The Market's Gone Wild: Do You Know How Your Bets Are (Mis)Behaving?

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Story-telling in Active Management

- Almost all active managers claim to add 'Alpha' with their investment process
- This 'Alpha' is usually attributed to their 'Stock Selection' skills, and is (incorrectly) equated with their performance relative to the Benchmark
- In fact, the majority of their relative performance usually comes from their active factor bets
- Note that, by definition, true alpha cannot be captured with factor bets

Typical Active Equity Strategies

- Most managers follow a fairly standard process:
  - Define a 'Followed List' of investable stocks
  - Identify a set of attributes linked to returns
  - Screen the universe for stocks with attribute values above (or below) certain limit values
  - Convert the screen into Buy/Hold/Sell lists

- Cherry-pick from the Buy List and Sell List

So where does Performance come from?

- Stocks are selected on the basis of their exposure to a relatively small number of common factors
- These exposures are represented by stock fundamental data such as Book/Price ratios
- The underlying assumption is that the factor returns will outperform the broad market
- Adding true Alpha only comes in at the final 'cherry-picking' stage

How Common are Common factors?

- During the second week of August 2007, quant strategies seemed to 'blow up'
- The normal risk premiums for common active factors such as Value and Momentum turned sharply negative, only to reverse themselves a few days later
- This was mainly the result of a liquidity squeeze
- However, it did show that many managers are using essentially the same active factors

Common Factors are not Proprietary

- Most Quants trawl through the same stock databases with basically the same tools
- Surprise! - they get very similar results
- The academic literature has long since identified the most common anomalies
  - Using the same databases and analytical tools
- Common factors are . . well . . Common

Common Common factors

- Currencies
- Countries and/or Regions
- Sectors and/or Industries
- Active (or Style) factors
  - Value
  - Growth
  - Momentum
  - Liquidity

Efficient Portfolio Construction

- The standard paradigm is that you should maximise expected return and minimise portfolio risk
- In practice, this is notoriously difficult
- Even if you have Expected Returns and Risks, optimisers have various bad habits
  - Error maximisation
- But converting the results of a stock selection model into properly scaled Expected Returns is also very problematic

Markowitz was Wrong! *

- The mantra : “Return is Good, Risk is Bad”
- But not all Return is equally good (skill is better than luck), and not all Risk is equally bad
- Managers should be trying to eliminate factor exposures they know nothing about, and then optimising the various factor bets and stock risks that they do expect to generate positive returns

* (With apologies to Harry - actually, it’s the way that his idea is interpreted that is wrong)

How to Outperform?

- Its going to be hard to outperform by finding a better version of Value than everyone else
- However, performance is about return and risk
- Very few managers actually manage the risk structure of their portfolio efficiently
- For a given 'risk budget' managers should try to ensure that only deliberate bets are being taken in the portfolio

Who Needs Another Risk Model?

- Investors with medium to long-term horizons have a number of standard risk models to choose from (e.g. Northfield, Barra, APT, etc)
- The R-Squared Short-term Risk Model is designed for hedge funds and other investors with shorter investment horizons
- It is also useful for active portfolio managers who feel that monthly risk model updates might miss rapidly evolving market conditions

The R-Squared Short-term Risk Model

- Based on one year look-back of daily returns
- Available in three base currencies :
  - US dollar, Pound Sterling and Euro
- Historic risk models are available from July 1st 2007
- All 3 models are updated on FactSet every night
- The risk model provides portfolio risk forecasts for horizons from one week up to two months
- It can also be used for portfolio risk decomposition, risk-based performance attribution and optimisation

What Should it be Used For?

- Risk models should not just be used to tell you what the risk of your portfolio is
- A far more important use is to tell you where the big bets are in your portfolio
- It can distinguish between bets you want to make, and those that are incidental to your process
- Only when you can see the risk structure of your portfolio can you begin to manage (as opposed to simply minimising) its risk effectively

The R-Squared Risk Model Design

- 5 Active factors, used for Stock Selection within each region, with time varying sensitivities
  - factor returns are estimated by cross-sectional regressions
- Individual stocks may have multiple exposures to Currencies, Country or Regional factors and Global Industry factors
  - Individual stock betas are estimated in time series regressions
- (Dummy variables are for Dummies)
- 3 Statistical factors used to mop up any statistically significant residual covariance – 'missing factors'

Currency Factors
(US dollar base currency)

- We first determine the exposure of each stock to the following currency factors
  - Euro
  - Swedish Krona
  - UK Pound
  - Canadian Dollar
  - Brazilian Real
  - Chinese Renminbi
  - Danish Krone
  - Swiss Franc
  - Australian Dollar
  - Japanese Yen
  - Indian Rupee
  - Russian Rouble

Multiple Currency Exposures

- In these days of spreading globalisation, it is unrealistic to assume that a stock is only sensitive to movements in its own currency
- We therefore allow stocks to be exposed to (i.e. have betas on) other currencies as well
- These other (non-prior) currency exposures are tested for statistical significance
  - If they fail this test, the betas are set to zero

Active Common Factors

- The Active factors are Region-specific, and are defined as follows :-
  - **Growth** : ROE + Trailing EGR + Forecast EGR
  - **Value** : D/P + E/P + B/P
  - **Liquidity** : Recent Traded Volume / Last month's TV
  - **Short-term Momentum** : (5 trading days)
  - **Long-term Momentum** : (20 trading days)

17 Countries and Regions

- North America
- Austria & Germany
- Italy
- BeNeLux
- Iberian Region
- Asia Pacific ex Japan
- Australasia
- Latin America
- Middle East
- Britain & Ireland
- France
- Switzerland
- Nordic Region
- Japan
- Emerging Asia
- Emerging Europe
- Emerging Africa

19 Industries – FactSet Classification

- Electronic Technology
- Energy Minerals
- Consumer Non-Durables
- Industrial Services
- Distribution Services
- Health Services
- Retail Trade
- Utilities
- Communications
- Producer Manufacturing
- Consumer Durables
- Process Industries
- Health Technology
- Commercial Services
- Technology Services
- Consumer Services
- Transportation
- Finance
- Non-Energy Minerals

