Risk, cost and growth issues impacting investment managers
Dushyant Shahrawat, Senior Research Director, TowerGroup
Growth, Risk/Regulation and Cost Issues in Investment Management

Implications for IT and Operations

Dushyant Shahrawat, CFA
Senior Research Director
Capital Markets
## GROWTH

| Changing Demographics | DB to DC | International Growth | Passives, Hedge Funds |

## RISK/REGULATION

| Systemic Risk | New Regulations | IT Costs | Competitive Impact |

## COST

| Fee Shrinkage | Operating Leverage | Regulatory Costs | Antiquated IT |
## DISCOVERING GROWTH OPPORTUNITIES

<table>
<thead>
<tr>
<th>GROWTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing Demographics</td>
</tr>
<tr>
<td>DB to DC</td>
</tr>
<tr>
<td>International Growth</td>
</tr>
<tr>
<td>Passives, Hedge Funds</td>
</tr>
</tbody>
</table>
GLOBAL MUTUAL FUND ASSETS HAVE CLIMBED BACK UP, BUT THINGS HAVE CHANGED

Total Worldwide Net Mutual Fund Assets
Billions of USD, 2006 – 2011 Q4

<table>
<thead>
<tr>
<th>Year</th>
<th>Equity</th>
<th>Bond</th>
<th>Money Market</th>
<th>Balanced / Mixed</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$25.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>$18.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2009</td>
<td>$21.9</td>
<td></td>
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<tr>
<td>2010</td>
<td>$24.7</td>
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<tr>
<td>2011</td>
<td>$23.8</td>
<td></td>
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</tr>
</tbody>
</table>

Source: Investment Company Institute

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HEDGE FUNDS HAVE RECOVERED NICELY, BUT ARE 16% BELOW THEIR 2008 HIGH

Total Worldwide Hedge Fund Assets
Trillions of USD, 2006 – 2011 Q4

Source: HedgeFund.Net
MUTUAL FUNDS, HEDGE FUNDS & ETFs OVER TIME

Percentage of Total AUM in Mutual Funds, Hedge Funds & ETFs, 2004 - 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Mutual Funds (In $Billions)</th>
<th>Hedge Funds (In $Billions)</th>
<th>ETFs (In $Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>15,698</td>
<td>1,293</td>
<td>309</td>
</tr>
<tr>
<td>2006</td>
<td>20,953</td>
<td>2,154</td>
<td>565</td>
</tr>
<tr>
<td>2008</td>
<td>18,122</td>
<td>1,932</td>
<td>711</td>
</tr>
<tr>
<td>2010</td>
<td>24,699</td>
<td>2,473</td>
<td>1,311</td>
</tr>
<tr>
<td>2011</td>
<td>23,781</td>
<td>2,461</td>
<td>1,350</td>
</tr>
</tbody>
</table>

Sources: BlackRock, ICI, HedgeFund.Net
MAJOR GROWTH CONSIDERATIONS

- Best years for buy-side still ahead, but must address challenges around risk/cost/confidence

- Major growth opportunities:
  - Shift from DB to DC
  - Ageing Population and Retirement shortfall
  - Emerging markets are big opportunity but require: 1) product changes, 2) infrastructure, 3) experience

- Future growth won’t come from Benchmark-hugging Active strategies, but mix of Traditional Active/Alternative/Passive

- Loss of investor confidence, shifts in asset allocation, and greater transparency will drive impact
A WORLD MAP AS WE’RE USED TO SEEING IT

Source: Worldmapper
AN ALTERED WORLD MAP IN PROPORTION TO GLOBAL POPULATION

Source: Worldmapper
AN ALTERED WORLD MAP IN PROPORTION TO WHERE MONEY WILL BE IN 2015

Source: Worldmapper
HOW INTERNATIONAL ARE WELL-KNOWN US ASSET MANAGERS REALLY?

