



MATCHING ASSETS AND LIABILITIES IN LONG-TERM TAKAFUL PROVISION

London, July 12, 2012

Ludwig Stiffl

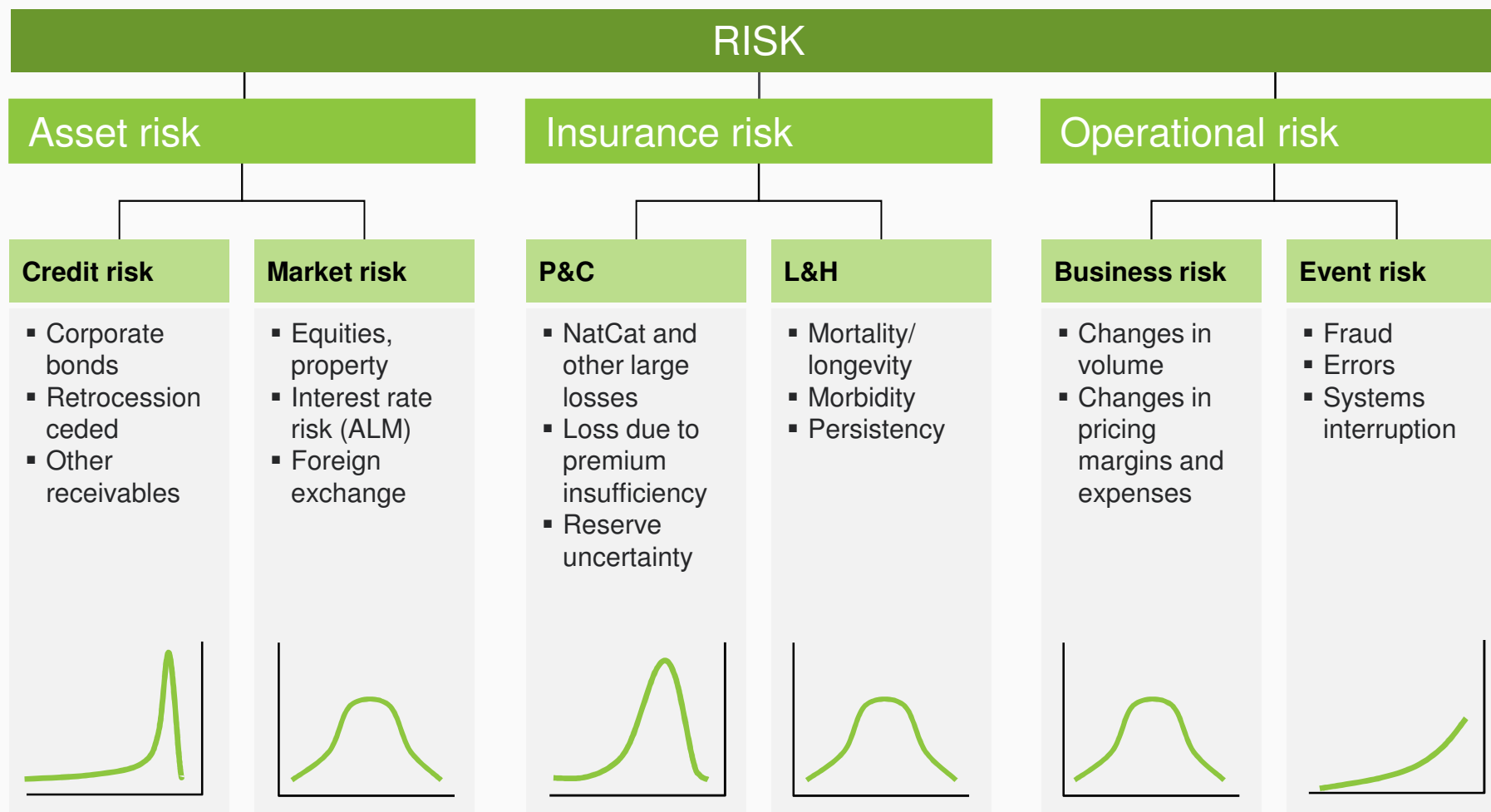
Agenda

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1. The conventional ALM process
 2. Is it applicable in takaful?
 3. What Islamic markets lack and what renders them most vulnerable
 4. A new convergence of conventional to Islamic markets?
 5. Sketch of takaful-compliant ALM

