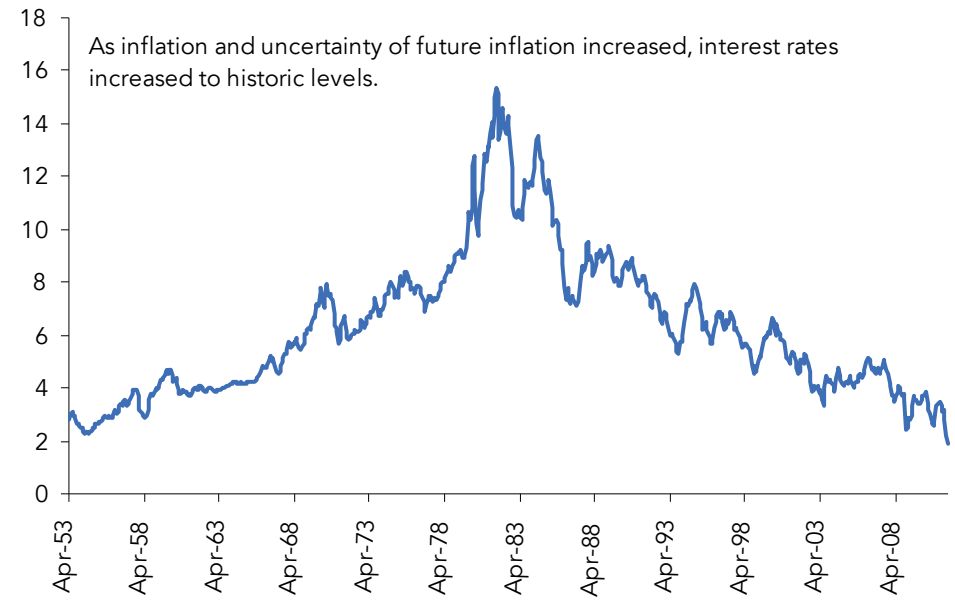
Fixed Income Overview

October 20, 2011

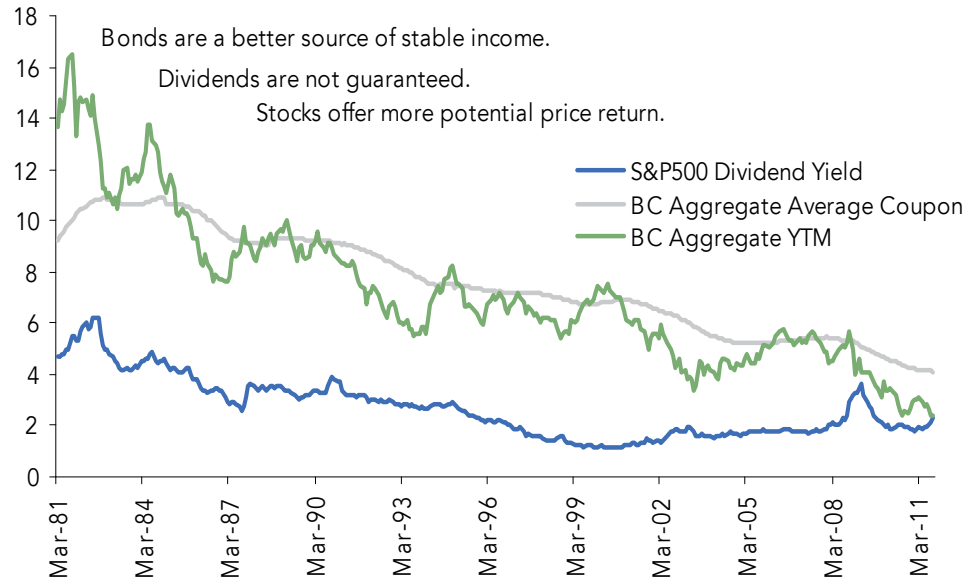
Presented by:

