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# CHALLENGES IN MONITORING DERIVATIVE INVESTMENTS

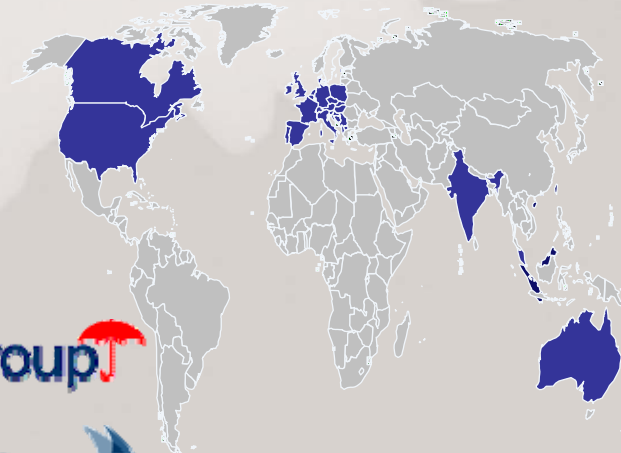




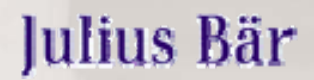
## CHALLENGE? WHAT CHALLENGE?

1. Regulatory and fiduciary controls
2. Structured products, synthetic derivatives
3. Creating the infrastructure
4. Continuous monitoring
5. Data management





MIG21 CLIENTS



MIG21 – Europe’s leading Investment Compliance & Risk Monitoring Tool



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## REGULATORY AND FIDUCIARY CONTROLS



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## *UCITS III ?*



“Passport” to market throughout Europe



burdensome “visa” requirements,  
different in each Member State



# REGULATORY AND FIDUCIARY CONTROLS

*With UCITS III...*

*“European regulators have marked a change in the philosophy of investment law”*

Juergen Stahl, UNION INVESTMENT GmbH

- *Less restrictions on investment instruments, less prescriptive*
- *Increasing the range of instruments / new fund products*
- *Increased quality and depth of data*
- *Speed of introducing new instruments*
- *Increased focus on the quality of the investment management decision*
- *Increased monitoring, fiduciary control, risk management*
- *Pressure on data management*
- *Technology challenge*

## *Fiduciary Controls...*

*The recommendation that scheme rules, SIPs or fund managers' mandates should not other than with good reason prohibit the use of particular instruments such as derivatives or prohibit investment in certain asset classes.*

*The recommendation that sponsor companies (in this case, local authorities) should ensure that trustees have sufficient in-house staff to support them in their investment responsibilities)*



*yours sincerely  
Paul Myers*



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## DECOMPOSITION OF STRUCTURED PRODUCTS, CDS AND OTHER SYNTHETIC DERIVATIVES