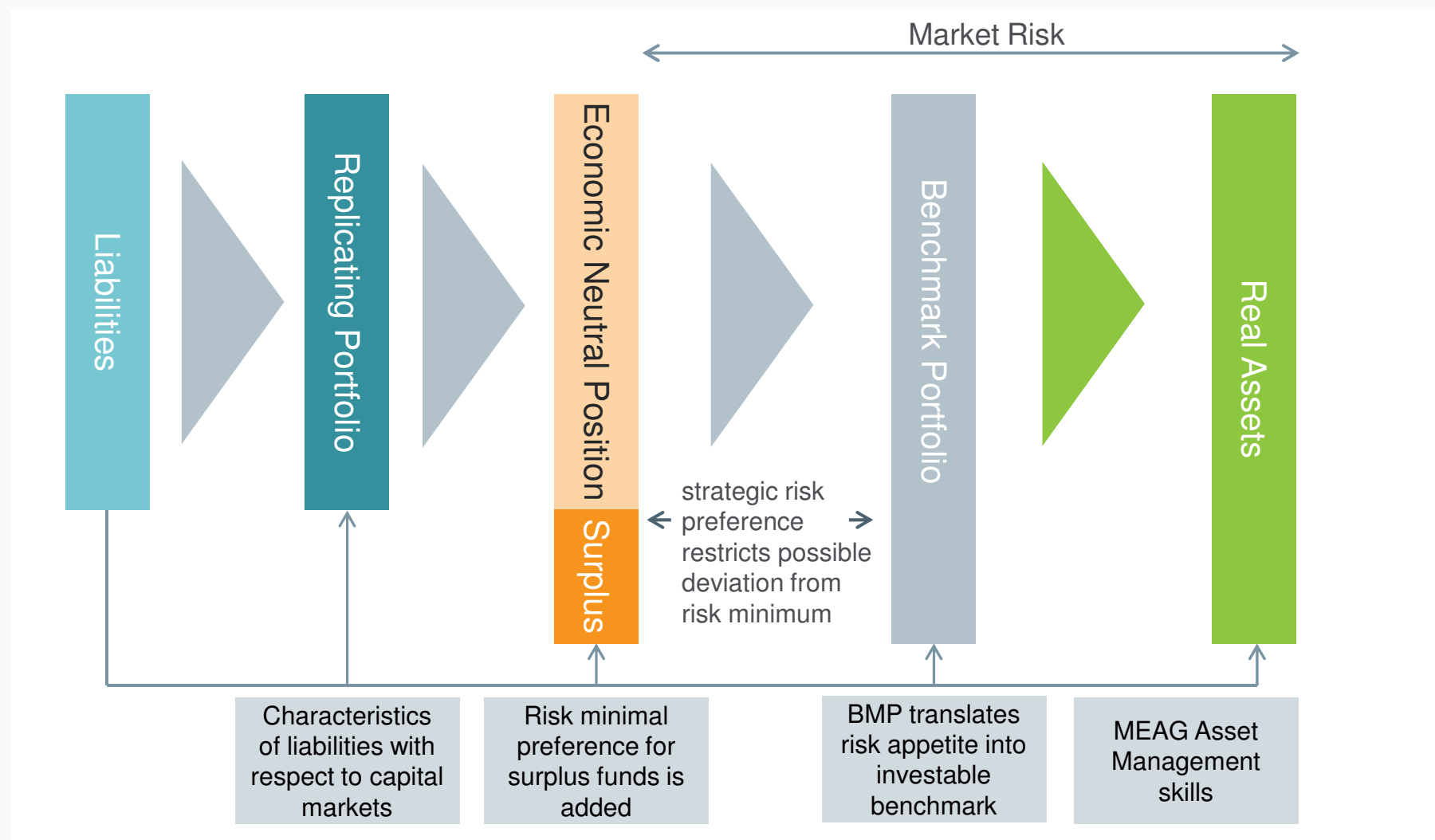
THE CONVENTIONAL ALM PROCESS AS APPLIED IN MUNICH RE



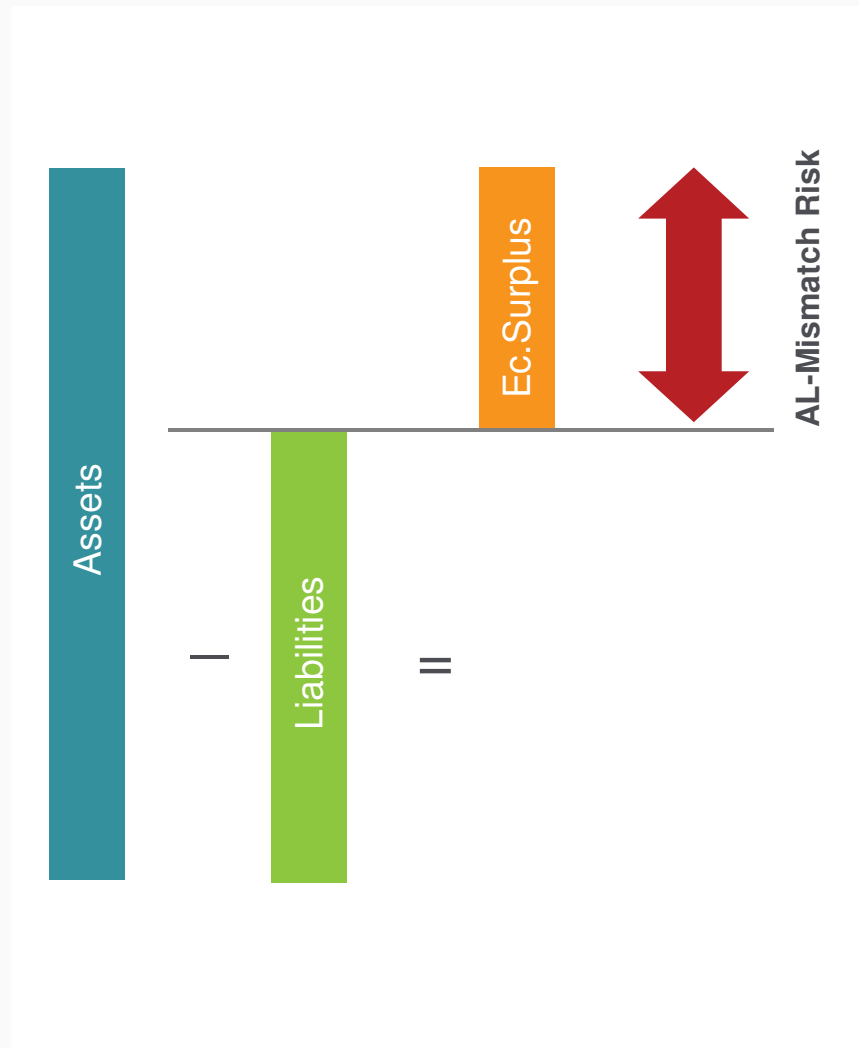
The Risks Requiring an Economic Capital Model



The Liability Driven Investment Process



Asset-Liability-Mismatch Risk: fluctuation in economic surplus



- Asset-Liability-Mismatch risk is the uncertainty to suffer a loss of surplus value due to changes in capital market factors