The role of fixed income

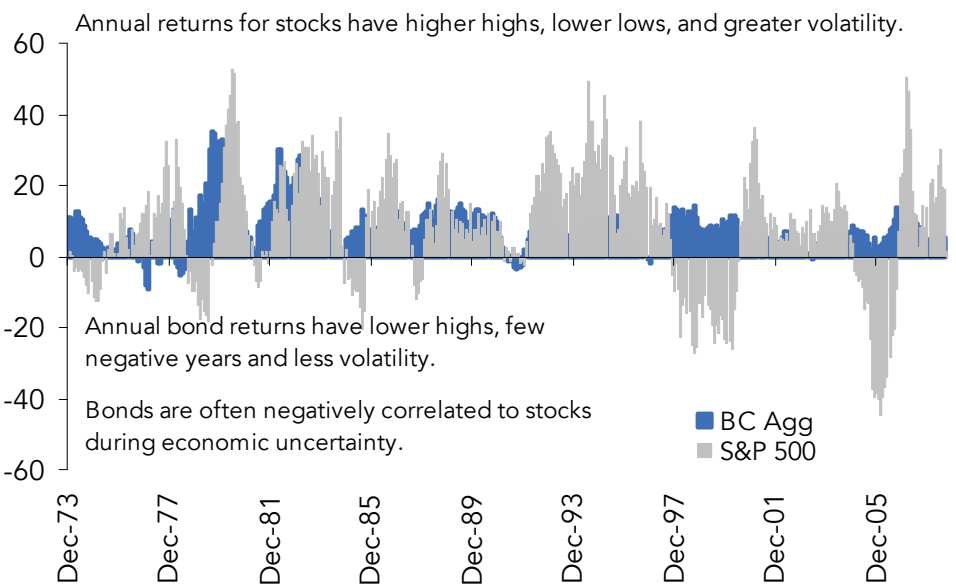
U.S. Treasury 10 Year Yield History



Yield Dividend History



BC Aggregate / S&P 500 12-Month Total Return



- Interest in fixed income rose in the late 60's and early 70's as inflation and interest rates rose and volatility increased.
- Fixed income's role falls into one of two categories: Strategic Asset Allocation and Tactical Asset Allocation.
- Strategic Asset Allocation, used by long term investors, is by far the most common use of bonds, focusing on buying fixed income securities to provide for income, safety, and liquidity. These are the traditional characteristics of fixed income securities.
- Tactical Asset Allocation, predominantly used by speculators and market timers, relies on rate changes, and more importantly volatility for total return speculation, buying and selling in anticipation of interest rate changes to capture near-term price moves. This approach has proven to be a very difficult way to add value consistently.
- The most common knock on fixed income is the lower relative return versus stocks and commodities that is the result of its lower risk profile as well as the lack of inflation protection that results from a fixed coupon.

Types of fixed income securities

Maturity: Money Markets, with maturities of one year or less, include commercial paper, certificates of deposit, and Treasury bills. Capital Markets, which we will discuss today, include maturities ranging from one year to perpetuity.

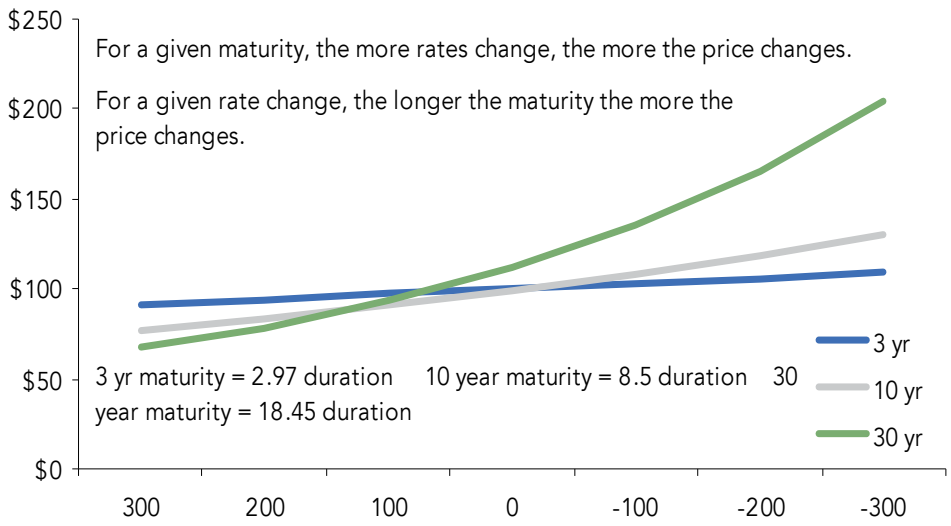
Issuers: Three broad categories of issuers include Government, corporate, and securitized products, including mortgage Backed securities, asset backed securities, and commercial mortgage backed securities. These three categories include both the U.S. and international markets.

Structures: Includes fixed rate, floating rate, "0" coupon, callable, putable, amortizing, and non-amortizing.

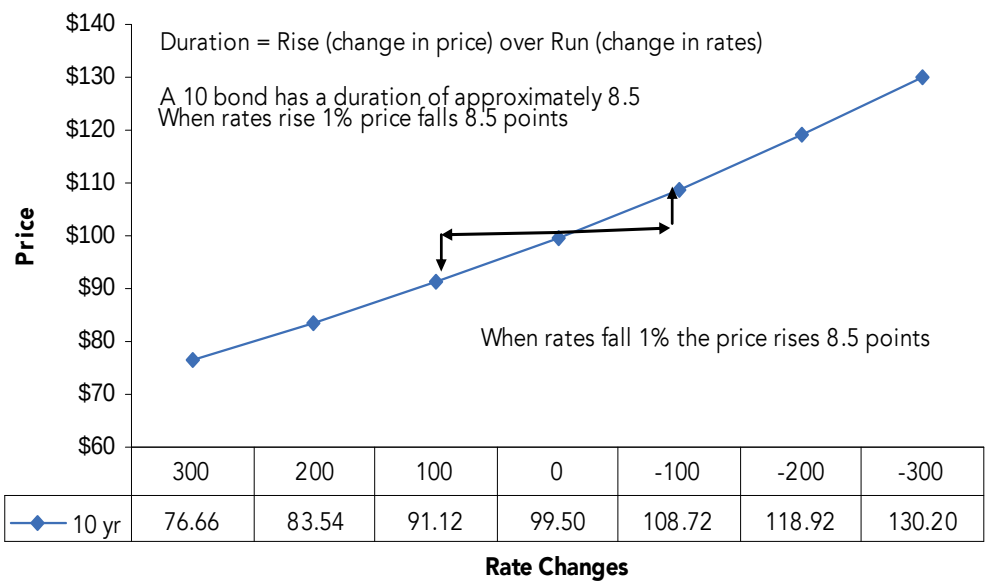
Investment Grade through Junk: Each of the above maturities, issuers and structures offer the full spectrum of credit quality, from the proverbial risk-free asset to high yield or junk bonds.