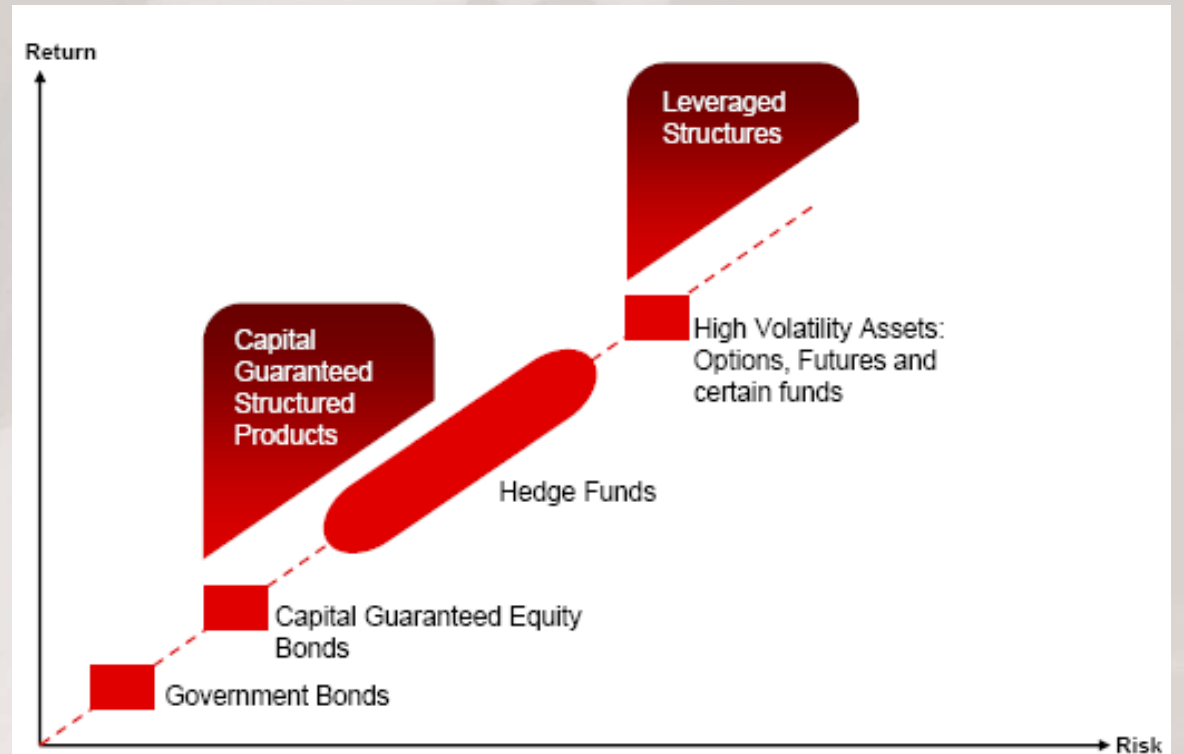


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# DECOMPOSITION OF STRUCTURED PRODUCTS

## STRUCTURED PRODUCTS – INVESTMENT OBJECTIVES

- Hedge a position
- Diversification
- Arbitrage Opportunities
- Allocate or Manage Risk



Source: SG Corporate and Investment Banking



## COMMONLY USED STRUCTURED PRODUCTS

- Convertible Bond
- Warrants
- Discount Certificates
- Interest Rate / Currency Swaps
- Constant Proportion Portfolio Insurance (CPPI)
- Collateralized Debt Obligations (CDO)
- Credit Default Swaps (CDS)



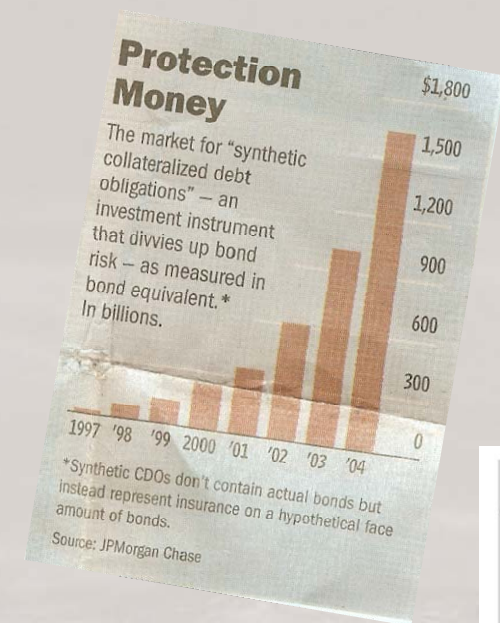
# DECOMPOSITION OF STRUCTURED PRODUCTS

## COLLATERALISED DEBT OBLIGATIONS (CDO's)

- Diversification
  - Reducing risk
- Complexity
  - Exposure to multiple issuers, currencies, sectors with a single instrument
  - Risk tranche's

## CREDIT DEFAULT SWAPS (CDS's)

- More Complexity
  - Synthetic instrument
  - Event driven e.g. credit default
- Wider Usage
  - 2002 \$400billion credit protection via CDO/CDS
  - 2005 \$2 trillion (40% US Corporate Bond market)



