Active vs Passive

How Will the World of Investing Evolve?

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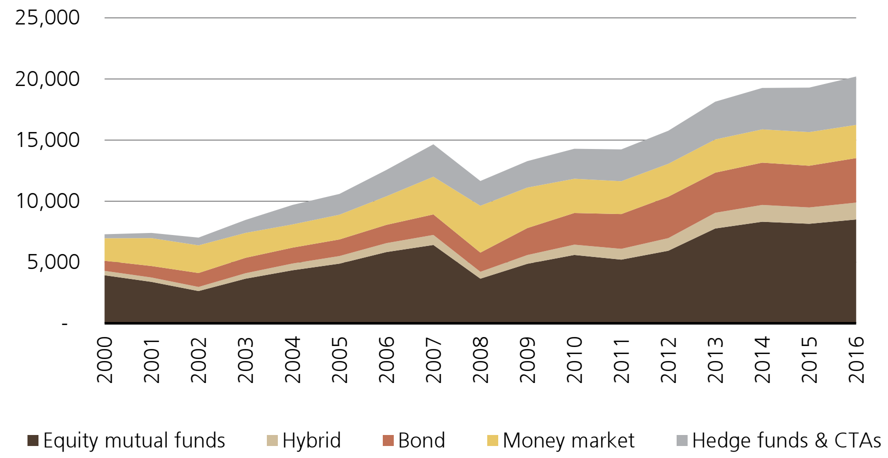
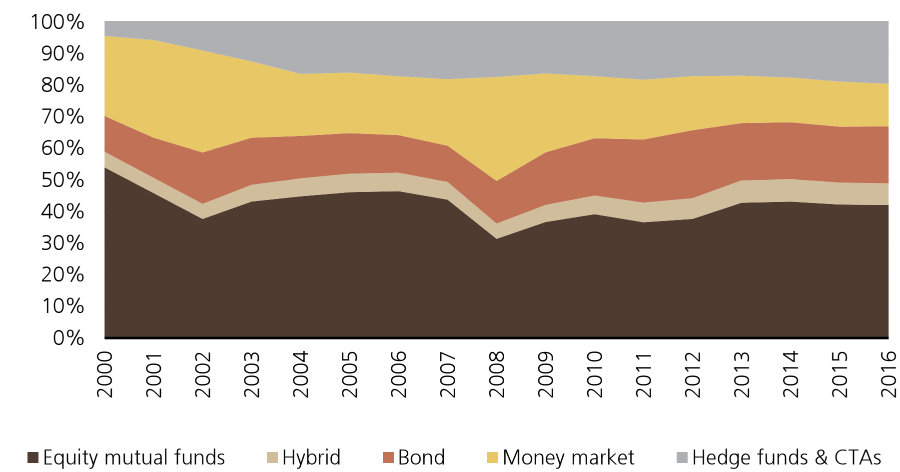
Flow across asset classes

Net assets by asset class (U$ bn)



Source: Investment Company Institute, Barclayhedge, UBS Quant

Share of net assets by asset class



Source: Investment Company Institute, Barclayhedge, UBS Quant

- All asset classes have gained assets
- Money market funds and equity funds have given up share to bond funds and hedge funds
- Hedge funds are the clear winner growing from 3% to 16%

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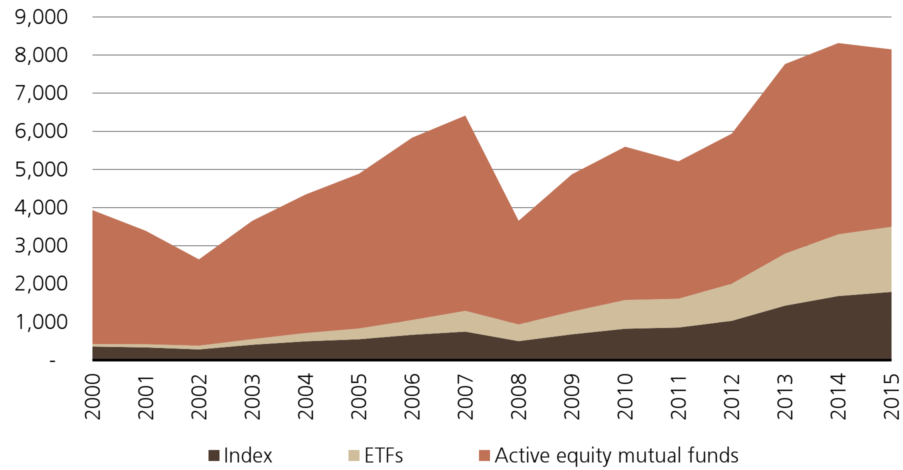
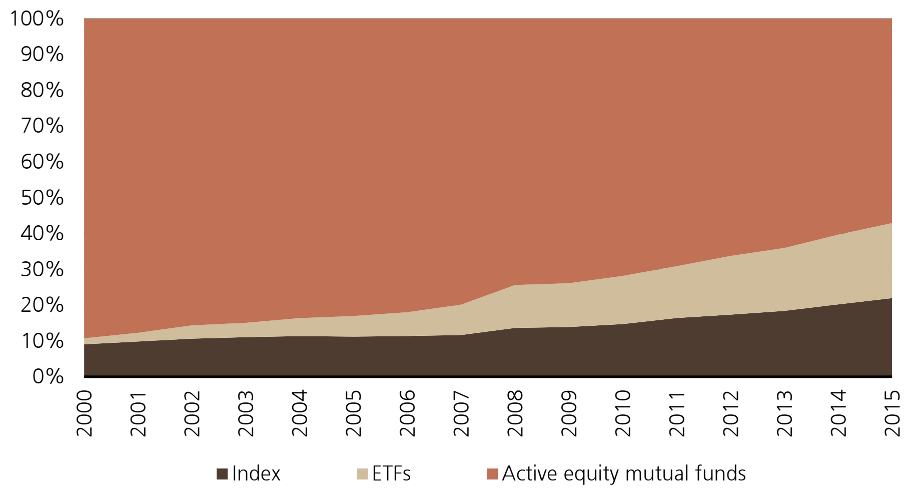
Flow within equities