- Here, surplus value is defined as difference between market value of tangible assets and market consistent value of current liabilities
- Capital market factors are:
 - Currency
 - Interest rates
 - Inflation
 - Credit
 - Equity

Diversification Gains between the different lines and risk categories

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MANAGEMENT REPORT // RISK REPORT

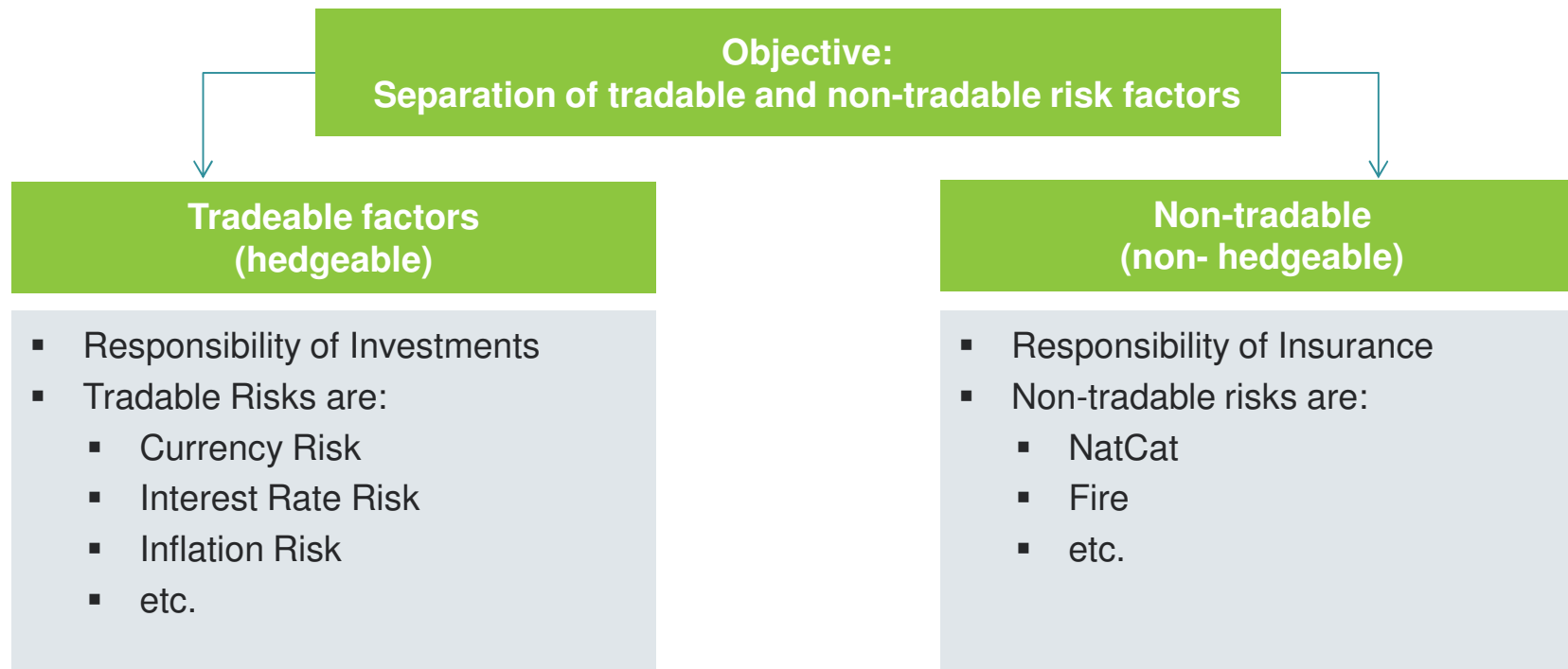
Economic risk capital (ERC)

