

European Capital Markets Institute

Ed Fishwick

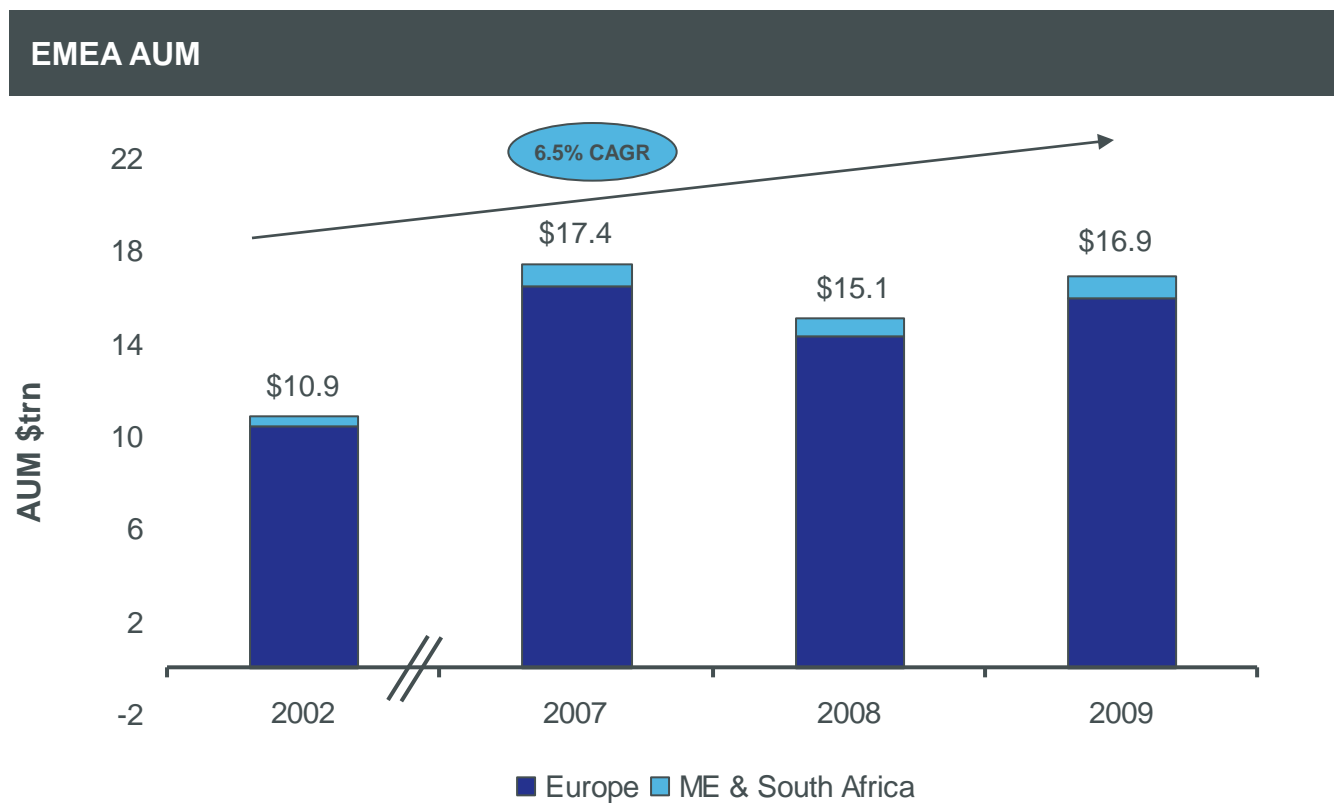
Global Co-Head of Risk and Quantitative Analysis

June 27th 2011

EMEA Market Size

EMEA AUM estimated at \$16.9 trillion or 32% of global AUM

- Up 55% since 2002

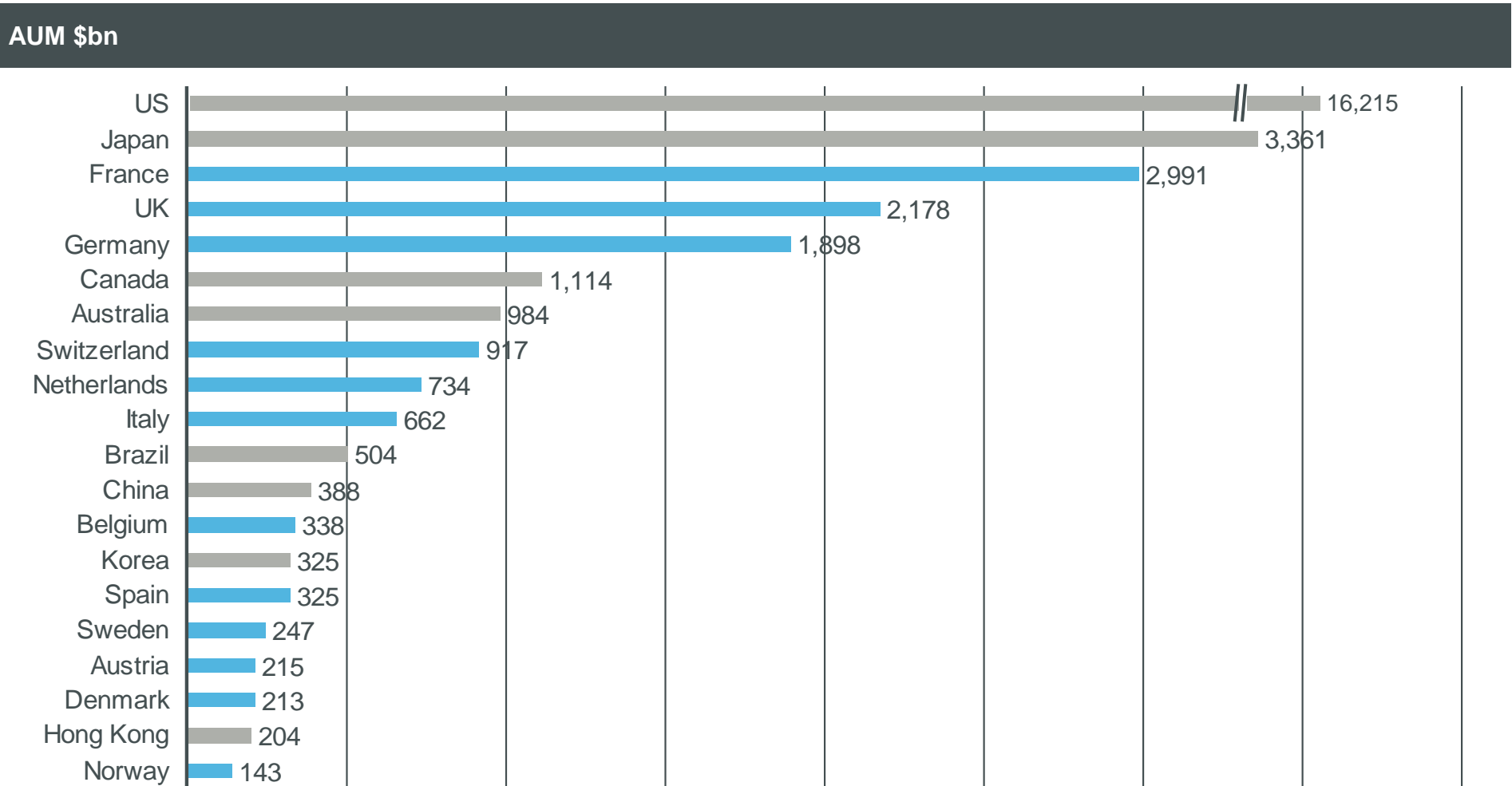


1. Source: BCG Global Asset Management Market Sizing database, 2010.

2. Europe = Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, and the United Kingdom

Individual Countries in Context

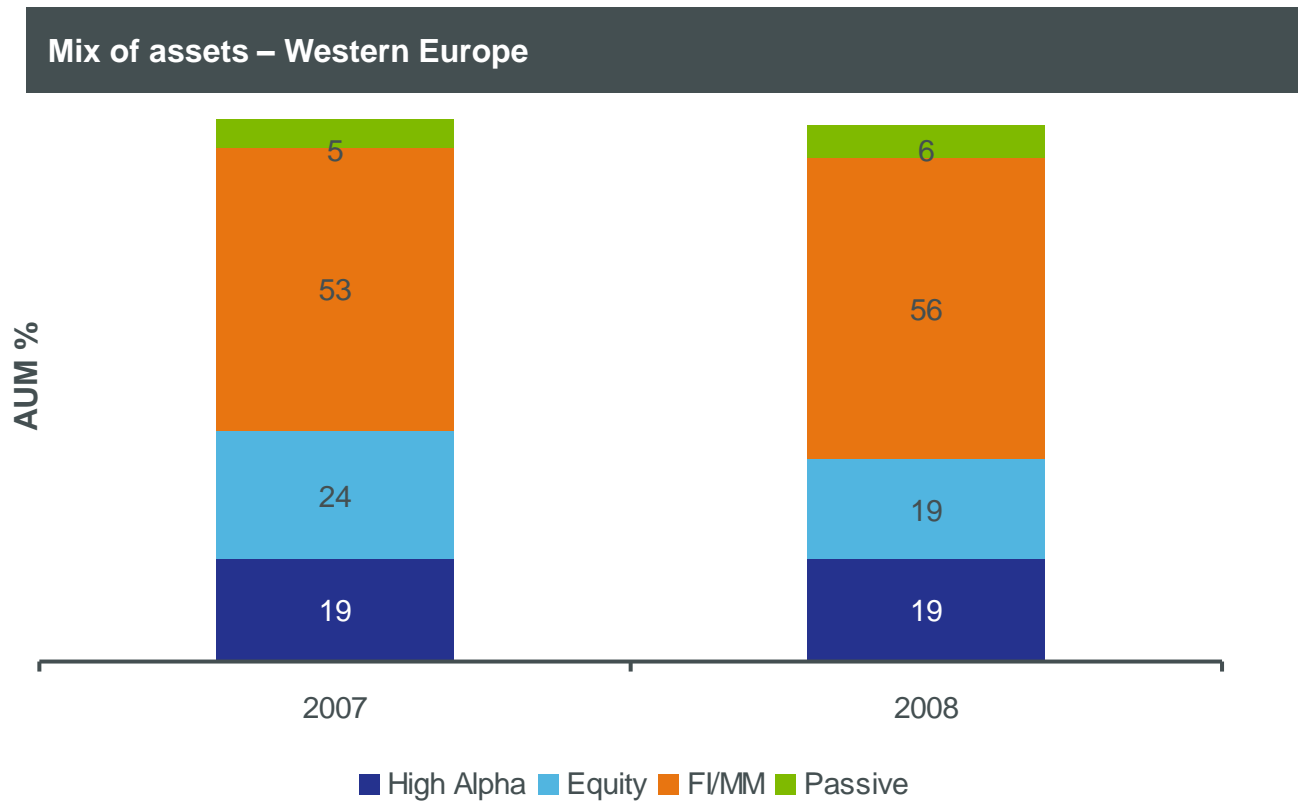
Twelve of the world's largest asset management markets are in Europe



Source: Economics of European Asset Management, ANBID, ECB, Mckinsey Analysis 2009. Data to end 2008

AUM by Asset Class

European markets are typically conservative with Fixed Income and Money Markets accounting for over half the AUM

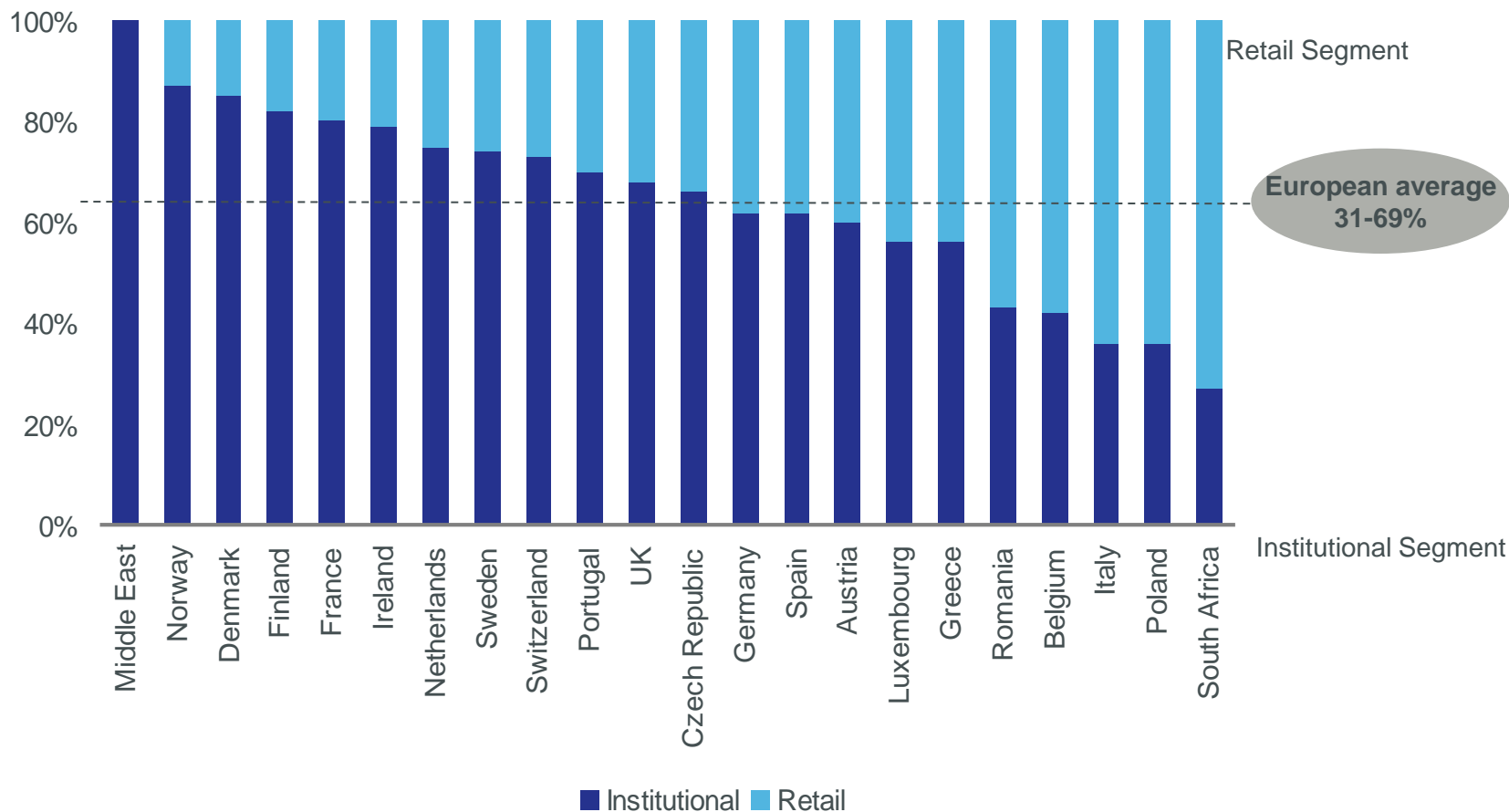


Source: McKinsey Asset Management Survey, 2010

AUM by Channel by Country

The mix of retail and institutional assets varies widely by country with each market having markedly different characteristics

Europe Retail/Institutional mix AUM %



Source: BCG Global Asset Management Sizing Database, 2009

Estimated market size corresponds to assets of clients based in stated geography.