Net assets by fund type (U$ bn)



Source: Investment Company Institute, Barclayhedge, UBS Quant

Share of net assets by fund type



Source: Investment Company Institute, Barclayhedge, UBS Quant

- All equity assets have grown over the past 16 years
- The share allocated to ETFs and Index Funds has increased significantly from 11% in 2000 to 43% in 2016
- Index funds have grown from 9 to 22%
- ETFs have grown from 2% to 21%

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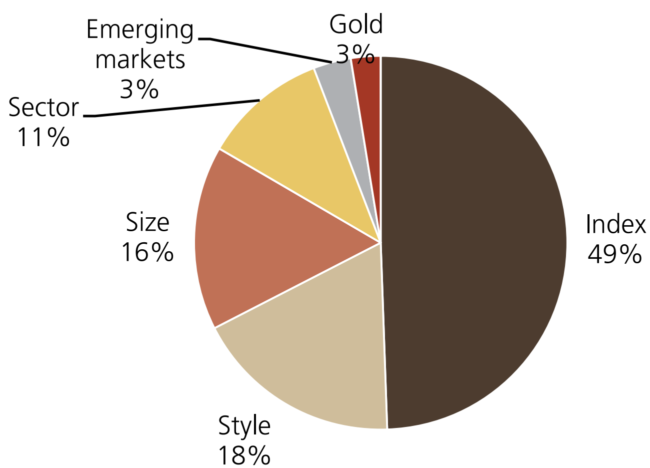
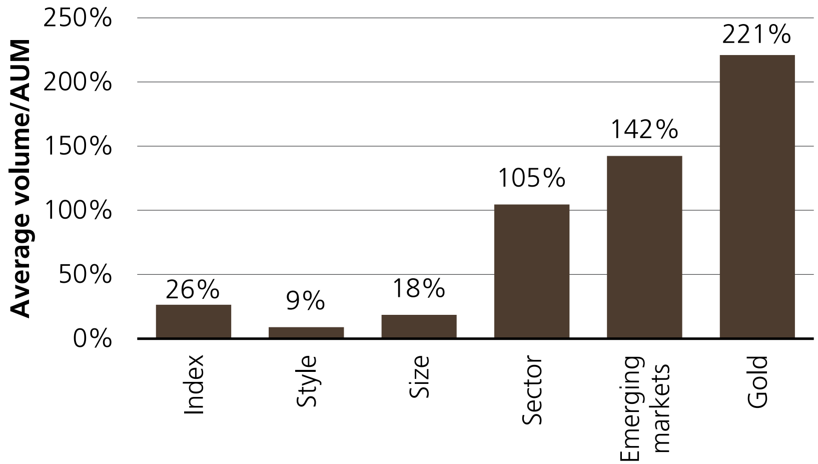
ETFs does not equal passive investments

Share of AUM by strategy



Source: ETFDB, UBS Quant

Liquidity of ETF strategies



Source: ETFDB, UBS Quant

- Index funds are purely passive
- Index ETFs are partly passive, partly active 'beta' exposures as evidenced by their liquidity
- All other ETFs represent portfolio 'tilts', and as such are active exposures
- Style and size tilts represent fairly permanent portfolio tilts with low levels of liquidity
- Sector, emerging market and gold exposures are the most significant in terms of their liquidity

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A more fundamental rationale