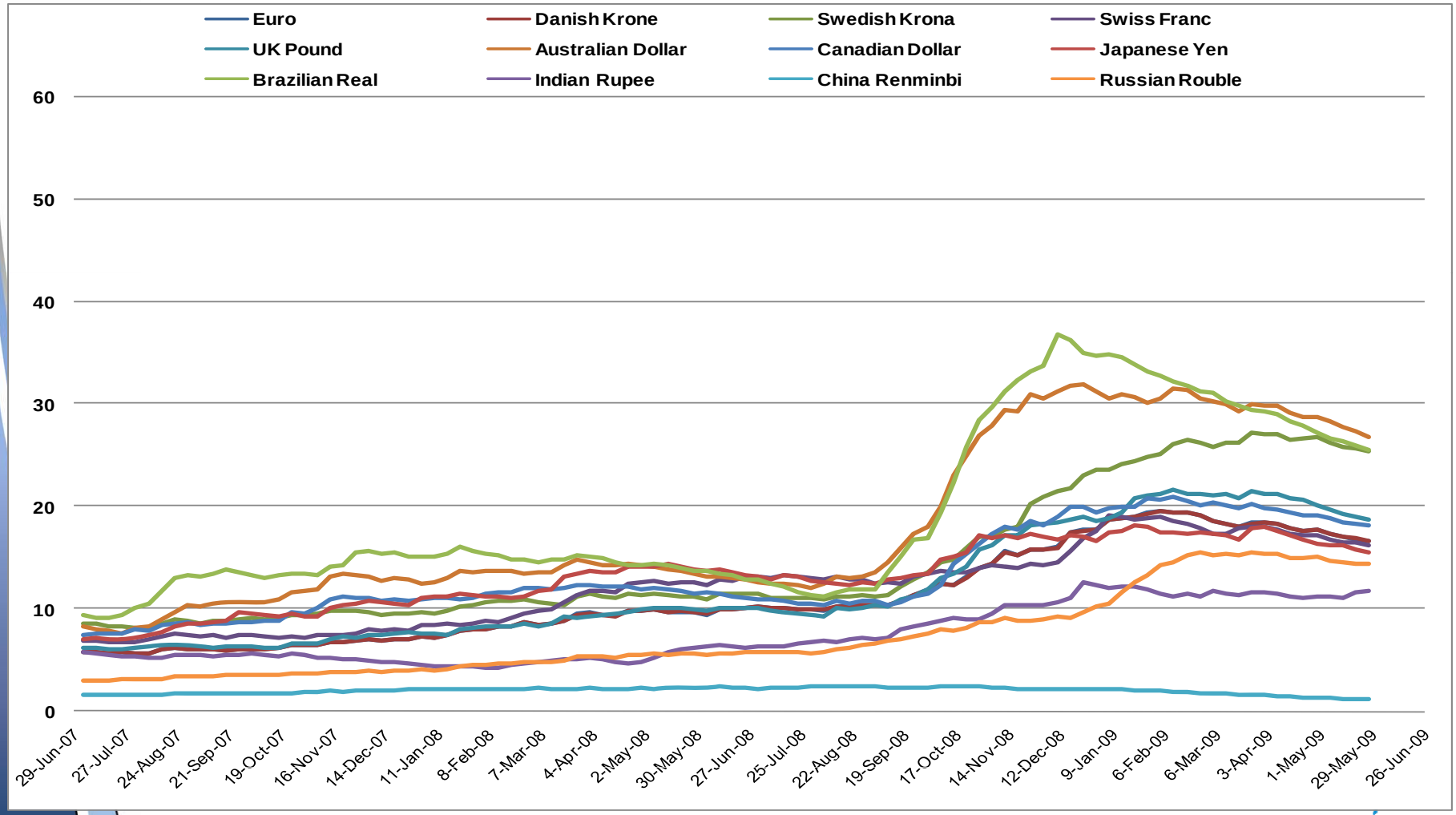
Statistical Factors - 1

- No matter how carefully they are chosen, we can never be quite sure that any given set of common factors will necessarily capture ALL the covariance within a particular universe
- It is therefore prudent to include a small number of statistical factors in the model
- These are derived from Principal Components Analysis of the residual covariance matrix