I. Europe's largest managers

The competitor set in each market sector is quite different. Only BlackRock, BNP Paribas, Amundi and Deutsche Bank have market leading positions in all three

| | Third party institutional Competitors ¹ | AUM \$bn |
|----|--|----------|
| 1 | BlackRock | 325 |
| 2 | L&G IM | 188 |
| 3 | Natixis Global AM | 187 |
| 4 | APG | 167 |
| 5 | SSgA | 156 |
| 6 | Amundi Group | 140 |
| 7 | BNP Paribas Inv | 125 |
| 8 | Allianz GI* | 119 |
| 9 | DB Advisors | 103 |
| 10 | HSBC Global AM | 85 |
| 11 | GSAM | 76 |
| 12 | F&C AM | 66 |
| 13 | Aberdeen AM | 63 |
| 14 | PGGM Investments | 61 |
| 15 | Swiss Life AM | 59 |

| | Cross Border Retail Competitors Dec ² | AUM \$bn |
|----|--|----------|
| 1 | Franklin Templeton Group | 124 |
| 2 | BlackRock | 100 |
| 3 | UBS AG | 97 |
| 4 | Fidelity International | 89 |
| 5 | Schroders | 80 |
| 6 | JP Morgan Asset Management | 79 |
| 7 | BNP Paribas | 73 |
| 8 | Carmignac Gestion | 70 |
| 9 | AXA Group | 62 |
| 10 | Pictet & Cie | 50 |
| 11 | Amundi Group | 40 |
| 12 | Aberdeen Asset Management | 39 |
| 13 | HSBC Group | 35 |
| 14 | GAM Holding | 33 |
| 15 | Deutsche Bank Group | 31 |

| | Top European ETF Providers ³ | AUM \$bn |
|----|---|----------|
| 1 | BlackRock iShares | 102 |
| 2 | Lyxor | 52 |
| 3 | db x-trackers | 48 |
| 4 | Credit Suisse | 16 |
| 5 | Zurich Cantonal Bank | 12 |
| 6 | ZKB ETF Securities | 11 |
| 7 | Commerzbank | 9 |
| 8 | Amundi | 7 |
| 9 | ETFlab | 7 |
| 10 | UBS | 7 |
| 11 | EasyETF | 5 |
| 12 | Source | 5 |
| 13 | Swiss and Global AM | 4 |
| 14 | Xact | 3 |
| 15 | RBS | 2 |

¹ Investments and Pensions Europe June 2010 * Allianz GI own PIMCO

² Lipper Feri – data to December 2010

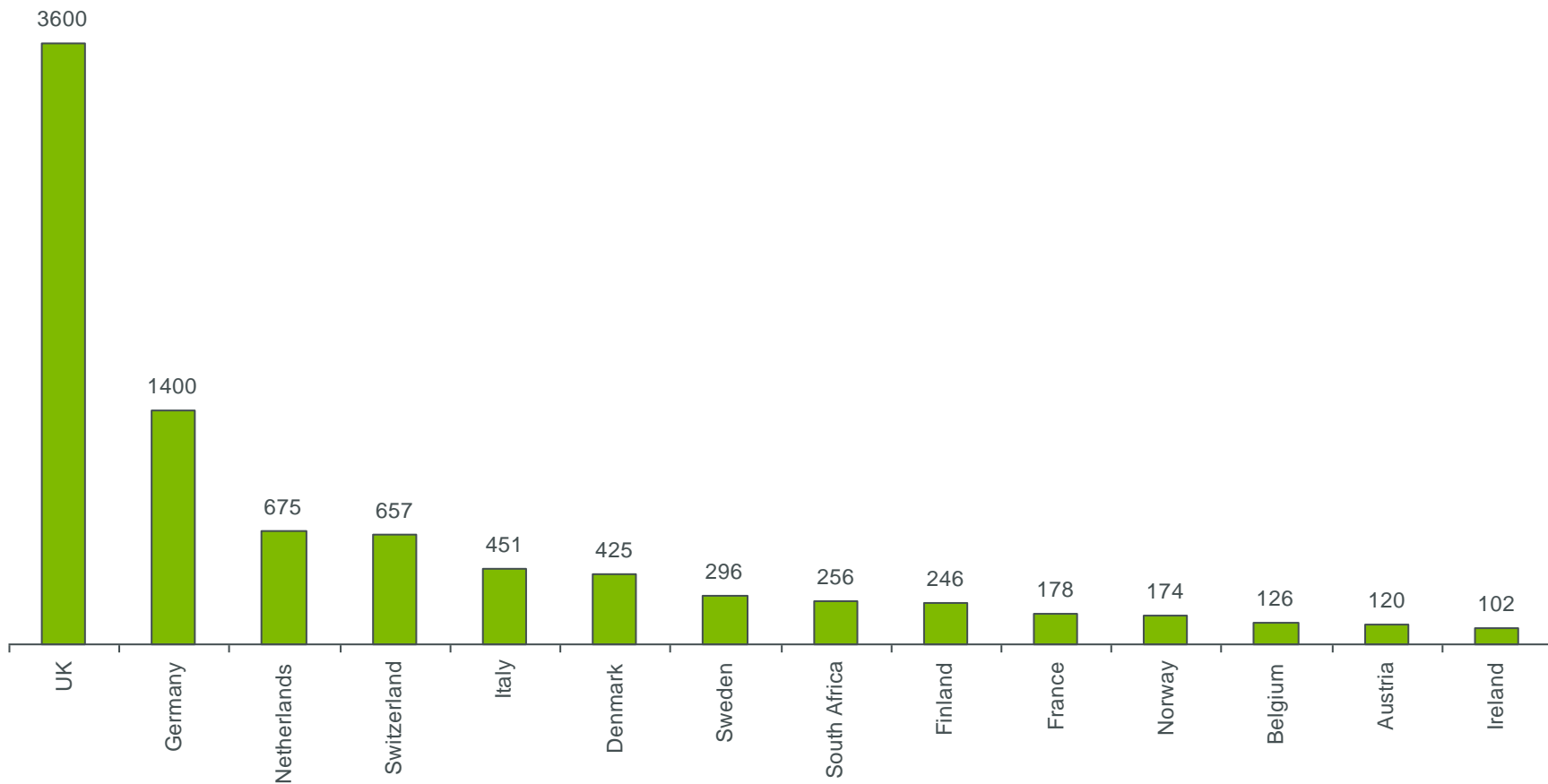
³ BLK ETF Landscape; Europe

EUR/USD exchange rate as at 31 December 2009: 0.6975611144

Europe Pension Market

The UK is Europe's largest pension market with double the assets of the next largest market, Germany

Pension Assets by Market \$bn

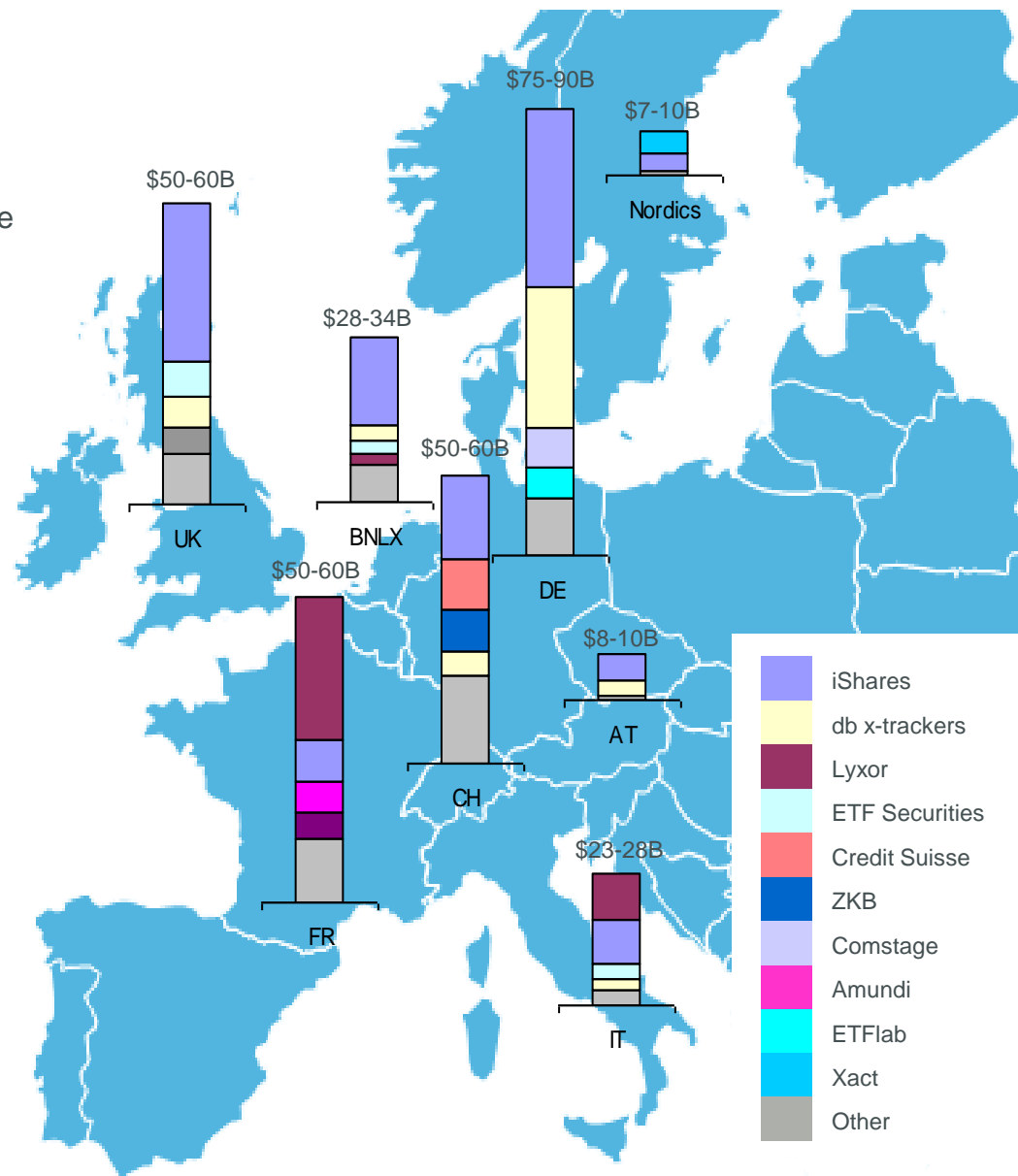


Source: Cerulli Quantitative Update Global Markets 2010

European ETF Market

Germany is the largest ETF market, with \$75-90bn AUM, followed by Switzerland and France, with \$50-60bn respectively

- Players are a combination of investment banks & distributors. Pure asset managers (ex iShares) are not the dominant model
- Few providers have a truly Pan European presence



Source: BlackRock ETF Research Dec 2010

BlackRock's institutional philosophy

Our philosophy is to deliver investment excellence through partnership with clients