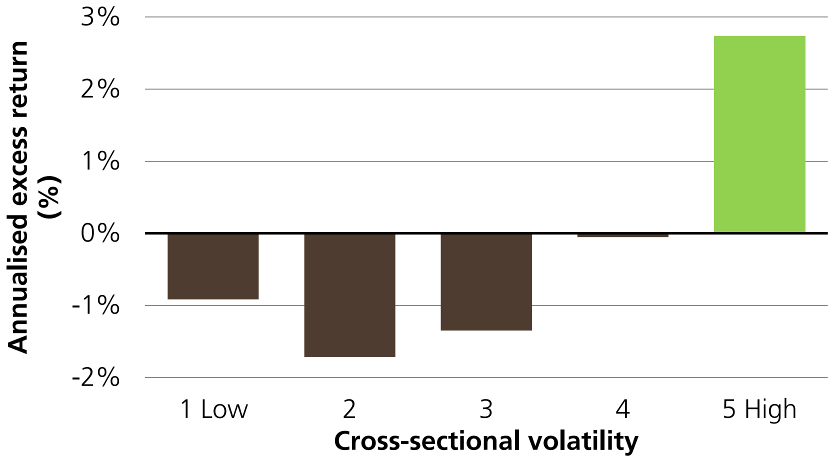
- Investors are moving away from funds that provide 'total market exposure'
- Prefer to split assets into beta, macro factor, sector, style and idiosyncratic risk
- Choose the right exposures at the right price
- Isolating exposures makes it easy to benchmark against competitors and indices
- Performance monitoring against cross-sectional volatility, pairwise correlation
- Hence the increase in assets to:
  - beta exposures (index funds and index ETFs),
  - sector and style exposures (ETFs and sector specialists, especially healthcare, technology, energy and resources)
  - macro/quant/idiosyncratic exposures (hedge funds)
- Quant funds in particular have done well for two reasons:
  - Work at the cutting edge of technology and hence drive significant efficiency gains
  - Understand risk and can decompose and isolate risks

Does active management add value?

- Jensen 1968… active managers do not capture alpha net of fees and expenses.
- Active managers make the market efficient (informed traders)
- Passive managers depend upon market efficiency (uninformed traders)
- A market with 100% of either would be inefficient
- Passive investing is a natural outcome of market efficiency (hedge fund growth)
- Grossman, Stiglitz (1980) 'mostly but not completely efficient'
- Garleanu, Pedersen (2016) information is costly…
- What proportion of the market can be passive?
- The increase in passive is consistent with a market equilibrium that reflects the lower cost of gathering and processing information. Fewer active managers are required
- Market efficiency is driven by technology, data sources and modelling techniques
- Funds that evolve, and funds that focus on idiosyncratic risk (Treynor, 'reflection, judgement and special expertise')

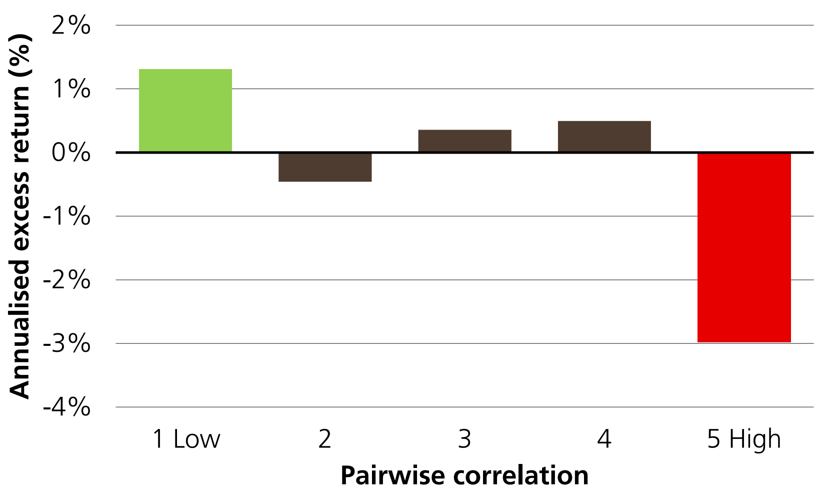
When do active managers outperform?