Risks associated with fixed income securities and bond properties

Price Change by Maturity



10-Year Treasury

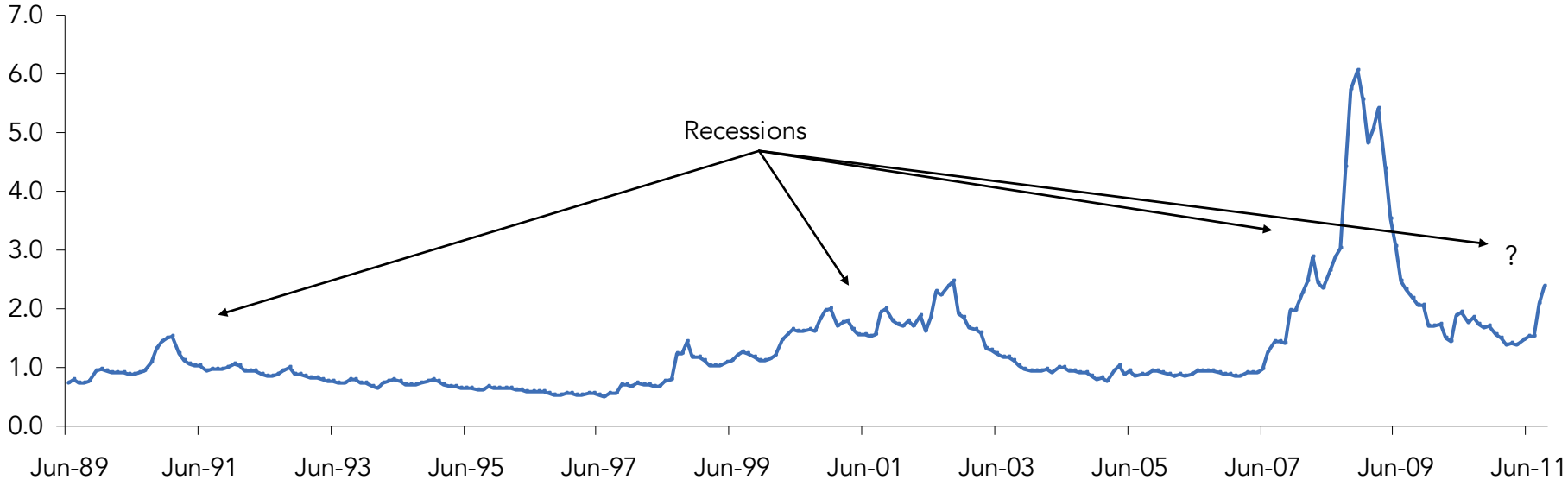


	300	200	100	0	-100	-200	-300
10 yr	76.66	83.54	91.12	99.50	108.72	118.92	130.20

- The risk factors generally associated with fixed income securities include interest rate risk, credit risk, liquidity risk, prepayment risk, currency risk, and political risk.
- The two most significant of these for domestic investors are interest rate risk and credit risk, with interest rate risk accounting for the vast majority of annual return volatility. For international investors, currency risk can introduce significant levels of volatility.
- Interest rate risk refers to the change in a bond's price resulting from a change in the level of interest rates, the rate used to discount the cash flows. Credit risk refers to the likelihood or probability that the bond issuer, the borrower, will pay back the loan.
- Interest rate risk increases with maturity while credit risk increases as lesser creditworthy issuers are added to the portfolio.
- The best tool for effectively managing all types of fixed income risk is diversification.
- Interest rate risk is measured by duration. Longer maturities have higher levels of interest rate risk. Duration quantifies the relationship.
- Duration = the weighted average term to maturity, where cash flows are weighted in terms of their present value.
- Duration is generally less than maturity because the present value of cash flows is considered in the duration calculation. Later cash flows are more discounted than shorter ones reducing the duration measure when compared to maturity.
- The one exception to this rule is "O" coupon bonds where the duration equals the maturity.
- A bond's price is determined by calculating the present value of future cash flows, including coupons and principal at maturity, for a given discount rate or interest rate.
- The higher the discount rate the lower the present value for a given maturity.
- The greater the maturity, the higher the duration, and the more a bond's price will change for a given interest rate or discount rate change.

Credit risk, liquidity risk and prepayment risk

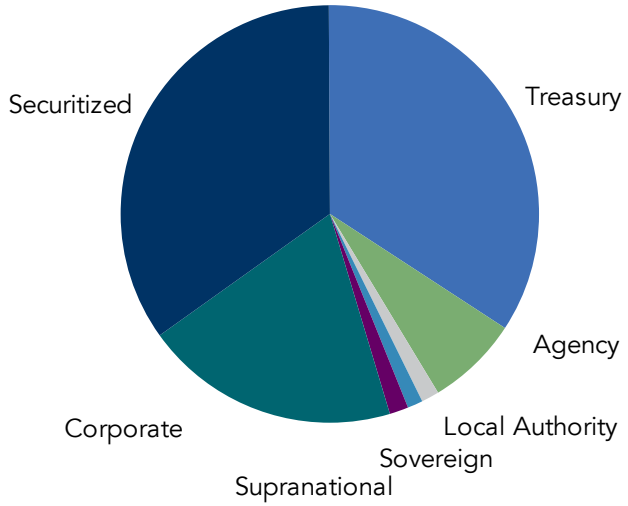
Investment Grade Corporate Spreads Since June 1989



- Credit risk is the premium, or extra yield (income / coupon) received over the risk free rate for issuers who have a possibility of default.
- More credit risk = > premium = > possibility of default or price decline in slow economies, less profitable industries, less profitable companies, and more recently, less financially sound countries.
- Liquidity risk refers to securities which are difficult to trade at a fair market price, at the time of your choosing due to unusual features or thin markets.
- Prepayment or reinvestment risk occurs when principal is returned earlier than expected or hoped for. This often happens as a result in a decline in the term structure of interest rates.
- Longer maturities have greater interest rate risk while shorter maturities have greater reinvestment risk. Short bonds coupons reprice more frequently presenting the possibility of reinvestment at lower rates.
- This is particularly damaging in long duration investing strategies, used by pension funds, if assets purchased to fund liabilities have a lower duration. As rates decline, your income stream falls while the present value of the liabilities is increasing more than the assets you own.
- Currency risk results when investments purchased are denominated, paid back, in a currency other than your "home" currency. The exchange rate of the foreign currency can change dramatically over time. This can be more common in lower rated countries. This potential loss can more than offset the return earned on the bond.