| €bn | Group | Reinsurance | Primary insurance | Munich Health |
|------------------------|-------------|-------------|-------------------|---------------|
| Property-casualty | 9.5 | 9.4 | 0.6 | - |
| Life and health | 6.6 | 4.8 | 2.5 | 0.6 |
| Market | 11.4 | 5.7 | 8.5 | - |
| Credit | 6.7 | 4.5 | 2.2 | - |
| Operational risk | 1.2 | 0.9 | 0.6 | 0.1 |
| Subtotal | 35.4 | 25.3 | 14.4 | 0.7 |
| Diversification effect | -11.0 | -8.8 | -3.1 | - |
| Total | 24.4 | 16.5 | 11.3 | 0.7 |

With the Replicating Portfolio we translate the liabilities into the language of investments

Definition Replicating Portfolio

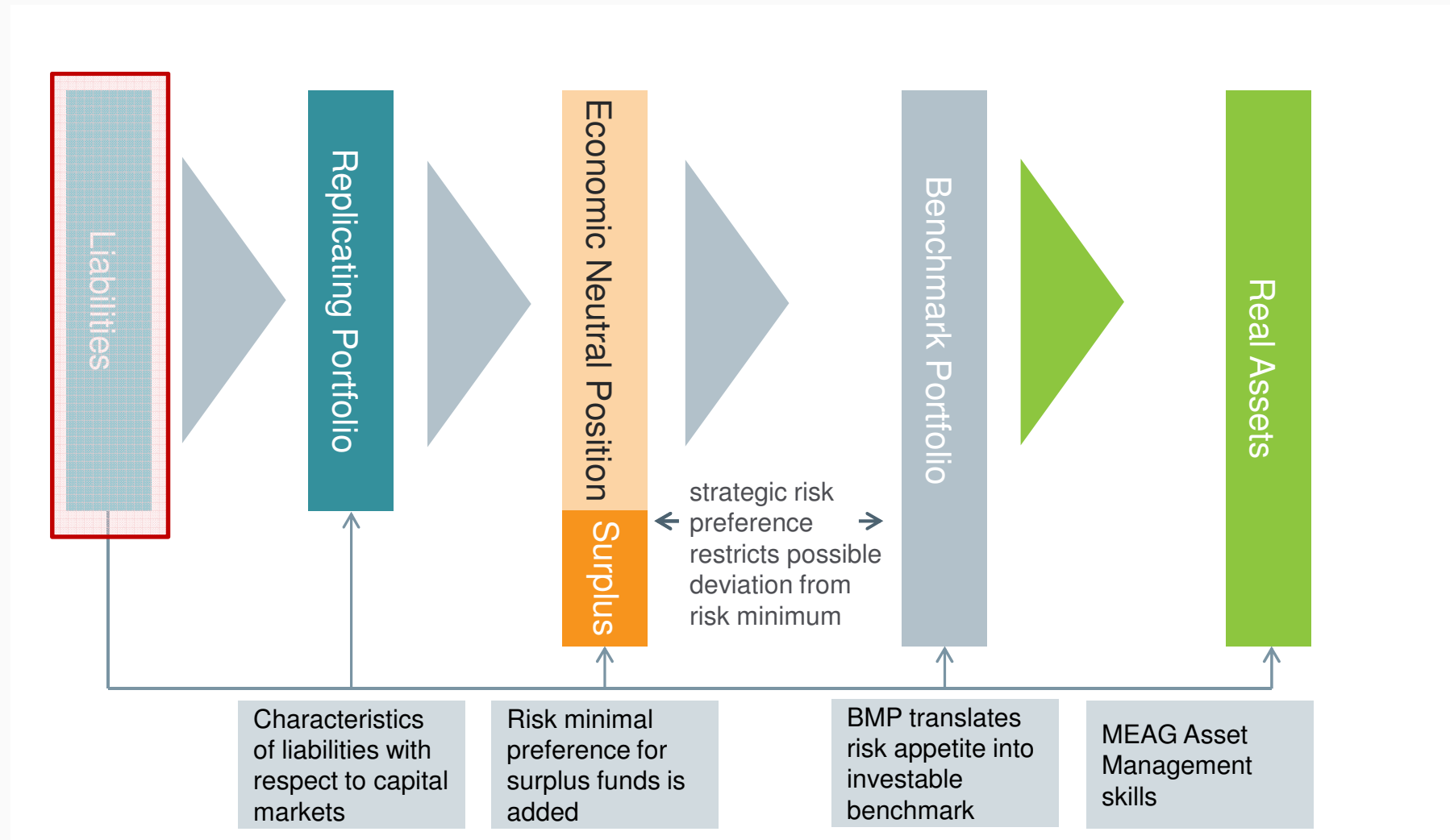
Investable portfolio that replicates the tradable risk factors within the liabilities and minimizes the fluctuation of economic capital (minimal AL-Mismatch Risk).