Cross-sectional volatility and excess returns to active management



Source: Dr Anna von Reibnitz (ANU), Factset, UBS Quant

Pairwise correlation and excess returns to active management



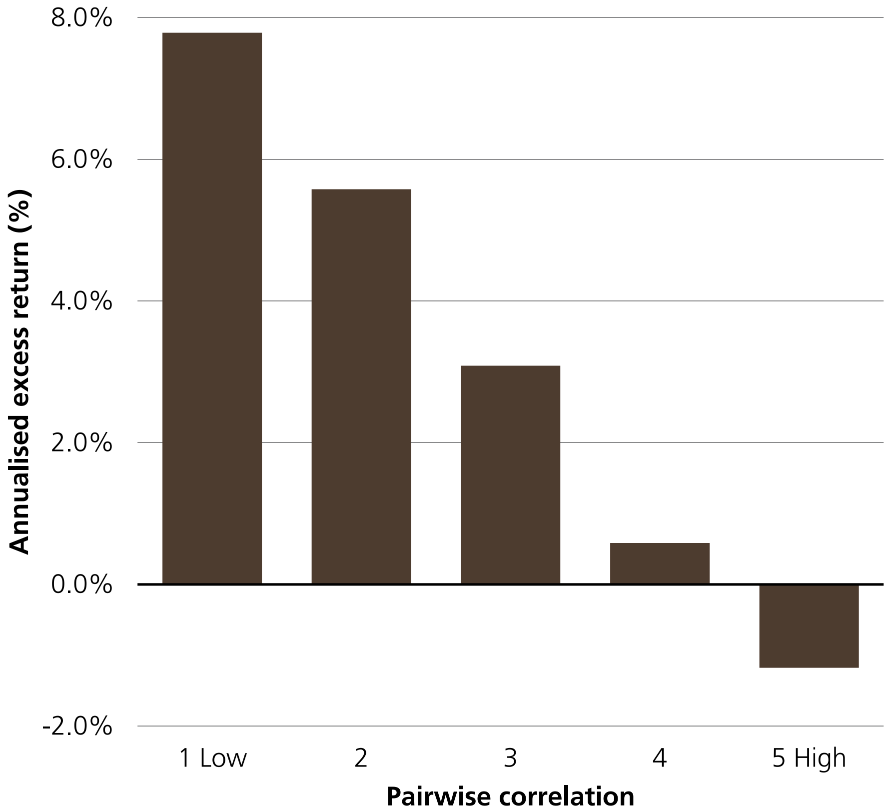
Source: Dr Anna von Reibnitz (ANU), Factset, UBS Quant

- Cross-sectional volatility measures the opportunity set for active managers
- High dispersion = high impact of active bets
- Correlation measures the degree to which stocks are driven by common factors
- High correlation makes it difficult to outperform

Note: excess returns used are post fees and are for all active US equity mutual funds and is survivor bias free. The sample period is 1972 to 2016

The intersection of dispersion and correlation

Pairwise correlation and excess returns to quintile 5 of active management

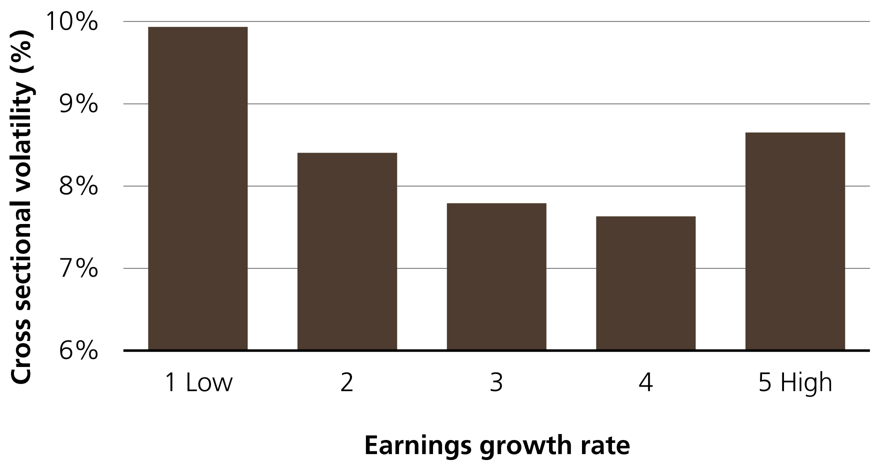


Source: Dr Anna von Reibnitz (ANU), Factset, UBS Quant

- During periods of high dispersion correlation is critical to outperformance.
- So what drives dispersion and correlation?