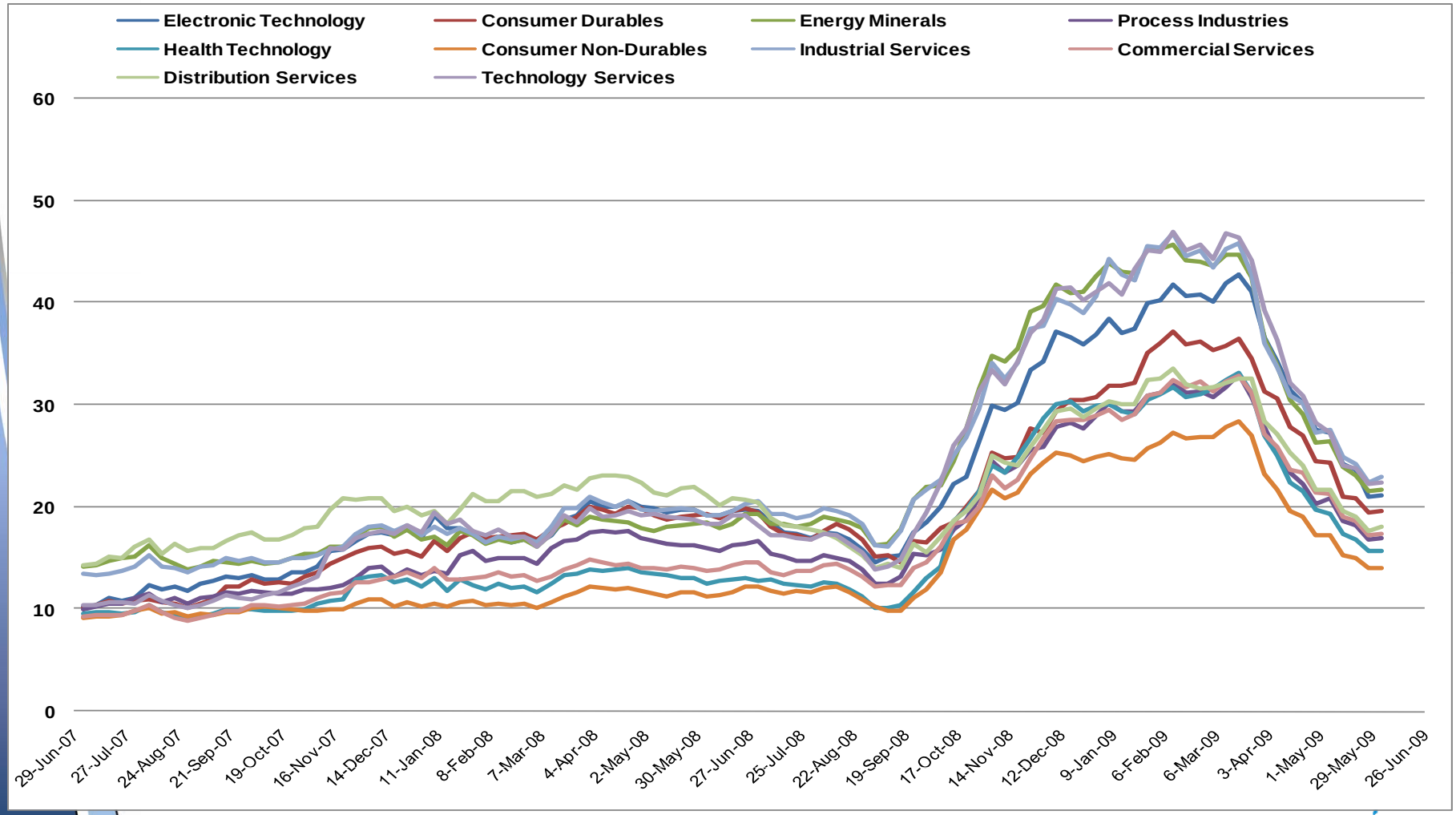
Statistical Factors - 2

- As with all statistical factors, it is usually not clear what they represent
- They are also likely to vary over time
- However, this is not usually a problem as they typically represent only a very small percentage of the overall portfolio risk
- The great benefit they bring is the reassurance that what we are calling Stock Specific risk, really is uncorrelated with anything else