Fidelity Investments

- US Assets: 19%
- International Assets: 81%

State Street

- US Assets: 33%
- International Assets: 67%

Vanguard

- US Assets: 3%
- International Assets: 97%

T. Rowe Price

- US Assets: 7%
- International Assets: 93%

Wellington Management

- US Assets: 27%
- International Assets: 73%

BlackRock

- US Assets: 35%
- International Assets: 65%

Source: *Pensions and Investments*
AGGREGATING THE TOP 15 US ASSET MANAGERS: BIG PROPORTION IS NON-US CLIENT MONEY

<table>
<thead>
<tr>
<th>US</th>
<th>74%</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>26%</td>
</tr>
</tbody>
</table>

- Fidelity Investments
- Wellington Management
- State Street
- Vanguard
- Legg Mason
- T. Rowe Price
- BlackRock Merrill Lynch Investment Managers
- Janus
- Capital Group Companies
- AIG
- Northern Trust
- Alliance Bernstein
- BNY Mellon
- Goldman Sachs
- Asset Management
- JPMorgan
NOT SURPRISINGLY, GLOBALIZATION IS A MAJOR PRIORITY FOR ASSET MANAGEMENT TECHNOLOGY

Major Business Drivers in 2012
- Demand for more transparency and disclosure
- Increased regulation and uncertainty
- Quest to generate risk-adjusted returns
- Manage margin pressure

Strategic Responses
- Refocus firm on core business activities
- Enhance operational and IT efficiency
- Realignment of Incentives
- Reevaluate product offerings to match customer requirements

Top 10 Technology Initiatives for Investment Management

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Strategic Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade risk management capability</td>
<td>Invest in global tech projects; expand overseas operations</td>
</tr>
<tr>
<td>Enhance client, internal, and regulatory reporting</td>
<td>Upgrade software to comply with new products</td>
</tr>
<tr>
<td>Focus on centralized data management</td>
<td></td>
</tr>
<tr>
<td>Invest in global tech projects; expand overseas operations</td>
<td></td>
</tr>
<tr>
<td>Upgrade trading apps and low latency</td>
<td></td>
</tr>
<tr>
<td>Improve connectivity to trading venues</td>
<td></td>
</tr>
<tr>
<td>Outsource investment operations</td>
<td></td>
</tr>
<tr>
<td>Projects on OTC derivatives management</td>
<td></td>
</tr>
<tr>
<td>Evaluate innovative IT (cloud, tablets)</td>
<td></td>
</tr>
</tbody>
</table>

Source: TowerGroup
FUTURE GROWTH WILL COME LESS FROM MUTUAL FUNDS, MORE FROM ALTERNATIVES & PASSIVES

Hedge Funds
Alternatives

MUTUAL FUND

Pure Alpha

ETF
Index Funds

Pure Beta
NEW SET OF PRODUCTS GROWING BETWEEN TRADITIONAL ACTIVE AND PASSIVE STRATEGIES

Traditional Active Strategies
- Mutual Funds
- UCITS

Exotic Beta
- Active Indexing
- Fundamental Indexing
- Active ETFs
- Leveraged ETFs

Passive Strategies
- ETFs
- ETNs
- Index Funds
RESPONDING TO RISK AND REGULATORY CHALLENGES

<table>
<thead>
<tr>
<th>RISK/REGULATION</th>
<th>Systemic Risk</th>
<th>New Regulations</th>
<th>IT Costs</th>
<th>Competitive Impact</th>
</tr>
</thead>
</table>

FINANCIAL SERVICES PRACTICE, CAPITAL MARKETS
<table>
<thead>
<tr>
<th>Loss</th>
<th>Country</th>
<th>Firm</th>
<th>Year</th>
<th>Source of Loss</th>
<th>Person Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7.1</td>
<td>France</td>
<td>Societe Generale</td>
<td>2008</td>
<td>European index futures</td>
<td>Jerome Kerviel</td>
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<tr>
<td>$6.7</td>
<td>Canada</td>
<td>Amaranth</td>
<td>2006</td>
<td>Gas futures</td>
<td>Brian Hunter</td>
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<tr>
<td>$5.8</td>
<td>US</td>
<td>Long-Term Capital Mgmt</td>
<td>1998</td>
<td>Interest rate, equity derivatives</td>
<td>John Meriwether</td>
</tr>
<tr>
<td>$3.4</td>
<td>Japan</td>
<td>Sumitomo Corp.</td>
<td>1996</td>
<td>Copper futures</td>
<td>Yasuo Hamanaka</td>
</tr>
<tr>
<td>$2.4</td>
<td>US</td>
<td>Orange County</td>
<td>1994</td>
<td>Interest rate derivatives</td>
<td>Robert Citron</td>
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<tr>
<td>$2.3</td>
<td>Swiss</td>
<td>UBS</td>
<td>2011</td>
<td>Delta One - ETFs</td>
<td>Kweku Adoboli</td>
</tr>
<tr>
<td>$2.1</td>
<td>Brazil</td>
<td>Aracruz</td>
<td>2008</td>
<td>FX options</td>
<td>Isac Zaguri, Rafael Sotero</td>
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<tr>
<td>$2.0</td>
<td>US</td>
<td>JPMorgan</td>
<td>2012</td>
<td>Credit Default Swaps</td>
<td>Ina Drew</td>
</tr>
<tr>
<td>$1.9</td>
<td>Austria</td>
<td>BAWAG</td>
<td>2000</td>
<td>FX trading</td>
<td>Wolfgang Flottl, Helmut Elsner</td>
</tr>
<tr>
<td>$1.9</td>
<td>Germany</td>
<td>Metallgesellschaft</td>
<td>1993</td>
<td>Oil futures</td>
<td>Heinz Schimmelbusch</td>
</tr>
</tbody>
</table>
### RELATIVE IMPORTANCE OF RISK ISSUES TO DIFFERENT MARKET PARTICIPANTS