Fixed income benchmarks

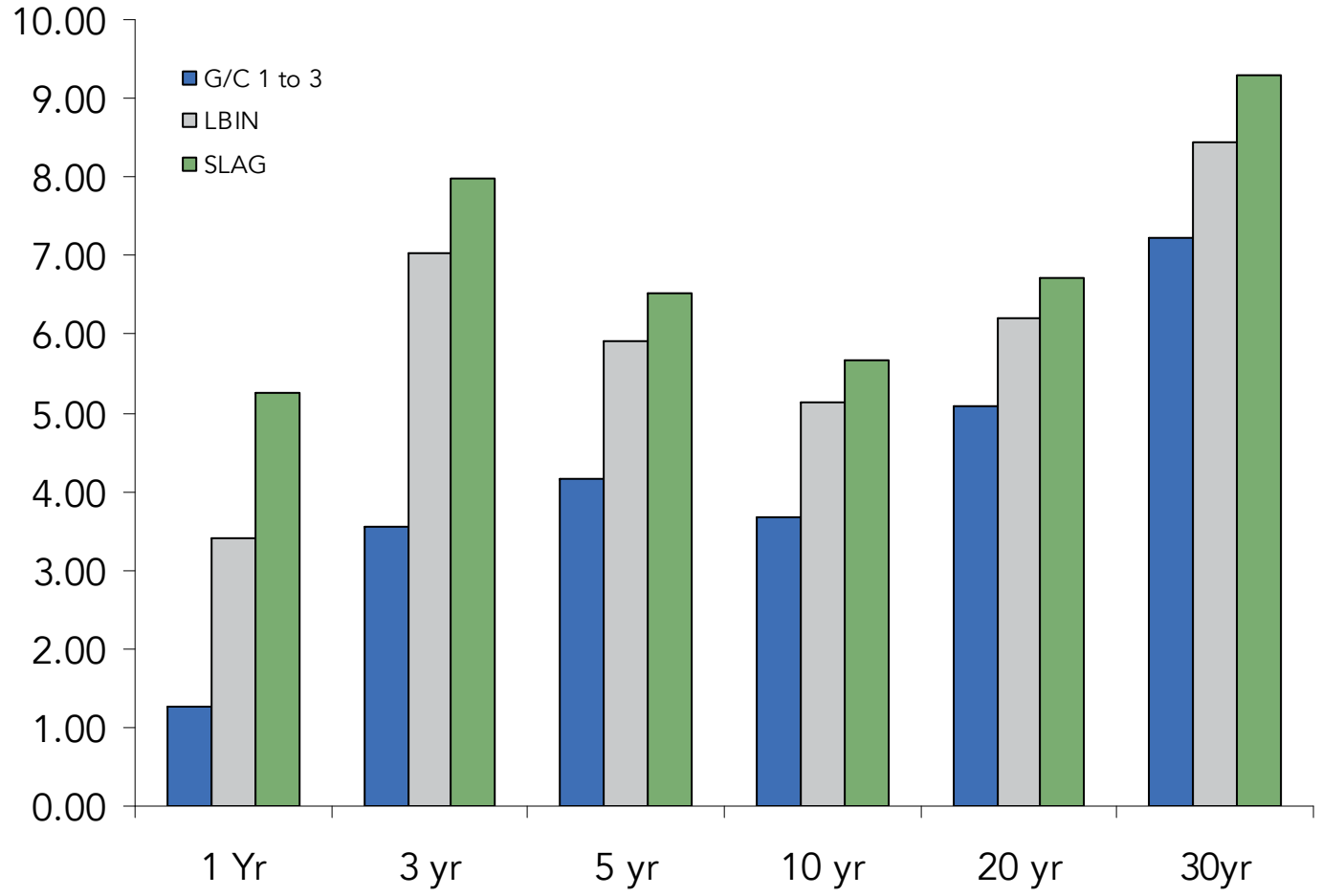
Barclays Capital Aggregate Sectors



- There are two broad categories we will discuss: Domestic High Grade and Universal.
- Domestic is represented by Barclays Aggregate index. This is the S&P or DJIA of the U.S. Bond Market.
- The Universal is predominantly the Aggregate, but includes foreign companies and countries including non-investment grade securities.
- Both are rules based indices designed to mimic the marketplace for fixed income securities.
- Securitized products and Treasury issuance have grown significantly in recent years

Fixed income portfolio management

Benchmark Annualized Total Returns



- Short Term
- Intermediate Term
- Core and Core Plus
- International

International bond management

Two reasons to invest in international bonds: Higher return potential and risk reduction through diversification

The investor's investment objectives (total return, diversification/risk reduction) have implications for the management of international bonds

- Available Benchmarks
- Global (all countries, including home country)
- International (ex-home country)
- Government-only
- Multi-sector (including corporates and mortgages)
- Currency-hedged or unhedged
- Emerging markets

International Bond Market Trading Blocs	Risks of Investing in International Bonds	International Bond Investing Strategies	Currency Selection	Emerging market bonds	Questions for International Bond Managers
-Dollar bloc (U.S., Canada, Australia and New Zealand) -European bloc (euro and non-euro zone) -Japan -Emerging markets	-Credit/default risk -Liquidity risk -Currency risk -Interest rate risk -Event/political risk	-Bond-market selection -Currency selection -Duration/yield curve management -Sector/credit/ security selection -Non-benchmark securities	-Highest variability of returns -Fully hedged -Unhedged -Actively managed -Short term rate differentials/ economic outlook are keys -Currency forward contracts used to hedge	-Historical patterns of returns -Risks	-Investing style -Decision-making process -Resources available -Hedging approach -Risk controls -Sources of return/attribution