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## *...Need for Transparency*

### *General Motors May 2005*

- US Corporate bond market generally stable
- GM/Ford corporate bonds reduced to “junk” by S&P (below investment grade)
- Credit Derivative models relied on all underlying credit curves moving in synch
- Hedge fund liquidity issue - increased volatility in bond and equity markets
- GLG Credit Fund lost 14.5% in May  
Fund Manager blames market reaction to GM downgrade as “too improbable” for trading models



Source: Wall Street Journal



## STRUCTURED PRODUCTS

### *...Need for Transparency*

*"If the American people knew tonight, exactly how the monetary and banking system worked, there would be a revolution before tomorrow morning.*

*Abraham Lincoln*

#### ➤ Demystify the complexity

Decomposition into underlying instruments / events

Multiple Data Sources

Comprehensive Risk Monitoring

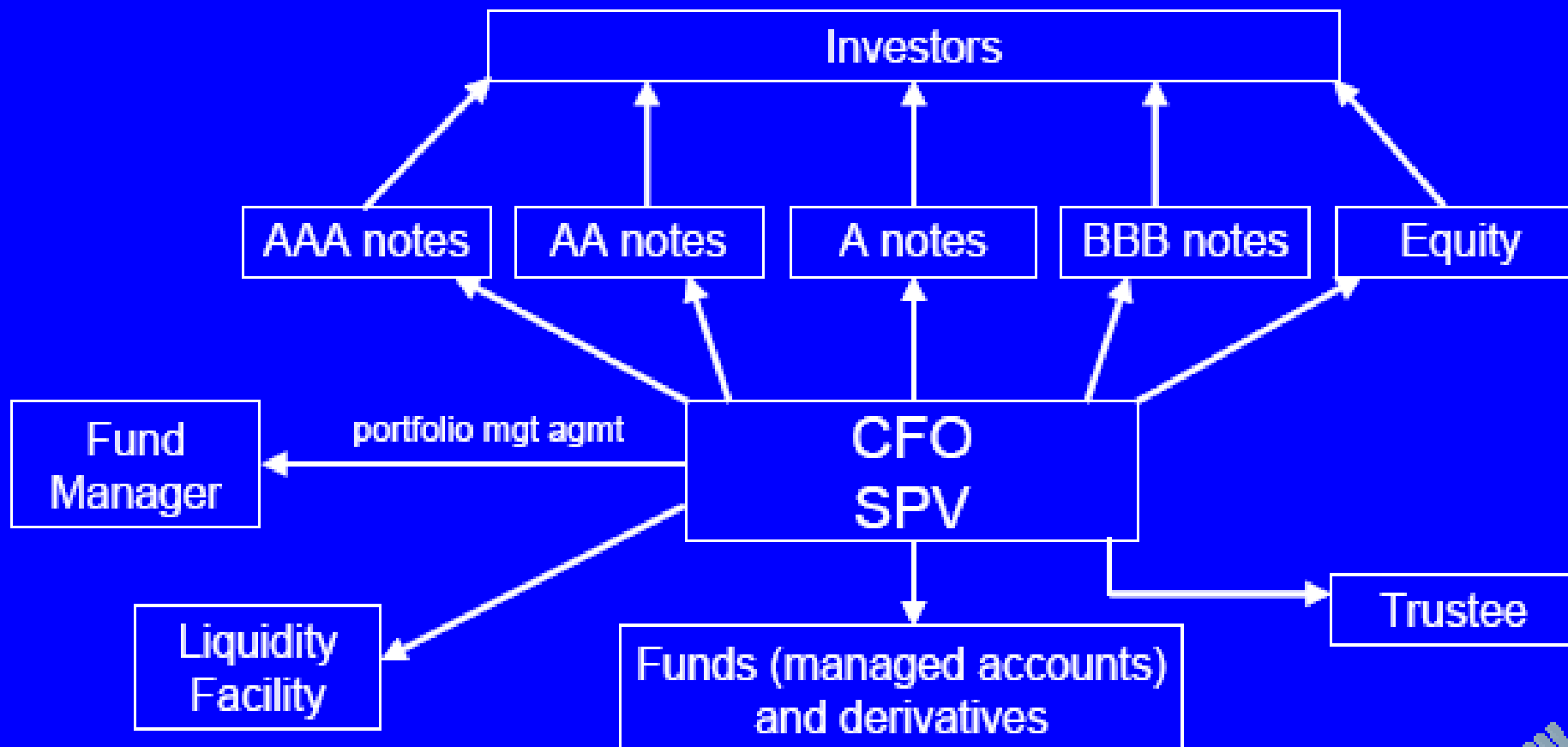
#### ➤ the OTC Challenge



# DECOMPOSITION OF STRUCTURED PRODUCTS

The Complexity...

## COLLATERALISED FUND OBLIGATION



Source: SJ Berwin LLP



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**DERIVATIVES  
INVESTMENT OVERSIGHT**



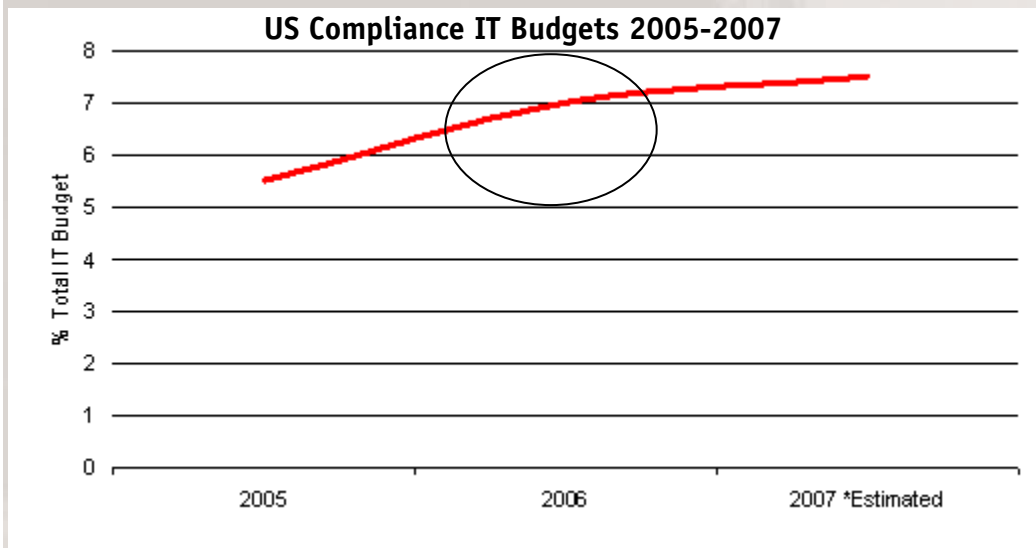
# DERIVATIVE INVESTMENT OVERSIGHT

1. Culture of Compliance / Transparency
2. Risk Identification, Implementation of Policies and Procedures
3. Ex-ante and Ex-Post Investment Oversight
4. Forensic Analysis tools
5. Integration of Compliance and Data Providers
6. Disclosure to Clients/Regulators/Auditors
7. Systems and Procedures which can adapt to new Regulations
8. Personnel appropriately trained