Understanding the opportunity: dispersion

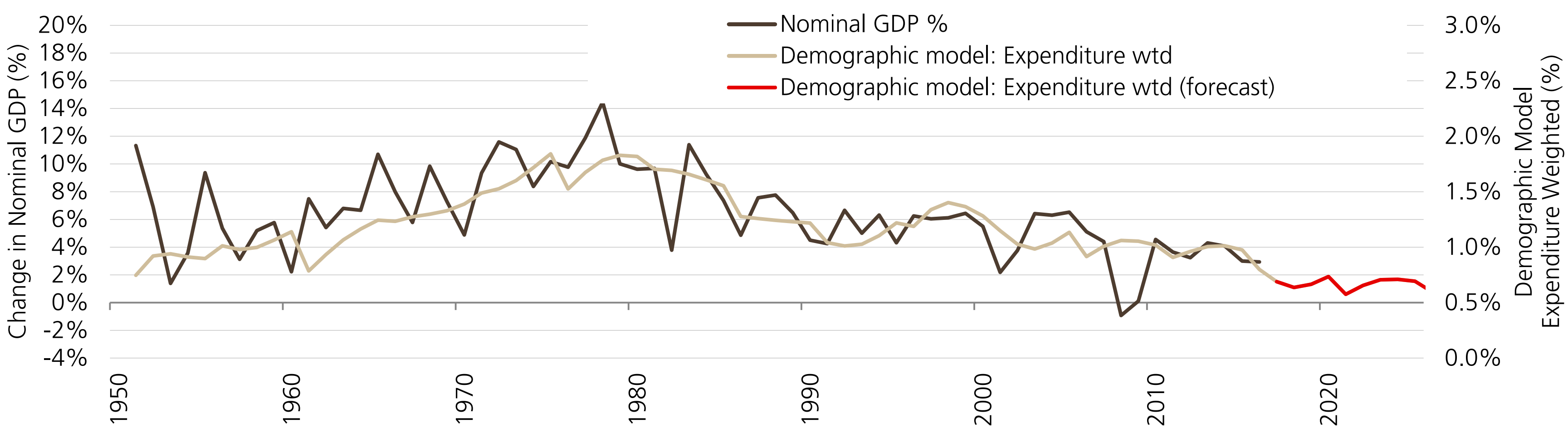
Earnings growth rate and cross-sectional volatility



Source: Factset, UBS Quant

- Return dispersion is driven by certainty in the underlying earnings of the market, which in turn is driven by the earnings growth rate.
- In a world of structurally lower earnings growth, we should expect structurally higher return dispersion.

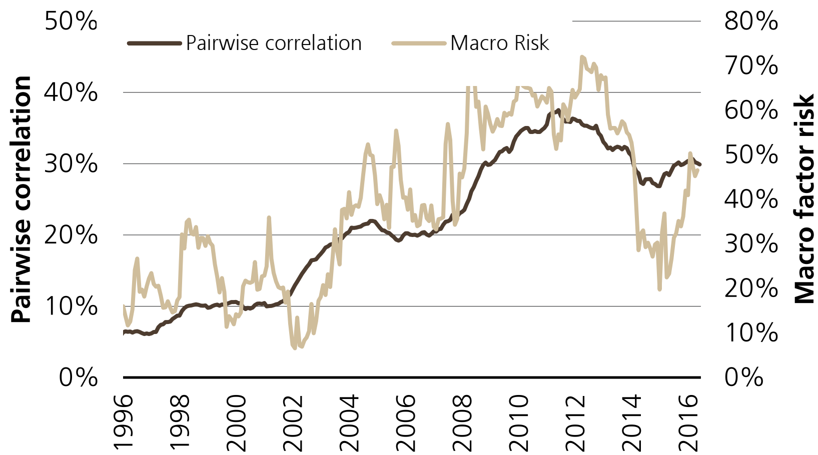
Demographic Model: Expenditure Weighted



Source: Haver, Factset, UBS Quant

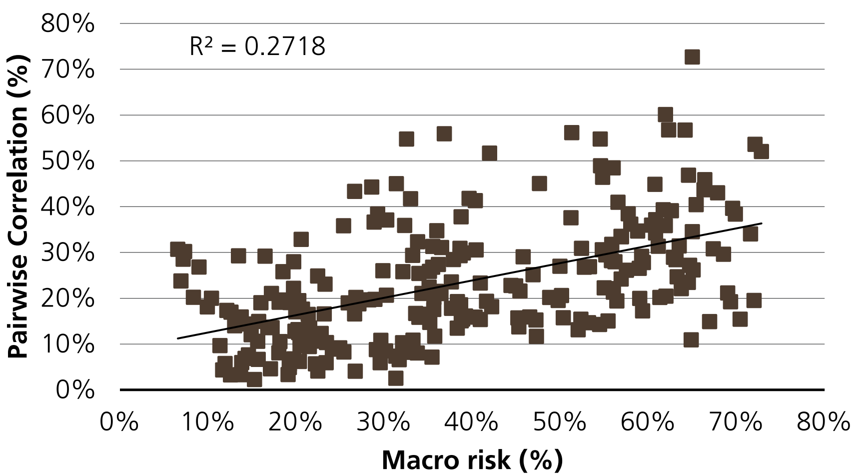
Understanding the opportunity: correlation

Macro factor risk and pairwise correlation (3y)



Source: Factset, UBS Quant. Macro factor risk is calculated as a pooled regression of macro factors against the S&P500 1996 - 2016

Macro factor risk and pairwise correlation



Source: Factset, UBS Quant. Macro factor risk is calculated as a pooled regression of macro factors against the S&P500 1996 - 2016