Source; Fixed Income Reading for the Chartered Financial Analyst Program, Second Edition, by Frank Fabozzi,, PhD, CFA

Barclays U.S. Universal

As of September 30, 2011

	Percent of Index	Quality
U.S. Universal	100.00	AA2/AA3
U.S. Aggregate	87.20	AA1/AA2
U.S. Corporate High Yield	4.90	B1/B2
Eurodollar Seasnd Ex Agg	1.64	AA1/AA2
EM (Ex Agg/Eurodollar)	1.61	BA2/BA3
144A (Ex Agg)	4.48	A1/A2
CMBS Other ex HY	0.17	AA1/AA2

Barclays Global Aggregate Ex-USD

As of September 30, 2011

Sector	Percent of Index
Global Agg Ex USD	100.00
Treasury	*67.71*
Government-Related	*14.09*
Agency	6.93
Local Authority	4.73
Sovereign	0.59
Supranational	1.84
Corporate	*11.45*
Industrial	4.09
Utility	1.16
Financial Institutions	6.20
Securitized	*6.75*
ABS	0.24
CMBS	0.07
Covered	6.44

Country	Percent of Index
Global Agg Ex USD	100.00
Australian Dollar	2.01
Canadian Dollar	4.46
Chile Peso	0.02
Czech Koruna	0.21
Danish Krone	0.73
European Euro	42.37
Hong Kong Dollar	0.01
Hungary Forint	0.15
Japanese Yen	34.17
Korean Won	1.53
Malaysia Ringgit	0.31
Mexican Peso	0.43
New Zealand Dollar	0.20
Norwegian Krone	0.22
Poland Zloty	0.43
Pounds Sterling	8.84
S. African Rand	0.37
Singapore Dollar	0.26
Swedish Krona	1.02
Swiss Franc	1.31
Taiwan Dollar	0.60
Thai Baht	0.35

Barclays Global Emerging Market

As of September 30, 2011

Sector	Percent of Index
Global Emerging Markets	100.00
Government-Related	*82.00*
Agency	22.42
Local Authority	0.52
Sovereign	59.06
Corporate	*18.00*
Industrial	13.08
Utility	0.10
Financial Institutions	4.82

Currency	Percent of Index
Global Emerging Markets	100.00
Euro	11.87
Pounds Sterling	0.83
United States Dollar	87.30

Country	Market Value %
Total	100.00
Brazil	17.41
Russia	16.33
Mexico	12.77
Turkey	6.92
Venezuela	5.53
Philippines	4.66
Indonesia	4.22
Hungary	3.61
Argentina	3.06
Colombia	2.92
India	2.27
S.Africa	2.24
Other	18.06

Correlations for U.S., International, and Emerging Market Bonds

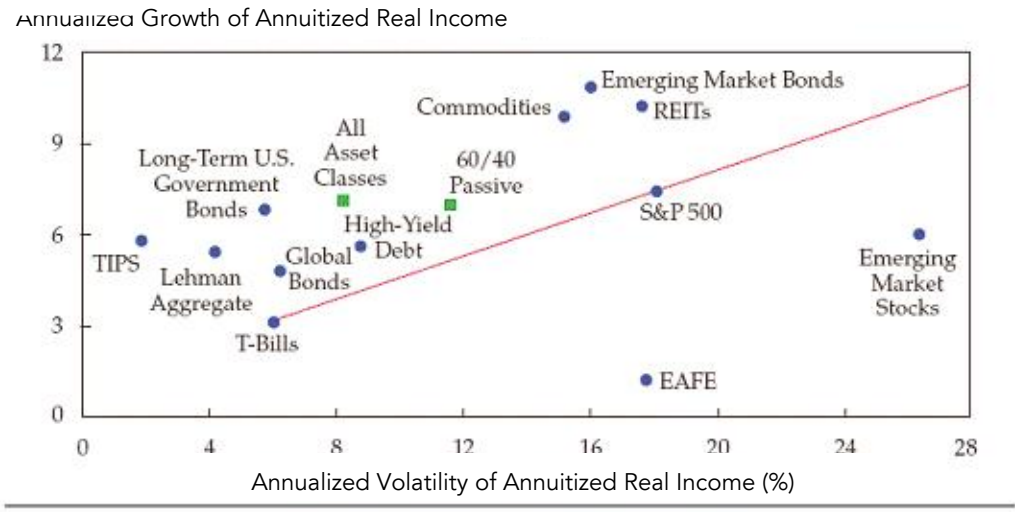
Correlations	U.S. Universal - Daily Total Return	SPX Index
Global Aggregate ex-USD - Daily Total Return Unhedged	0.308733	-0.073002
Global Aggregate ex-USD - Daily Total Return Hedged	0.535932	-0.255003
Global Emerging Markets - Daily Total Return Unhedged	0.351998	0.156987
Global Emerging Markets - Daily Total Return Hedged	0.344849	0.152077
SPX Index	-0.259152	1.000000

Correlations are for the period 8/21/01 to 9/30/11

- Adding fixed income to an investment portfolio provides diversification benefits as investment grade U.S. bonds are negatively correlated to U.S. equities.
- The Global Aggregate, with currency exposure has limited correlation to U.S. equities.
- Global Emerging Market is positively correlated with other risk assets, such as U.S. equities.
- During periods of risk aversion such as equity sell-offs, emerging market correlations with U.S. equities will increase dramatically.