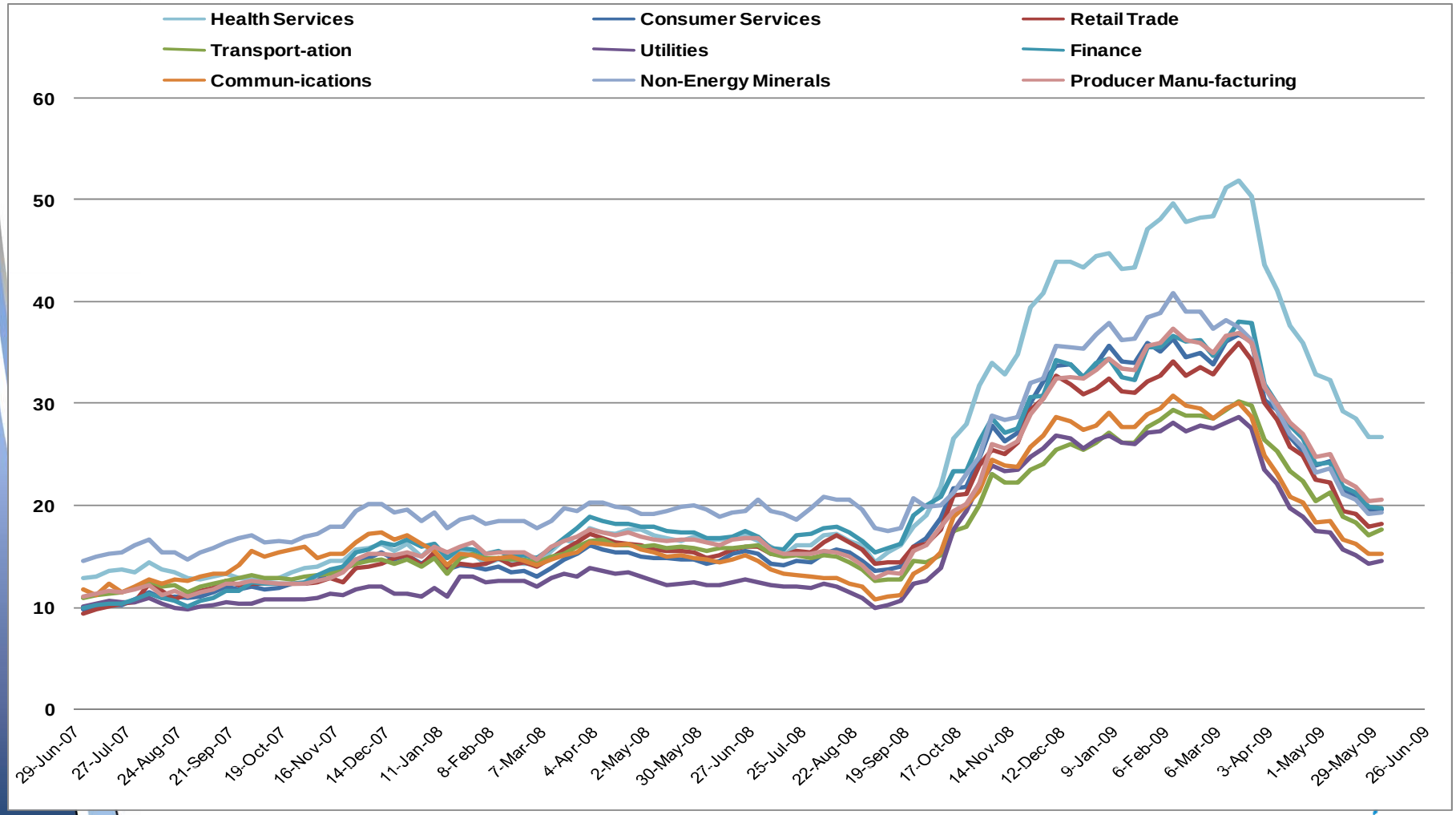
Currency Risks



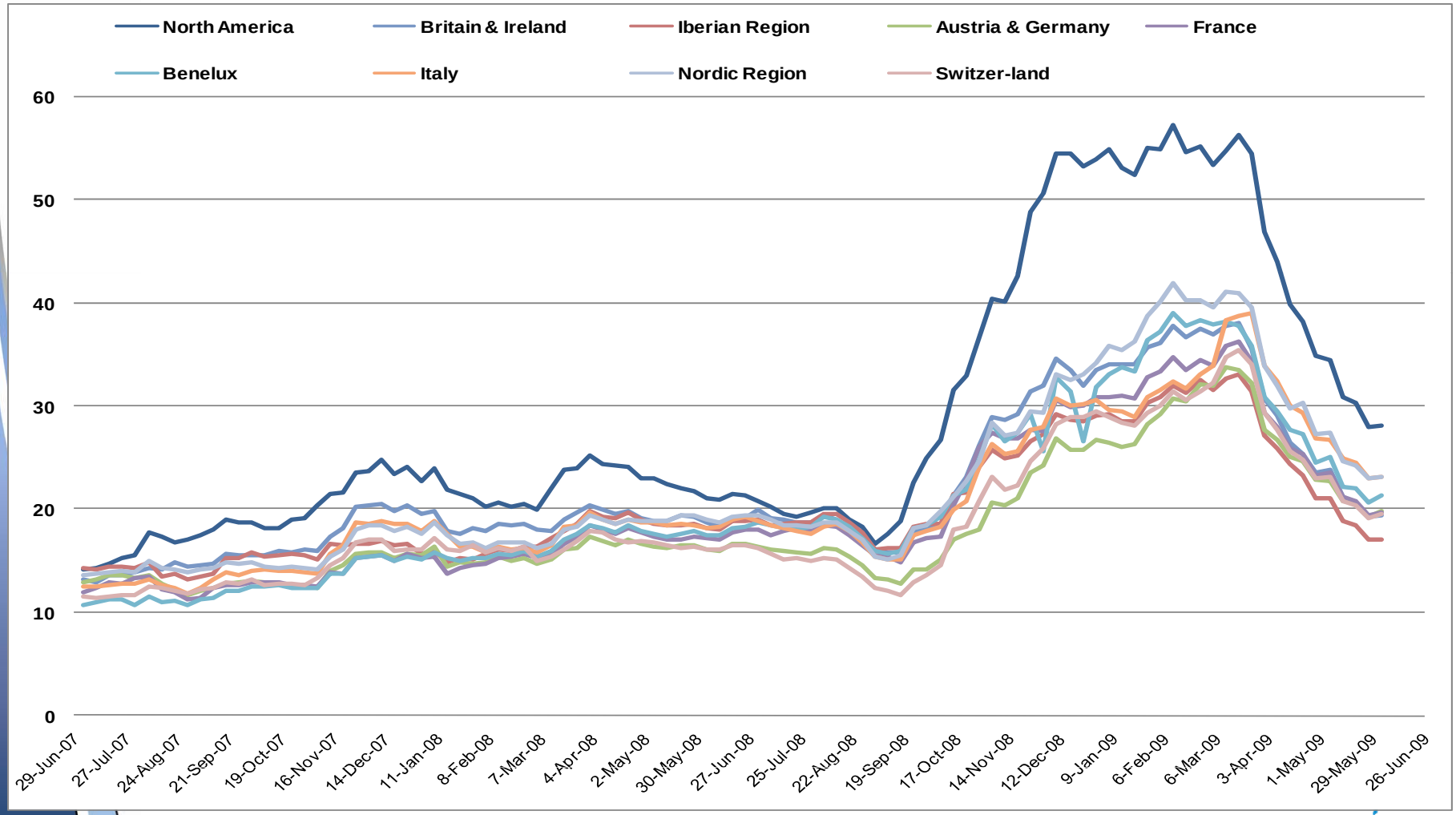
Sector Risks - 1



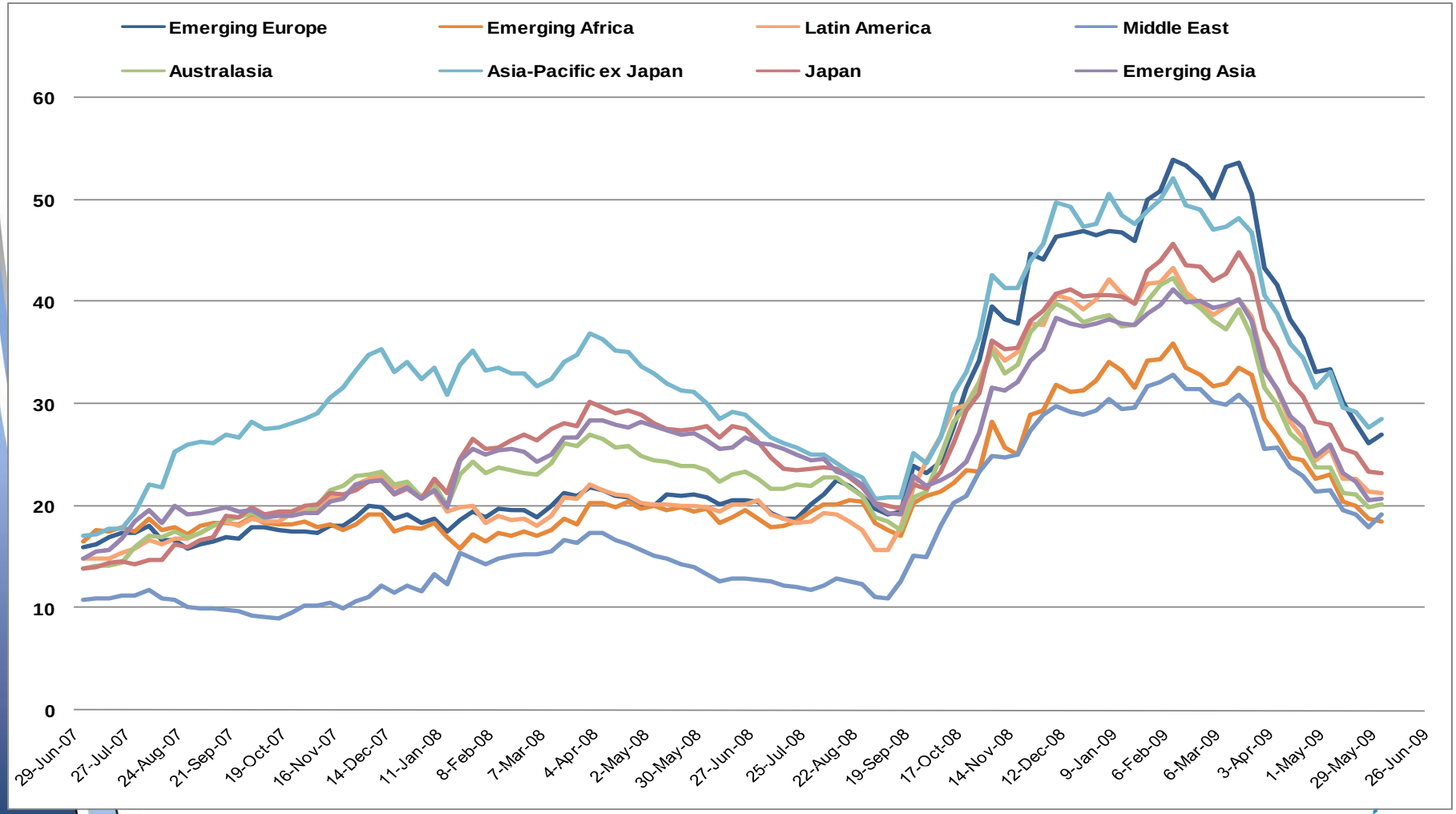
