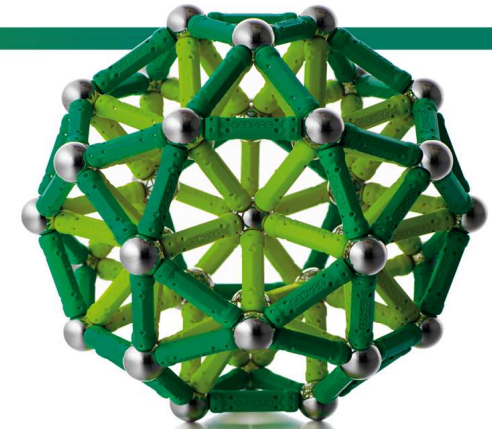

OLD MUTUAL GLOBAL INVESTORS



INVESTMENT RISK & PERFORMANCE

- Independent oversight of client portfolios
- Incisive portfolio and market analysis
- Proactive advice at board level

June 2013



1.0 INVESTMENT RISK & PERFORMANCE

ROLE, RESPONSIBILITIES AND TEAM

AT A GLANCE

- Independent of OMGI's investment function
- Reports to the COO
- Presents directly to the Board on Investment Risk and Performance matters
- Ensures that portfolio risk/reward measures are consistent with the client mandates
- Objective, extensive daily analysis
- Efficient delivery of reports
- Pro-active production of ad-hoc notes related to
 - market developments affecting portfolio strategies;
 - strategy developments
- Risk oversight and policy-setting, including advice, challenge and debate
- Optimal blend of third-party and proprietary data and applications
- Up to date on evolving risk management techniques and trends

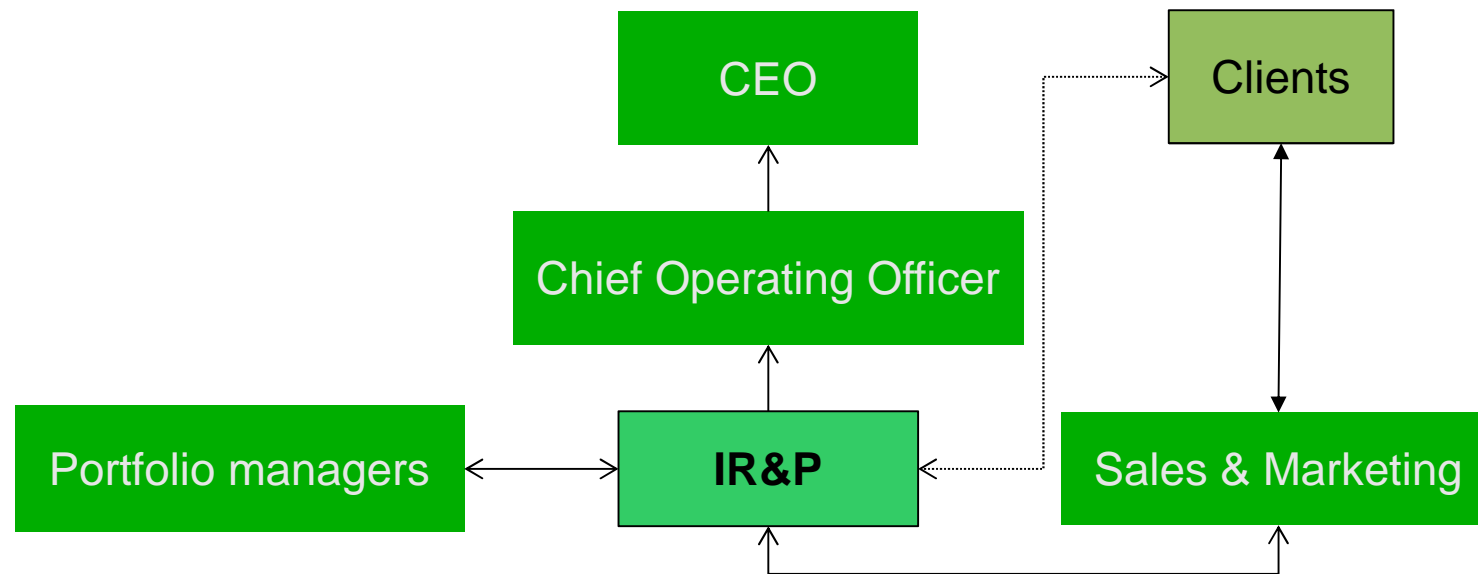
OBJECTIVES – INVESTMENT RISK MANAGEMENT

- Be respected, not feared
 - Trusted source of information
 - Providing that information in an efficient and timely manner allowing maximum time for *ad hoc* analysis on changing market conditions and/or portfolio exposures
 - Maintaining healthy interaction with other OMGI business areas
- Be of help, not in the way of the business; allowing fund managers and other OMGI areas to better pursuit client interests
 - Policing is part of the job but it doesn't define our job.
 - Automation provides time for analysis, interpretation and discussion of portfolio strategies which is the first pillar of proper risk management
 - A thorough knowledge of strategies and financial markets is the second one
 - Customized analysis is essential to understanding each account's risk/return profile
 - Peer group analysis provides instructive comparisons
 - Helping the business achieve optimal results for clients
 - Providing constant advice to OMGI's executives

