growth:* Smaller companies can grow earnings faster than larger companies.
- *Upside:* Virtually all large cap stocks started as small cap stocks at one time in their history.

Cons:

- *Risk:* Higher volatility than large cap and mid cap stocks.
- *Liquidity/Opportunity Set:* Smaller capitalization stocks have less liquidity and marketability. Access to quality small cap managers is often constrained.

Highest Correlation:

US All Cap
US Mid Cap
US Large Cap
Global Equity
Real Estate

Lowest Correlation:

TIPS
Foreign Bonds
Muni Bonds
US Bonds
Commodities

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International Developed Equity

Stocks of companies located outside of the U.S. in developed countries. Countries include Japan, the United Kingdom, France, Germany, Australia, Austria, Belgium, Denmark, Finland, Greece, Hong Kong, Ireland, Italy, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden and Switzerland.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
8.0%	22.2%

Historical Returns as of 12/31/18

MSCI EAFE

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-13.4%	3.4%	1.0%	6.8%	5.2%
Annualized Standard Deviation	12.4%	11.4%	11.8%	16.3%	16.3%

Highest Correlation:

Non-US (ACWI)
Global Equity
EM Equity
US All Cap
US Large Cap

Lowest Correlation:

TIPS
Foreign Bonds
US Bonds
Commodities

Pros:

- *Large Universe:* Consists of publicly traded companies in developed countries domiciled outside of the U.S.
- *Diversification*: Higher correlation to U.S. markets in recent years, but still low enough to warrant diversification.
- *Currency Diversification*: Add diversification through foreign currency exposure (away from the U.S. dollar).

Cons:

- *Equity Risk:* Subject to global economic/ financial conditions.
- *Currency Risk:* Subject to currency risk as investment returns are translated back into U.S. dollars.
- *Political, Financial, Currency and Regulatory Risks*: Each country or region has its own political, financial, currency and regulatory risks.

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Emerging Markets

Stocks of companies located outside of the U.S. in developing countries. Emerging markets countries are nations with social or business activity in the process of rapid growth and industrialization. Emerging market countries in the index include China, Brazil, South Korea, Taiwan, South Africa, India, Russia, Mexico, Israel, Malaysia, Chile, Turkey, Thailand, Poland, Colombia, Czech Republic, Egypt, Philippines and Argentina.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
10.3%	29.3%

Historical Returns as of 12/31/18

MSCI EM

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-14.2%	9.7%	2.0%	8.4%	8.3%
Annualized Standard Deviation	15.4%	14.8%	15.2%	19.3%	21.4%

Pros:

- *Higher Return Potential:* Emerging economies may exhibit higher GDP growth than developed markets.
- *Diversification:* Diversification benefits, particularly if measured over longer holding periods (decades).
- *Currency:* Add diversification through foreign currency exposure (away from the U.S. dollar).

Cons:

- *Volatility:* Opportunity for high returns comes with increased risk.
- *Sensitivity to Extremes:* More sensitivity to global economic crisis. Correlations rise vs. other risky assets during periods of extreme stress.
- *Political, Financial, Currency and Regulatory Risks:* Emerging countries have greater political, financial, currency and regulatory instability than developed markets.

Highest Correlation:

Global Equity Non-US (ACWI)
EM Bonds
US Mid Cap
Intl Equity

Lowest Correlation:

Muni Bonds
US Bonds
Foreign Bonds
TIPS

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Equity REITs

Real Estate Investment Trusts (or REITs) is a tax designation for a companies investing in real estate that reduces or eliminates corporate

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publicly or privately held. Public REITs may be listed on public stock exchanges like shares of common stock in other firms.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
6.1%	21.2%

Historical Returns as of 12/31/18

DJ Wilshire RESI

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-4.8%	2.4%	8.2%	12.4%	8.3%
Annualized Standard Deviation	16.2%	13.5%	13.9%	21.4%	23.4%

Highest Correlation:

US Mid Cap
US Small Cap
US All Cap
US Large Cap
HY Bonds

Lowest Correlation:

Foreign Bonds
Muni Bonds
US Bonds
TIPS
Commodities

Pros:

- *Dividend Yield*: While an equity asset class, dividend yields have historically exceeded other equity classes.
- *Diversification Benefits*: Have often offered relatively low correlation to both stocks and bonds.

Cons:

- *Volatility*: Relatively high volatility.
- *Heavy Reliance on Credit:* REITs are unique in their heavy reliance on the credit markets, subjecting them to added risk in difficult credit environments.
- *Fat Tails*: Relatively high fixed-cost businesses coupled with leverage make REITs vulnerable to extreme events (or fat left tails).