Sector Risks - 2



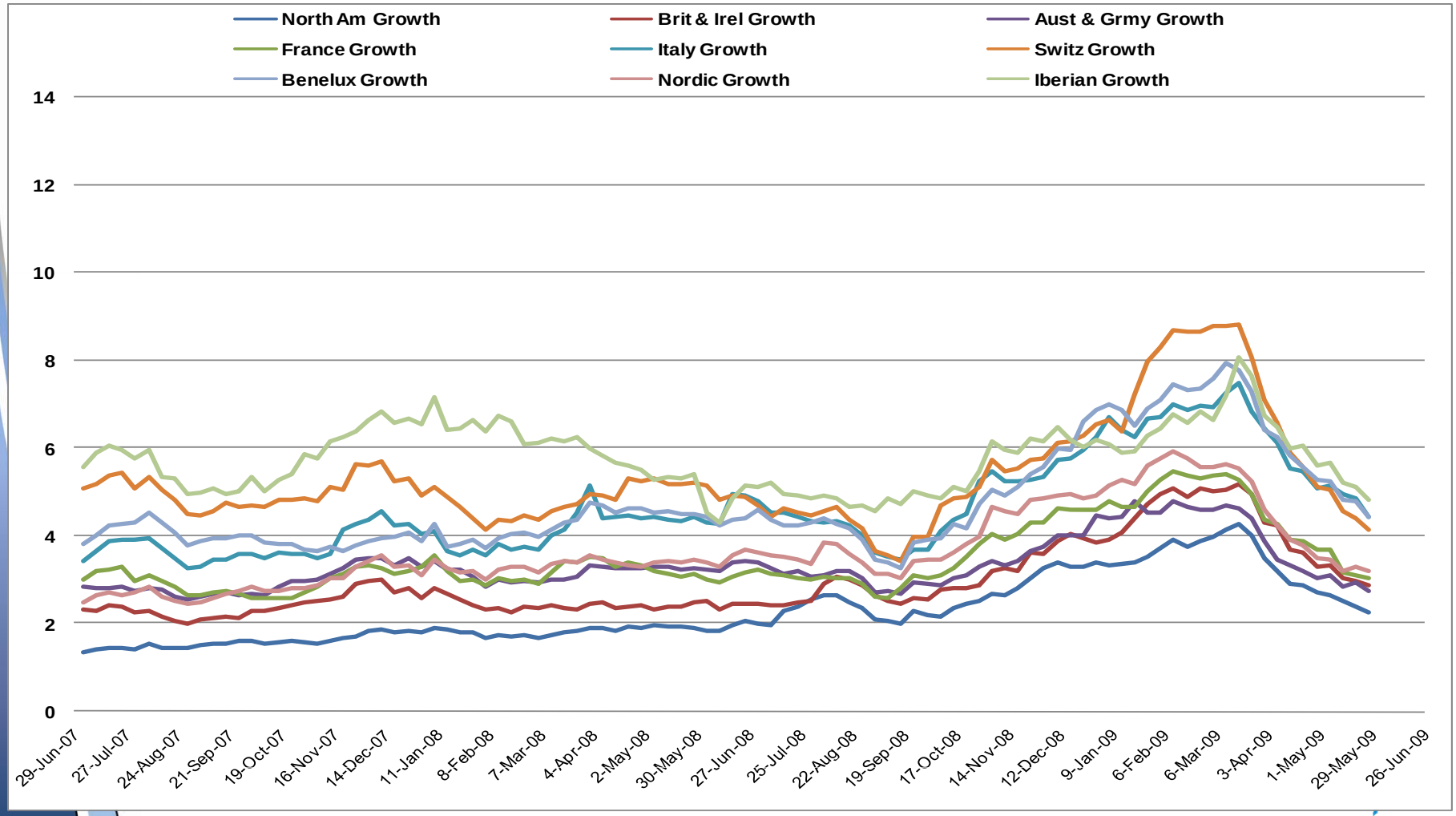
Country Risks - 1



Country Risks - 2



Growth in Europe & America