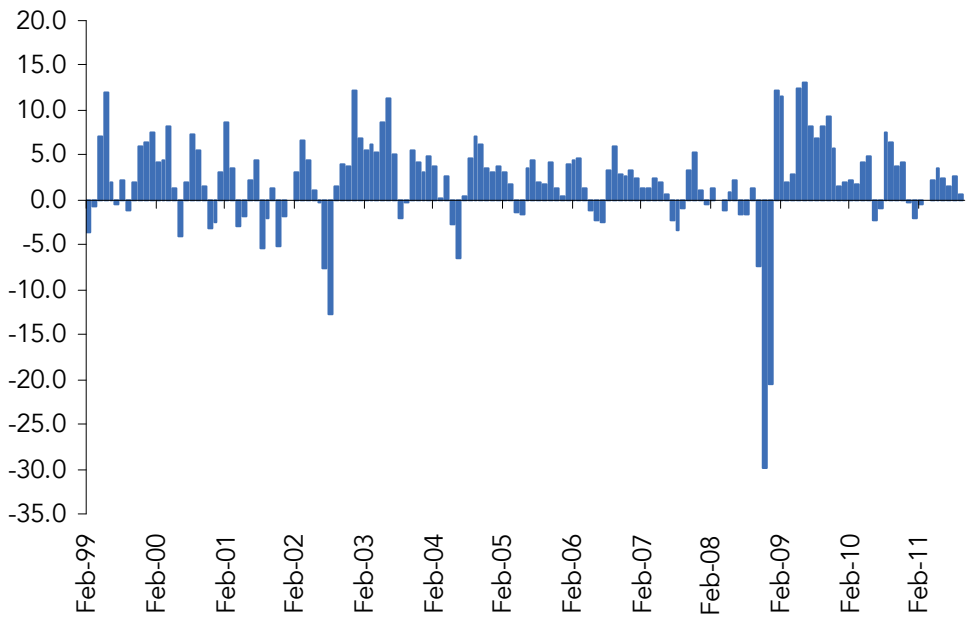
Historical risk and return characteristics

Annual Growth and Volatility of Real Spending Power, 10 Years Ended June 30, 2006



Notes: EAFE is the MSCI Europe/Australasia/Far East Index; REITs are represented by the Dow Jones Wilshire Real Estate Investment Trust Index, commodities by the Dow Jones-AIG Commodity Total Return Index, global bonds by the JP Morgan Global Fond Index Global Unhedged, emerging market bonds by the JP Morgan Emerging Markets Bond Index Global, emerging market stocks by the FTSE All World Emerging Index, and high-yield bonds by the Merrill Lynch US High Yield BB-B Rated Index.

Emerging Market Fixed Income Rolling 3-Month Total Returns

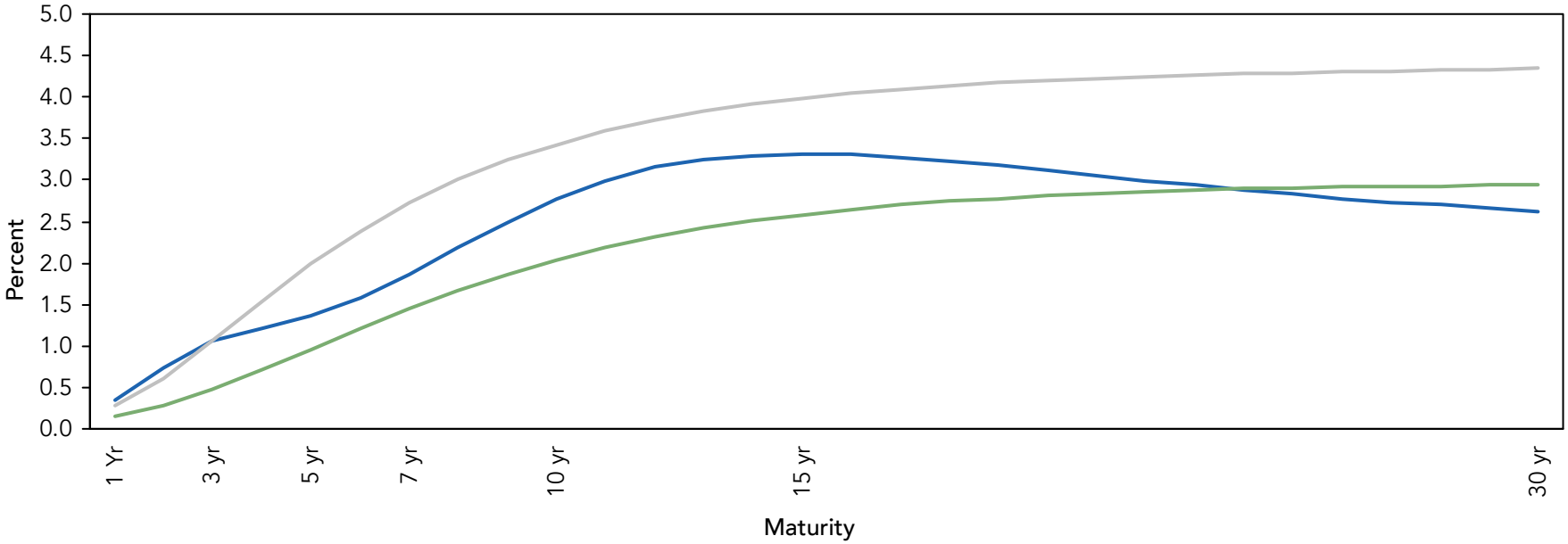


- Greater volatility of annual returns = greater risk = greater long term returns
- As maturity and credit risk increase, longer term returns increase
- As maturity and credit risk increase, short term return volatility increase
- Diversification is your best strategy to combat both
- Remember the role of bonds: income, safety, and liquidity
- Stocks for growth

Interest rates

Financial crises are characterized by extended periods of low interest rates.