We apply our capital markets expertise to benefit clients

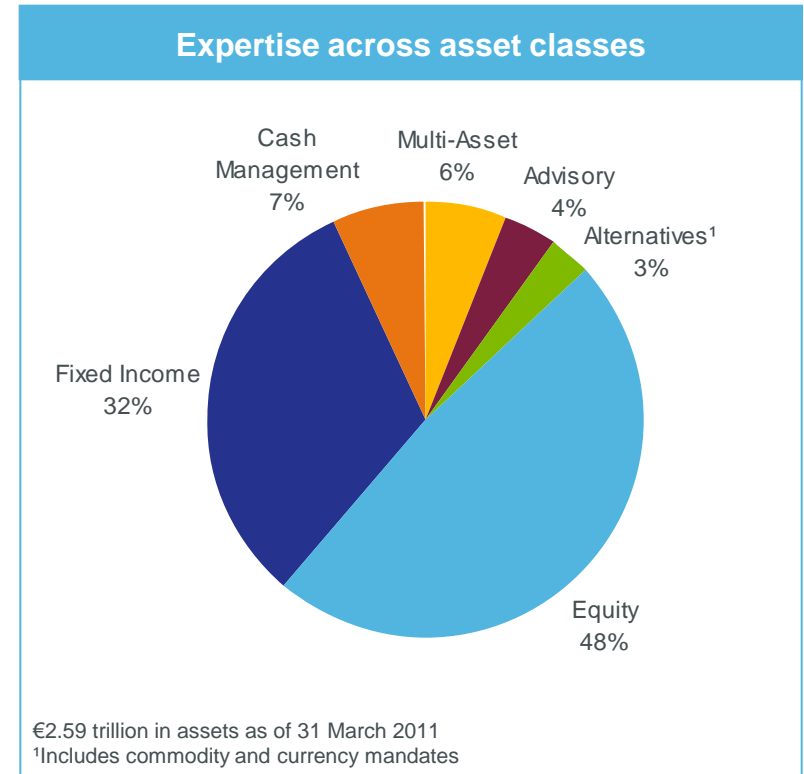
- Investment professionals share local insights across asset classes and regions in pursuit of generating strong risk-adjusted returns
- Our broad industry experience enables us to innovate across products, services and vehicles—including mutual funds, ETFs, commingled funds, and separate accounts

Our culture embodies risk management

- Firm founded upon rigorous risk management principles
- Independent risk professionals help ensure portfolio risk is deliberate, diversified and appropriately scaled
- BlackRock Solutions® provides independent risk management and enterprise investment services for €6.7 trillion in assets*

We carefully align service with our clients' needs

- We are truly independent – never trading on our own account
- We integrate corporate governance practices to protect and enhance the economic value of the companies in which we invest
- We provide all facets of transition management services to help clients realize new investment strategies while minimizing disruption



* Assets as of 31 March 2011

BlackRock at a glance

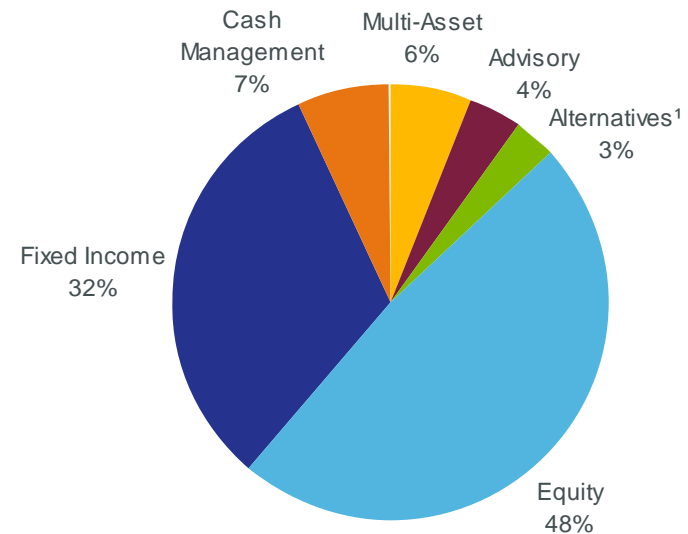
BlackRock Mission Statement

Create a better financial future for our clients by building the most respected investment and risk manager in the world

BlackRock facts

- Established in 1988
- NYSE: BLK
- €2.59 trillion assets under management
- Over 8,600 employees
- Approximately 1,600 investment professionals
- 21 investment centers
- 74 offices in 24 countries
- Clients in over 100 countries
- BlackRock Solutions® oversees €6.7 trillion in risk assets
- Broad product range available through mutual funds, ETFs, commingled funds, and separate accounts
- Dedicated transitions team helps clients change investment exposure, minimizing risk and cost

€2.59 trillion managed across asset classes



€2.59 trillion in assets as of 31 March 2011
¹Includes commodity and currency mandates

As of 31 March 2011

Major industry trends

Wide acceptance of ETFs by both institutional and retail investors

- Separation of alpha and beta, used in barbell investing
- Regulatory push toward greater product and plan transparency and lower costs

Growing allocations to alternatives

- Low interest rate environment and underfunded status of pension plans driving investor search for yield
 - Traditional investments: Hedge Funds, Private Equity, Real Estate
 - Expansion into new asset classes: Distressed Debt, Infrastructure, Commodities
- Heightened focus on operational risks, liquidity, and transparency

Pension plans facing underfunding crisis

- Increase in need for outcome-oriented offerings to meet plan objectives
- Corporate defined benefit pension plans seeking to control volatility of funded status, driving growth of LDI

Significant money-in-motion within Defined Contribution plans

- Target date funds have emerged as go-to option for DC
- Index options increasingly popular versus active strategies

Shift in composition of equity allocations

- Growing interest in international small cap and emerging and frontier markets
- Move in US plans from EAFE to ACWI ex-US IMI mandates

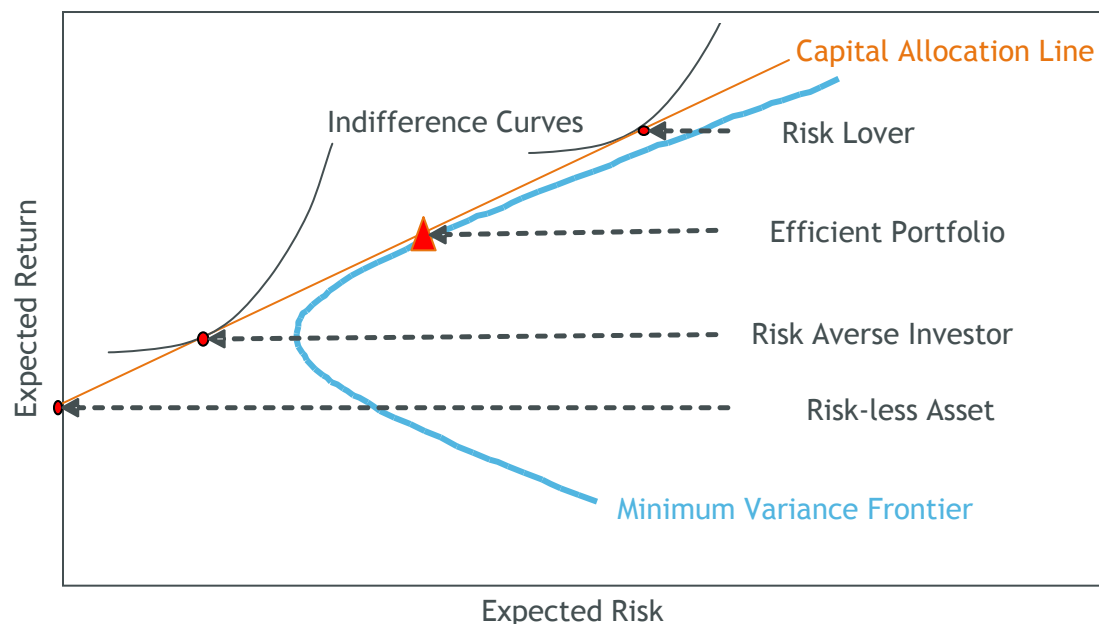
Financial regulatory reform reaches across industry

M&A activity reflects regulatory change

- Transactions driven by need to raise capital, ability to create scale, and regulatory change

The Traditional Approach of Strategy Setting

Efficient and Optimal Portfolios



Mean-Variance Optimisation

1. Formulate risk and return assumptions for all asset classes under considerations
2. Calculate the combination of asset classes, which maximise returns for any given level of risk
3. Find optimal portfolios for investors based on their utility functions

Critical underlying assumptions include:

- Risk and return forecasts are long-term assuming markets are fairly priced
- Risk aversions of investors are constant over time
- Returns are normally distributed or utility functions are quadratic

A consistent and easily adoptable investment framework

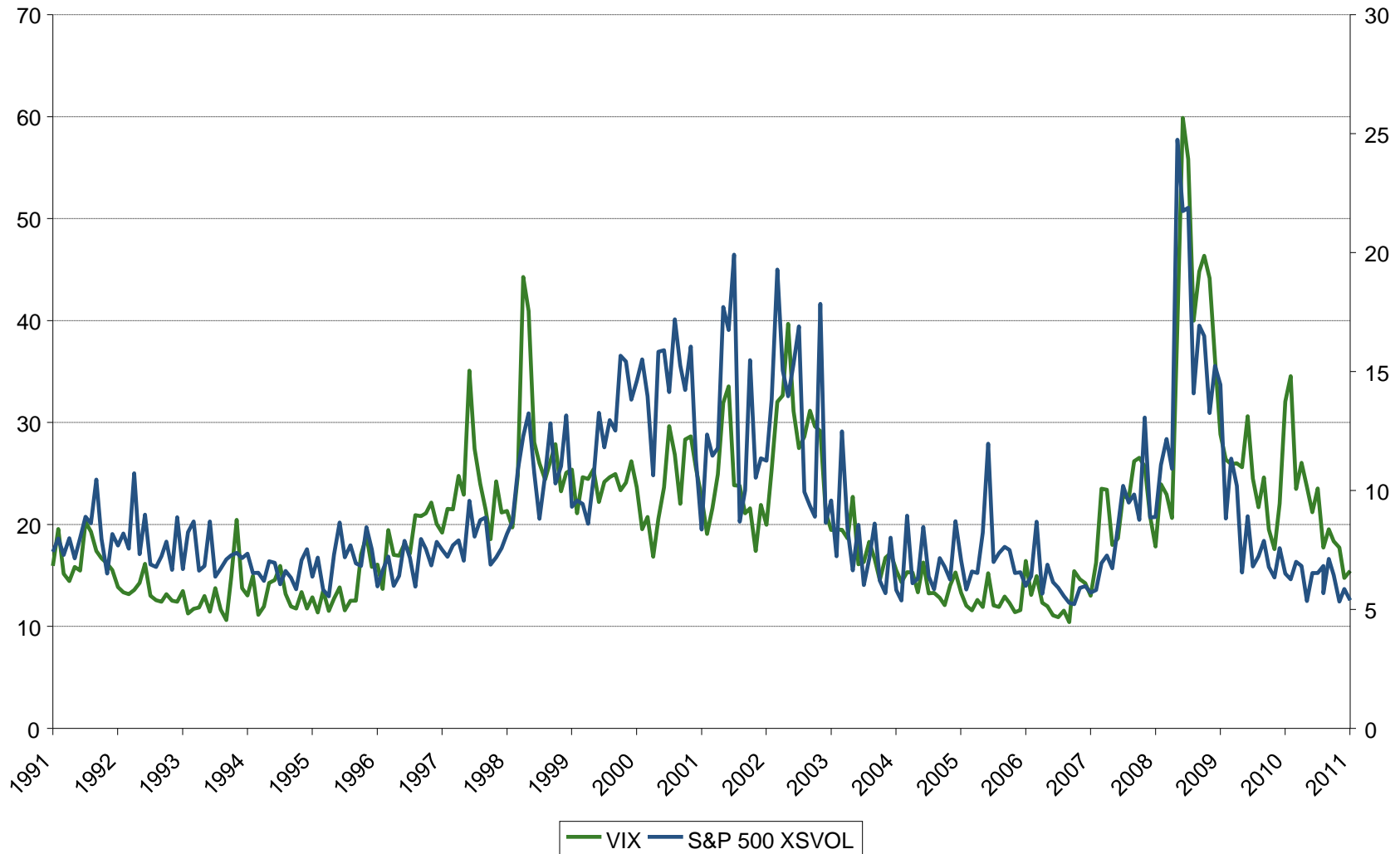
Source: BlackRock, illustrative example only

Risks & Uncertainties in the current environment

- **Inflation & Monetary Policy**
- **Shocks to growth expectations**
- **European Sovereign Debt**
- **Oil Prices, the Middle east and North Africa**
- **Unstable military flashpoints**
- **Natural risks (weather, geology)**
- **Other uncertainties**