- Pairwise correlation is driven by common factors driving the market
- These tend to be macro-economic factors
- Despite the fact that earnings growth rates have been tepid, and as a consequence dispersion has been reasonable, active managers have struggled to outperform due to the significance of macro factors driving high levels of correlation in the market
- Two key points:
  - Managers should be evaluated over long horizons
  - Macro factor risk falls into two buckets:
    - Forecastable (rates, currency)
    - Non-forecastable
  - Important to take on risk that is going to be compensated

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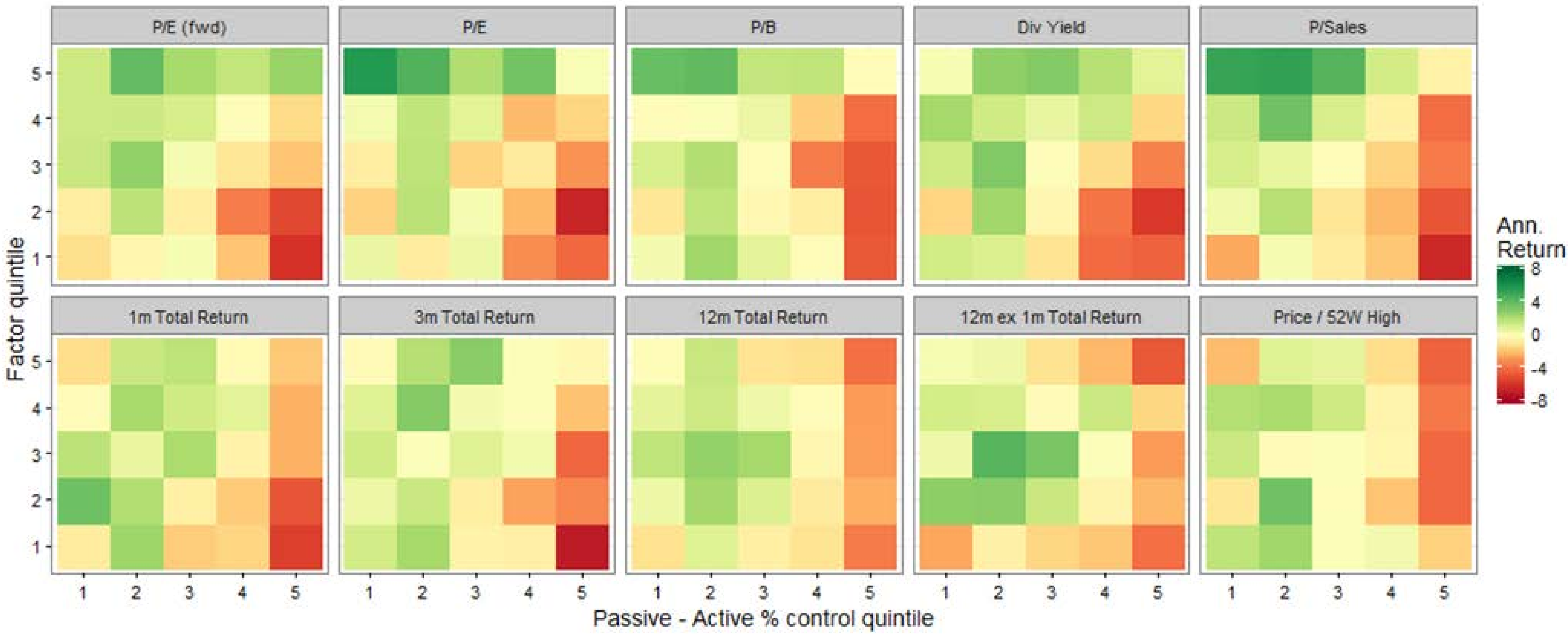
Where's the alpha? Value & Momentum