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Commodities Futures (+TIPS)

The Bloomberg Commodity Index is composed of futures contracts on physical commodities. Broad sectors include Energy, Precious Metals,

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Aluminum, Corn, Gasoline, Wheat, Live Cattle, Sugar, Silver, Heating Oil, Coffee, Zinc, Lean Hogs, Soybean Oil, Nickel and Cotton. For modeling purposes, futures contracts are collateralized by TIPS rather than T-Bills.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
4.6%	20.1%

Historical Returns as of 12/31/18

BBgBCI + (BBgBar TIPS - Cash) from 3/1/1997 - present.
BCI + (BAG - Cash) from 2/1/1991 - 2/1/1997
GSCI + BAG - Cash (1/1/1979 - 1/31/1990)

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-13.9%	1.4%	-7.9%	-0.7%	-0.3%
Annualized Standard Deviation	9.2%	10.6%	13.1%	16.0%	18.8%

Pros:

- *Diversification:* Have often offered low (and sometimes negative) correlation to financial markets (stocks & bonds).
- *Geopolitical Risk Protection:* Commodity futures often rise during periods of heightened geopolitical risk.
- *Inflation Hedge*: Commodity futures often protect against inflation as underlying commodities include many inputs to the production process.
- *Historical Risk Premium:* Passive (long-only) commodity futures (collateralized by T-Bills) have provided long-term historical returns on par with equities.

Cons:

- *Volatility:* Can be extremely volatile and a poor stand-alone investment.
- *Long-term flat periods:* May experience sustained periods of negative-to-flat performance (decades) followed by periodic extremely positive returns.
- *Increased Investor Base*: More capital has moved into the space, potentially driving down future returns (lower roll returns) & diversification benefits.
- *Limited Product Availability*: Limited number of product offerings.

Highest Correlation:

TIPS
EM Bonds
Alternatives
EM Equity
Non-US (ACWI)

Lowest Correlation:

Muni Bonds
US Small Cap
Real Estate

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Energy Infrastructure MLPs

MLPs (Master Limited Partnerships) are publicly traded partnerships. MLPs are limited (by U.S. Tax Code) to enterprises that engage in certain natural resource and energy businesses such as petroleum and natural gas extraction and transportation. The vast majority of MLPs are pipeline businesses, which earn (relatively) stable income from the transportation of oil, gasoline or natural gas.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
11.5%	20.7%

Historical Returns as of 12/31/18

Alerian MLP (1/1/1996 - Present); Atlantic MLP Index (12/31/1995 - 1/1/1991; Wachovia MLP Index (12/31/1990 - 1/1/1990)

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-12.4%	-1.1%	-7.3%	9.6%	7.0%
Annualized Standard Deviation	22.4%	18.4%	19.0%	18.1%	17.6%

Pros:

- *Distribution Yield:* Offers high distribution yields with growth potential.
- *Long-Term Contracts:* Set long-term contracts with energy companies adjusted for inflation.
- *Diversification Benefits:* Historically offer relatively low correlation to stocks, bonds, and commodity prices.

Cons:

- *Volatility:* Historical volatility has been similar to traditional U.S. equities.
- *Limited Access:* Limited number of product offerings.
- *Tax Complexity:* MLP investment structures (i.e., closed-end fund, '40 Act mutual fund, commingled trust fund, separate account, etc.) have unique and varying degrees of (implicit and explicit) costs to deal with UBTI (unrelated business taxable income) issues and reduce complexity of multiple K-1s.
- *Thinly Traded:* Closed-end funds and/ or the underlying MLPs may lack sufficient liquidity for large institutional investors.
- *Relatively Short History:* MLP Index data only goes back to early 1990s. Prior to the 1990s, MLPs were largely exploration rather than transportation companies.
- *Volume Risk:* The volume of energy transported through pipelines declines due to supply-demand forces.

Highest Correlation:

HY Bonds
US Mid Cap
Global Equity
US All Cap
Non US (ACWI)

Lowest Correlation:

Foreign Bonds
US Bonds
TIPS

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Alternatives/Diversified Hedge Funds

A Portfolio that allocates to a diversified pool of underlying hedge fund strategies and managers.