Volatility over time

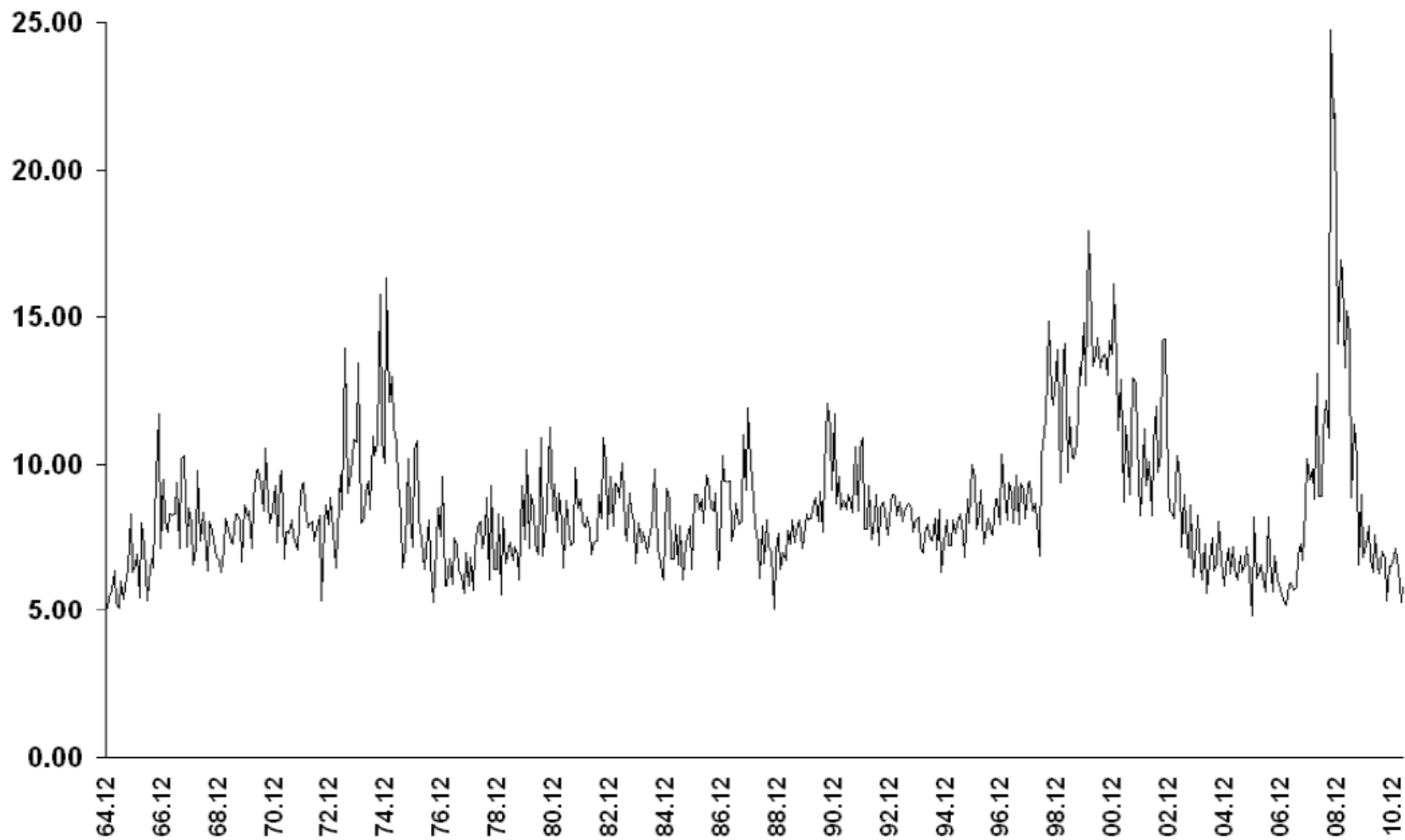
VIX vs Cross section Volatility(S & P 500) - Jan-1991 to date



Source: S&P500, BlackRock

Volatility over time

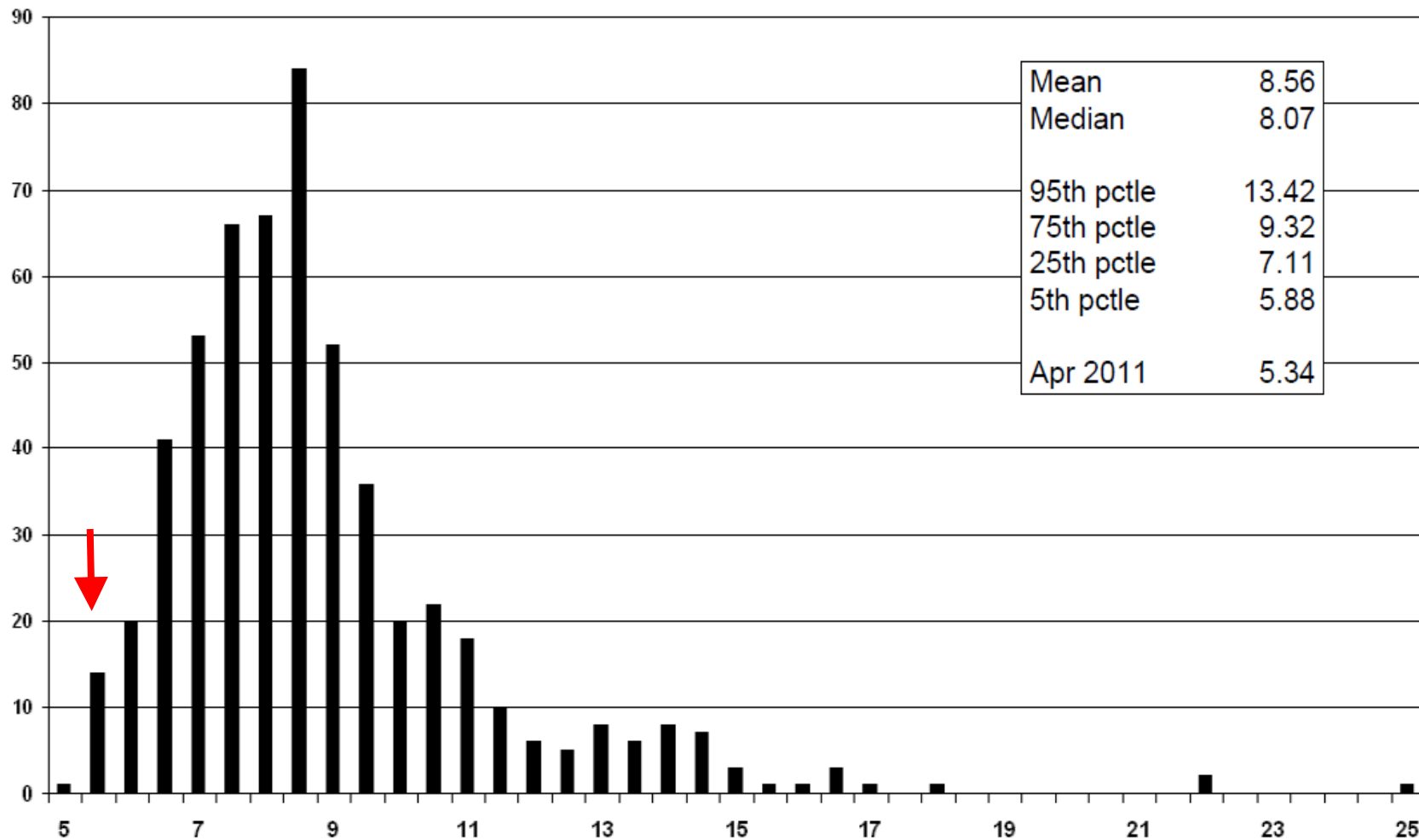
Cross Sectional Volatility – US Large Cap – 1964 through 2011



Source: S&P500, BlackRock

Distribution of Cross-Sectional Volatility – US Large Cap

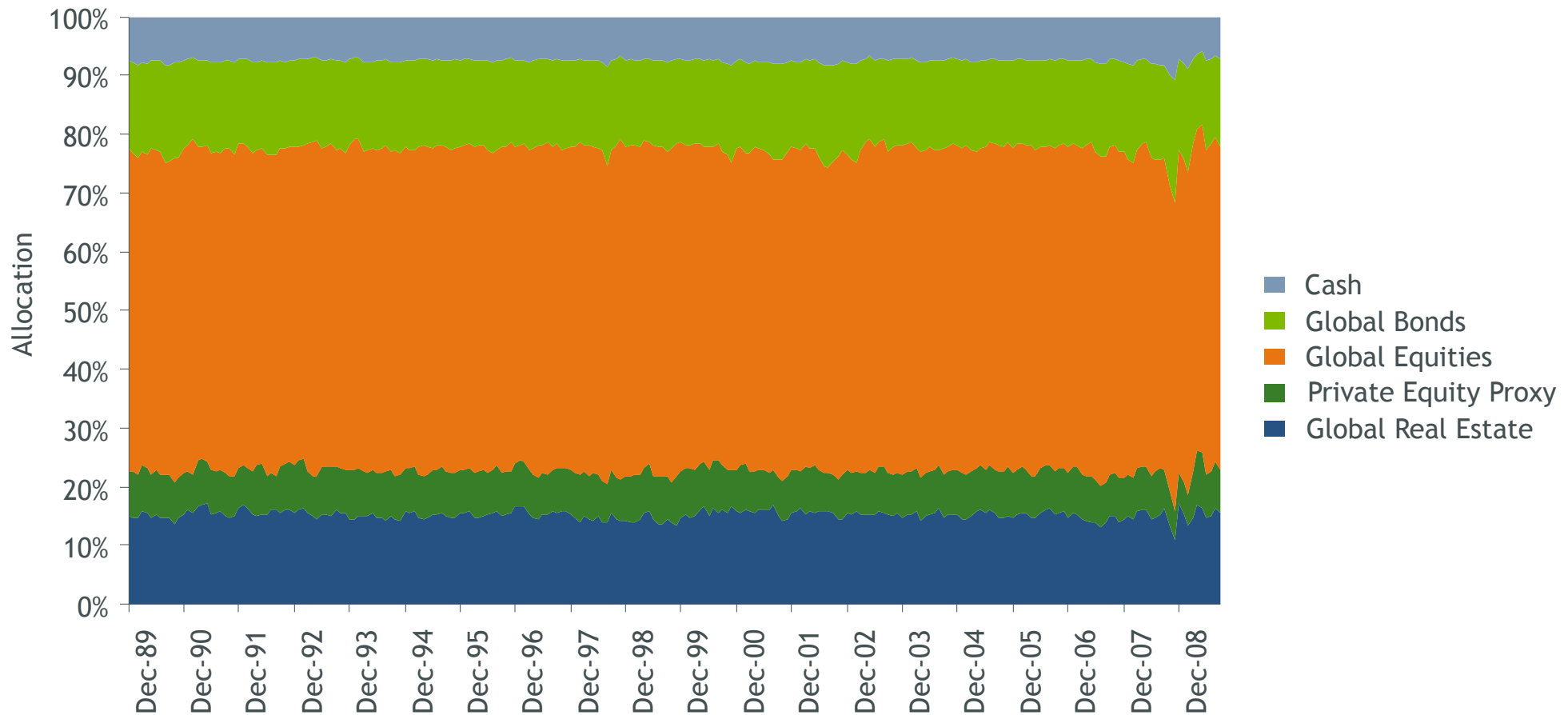
Risk - Volatility



Source: S&P500, BlackRock

Static Asset Allocation ≠ Constant Risk Portfolio

Stylised Asset Allocation of “Sovereign Wealth Fund” over Time (in USD)

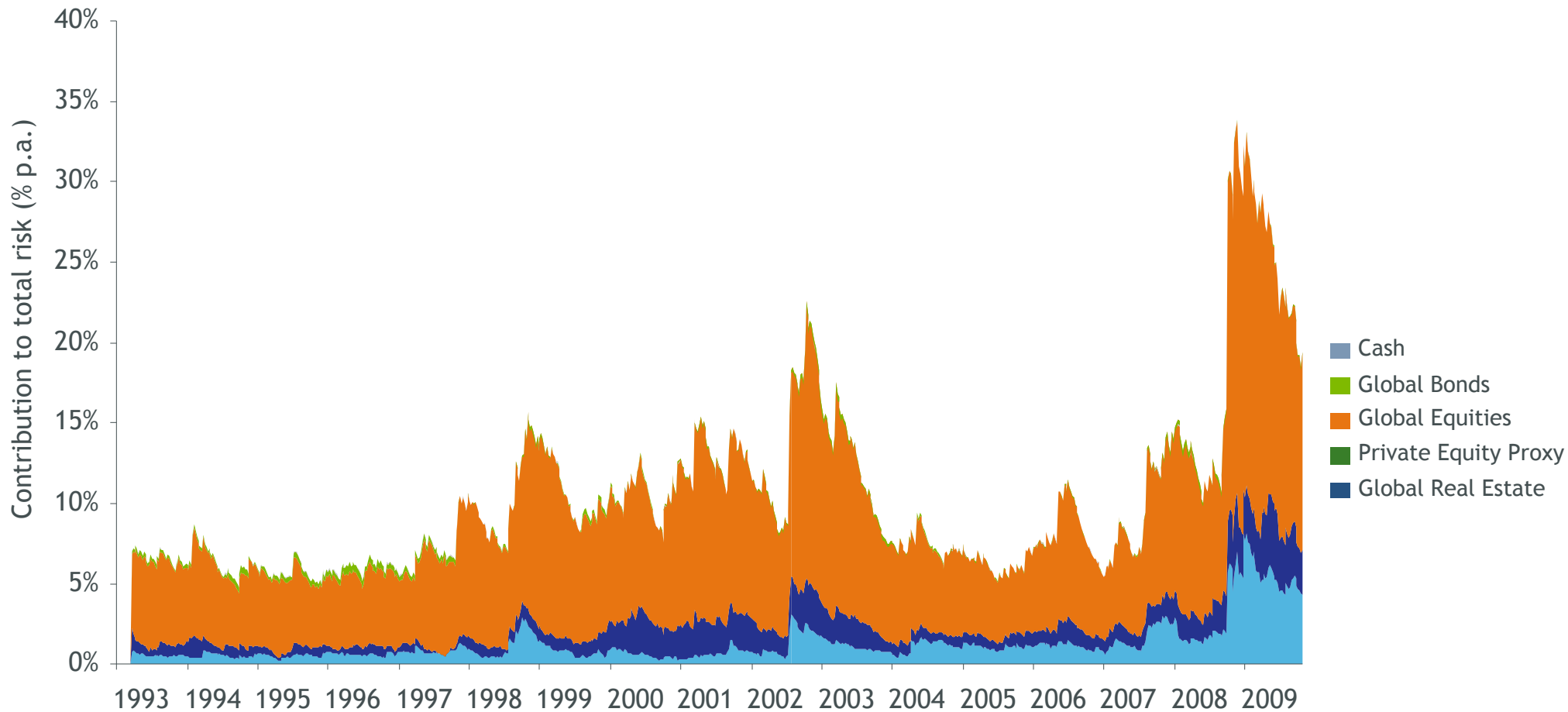


(Assume constant policy with quarterly rebalancing)