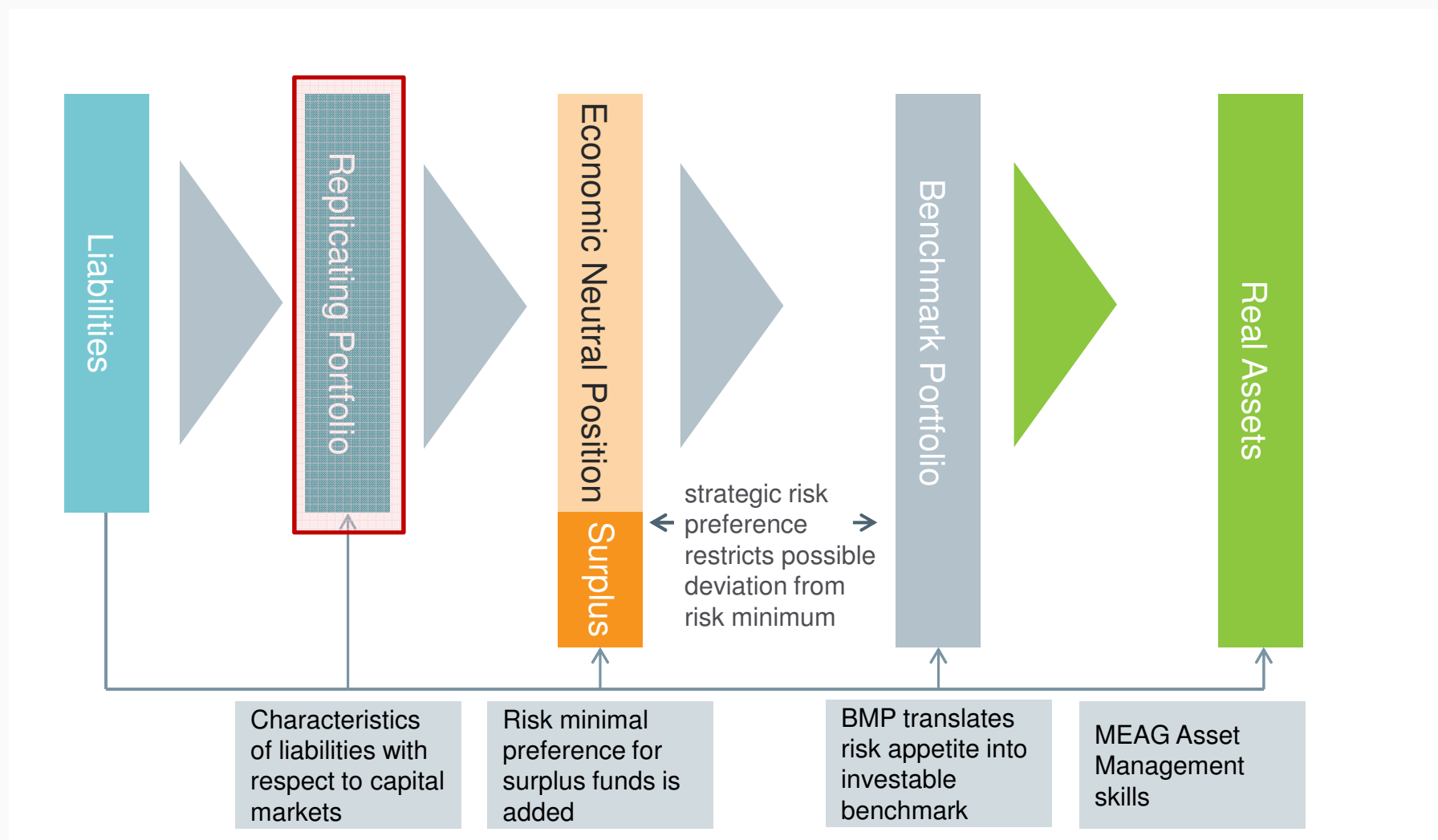
IS IT APPLICABLE IN TAKAFUL?