U.S. Treasury Yield Curve



	1 Year	3 Year	5 Year	10 Year	30 Year
12/31/08	0.35	1.06	1.36	2.77	2.63
12/31/10	0.26	0.99	2.01	3.29	4.33
9/30/11	0.15	0.47	0.96	2.04	2.94

Source: Bloomberg

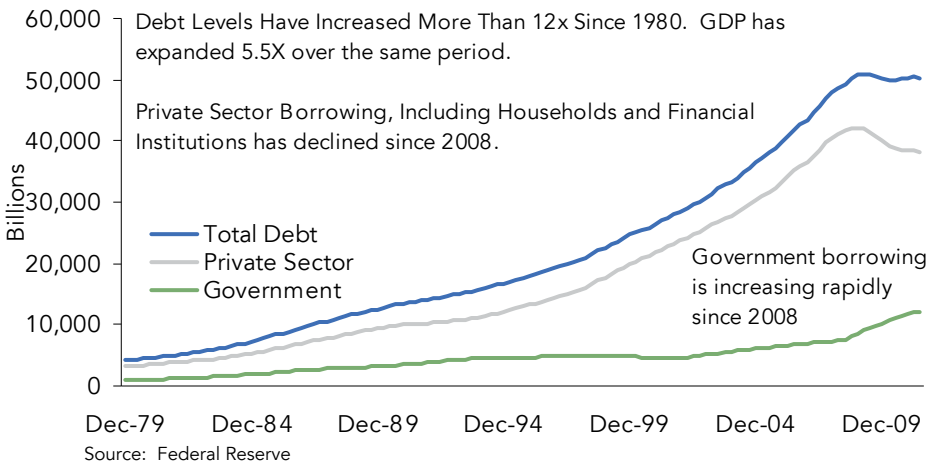
Current issues

- QE1, QE2, and "Operation Twist": The Federal Reserve Open Market Committee using the bond market and interest rates to improve economic conditions.
- Sovereign Debt Crisis: To help support the private sector economically and achieve goals of social programs governments around the world, Federal, Sate, and Local have borrowed and spent vast amounts of money.
- As long term obligations have grown and the recession has persisted, the need to borrow has accelerated.
- Initially governments provided a backstop for the private sector.
- Investors are now worried about the ability of governments to repay debt without debasing their currency or restructuring debt, causing investors to incur losses.

Government debt

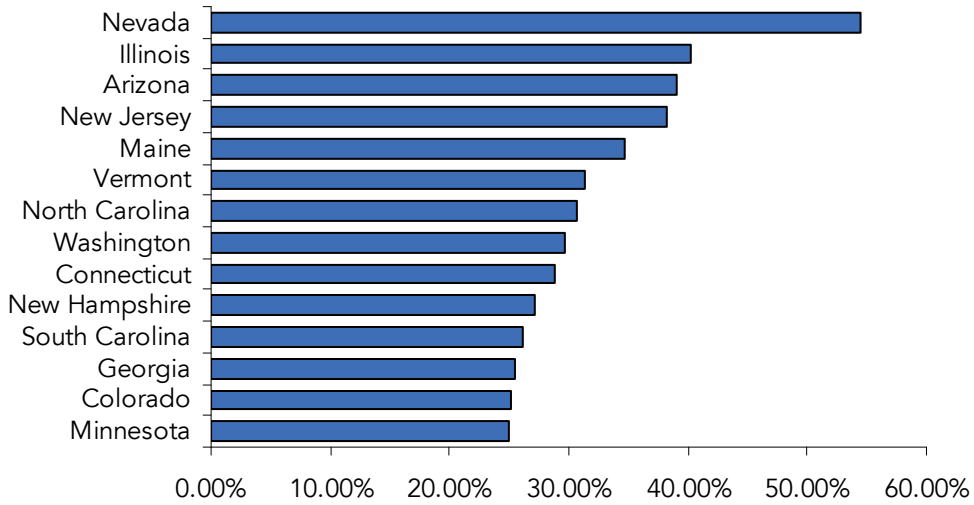
Increases in levels of government debt have elevated concerns regarding credit worthiness of sovereign issuers.