<table>
<thead>
<tr>
<th></th>
<th>Counterparty</th>
<th>Liquidity</th>
<th>Market</th>
<th>Operational</th>
<th>Portfolio</th>
<th>Settlement</th>
<th>Sovereign</th>
<th>Regulatory</th>
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<td>Credit</td>
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<tr>
<td>Retail Brokers</td>
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<td>Registered Inv Advisors</td>
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<tr>
<td>Institutional Broker/Dealers</td>
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<tr>
<td>Execution Venues</td>
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<tr>
<td>Mutual Funds</td>
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<td>Hedge Funds</td>
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<tr>
<td>European Universal Banks</td>
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</tbody>
</table>

**Key:**
- ☐ Low Significance
- ⬜ High Significance
THREE OBSERVATIONS ABOUT RISK MANAGEMENT

- Buy-side re-learning importance of downside protection (‘risk-adjusted’ over ‘absolute’ return)
- Huge focus on systemic risk, may be crowding out firm-specific risk
- Effective risk management is hard & complicated: needs IT spending… Cultural change… Discipline… Out-of-box thinking
- Requires appropriate IT applications, infrastructure, and data. All integrated well together
REGULATION REMAINS A MAJOR INFLUENCER AND DRIVER OF INDUSTRY PRIORITIES

Business Drivers

• Risk of Euro Zone Meltdown
• Pressure for Greater Transparency & Disclosure
• Regulatory Compliance & Optimization
• Reassessment of IT Operating Model
• Manage Globalization

Strategic Responses

• Refocus Firm on Core Business Activities
• Enhance Operational and IT Efficiency
• Realignment of Incentives
• Reevaluate Product Offerings to Match Customer Requirements

Top 10 Technology Initiatives for Capital Markets

<table>
<thead>
<tr>
<th>Bolster Risk Management Capability</th>
<th>Learn to Live with Radical Transparency and Disclosure</th>
<th>Implement Agile Data Management</th>
<th>Align IT Investment with New Growth Markets</th>
<th>Challenge Vendors on Big Data and Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade Trading IT for Market Reform</td>
<td>Connect to Market Infrastructures Across Trade Lifecycle</td>
<td>Consolidate Vendors; Right Source Operations</td>
<td>Leverage Existing Investments for OTC Derivatives</td>
<td>Selectively Employ New Technology (e.g. Cloud, Tablets)</td>
</tr>
</tbody>
</table>
AFTER POLICYMAKERS MOOD CHANGE, DID WE THINK THEY WOULD LEAVE US ALONE?
BUY-SIDE/SELL-SIDE WILL SPEND $27 BILL. OVER 2011-2013

Regulatory IT Spending in US $Millions

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Asset Managers</th>
<th>Broker/ Dealers</th>
</tr>
</thead>
<tbody>
<tr>
<td>MiFID II</td>
<td>$3,075</td>
<td>$3,550</td>
</tr>
<tr>
<td>OTC Derivatives &amp; EMIR</td>
<td>$2,025</td>
<td>$2,850</td>
</tr>
<tr>
<td>Dodd-Frank Act</td>
<td>$1,200</td>
<td>$2,400</td>
</tr>
<tr>
<td>US Trading Changes</td>
<td>$1,775</td>
<td>$3,550</td>
</tr>
<tr>
<td>UCITS IV</td>
<td>$1,650</td>
<td></td>
</tr>
<tr>
<td>Solvency II</td>
<td>$675</td>
<td>$1,075</td>
</tr>
<tr>
<td>Basel III</td>
<td>$300</td>
<td>$300</td>
</tr>
<tr>
<td>FATCA</td>
<td>$460</td>
<td>$525</td>
</tr>
</tbody>
</table>