Source: Barclays Capital, BlackRock, FTSE EPRA NAREIT, JP Morgan, McKinsey, MSCI, Thomson Financial - Datastream

Static Asset Allocation \neq Constant Risk Portfolio

Volatility of stylised “Sovereign Wealth Fund”

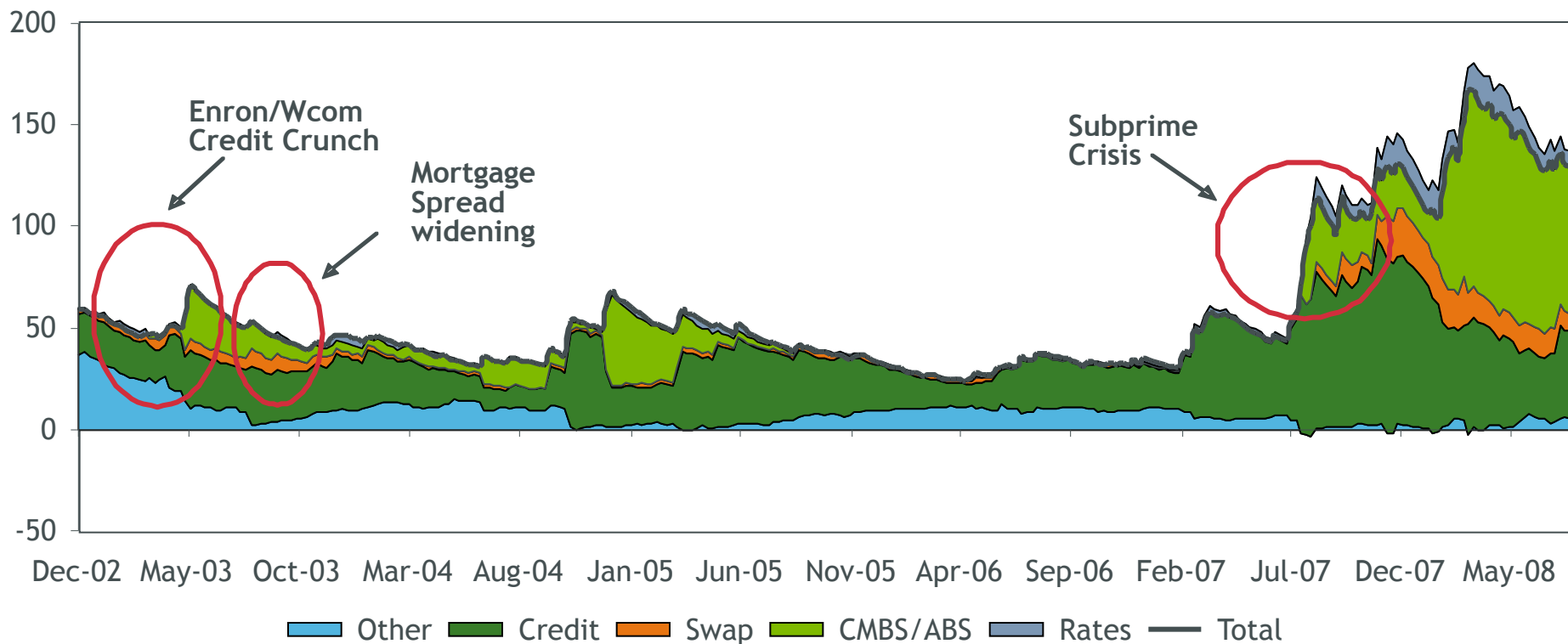


Actual risk - and its composition - is not constant with static asset allocation

Source: Thomson Financial - Datastream (Barclays, DJ STOXX, FTSE EPRA/NAREIT, MSCI, JP Morgan), Bloomberg (BofA Merrill Lynch)

Volatility of Market Risk Composition – Constant Fixed Income Portfolio

The composition of risk in an identical portfolio can also change radically due to market volatility. Historic Risk Holding Positions Constant

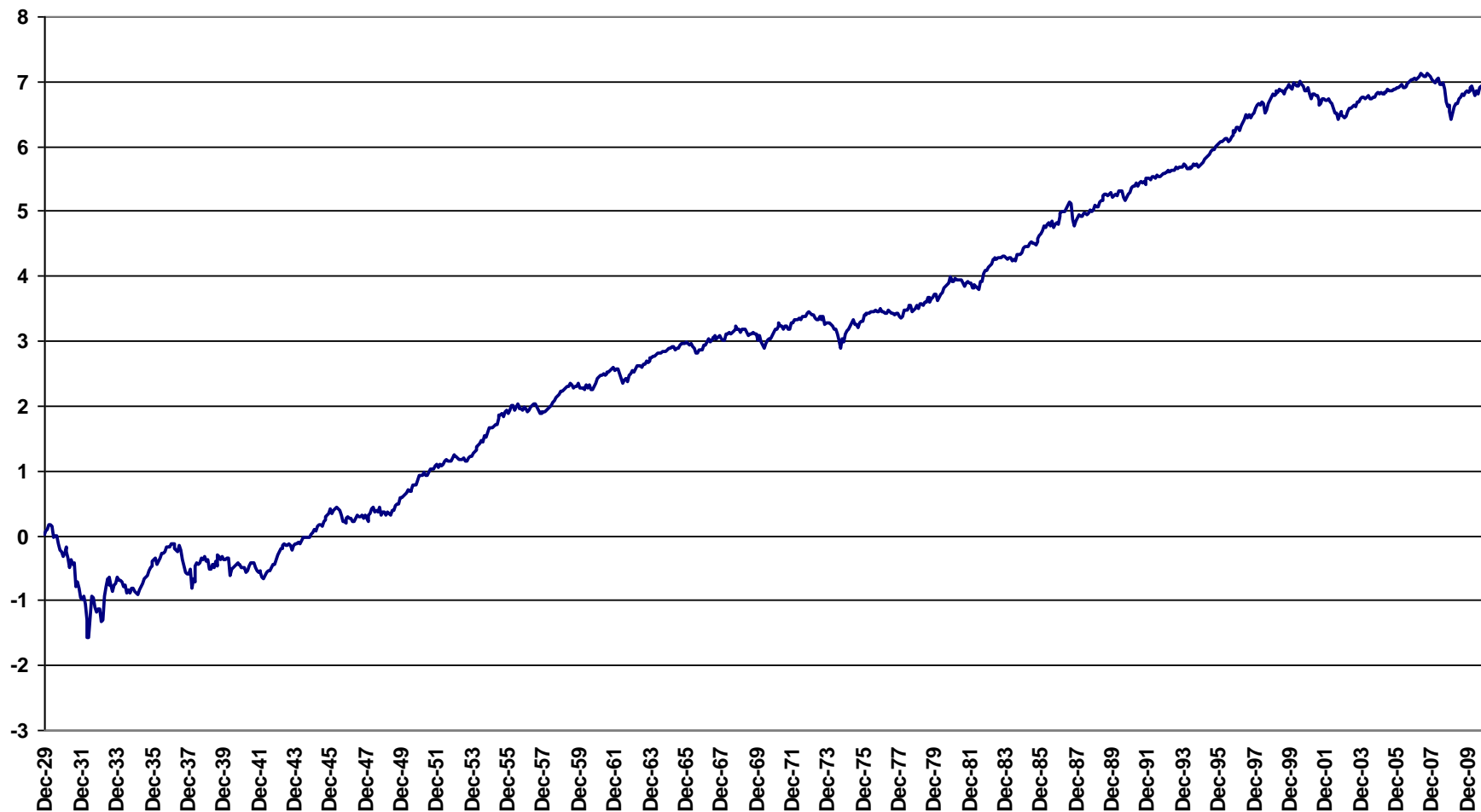


Risk and its composition are not stable
Mechanistic approaches to total risk or active risk can be inappropriate