Investor Services Journal  
Sep 2005



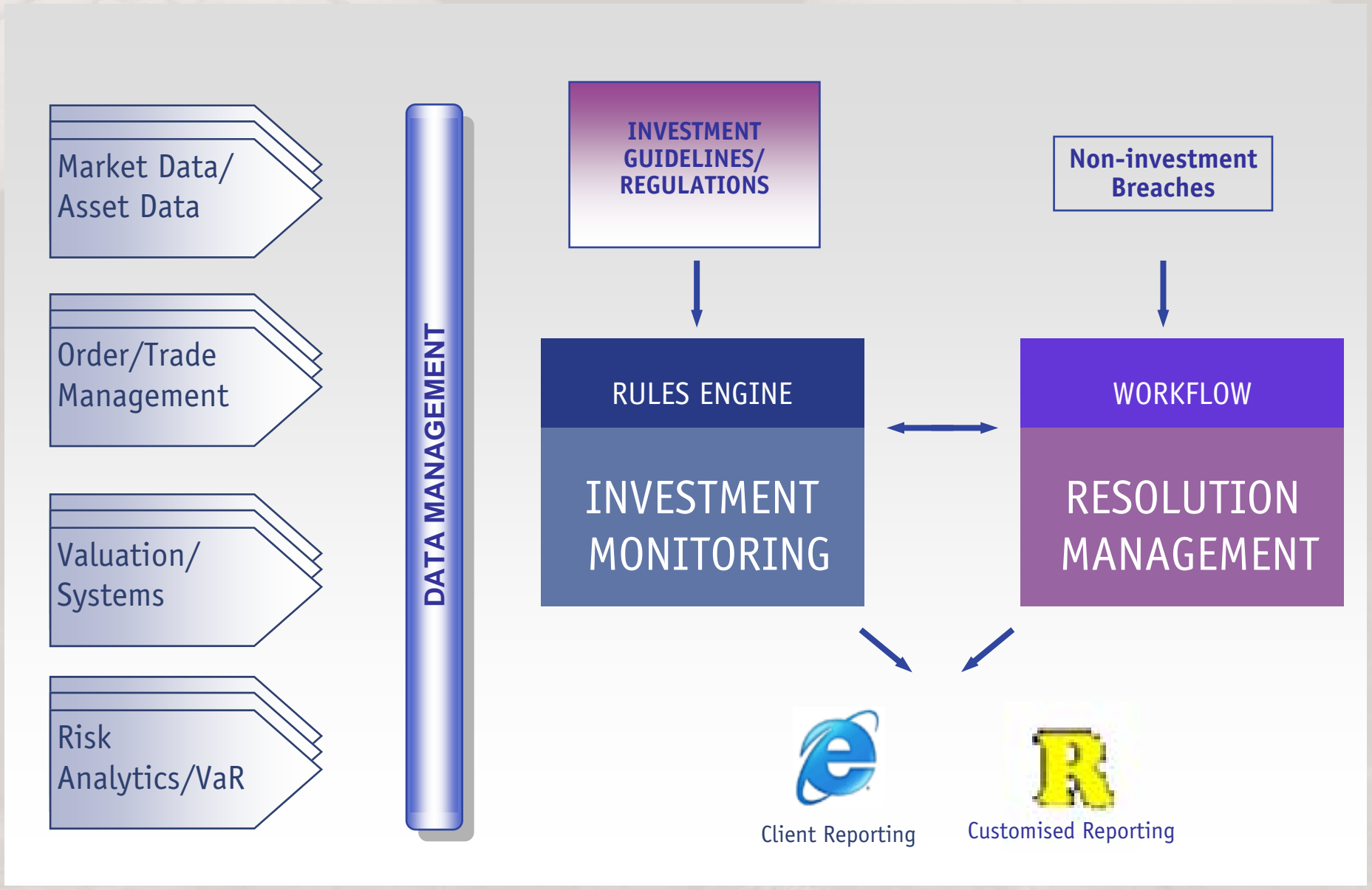
## CREATING THE INFRASTRUCTURE



Source: PlanSponsor.com



# CREATING THE COMPLIANCE INFRASTRUCTURE



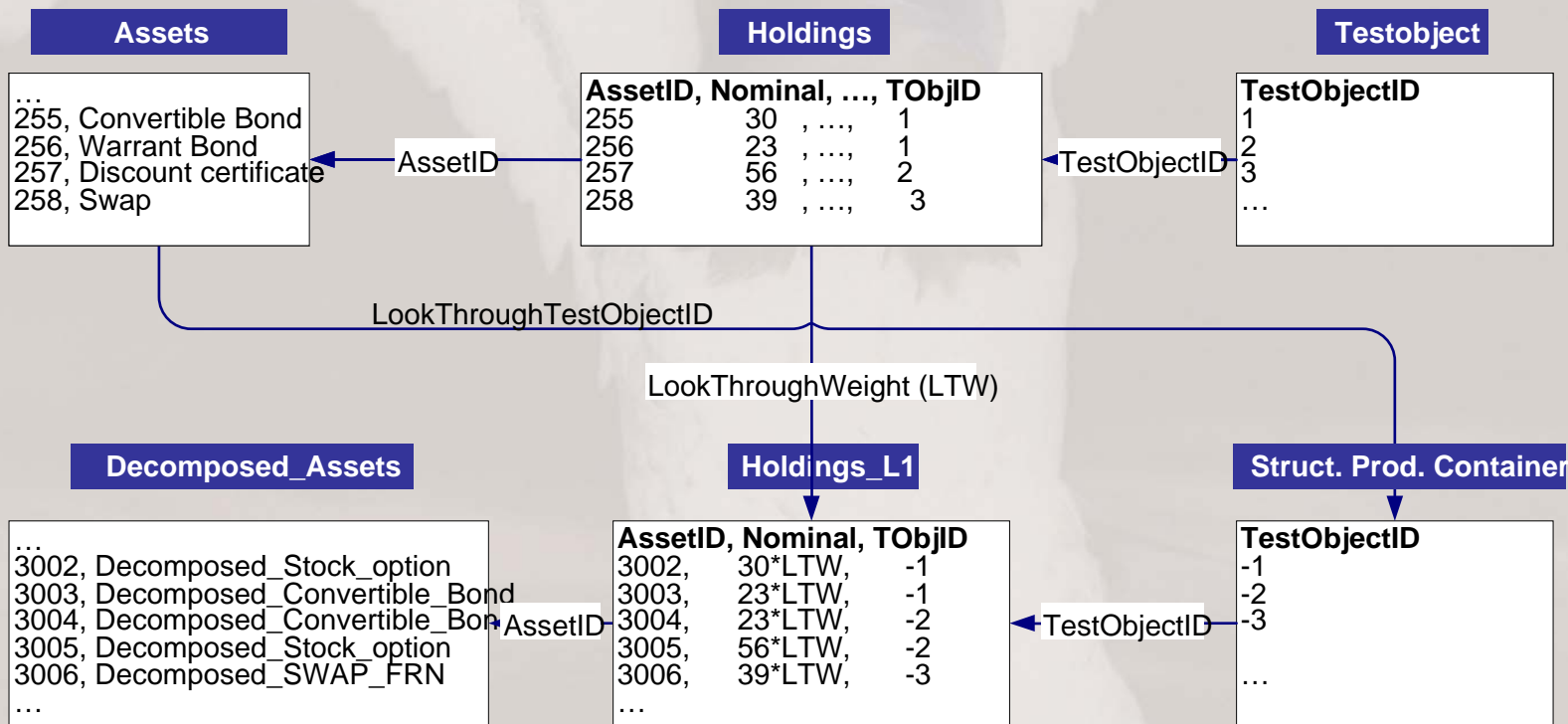
## SYSTEM REQUIREMENTS

- Full Instrument Coverage
- Comprehensive Data Management support
- Structure Product Decomposition (Lookthrough)
- Investment Risk controls
- Reporting by Exception
- Breach Resolution Workflow
- Operational Risk Monitoring
  - Key Risk indicators
  - Error/Loss Databases

...FLEXIBILITY



## STRUCTURE PRODUCT DECOMPOSITION (LOOKTHROUGH)



## SYSTEM INTERFACES

- Analytics and Pricing  
Citigroup Yield Book; Lehman Point; CMS BondEdge  
FinCAD, Metlabs
- Trade and Order Management  
Specialist derivative trading: Murex, Openlink Findur  
Electronic Trading Platforms: Swapswire, Bloomberg, MarketAxess, TradeWeb
- Valuation  
Markit Group, International Index Company, Creditex, GFI Group  
Reuters, Bloomberg
- Investment Risk  
Algorithmics; Northfield; APT; Riskmetrics; Statpro...