Passive – Active controlled for sector, size and EM vs DM status



Source: Factset, MSCI, UBS Quant

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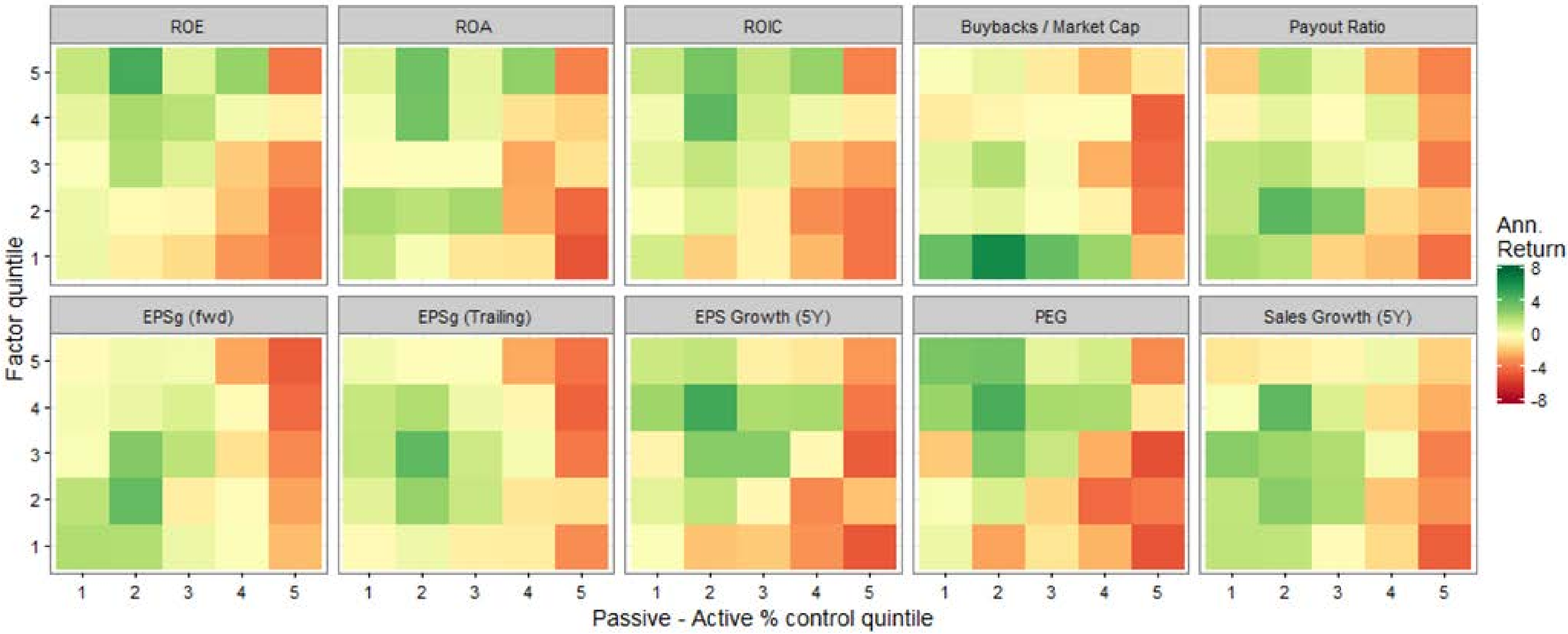
Where's the alpha? Quality & Growth

Passive – Active controlled for sector, size and EM vs DM status



Source: Factset, MSCI, UBS Quant

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Where's the alpha? Sell-side sentiment

Passive – Active controlled for sector, size and EM vs DM status

Source: Factset, MSCI, UBS Quant

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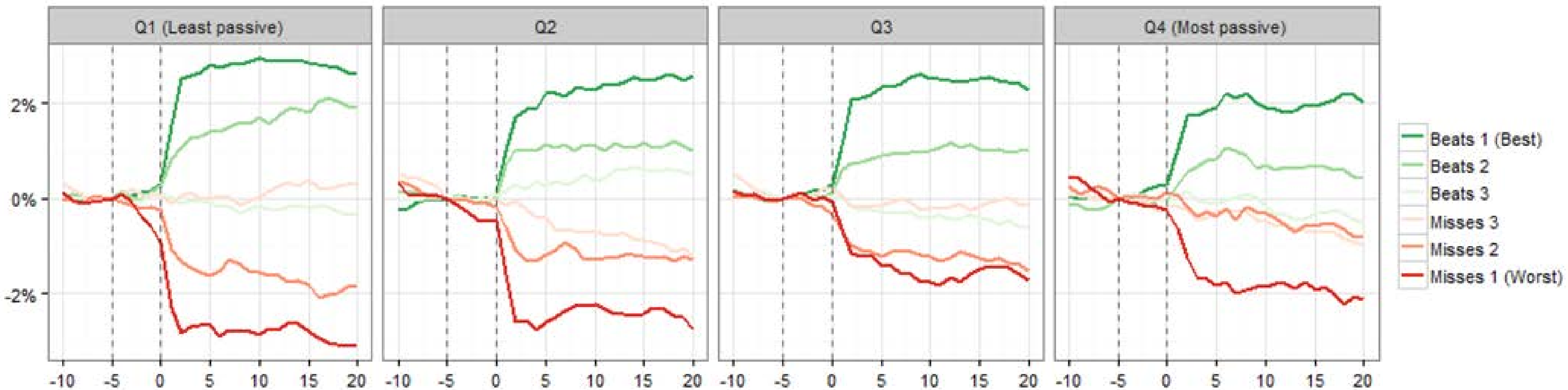
Where's the alpha? Earning surprise

Market reaction to EPS surprises conditioned on passive ownership



Source: IBES, Factset, MSCI, UBS Quant

$$SUE = \frac{\text{Actual EPS} - \text{Surprise Mean EPS}}{\text{Standard Deviation of EPS}}$$