Source: BlackRock

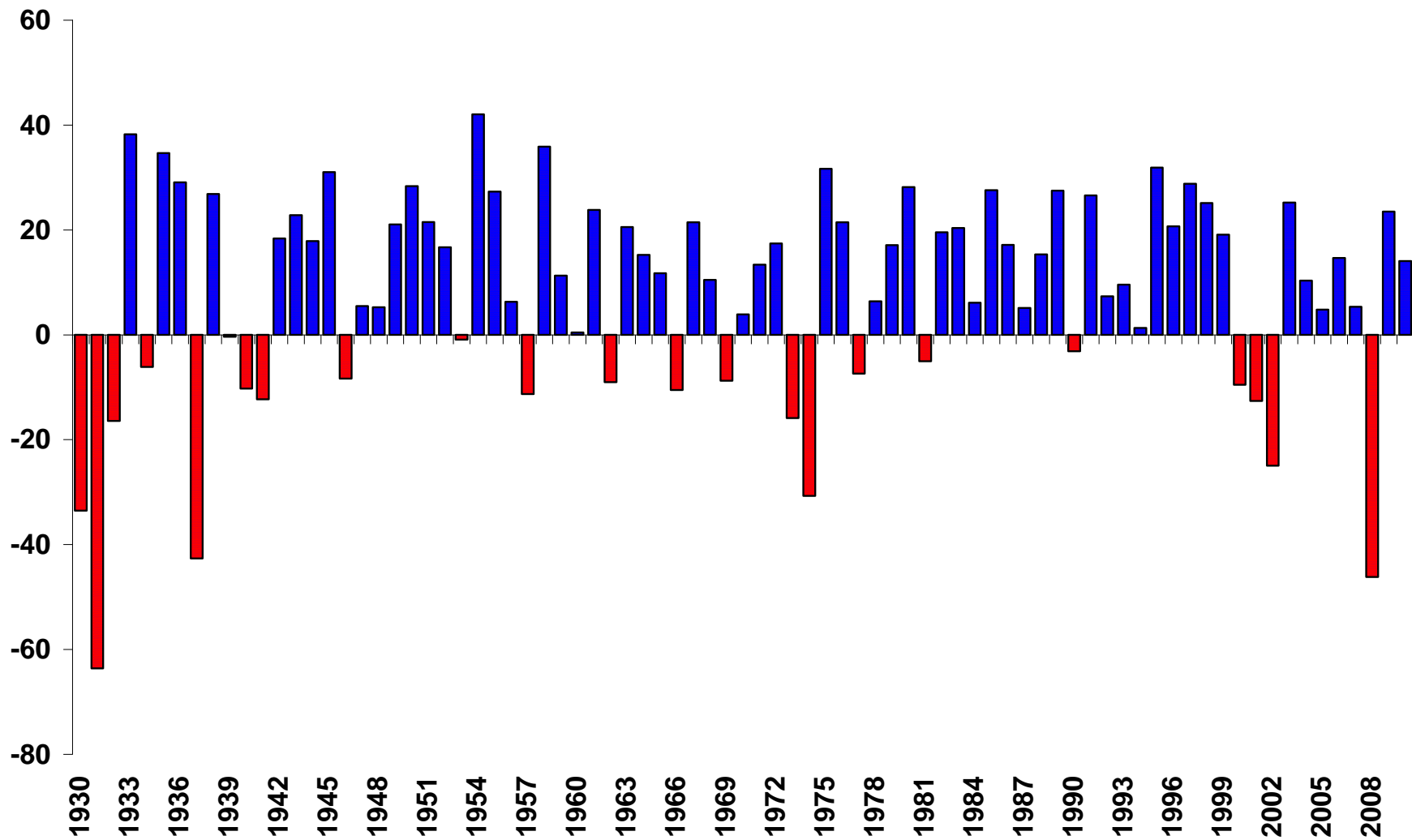
Equity Returns Through Time

S&P 500 Cumulative Total Returns



Source: Bloomberg

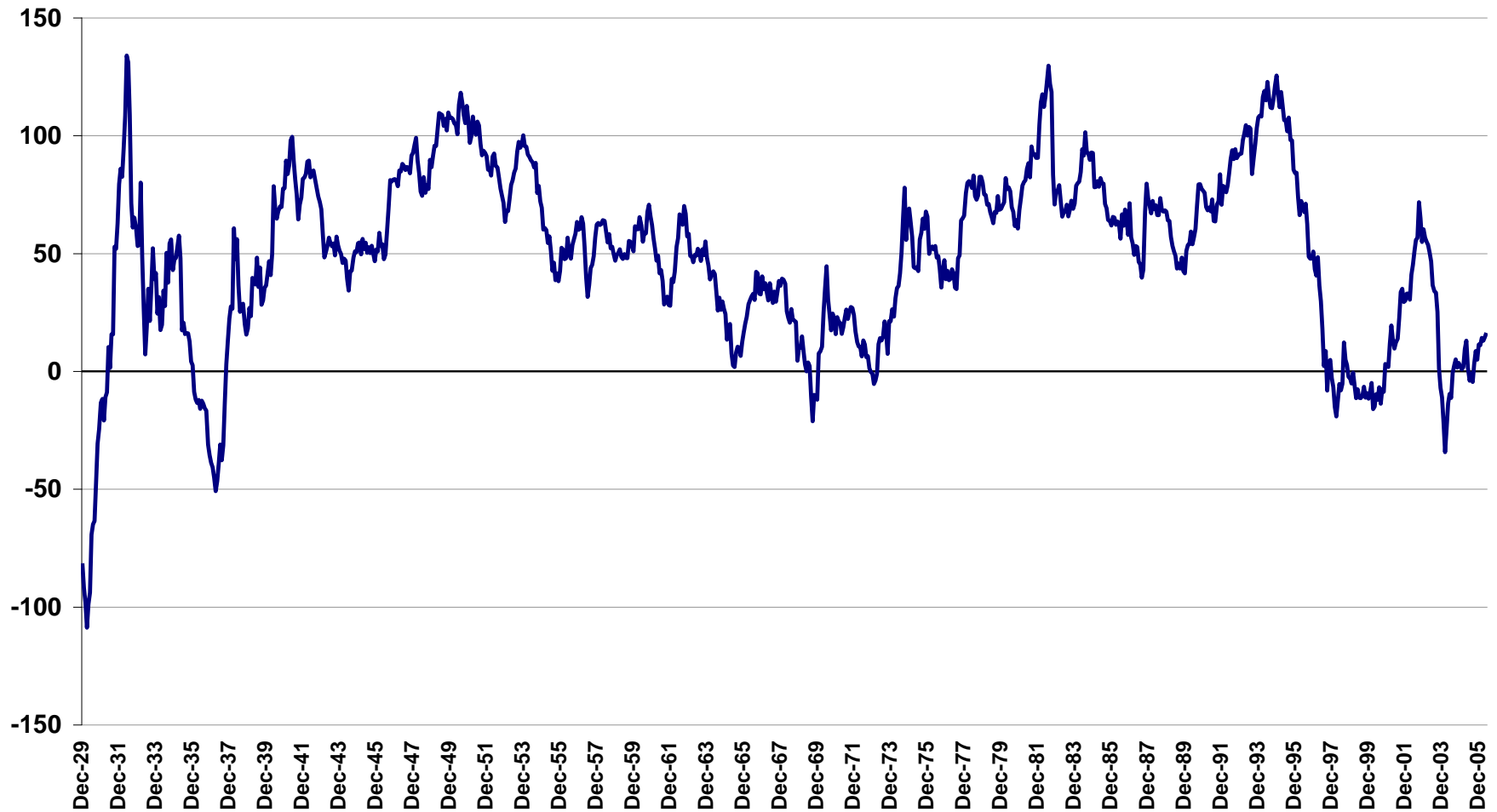
Equity Returns – 1Y Nominla Total Return – S&P500



Source: S&P500, BlackRock

Equity Returns Through Time – Rolling 5 Years Total Return

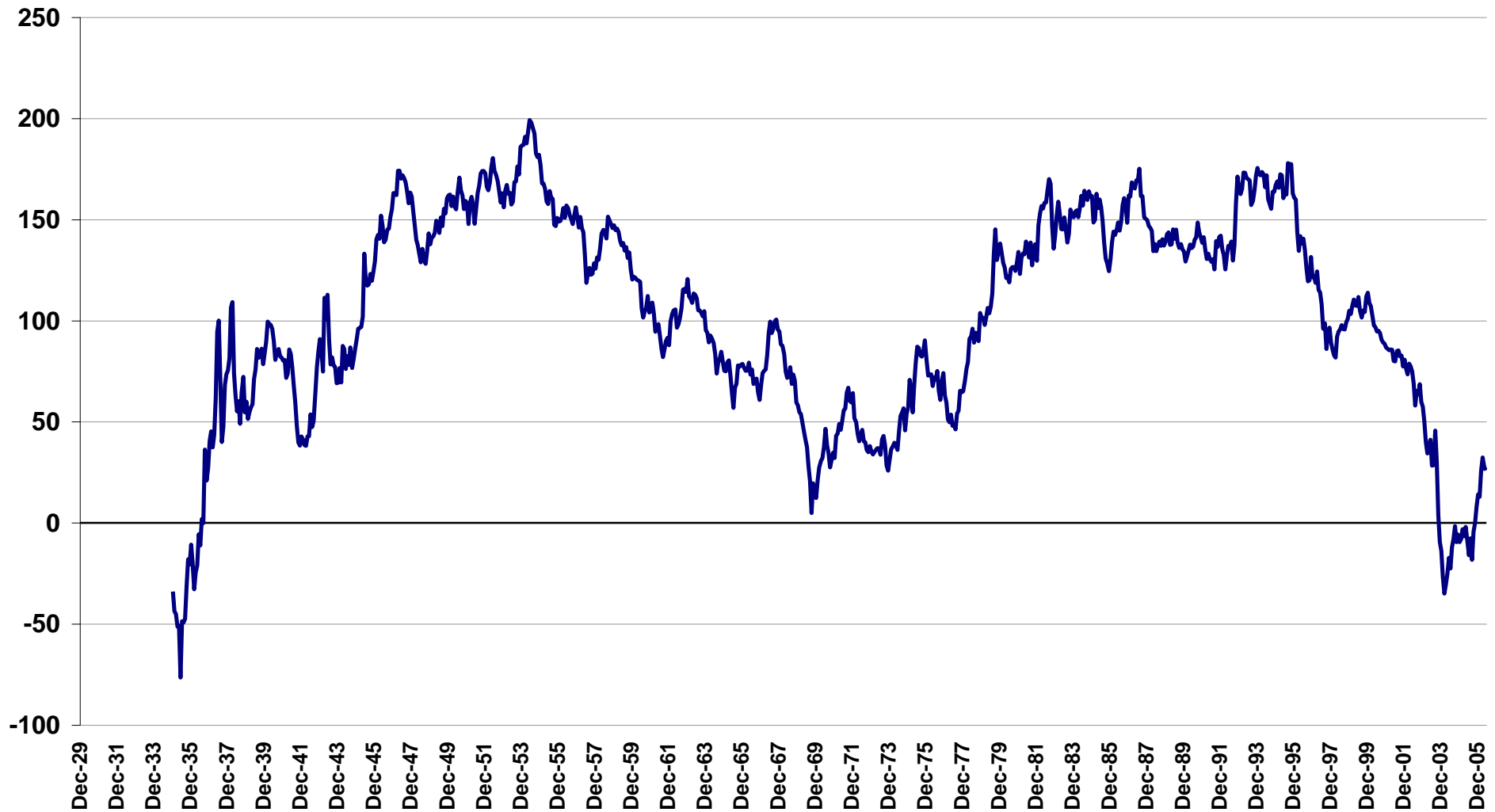
S&P500 Rolling 5Y Nominal Returns



Source: S&P500, BlackRock

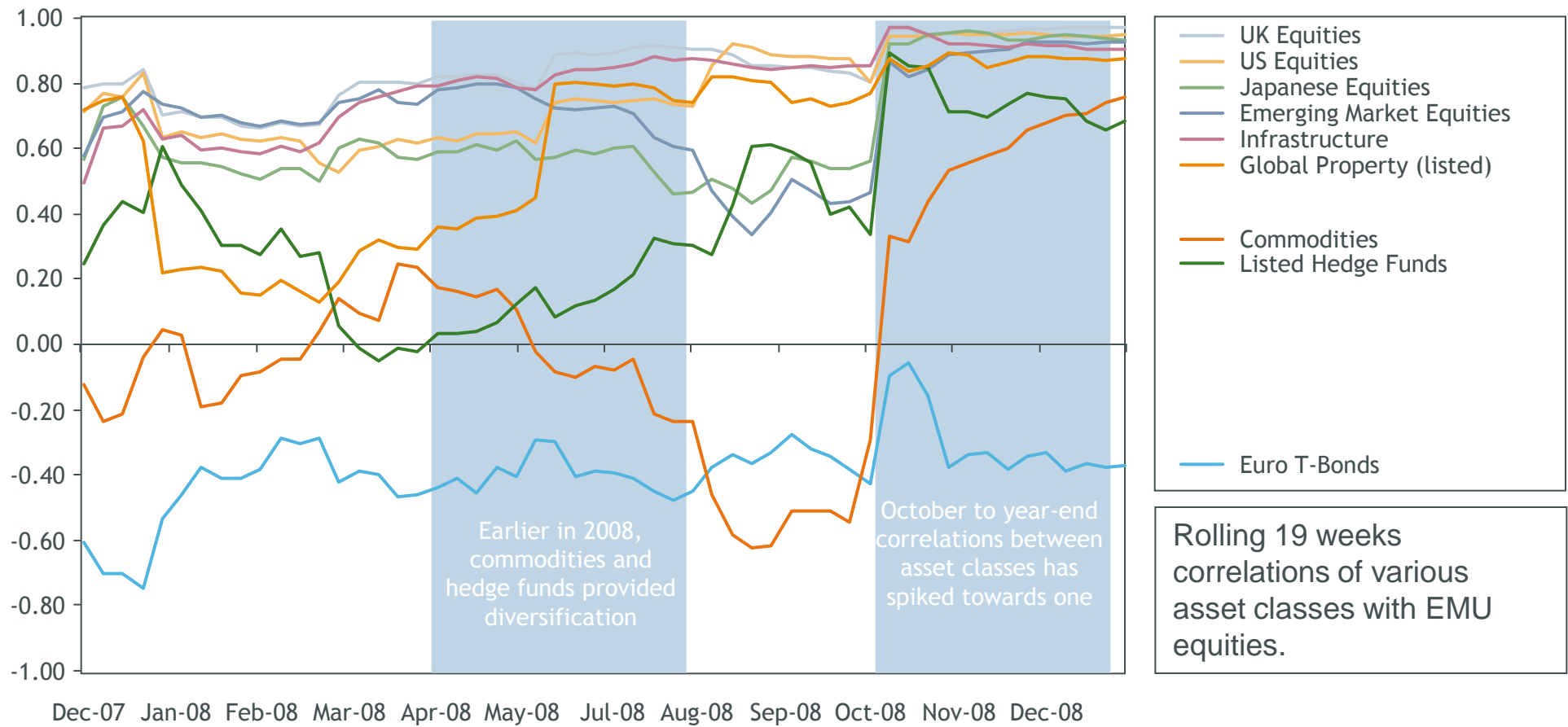
Equity Returns Through Time – Rolling 10 Years Total Return

S&P500 Rolling 10Y Nominal Returns



Source: S&P500, BlackRock

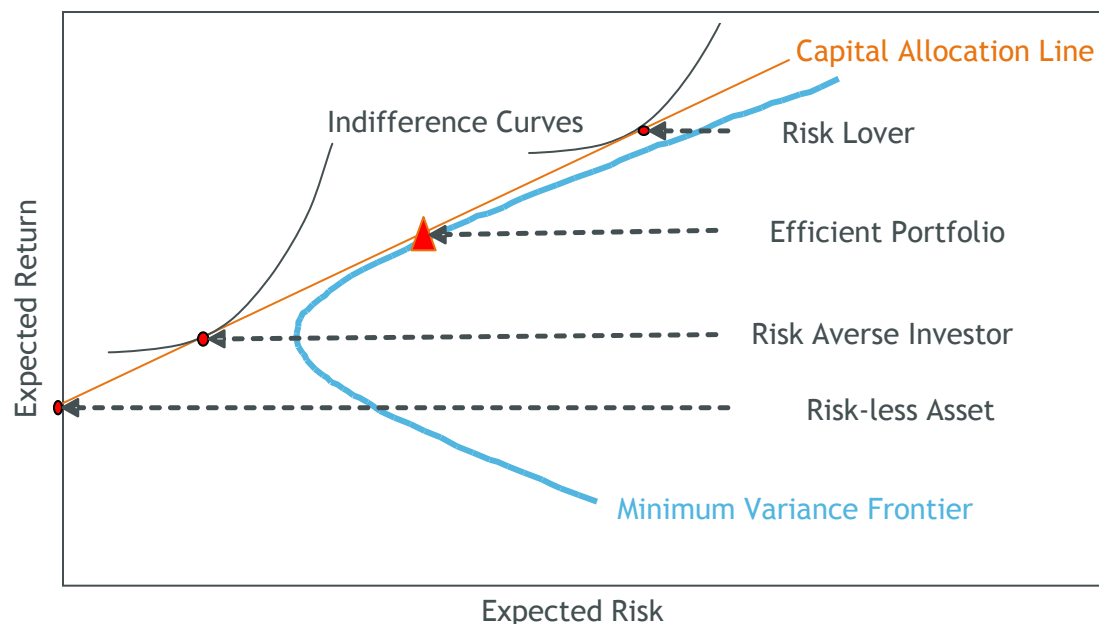
Correlations are far from constant



Source: AIG, Bloomberg, DAX, Dexion, EPRA / NAREIT, FTSE 100, iBoxx, Nikkei 225, MSCI EM, S&P500, UBS. 20w correlations with DAX in local currencies

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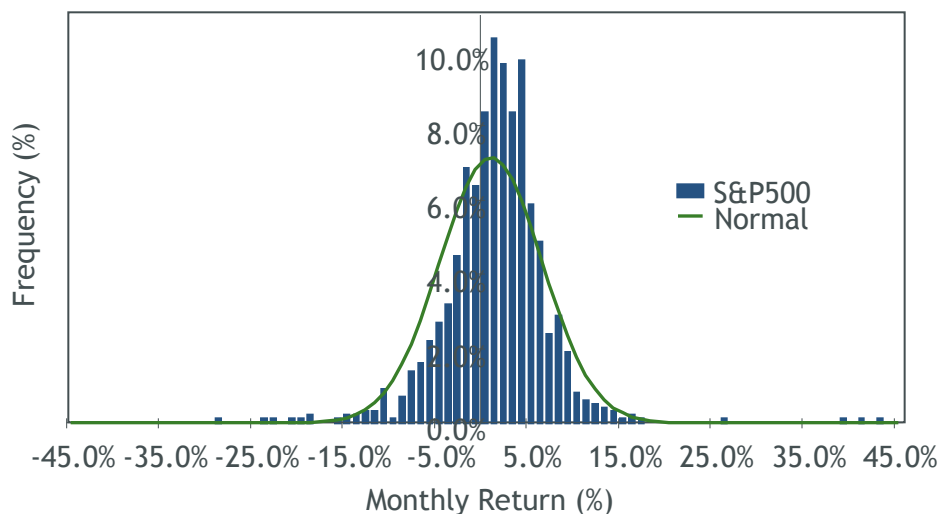
Source: BlackRock, illustrative example only

Equity return distributions and quadratic utility functions?