1. Does a TO (wakeel) have liabilities at all, or only the participants?

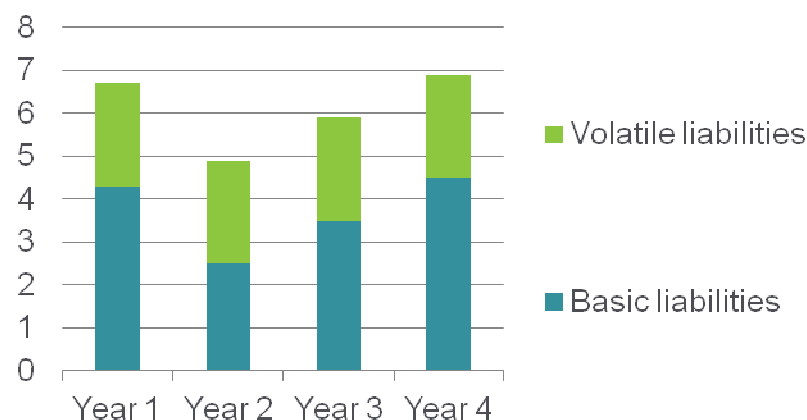


2. Can a TO replicate replicate a risk-minimal position?

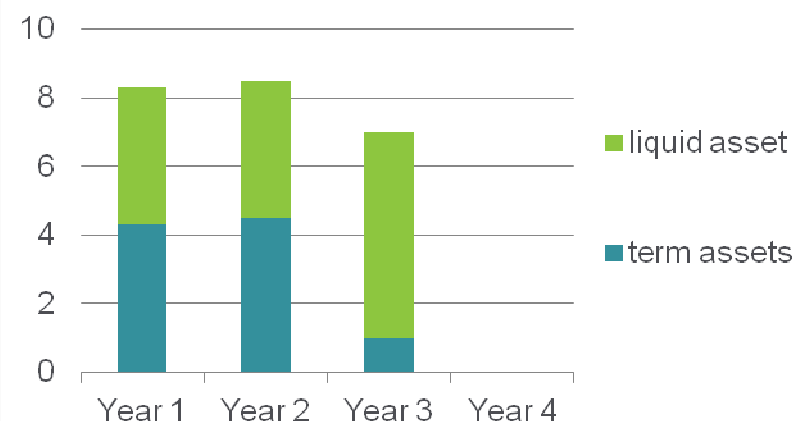


Conventional insurers have better opportunities to match their liabilities

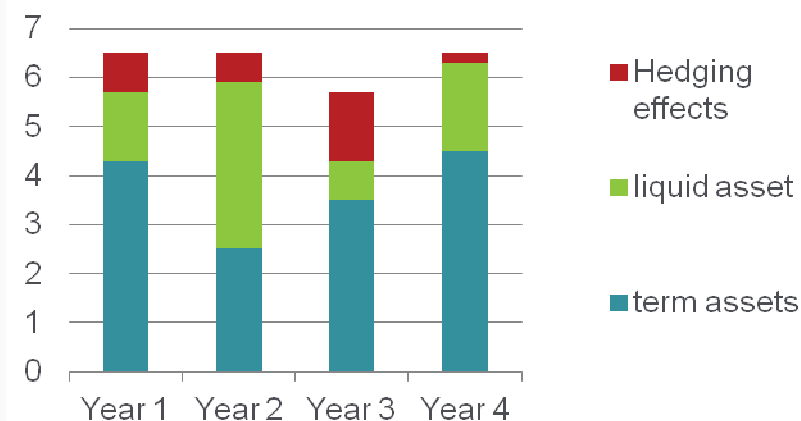
1. Liability structure



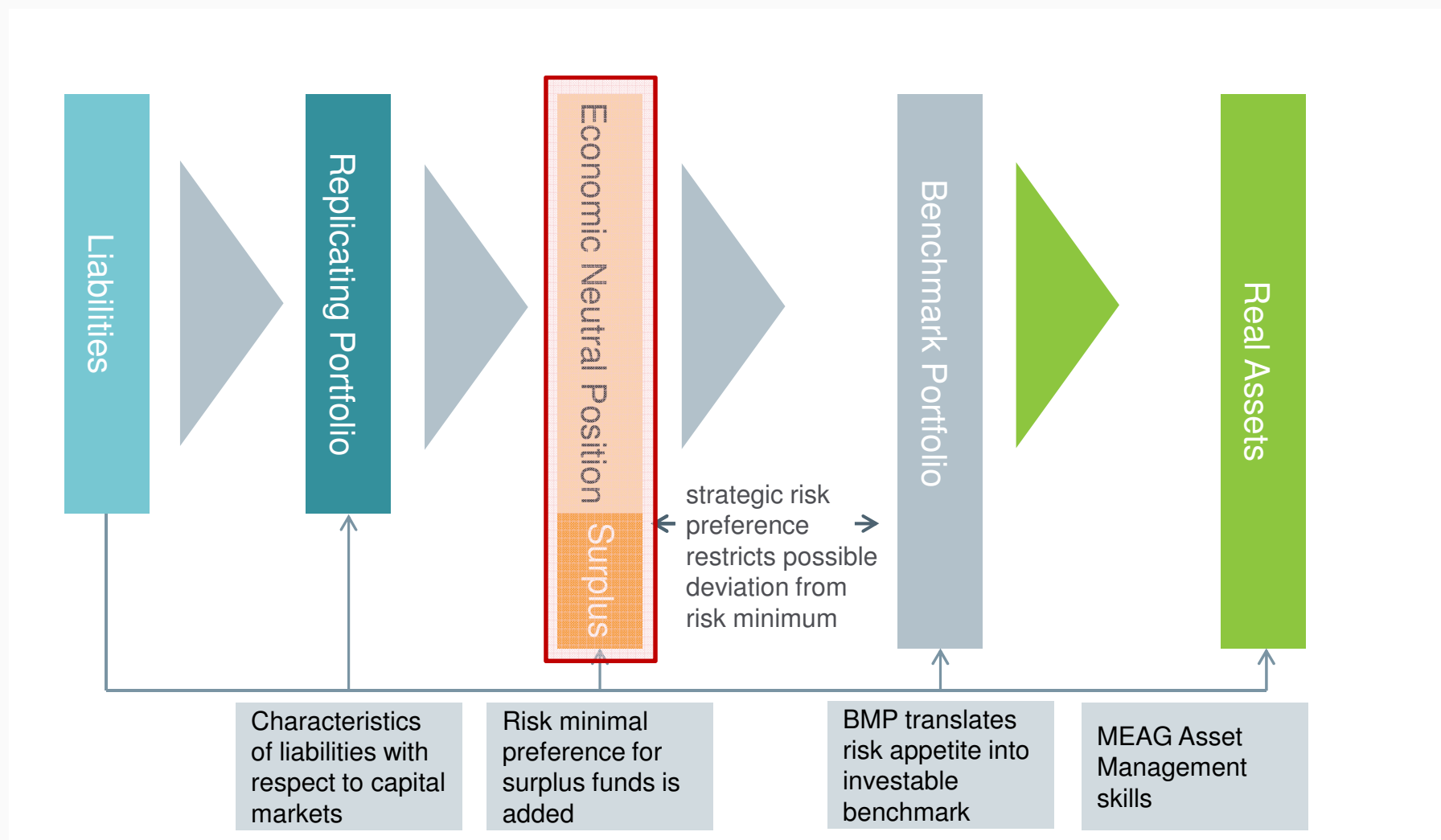
3. Takaful portfolio



2. Conventional portfolio

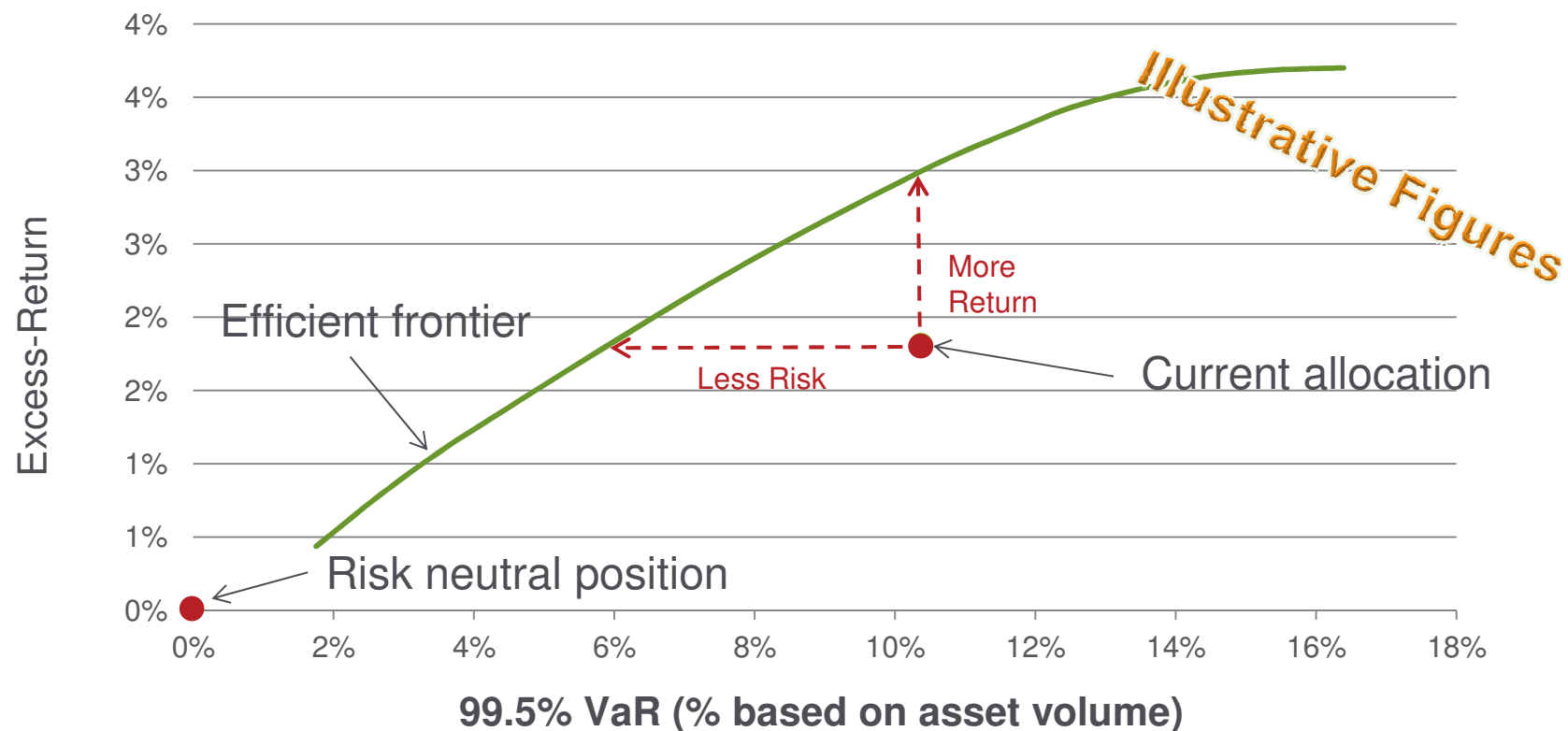


3. What is a neutral (risk-minimal) position in takaful?