OBJECTIVES – PERFORMANCE ANALYSIS

- Provide fund managers with relevant analytics offering flexible reports and answer ad-hoc requests
 - *Factset* offers state of the art analytics on performance attribution. We add value interpreting those reports and sharing our findings
 - Regular performance and attribution analysis updates are provided to fund managers, allowing them to understand their performance to the highest level of granularity
 - *Factset publisher* enable in-house reports that can be customized depending on each product relevant characteristics
- Publish fact sheets information in a timely manner
- Adapt to changes of product characteristics and market situations
 - As markets or funds evolve, our reporting follows, making sure all which is relevant is considered by adding or modifying the relevant metrics
- Help to identify key performance facts
- Analyse peer group and sector performance

HIERARCHY AND INTERACTIONS



- Overall focus: clients' risk/return objectives
- Following products strategy, peers and market developments

KEY RESPONSIBILITIES

- Limit checks: *thinkFolio* is OMGI system of choice for trade order management and position checking. Additional checks for risk parameters and soft limits are performed by in-house systems.
- Risk and performance analysis reporting
 - Regular reporting produced automatically and distributed using *OMAM Wiki*: being easy to access, providing complete and timely updates are our targets
- Attend due diligence requests, provide Sales & Marketing with relevant material as requested by clients
 - Contributions to fill out *Request For Proposals* are provided promptly as required by the business
 - Specific questions and ad-hoc requests (related to risk and/or performance analysis) from clients can be addressed directly
 - The objective is to free our Portfolio Managers time as much as we can
- Constant data “scrubbing”: close relationship with Operations and IT groups
 - Making sure our dataset (positions, market data) is complete, consistent is quintessential: without that our analysis would be inaccurate.
- Compliance with regulatory bodies requirements

VALUE ADDED ROLE

➤ Devise proprietary measures/reports:

Risk and performance analysis need to adapt to product and market changes. Internal research leads to original solutions to well known issues

➤ Ad-hoc comments:

- Modification of risk profiles, out of norm volatility/change of pattern of returns

Daily reports are produced achieving the much sought after mix of risk and return measures: any unusual pattern (e.g. breaches of the expected distribution of returns, allocation of risk, factor allocation, specific position behaviour) is analysed and reported to the relevant fund manager/executives.

- Risk/return breaches

“VaR events” are considered and explained.

- Alert on financial markets new themes potentially affecting OMGI products

IR&P constant focus is on market news and financial magnitudes behaviour. The Keynes-ism *“When the facts change, I change my mind. What do you do, sir?”* is far easier to apply if you don't have a position!

INVESTMENT RISK MANAGEMENT

➤ Understanding portfolios

- Exposure
- Concentration
- Sensitivity
- Liquidity
- Factor analysis
- Synthetic risk measure (VaR, Scenarios, Stress)



All this is needed and has to be considered carefully and regularly

➤ Understanding financial markets

- Themes
- Levels
- Trends
- Politics & Policies

➔ Understanding ex-ante the best/worst environment for OMGI products and provide suitable advice to portfolio managers and OMGI executives

RISK MEASURES AND CHECKS

➤ VaR

- Portfolio VaR: Historical VaR is our preferred model (1y look-back, 1d holding period, 95% confidence interval used as default)
- Positions marginal VaR (contribution to overall risk) is considered: distribution of risk is one of our main concerns

We are perfectly aware of all the weaknesses of VaR measures; we respect all the quantitative work but, honestly, we prefer most of the time answers provided by old fashioned portfolio analysis

➤ Scenario analysis

A standard set of scenarios is considered on a daily basis: frequency of worst scenarios and returns of each of them presented. Using portfolio sensitivity measures and exposures is always possible to provide answers to ad-hoc scenarios we might want to explore

➤ Cross-sectional and time dimension

All our risk and performance measures are considered cross-sectionally (across OMGI products) and as time series

➤ Sanity checks: back testing all our analysis is crucial.

- Raw data consistency: automation of data “scrubbing”
- Clean P&L/VaR distribution: number of VaR events is not enough!
- Sensitivity - P&L forecast vs. P&L. If sensitivity measures are correct, applying them to market changes should lead to a good enough approximation of P&L

COUNTERPARTY RISK MANAGEMENT

- The objective is to have the best possible idea about who are we placing our products' cash with, why, how and by how much.
- Market perception about stressed financial conditions or specific situations with individual names is reviewed alongside those numbers
- Regular counterparty risk analysis is performed daily. Written report produced weekly.
- IR&P chairs the monthly CRC (counterparty risk committee meeting). Higher frequency might be triggered depending on market condition.
- The head of IR&P reports to R&G (Risk & Governance) about CRC findings and suggestions
- CRC maintains the list of potential counterparties and PBs which is selected on the basis of very restrictive criteria.
- Counterparty risk mitigation actions are considered alongside option to enhance cash returns if the risk/reward is sensible enough
- A contingency plan triggered by certain market developments (systemic or counterparty specific) is available.