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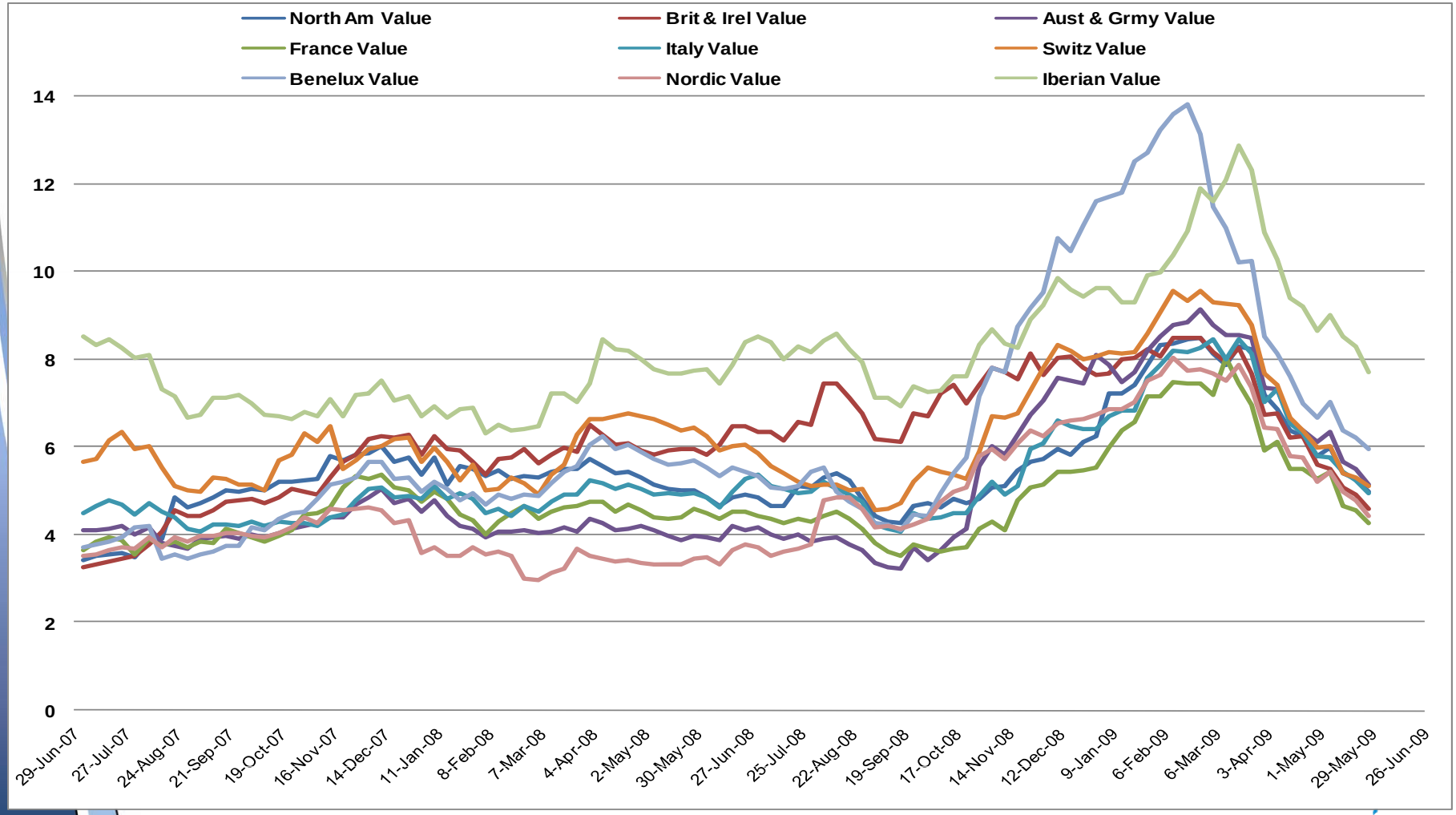
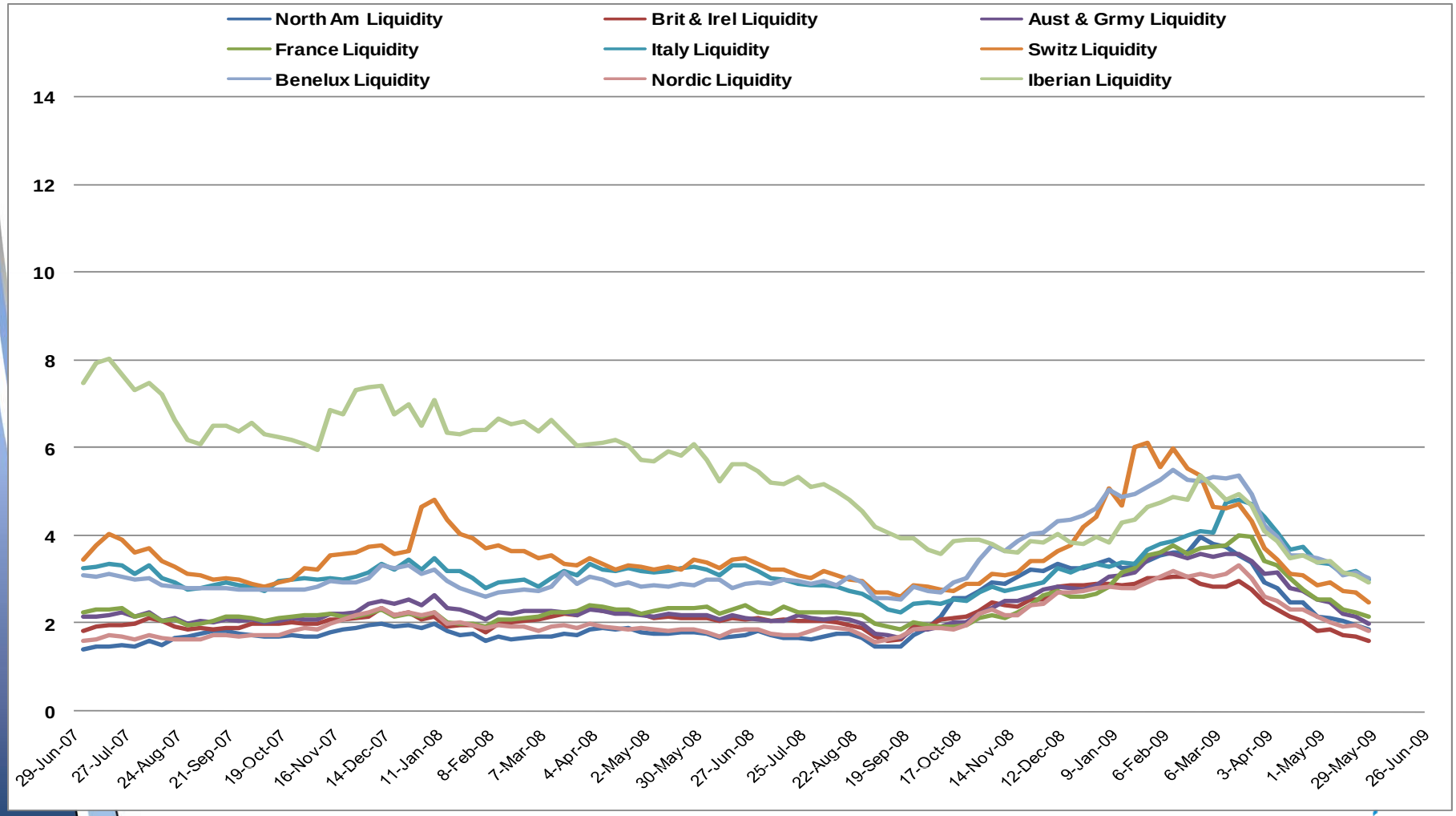
Value in Europe & America