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
7.2%	8.8%

Historical Returns as of 12/31/18

HFRI Fund of Funds Index

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	-3.5%	1.5%	1.5%	3.2%	2.8%
Annualized Standard Deviation	4.4%	3.6%	3.5%	3.9%	5.0%

**HFRI Fund of Funds Index subject to periodic revisions.*

Pros:

- *Capital Preservation*: Ability to make money and/ or limit losses in down markets. High (relative) historical risk-adjusted return.
- *Diversification:* Provides investors ability to generate a higher expected return for an aggregate portfolio while reducing overall equity allocation.
- *Alignment of Interests:* Managers invest alongside their clients and charge incentive fees.

Cons:

- *Transparency*: Holdings, style, strategy and leverage may be constantly changing. By definition, hedge fund strategies are constantly evolving.
- *Fees:* High management fees and (trading) expenses. Funds of hedge funds have another layer of management fees.
- *Leverage:* Underlying hedge fund strategies often require leverage, increasing return potential and risk.
- *Esoteric Risks*: Illiquidity, fraud, regulatory, herd behavior, blind pool, extreme non-normal returns (or fat tails), fluid structure and terms, and others.

Highest Correlation:

EM Equity
US Mid Cap
Global Equity
Non US (ACWI)
US Small Cap

Lowest Correlation:

Foreign Bonds
Muni Bonds
US Bonds
TIPS

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Private Equity

Private equity is a non-publicly traded asset class with a wide range of investment strategies and styles. Investment strategies typically follow the corporate lifecycle; ***Venture Capital (VC)****,* ***Growth Equity****,* ***Levered Buyout*** *and* ***Distressed/Special Situations****.*

10 Year Forecasts

2019-2028

Annual Return	Annual St. Dev
9.2%	23.4%

Historical Returns as of 12/31/18

Cambridge PE Benchmark (2/3 Global Buyout & Growth Equity Index & 1/3 Venture Capital Index)

	1 Year	3 Year	5 Year	10 Year	15 Year
Annualized Total Returns	8.9%	11.1%	11.1%	13.0%	12.6%

**Returns are typically lagged by 1-2 quarters.*

***Illiquidity makes performance volatility impossible to measure precisely.*

Highest Correlation:

N/ A

Lowest Correlation:

N/ A

Pros:

- *Inefficiency & Risk Premiums:* Greater opportunity for active management to add value. Theoretically requires an illiquidity risk premium.
- *Board Representation:* Ability to proactively influence business strategy and operations.
- *Excess Return Potential:* Top managers have historically outperformed publicly traded equity indexes.
- *Access to Smaller Companies:* Ability to access a part of the market not available to public equity investors.

Cons:

- *Illiquidity Risk:* 10-plus year investment cycles. Illiquidity and J-Curve investment cycle makes it difficult to hold a targeted allocation percentage (and rebalance).
- *Higher Performance Dispersion:* High dispersion of returns between top and bottom performing managers compared to most other asset classes.
- *Blind Pool Risk and Low Transparency:* Inability to preview investments before committing capital and more difficult to monitor investments.
- *Leverage:* Some private equity strategies require substantial leverage adding risk.
- *Fees:* Very high management and incentive fees as well as administrative expenses.
- *Esoteric Risks:* Fraud, regulatory, disparate/ complex structures and terms, and others.

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Structured Notes

A structured product, also known as a market-linked investment, is a pre-packaged investment strategy based on derivatives, such as a single security, a basket of securities, options, indices, commodities, debt issuance and/ or foreign currencies and, to a lesser extent, swaps. Structured products were created to meet specific needs that cannot be met from the standardized financial instruments available in the markets. Structured products can be used as an alternative to a direct investment, as part of the asset allocation process to reduce risk exposure of a portfolio or to utilize the current market trend.

Pros:

- *Market Access:* Products are often structured to gain access to a market that you are not able to get through traditional investments.
- *Principal Protection:* Some notes offer downside protection.
- *Reduced Volatility:* As the notes are generally not priced daily, clients receive less day-to-day volatility.
- *Returns*: In some environments, such as flat equity markets, structure notes can provide positive returns.

Cons:

- *Counterparty:* Most notes are structured as unsubordinated debt of the counterparty, exposing the client to payback risk. Best practice is to diversify across counterparties.
- *Performance:* As these products are structured to build off of human emotion and created from the banking desk, the outcomes generally favor the issuer versus the investor.
- *Taxability:* Many structured notes have unfavorable tax consequences. Investors must read the fine print to understand any implications.
- *Fees:* Most structure products have a built in minimum 1% fee and also do not pay the dividend for any indices they replicated (i.e., sometimes >2%).
- *Highly Complex:* The complexity of the return calculations means that it is difficult to determine how the structured product would perform versus simply owning the underlying asset.

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Disclosures

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