Historical monthly returns of US equities

- Had an annualised, inflation-adjusted return of 6.5% and a standard deviation of 19.3% p.a.
- Were positively skewed, which implies that returns below the mean can be observed more often.
- Were leptokurtic ($12.7 - 3$), i.e. there are fat tails.
- Jarque Bera test suggests non-normality of returns.

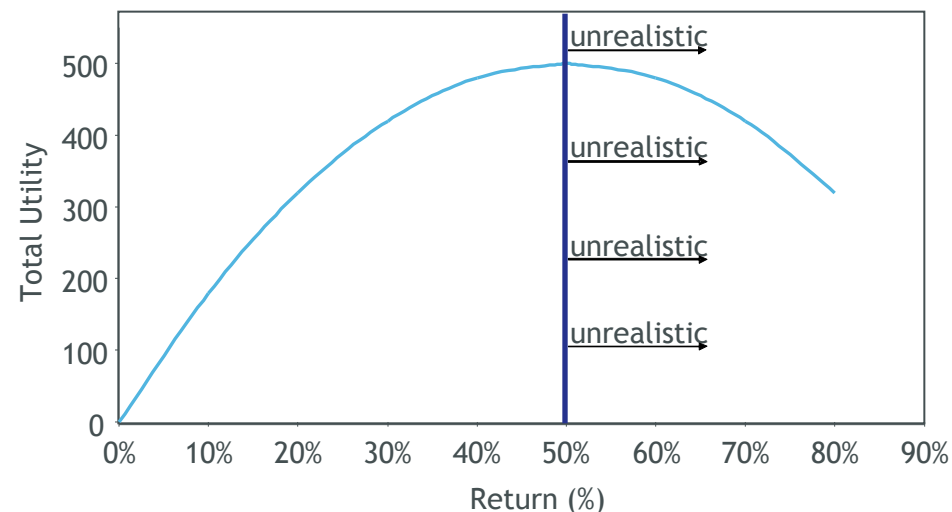
Historical S&P 500 Monthly Real Returns
(Jan 1926 to Sep 2009)



Quadratic Utility Function

- From a certain return level onwards, utility falls as returns increase.
- Only considers return and variance, not higher moments.

Quadratic Utility Function Illustration



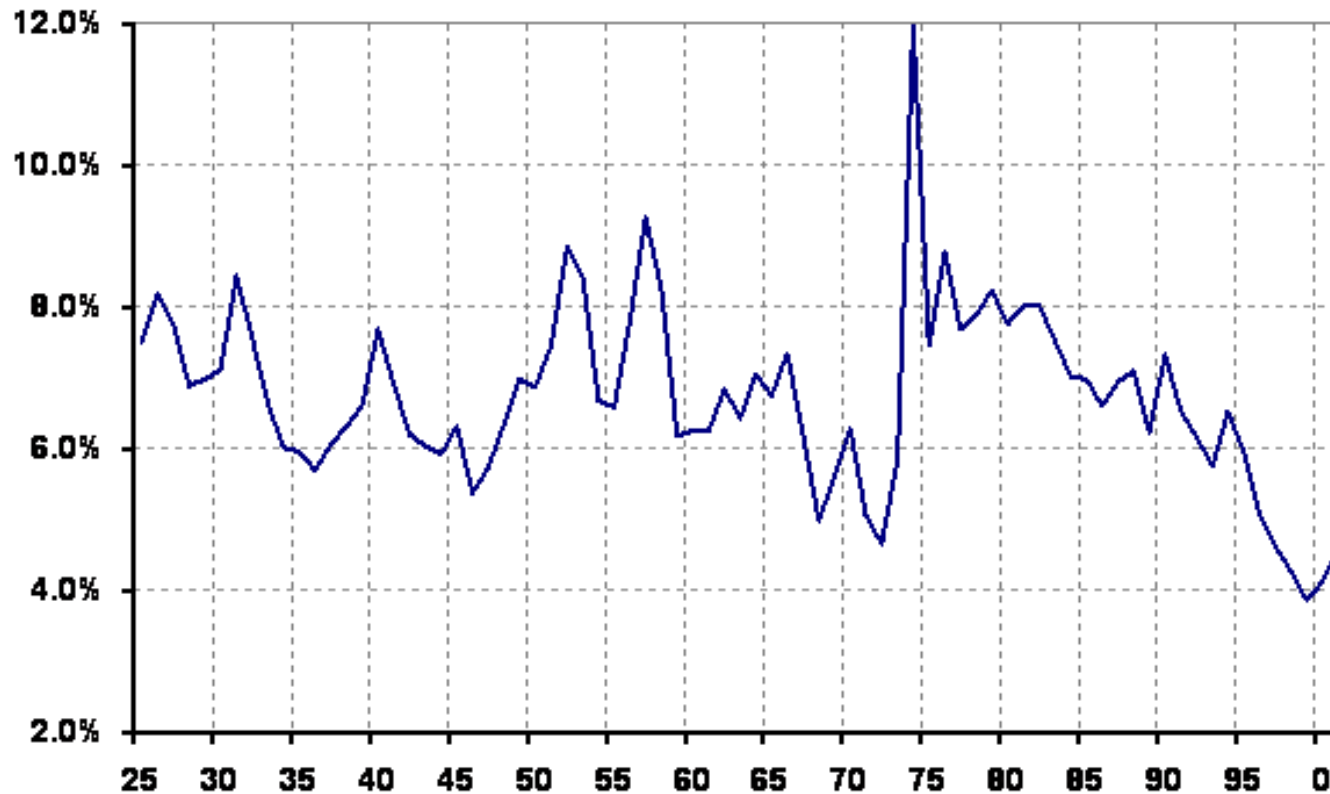
Underlying assumptions are challenged

Source: BlackRock, Ibbotson, S&P

Source: BlackRock

Expected Long Run Returns – UK Equity

Implied Rate of Return on UK Equity Market – 1926 through 2002

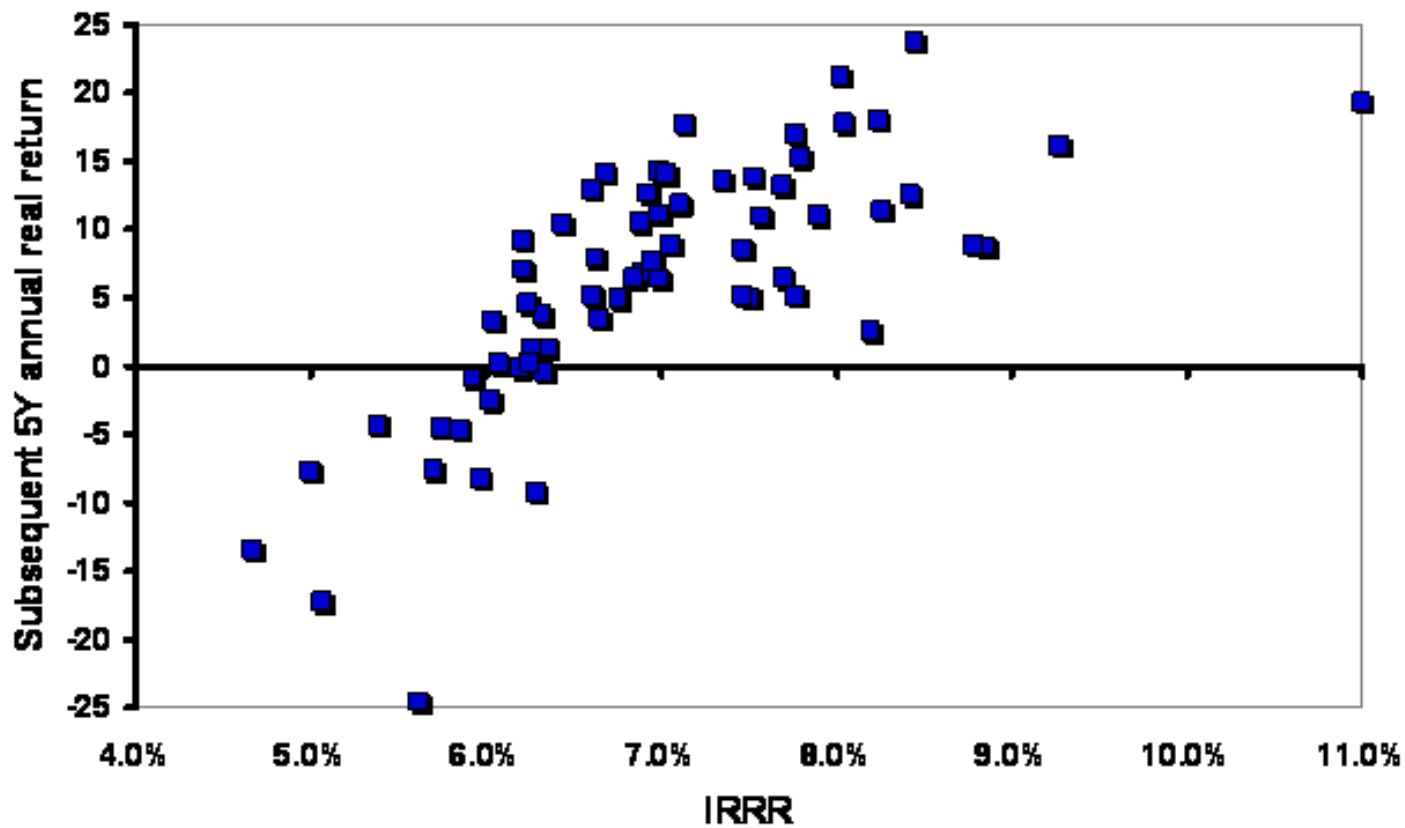


Implied Rate of Return = Dividend Yield + Expected Growth

Source: BZW Equity-Gilt, BlackRock

Implied Return & Ex-Post Return

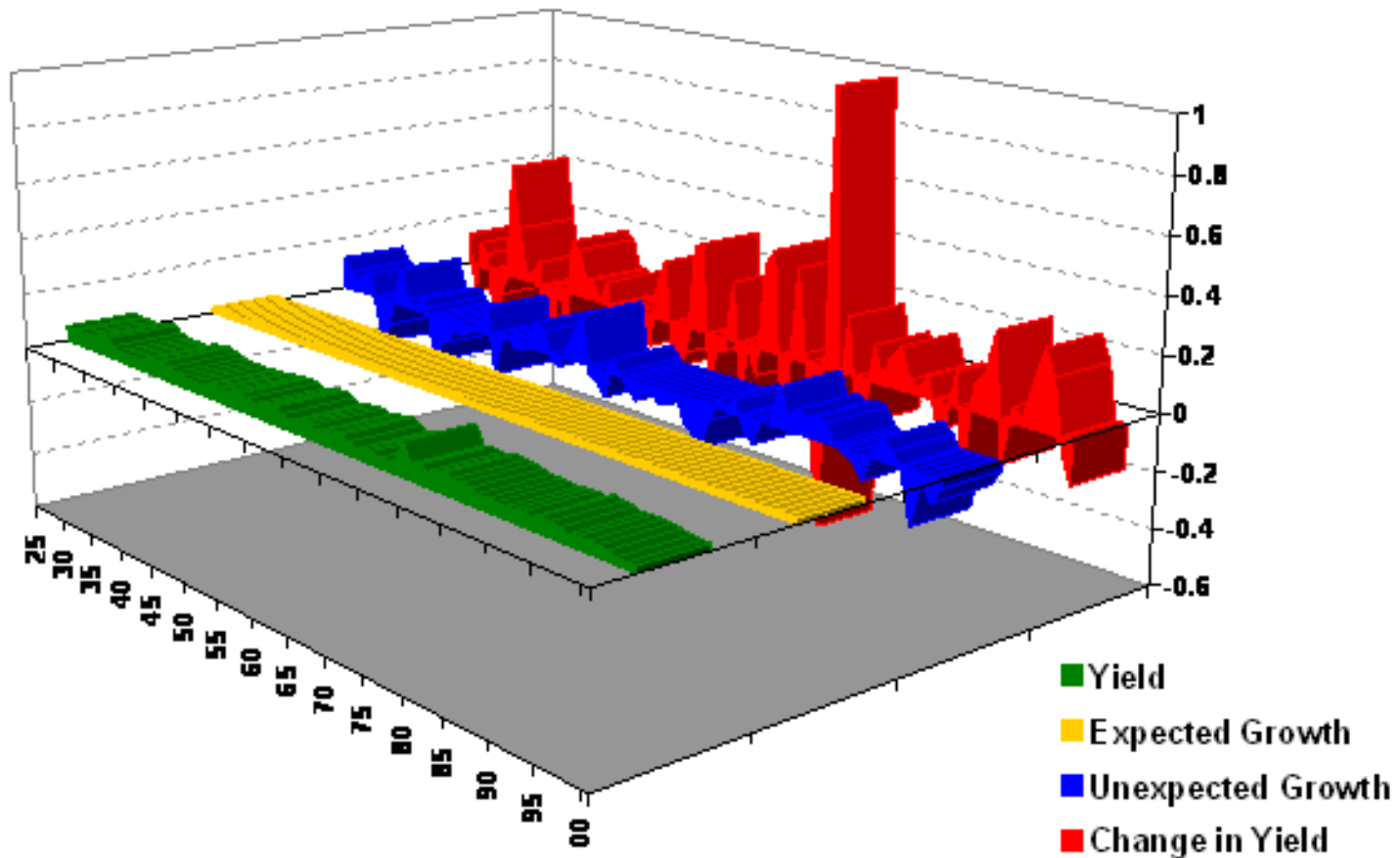
Implied Rate of Return on UK Equity Market & Subsequent 5 Year Return – 1926 through 2002