FACTSET Investment Process Symposium 09

Liquidity in Europe & America



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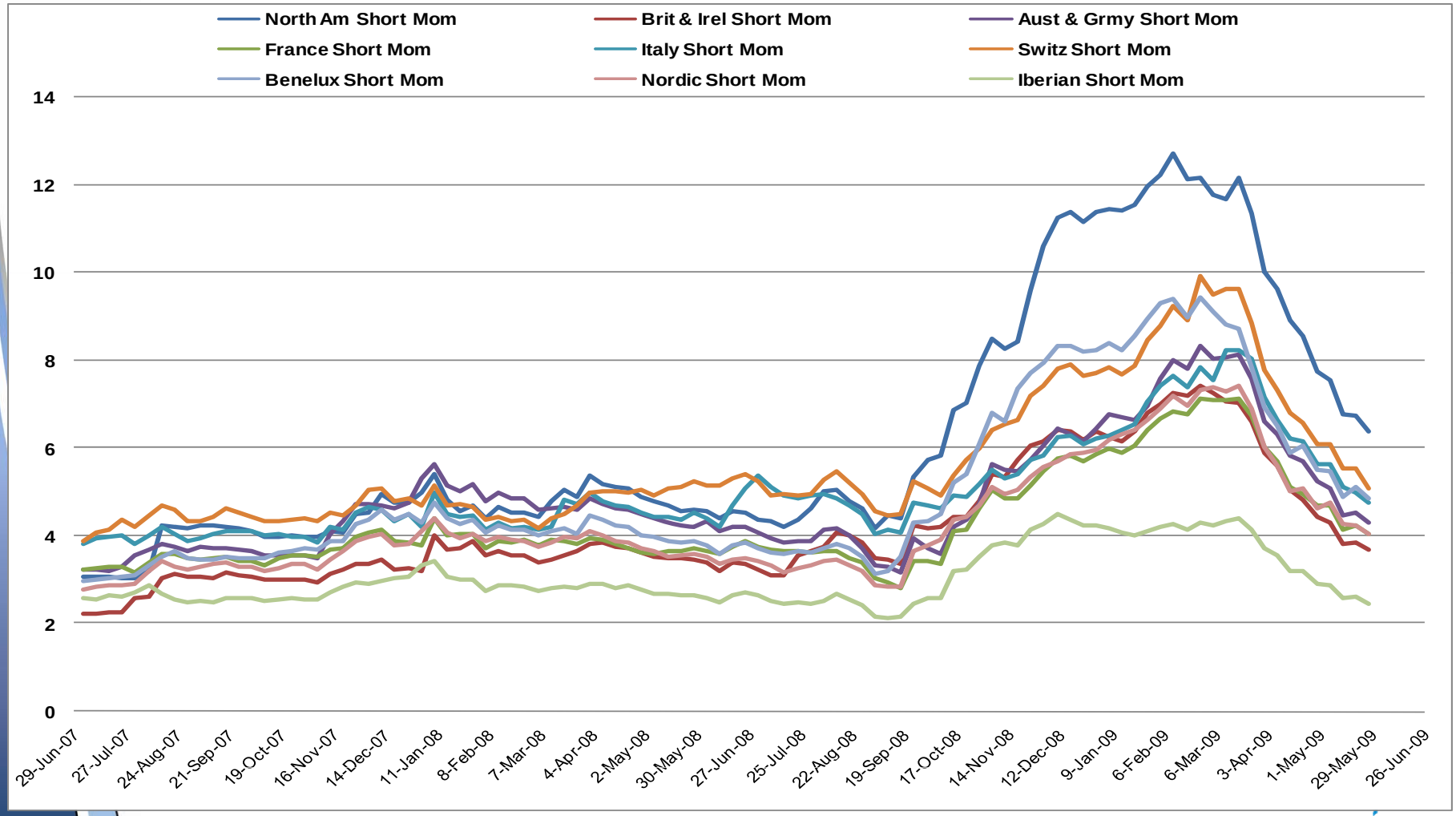
ShortMom in Europe & America



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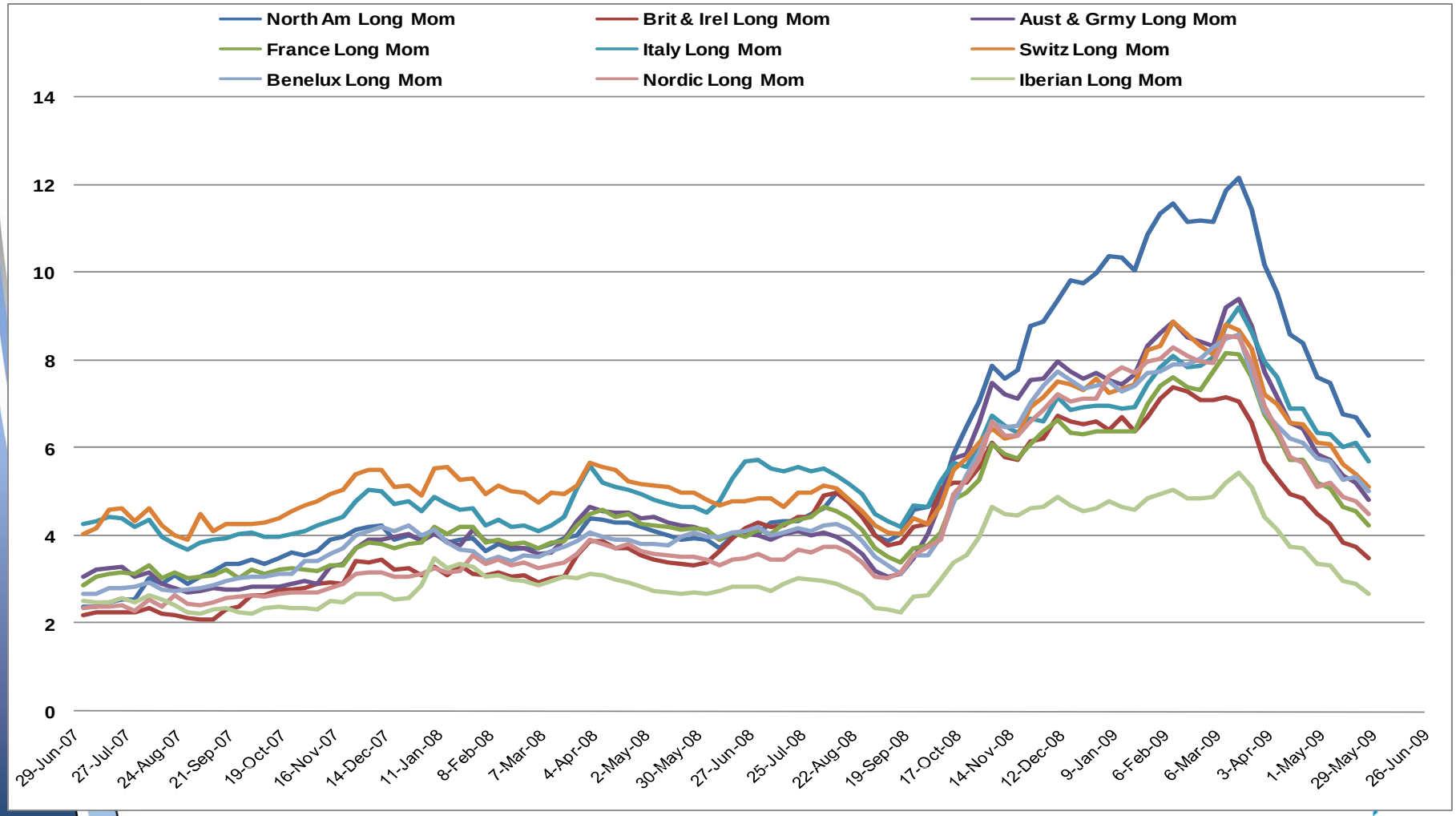
LongMom in Europe & America