## DATA MANAGEMENT CHALLENGE

- **Security Master** (Dynamic Data Model)
  - Extendable data structures by Asset Class/Type
  - Comprehensive Classification Structures
  - Attributes for Pricing, Valuation, Exposure, Compliance
  - Underlying index, spread, yield curve, volatilities...
- **Plethora of Data Sources** (Multiple Data Sources)
  - Instrument specific pricing / OTC pricing models
  - Yield curve data
  - Live Asset Creation / Multi ccy/ Real time / End of Day
- **Systems Integration** (Asset Repository)
  - Centralisation / Consolidation
  - Exceptions?
  - MS Excel (Data Mapping)

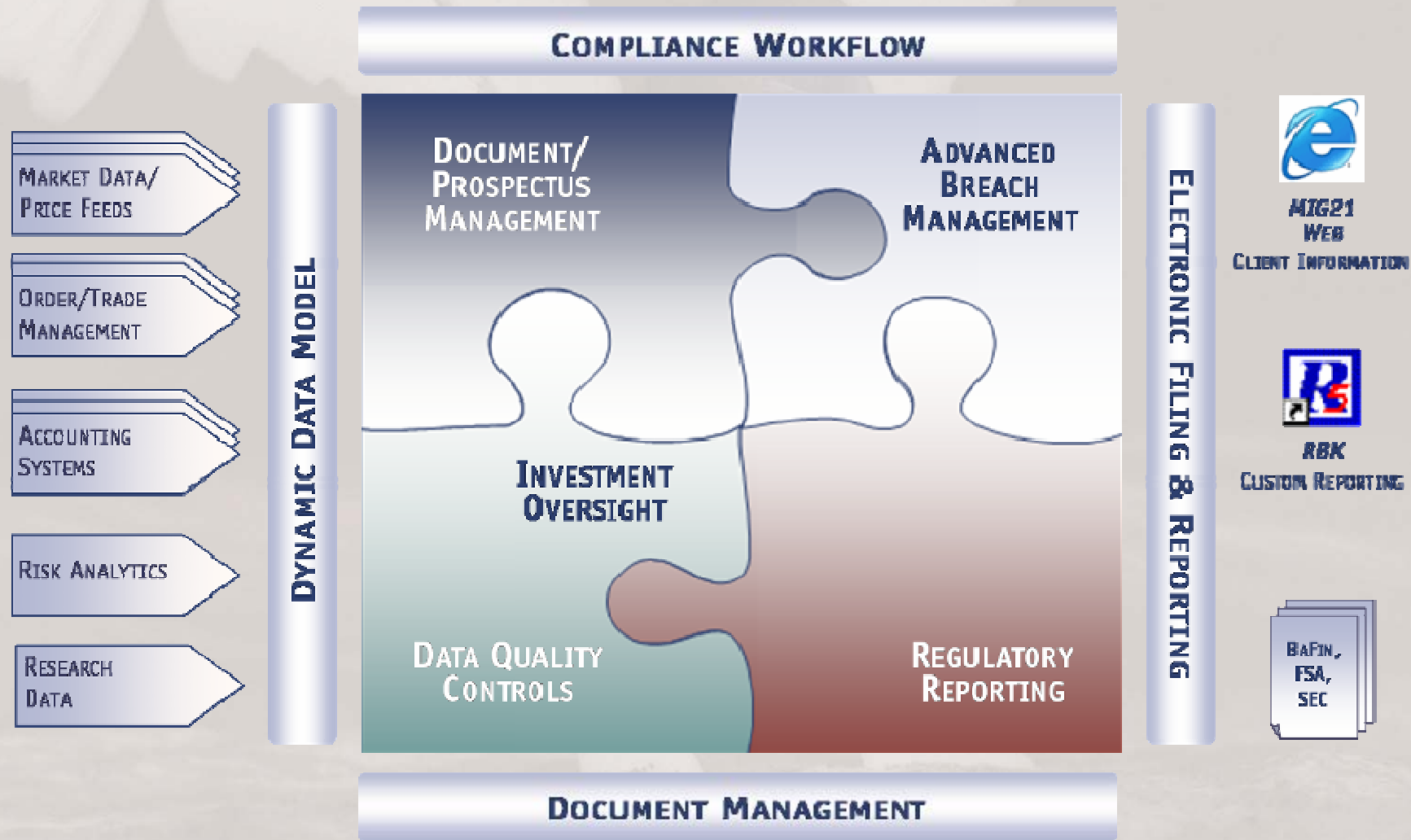


## BUY V BUILD

- Vendor solution or In-house development
- “Best of Breed” or “Soup to Nuts”
  - Core competence
  - Identify unique constraints
- The road to Nirvana with technology
  - How do you handle the combination of complexity,  
time to delivery  
efficiency ...at what cost



## INDEPENDENT COMPLIANCE MONITORING ...WITH COMPREHENSIVE DERIVATIVE SUPPORT



# MIG21 CLIENTS

CLIENTS



## The **ULTIMATE DERIVATIVE CHALLENGE**



**Contract:**  
**England to win the World Cup**



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# DERIVATIVE INVESTMENT OVERSIGHT

## The ULTIMATE DERIVATIVE CHALLENGE



**Contract:**  
England to win the World Cup

IG INDEX Price Finder

Football World Cup 100 Index

Final 9th July 2006

Market	Period	Sell	Buy	So Far	Updated