Total Spending

<table>
<thead>
<tr>
<th></th>
<th>$11,560 Bill.</th>
<th>$15,500 Bill.</th>
</tr>
</thead>
</table>
MAPPING DIFFERENT REGULATIONS ACROSS FOUR DIMENSIONS

Cross-Border Impact
Localized Impact

Impact on Business Strategy

High
Low

Impact on IT

Low
High

OTC Market Changes
AIFMD
UCITS IV
Cost-Basis Accounting
Money Market Fund Rules
FATCA
Basel III
Solvency II
Standardizing FASB & IASB
MiFID II
Dodd-Frank

OCNSD ICNEDCN CSDMKETN CEI JPNKU MICHAN

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NEW REGULATIONS CAN ALTER COMPETITIVE LANDSCAPE

Hedge Funds Vs. Mutual Funds
Passive Managers Vs. Active Managers
European Securities Firms Vs. US Securities Firms
Exchanges Vs. ECNs/Brokers
Custodian Banks Vs. OTC Brokers / Banks
REGULATORY REFORMS WILL HAVE WIDE IMPLICATIONS

– New laws represent single biggest expense, distraction and uncertainty; but don’t envy Wall Street!

– New regulations will impact: 1) Revenues, 2) Costs, 3) Competition

– Improves case for ‘integrated’ systems over ‘best of breed’

– May spur new approaches like Cloud adoption, Outsourcing, and SaaS models.
RESPONDING TO COST CHALLENGES

<table>
<thead>
<tr>
<th>COST</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Fee Shrinkage</td>
<td>Operating Leverage</td>
<td>Regulatory Costs</td>
<td>Antiquated IT</td>
</tr>
</tbody>
</table>

Do I have to cut costs?
IT BUDGETS ARE REVIVNG, BUT DON’T GET YOUR HOPES UP!

Estimated Aggregate IT Spend by North American Investment Managers

Millions of USD, 2008 – 2013P

Source: CEB TowerGroup Analysis
DECLINING FEES EXERT COST PRESSURE ON MUTUAL FUNDS

Mutual Fund Fees and Expenses Have Fallen by More Than Half Since 1990
Basis points, 1990–2010

<table>
<thead>
<tr>
<th>Impact of Declining Mutual Fund Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Mutual Fund Assets, End 2010</td>
</tr>
<tr>
<td>3 Bp decline in Fees in 2010</td>
</tr>
<tr>
<td>Average Decline per Top 50 Fund</td>
</tr>
</tbody>
</table>

Stock funds and bond funds

Source: Investment Company Institute (ICI); TowerGroup Analysis
THE BLACKROCK/BGI MERGER WAS PARTLY DRIVEN BY COST PRESSURES
CHANGES IN SECURITIES TRADING FORCE BUY-SIDE TO INCREASE IT EXPENDITURE

- Market Fragmentation
- Exchange Consolidation
- HFT
- Low Latency Trading
- Wall Street Upheaval
- Contraction in Trade Size

FINANCIAL SERVICES PRACTICE, CAPITAL MARKETS
CLEARING AND SETTLEMENT COSTS IN EUROPE ARE A BIG PROBLEM FOR ASSET MANAGERS

Range of Clearing/Settlement Costs

Source: From the NERA report “The Direct Costs of Clearing and Settlement: An EU-US Comparison”
MAJOR COST IMPLICATIONS FOR IT

– Strengthens case for ‘integrated investment management system’ over ‘best of breed’ approach

– Firms replace homegrown applications with 3rd party software

– Outsourcing, Offshoring and Managed services to grow

– Large managers monetize assets by “renting out their IT/Ops”

– Growing interest in new service delivery mechanisms (Cloud, SaaS)
HISTORICALLY, ASSET MANAGERS HAVE NOT BEEN ON THE CUTTING EDGE OF TECHNOLOGY

“Frankly sir, we’re tired of being on the cutting edge of technology.”
BUT SOME NEW TECHNOLOGIES AND CONCEPTS LOOK PROMISING
HERE’S THE TRUTH ABOUT TECHNOLOGY IN THE INVESTMENT BUSINESS…

All too often we take what we’ve got,

and we *soup it up* a bit,

when what we really want is…
Meanwhile, Reality is that Parts of the Industry’s IT Looks Like This...
Questions?

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