Where to deploy active mandates

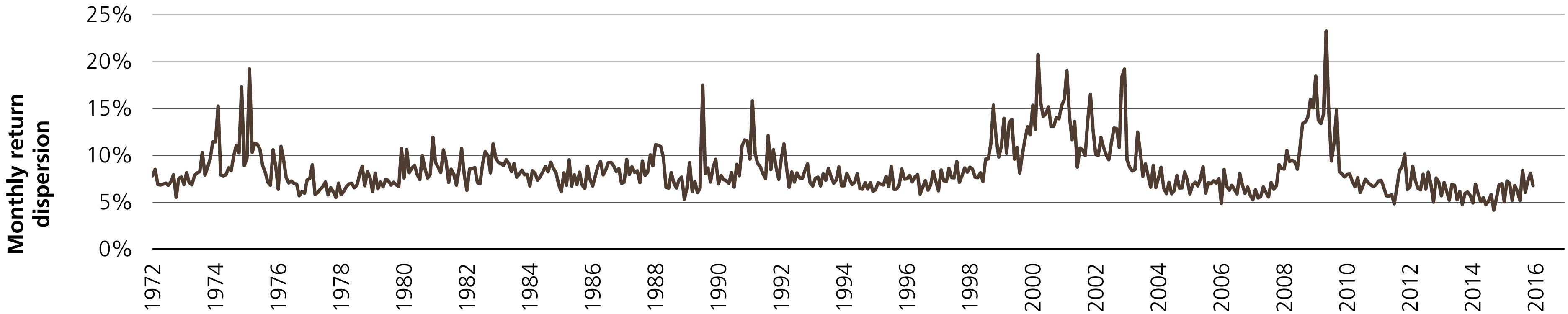
- Active funds: R^2 (Titman & Tiu), Contrarian (Wermers)
- Specialist funds: Concentrated (Kacperczyk), sector and country specialists (Wermers), tend to outperform due to specialised knowledge and information asymmetries at specific points in the business cycle
- Idiosyncratic risk: Small caps, emerging markets, sectors with high degrees of idiosyncratic risk (technology, healthcare, energy, resources)
- Technology: quant funds incorporate new technologies, data sets and modelling techniques quickly making the market more efficient, faster. Quant funds are also very good at decomposing risk and separating out beta, systematic macro, sector and factor tilts.

Conclusion

- In a world of low growth and lower expected returns for the next 8 years
- Passive investments are unlikely to meet return requirements
- However, dispersion is likely to be higher, creating opportunities for active managers
- Key to success is manager selection
- Strategies that are likely to outperform:
  - High quality growth and high quality income,
  - Sector and country specialist funds, and
  - Hedge funds (in particular, quantitative, equity, merger arbitrage, macro, and volatility).

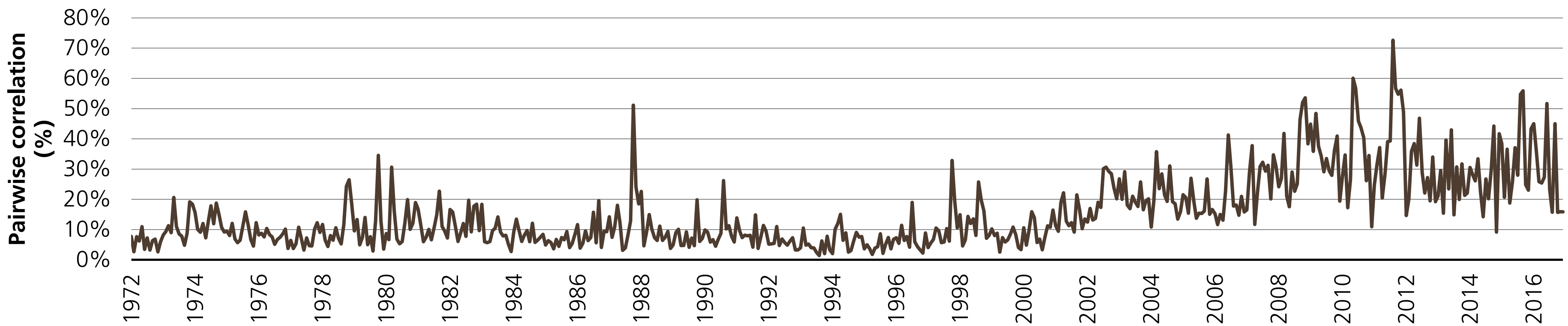
Dispersion and Correlation

Cross-sectional volatility of the United States



Source: Factset, UBS Quant, Universe: Russell 1000

Pairwise correlation in the United States



Source: Factset, UBS Quant, Universe: Russell 1000

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Neutral	FSR is between -6% and 6% of the MRA.	39%	27%
Sell	FSR is > 6% below the MRA.	15%	16%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 December 2016.
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