BET Brazil World Cup 100 Index	JUL-06	47	50		07:59:21
BET England World Cup 100 Index	JUL-06	34	37		07:59:21
BET Germany World Cup 100 Index	JUL-06	30	33		07:59:21
BET France World Cup 100 Index	JUL-06	30	33		07:59:21
BET Argentina World Cup 100 Index	JUL-06	29	32		07:59:21
BET Italy World Cup 100 Index	JUL-06	27	30		07:59:21
BET Spain World Cup 100 Index	JUL-06	26	29		07:59:21
BET Holland World Cup 100 Index	JUL-06	24	27		07:59:21
BET Portugal World Cup 100 Index	JUL-06	23	26		07:59:21
BET Sweden World Cup 100 Index	JUL-06	17	20		07:59:21
BET Czech World Cup 100 Index	JUL-06	16	19		07:59:21
BET Mexico World Cup 100 Index	JUL-06	16	19		07:59:21
BET Ukraine World Cup 100 Index	JUL-06	16	19		07:59:21
BET Croatia World Cup 100 Index	JUL-06	16	19		07:59:21
BET Switzerland World Cup 100 Index	JUL-06	10	13		07:59:21

**Assets**

**Contracts**

**Portfolio**

...  
255, England World Cup  
256, Beckham Goal  
...

AssetID	Nominal	...	TObjID
255	30	, ...	1
256	23	, ...	1
257	56	, ...	2
258	39	, ...	3

TestObjectID
1 Harriman Portfolio
2
3
...

LookThroughTestObjectID

LookThroughWeight (LTW)

**Decomposed\_Assets**

**Underlying**

**Struct. Prod. Container**

...  
3002, Paraguay  
3003, Sweden  
3004, Trin&Tobago  
...

AssetID	Nominal	TObjID
3003,	23*Group	-1
3004,	23*Qtr,	-2
3005,	56*Sfinal,	-2
3006,	39*Final,	-3

TestObjectID
-1 EngWcup 100 Index
-2
-3
...



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