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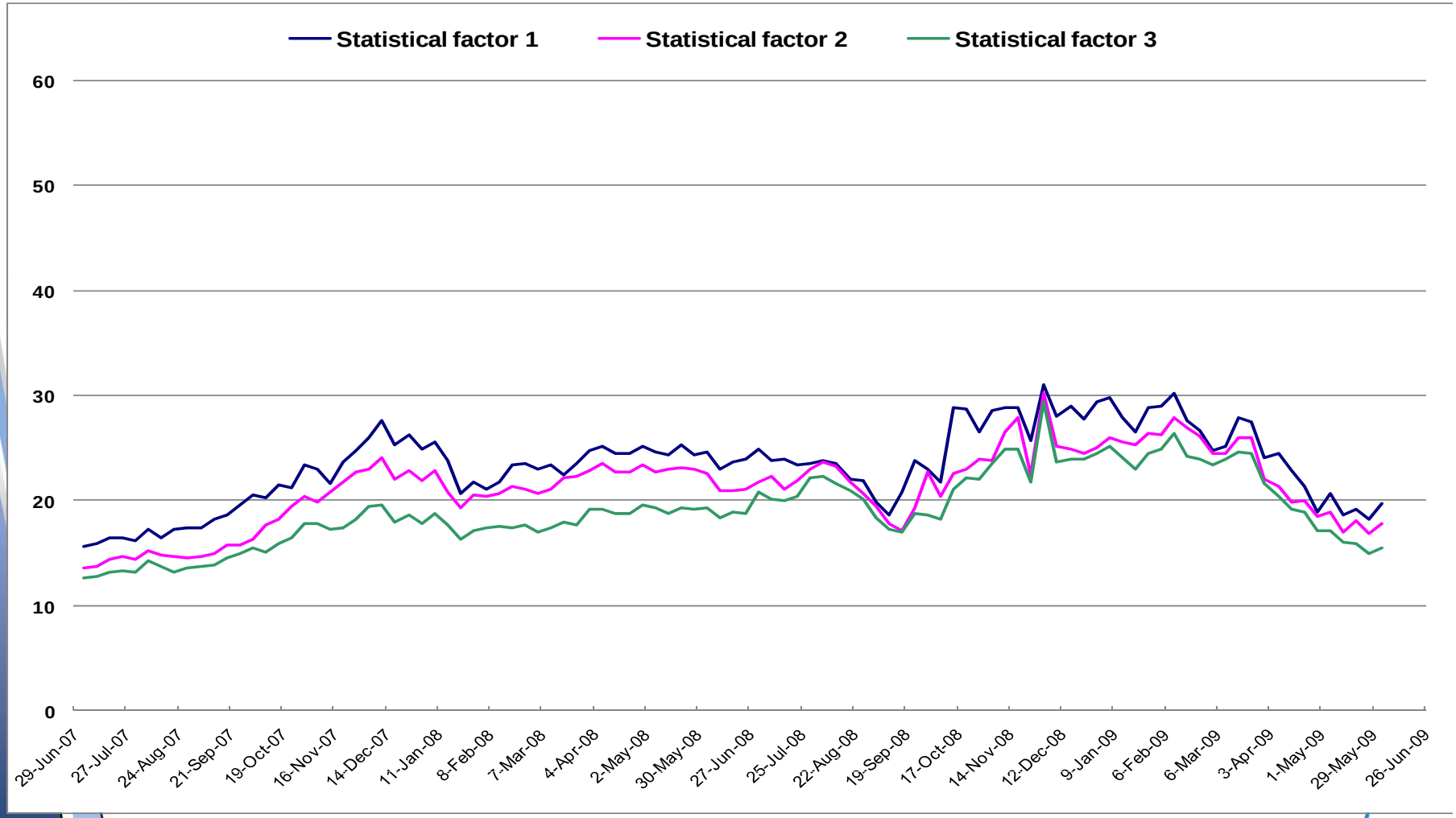
Statistical Factor Risks



Efficient Portfolio Management

- Managing an efficient portfolio is not simply a case of ‘maximise return and minimise risk’
- We live in a multi-factor world, and nearly all stock selection processes are based on multi-factor models
  - (even if managers do insist on claiming that it’s alpha)
- True portfolio efficiency requires a manager to identify and quantify the bets they are intending to make, and to minimise unintended bets

As Benjamin Graham said :

"You can manage risk,

but you can't manage return"

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Overview of this talk

- Active management and Alpha
  - Common Common factors
- How to construct efficient portfolios
- R-Squared Short-term Risk Model
  - Dumb Dummy variables
- The 2008/2009 Regime Shift