U.S. Debt Levels – June 30, 2011

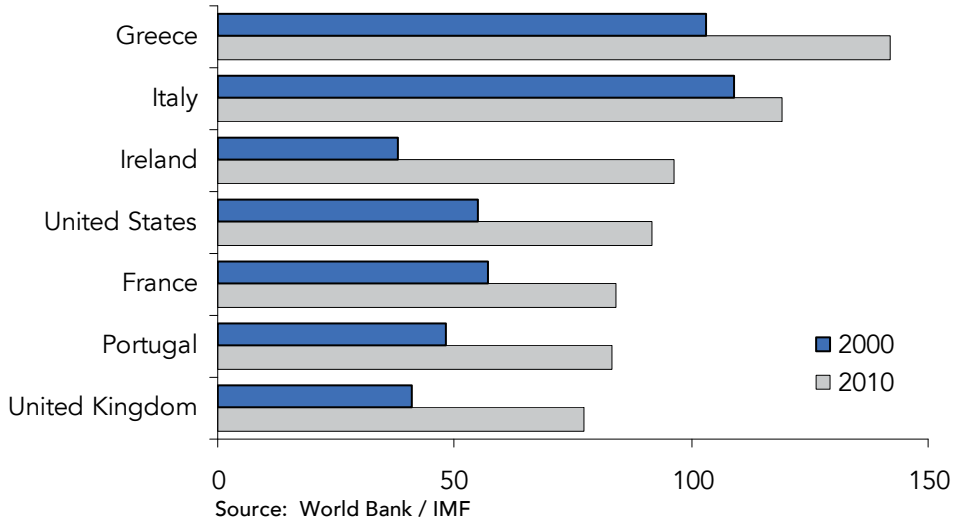


Source: Federal Reserve

FY2011 Budget Gaps by State

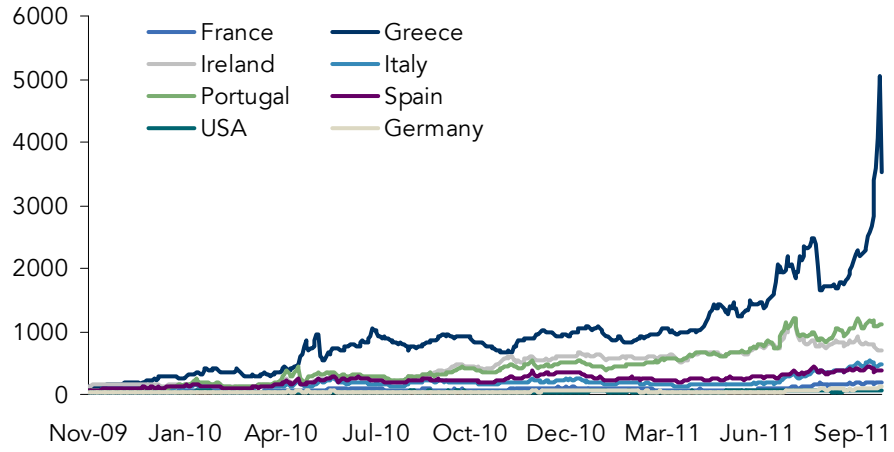


Sovereign Debt As a Percent of GDP 2010



Source: World Bank / IMF

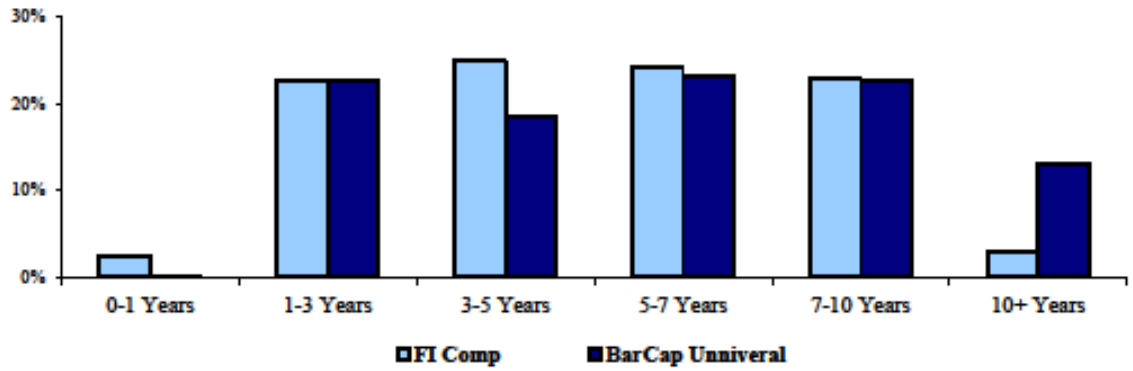
Credit Default Swap Levels: Sovereign Issuers



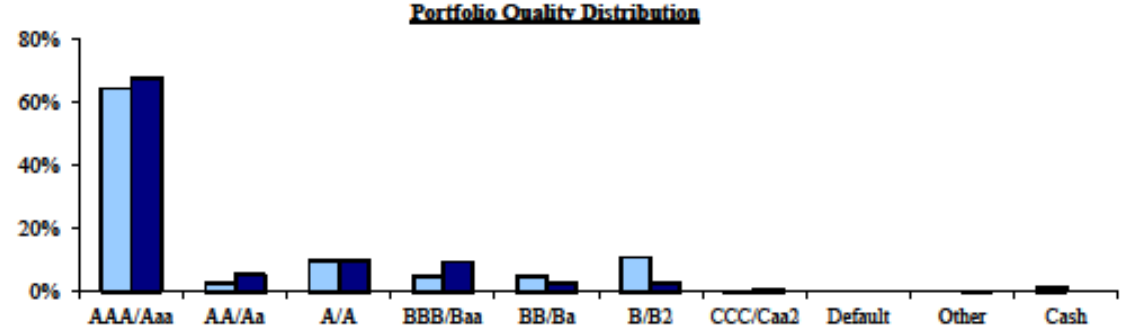
Fixed income portfolio statistics – Fixed Income Composite*

	FI Composite	BarCap Universal Index
Total Number of Securities	456	12,181
Current Coupon	4.8%	4.5%
Time to Maturity	5.7 Years	7.4 Years
Effective Duration	4.7 Years	5.1 Years
Yield to Worst	3.1%	3.2%
Average Credit Quality	n/a	n/a

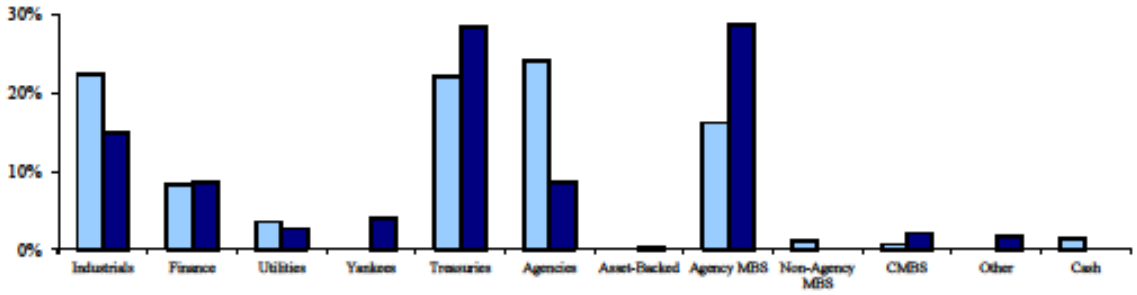
Portfolio Maturity Distribution



Portfolio Quality Distribution



Portfolio Sector Allocation



* Excludes Amalgamated, ULLICO, Crescent, and McDonnell

Prepared by Marquette Associates, Inc.