Source: BZW Equity-Gilt, BlackRock

Equity Return Decomposition – the impact of price – 1 Year

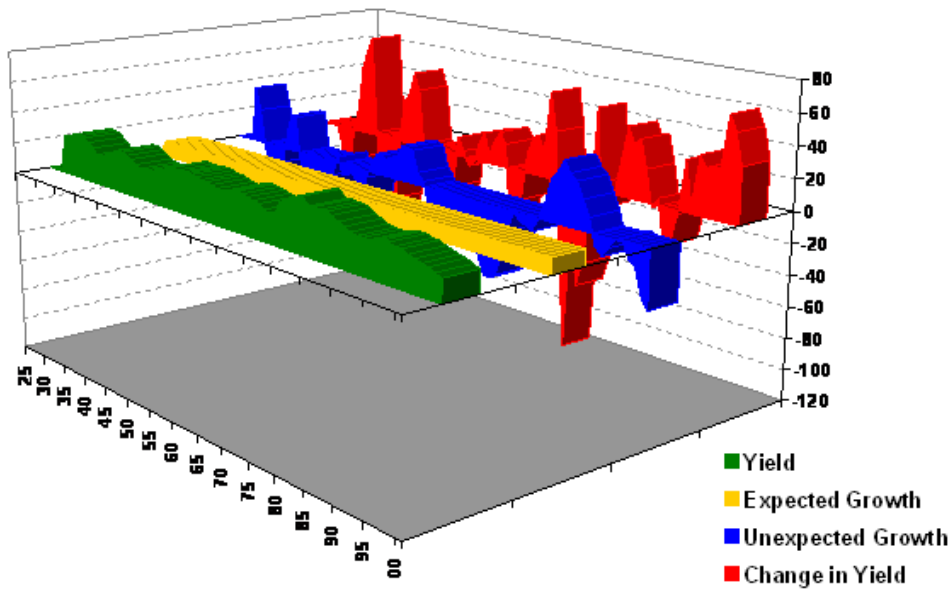
UK Equity – annual decomposition of return into yield, growth, and multiple change – 1926 through 2002



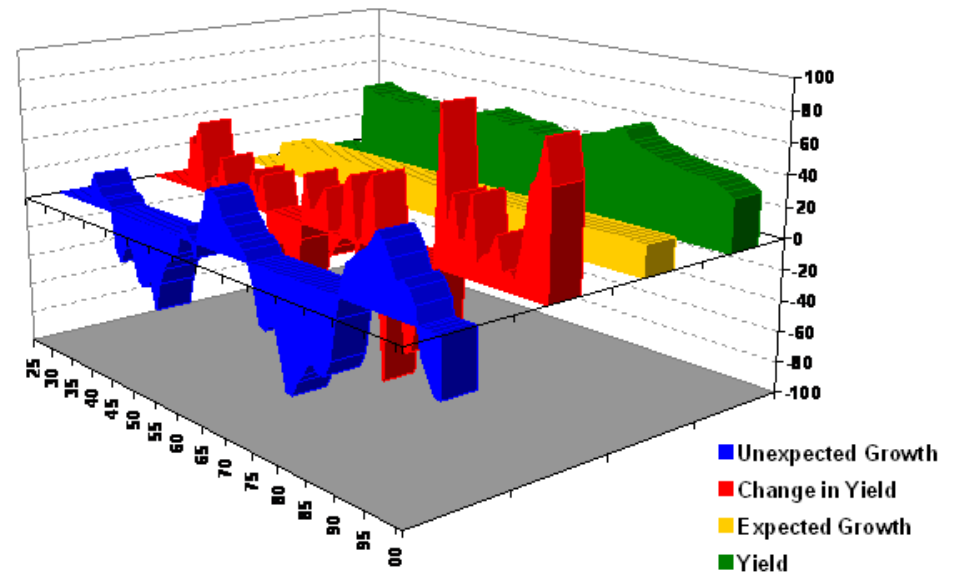
Source: BZW Equity-Gilt, BlackRock

Equity Return Decomposition – the impact of price – 5 and 20 Years

UK Equity – 5 and 20 year decomposition of return into yield, growth, and multiple change – 1926 through 2002



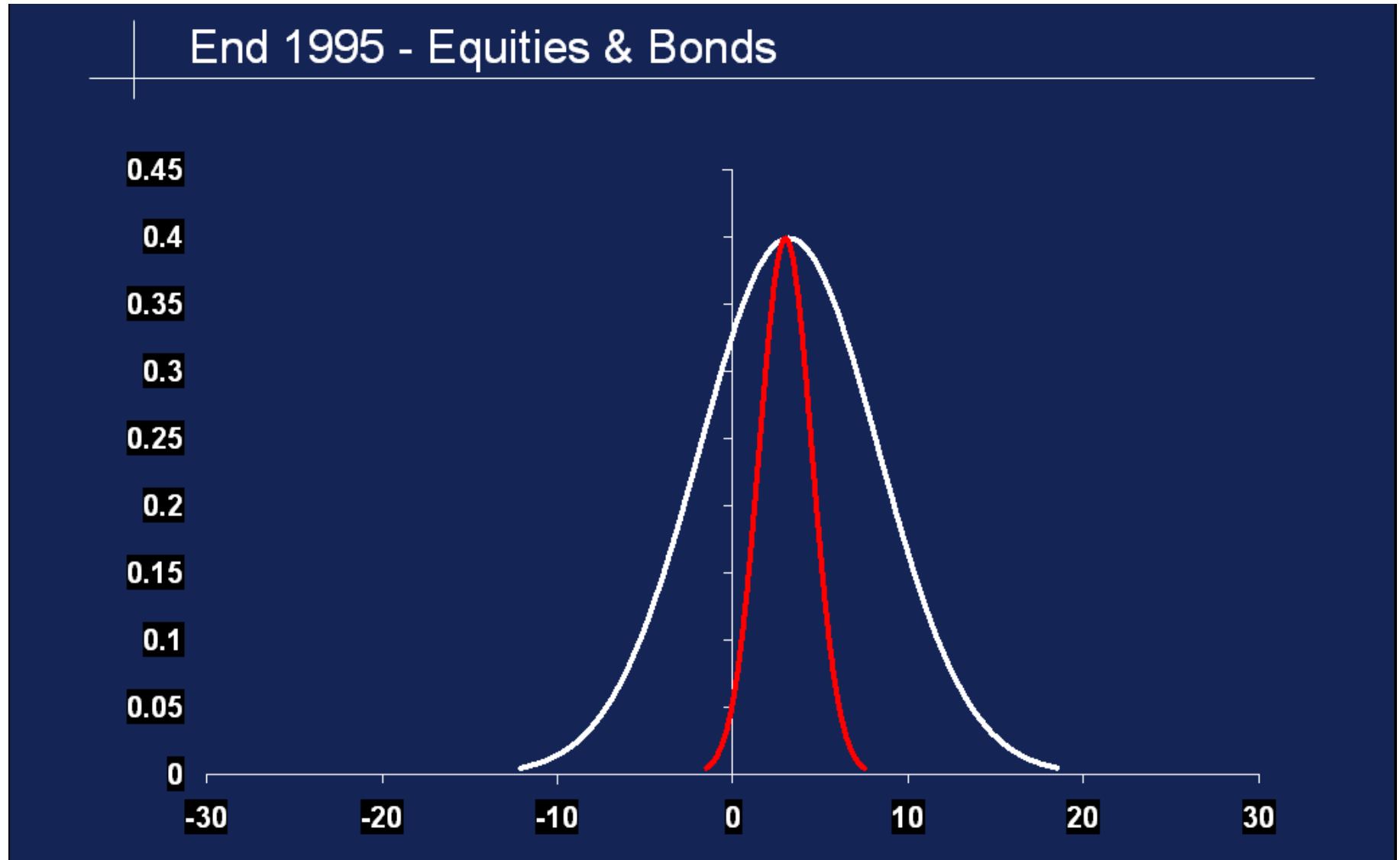
5 Year Decomposition



20 Year Decomposition

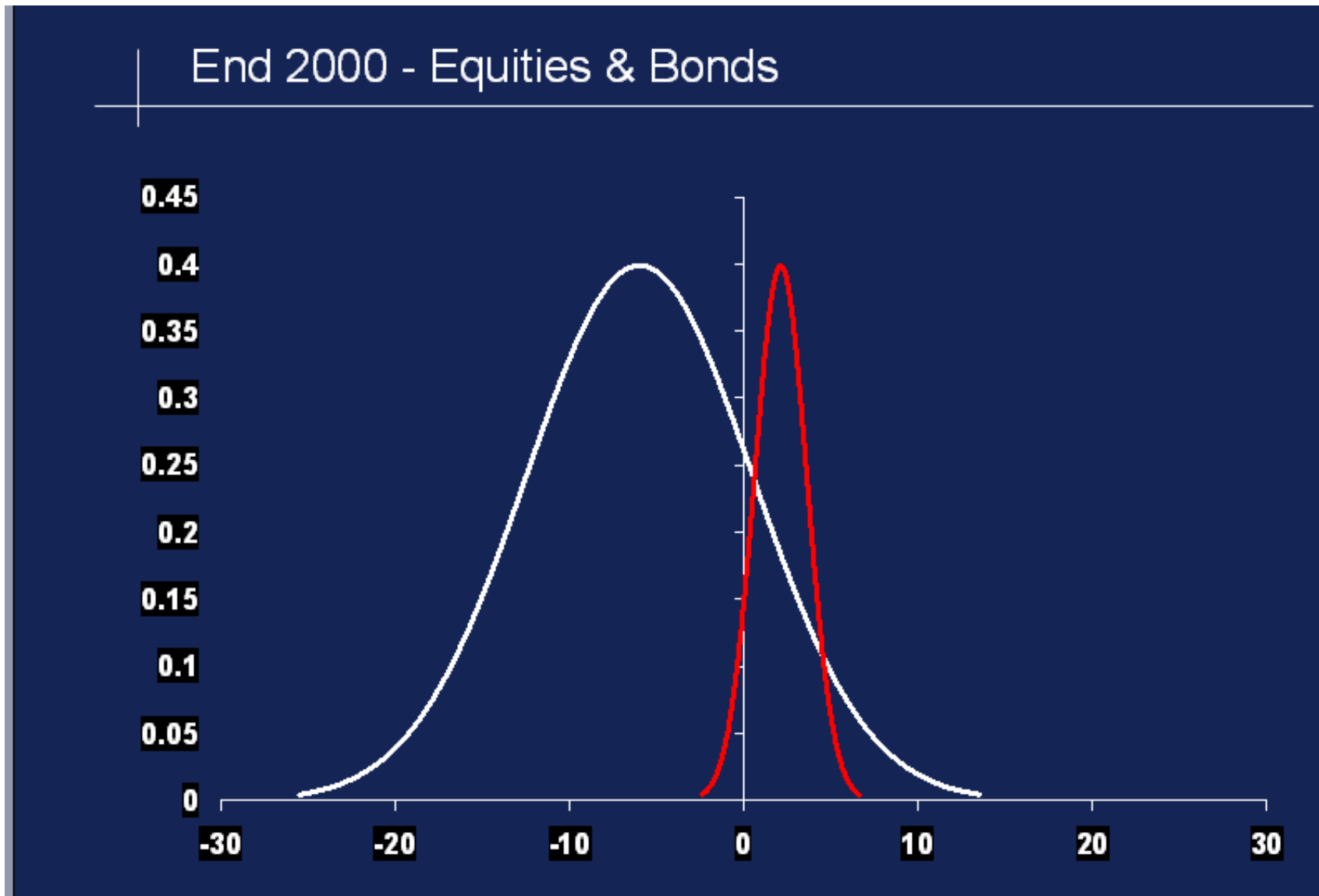
Source: BZW Equity-Gilt, BlackRock

Asset Risk: Volatility & Expected Return



Source: BZW Equity-Gilt, BlackRock

Asset Risk: Volatility & Expected Return



Source: BZW Equity-Gilt, BlackRock

Some Challenges to Conventional Asset Allocation & Risk Management

1. Timeframe inconsistency issue

How to better align the long-term and the short-term?

2. Implicit judgments issue

How to substitute implicit judgment for explicit judgment?

3. Investment process and organisational structure issue

Linking long term, short term, and risk management

4. Flexible Risk Management

Managing risk in rapidly changing markets

Some Conclusions

Investment asset allocation is essentially about allocating a 'risk budget'

Risk should be:

– **Deliberate**

- Hedge where you expect no return from the risk. But be aware that the commitments are uncertain - know the scale of risks that cannot be hedged (e.g. demography for savings funds or production for resource funds)

– **Diversified**

- Asset diversification does not always deliver risk diversification – risks change - check that assumptions about correlation are robust in context and up to date

– **Scaled**

- Level of each risk position (which changes!) should be appropriate to the degree of conviction about that position and the risk tolerance of the fund (which changes)

– **Flexible**

- Markets and assumptions change, the position of the fund can also change (e.g. regulation) – positions should be regularly reviewed for new threats and opportunities so that investment views are explicit – the process is dynamic

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