SYSTEMS

➤ External systems

- *Factset* system of choice for performance attribution analysis
- OMGI RM&P is *Bloomberg Enterprise* user and beta tester for the new PORT functions

➤ Proprietary developments

- Targeting the highest possible degree of automation allowing routine tasks running in the background
- Maximising the amount of time available for *ad hoc* portfolio and market analysis and development
- *Bloomberg analytics* integrated within OMGI IT hub to provide market data and risk analytics (VaR and Scenarios analysis)
- Proprietary framework for risk reporting allowing the highest degree of customization
- All procedures properly documented and underlying algorithms properly explained on our internal *Wiki*

TEAM

Matteo Castagna (matteo.castagna@omglobalinvestors.com): Head of IR&P

Graduated from “L.Bocconi” University D.E.S course. Involved since 1990 in financial markets covering a wide range of duties. After an initial period as an analyst (3+ years) worked for 10+ years as a trader (proprietary trading and fund management) for *Bankers Trust*, *Banesto*, *Banco Zaragozano* in London, Milan and Madrid. Since 2004 moved to support areas: initially joined *Vega Asset Management* middle office and then in 2006 become Executive Director *Market Risk Management* for *Proxima Alfa Investment* (JV between *Vega A.M.* and *BBVA*) reporting directly to the company COO.

Stephane Dancygier FRM (stephane.dancygier@omglobalinvestors.com): Risk Management

Graduated from the University of Birmingham with a B.Com in Accounting, Commerce and French. Went on to work for Deutsche Bank, Morgan Stanley and JP Morgan for a total of 10 years covering middle office roles in the collateral, Interest Rate Swaps, Credit Derivatives and Repo projects. Joined OMAM in 2007 in a project capacity and moved to the risk department in 2009. Obtained the FRM qualification as part of this current position.

Chris Packer IAQ (chris.packer@omglobalinvestors.com): Peer Group Analysis and reporting

Prior to joining OMAM Chris was with the secretarial/administrative team of Barclays Corporate Banking Sector in Hampstead, London (1991 to 1995). Chris originally joined Old Mutual via the merger of *Capel-Cure Myers (CCM)/Sharp and Gerrard* acquisitions where she was responsible for training administration and then transferring to Settlements where she held the position of PA to the Director of Settlements. In recent years Chris has held various positions in administration and support roles at OMAM.

Shaun Fennell (shaun.fennell@omglobalinvestors.com): Performance Analysis and Attribution

Masters degree, majoring in investments, he is a part qualified actuary and a holder of the Investment Management Certificate (CFA UK) RDR compliant. Working as a trainee actuary early in his career, he transitioned into asset management as an Investment Risk Analyst in Skandia Investment Group. Upon joining Old Mutual Global Investors in 2012, he is now specialising in the Investment Performance space within the Investment Risk and Performance function..

2.0 INVESTMENT RISK MANAGEMENT

FEW MORE DETAILS

RELEVANT MAGNITUDES

- Ex ante risk: part of the definition of the product and accepted by the client.
 - Is the current portfolio fit to deliver that risk?
 - Is the current portfolio respectful of the strategy being marketed?
- Ex post performance (absolute or vs. some indicator) delivered:
 - is the ex-post performance in line with what the client expect?
 - how does it compare to the ex-ante measures?
- Liquidity measures:
 - Measuring portfolio liquidity is crucial because this is where typically funds fail
 - Equity measure based on the estimate of ADV and hypothesis about how much we can trade of the ADV without affecting market price (default 10%-20%)
 - Fixed income measure based on factors using a proprietary model
- Counterparty risk:
 - Making sure all the residual cash and collateral pledged are accounted for; set types and merge counterparties
 - Monitor markets via fairly standard indicators: CDS spread, equity, country, rating movements

EX-ANTE RISK

- We accept it's better to make 1\$ risking 50p than making 1\$ risking 75p
- The problem is measuring the ex-ante risk
- Measuring how much you stand to lose is plain difficult:
 - VaR measures are pro-cyclical (you take more risk when you should take less, you take less risk when you should take more), normally late and always wrong when you mostly need them (i.e. when the really unexpected and the unheard of happens)
 - Scenarios don't cover the unknown

MEASURES OF RISK AND TEST OF THOSE MEASURES

- Synthetic measures: VaR, Scenarios
- Portfolio analysis: concentration, liquidity, sensitivity
- Sanity checks of those measures:
 - Apply market changes to sensitivity measures and compare to P/L
 - Ex-ante measures with ex-post results

RISK ALLOCATION AND RISK ADJUSTED P&L

- Marginal VaR: how much each position contributes to the overall risk
- It offers the sought for bridge between ex-ante and ex-post analysis
- We can compare ex-ante risk with portfolio weight and ex-post performance:
 - We can weight the ex-post performance by the ex-ante risk: this will give you an idea about how good was a trading idea
 - We can also compare risk distribution with portfolio weights distribution: if a trading idea adds a lot of risk compared with its portfolio weight, this is telling us how much the PM believes in that position.
 - Finally we can say something about how good was the performance of each portfolio item vs. the risk that was taken in the first place

3.0 REGULAR REPORTS



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