Optimization of clients investment portfolio by taking liabilities into account

Current allocation vs. efficient frontier



Alpha helps to increase the efficiency of clients investment portfolio. Clients profit from a decrease in risk with the same expected return or from a increase in return by keeping the risk level at the current portfolio.

Is this applicable for (re-)takaful operators?

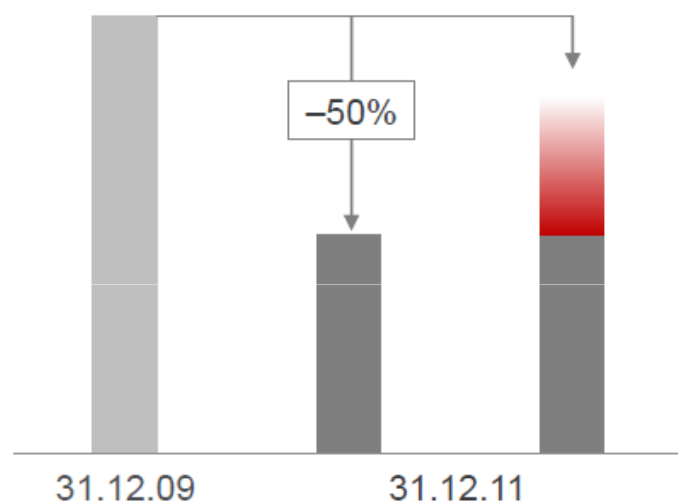
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- Islamic asset classes are not available in the same granularity as the liabilities to allow replication of liabilities
 - A neutral (risk-free) position does not exist by definition
 - A wakeel's right to determine benchmarks for risk appetite is questionable
 - Separation of family and general funds undermine diversification gains

Is it necessary?

- In theory, the participants carry the technical and the investment risk. Yields are not relevant.
- Can qard hassan be given and repaid for market and/or operational failures?
- Result: ALM reflects shareholder's rights and responsibilities as in conventional. ALM has to be maintained to respect both shareholders and participants' rights

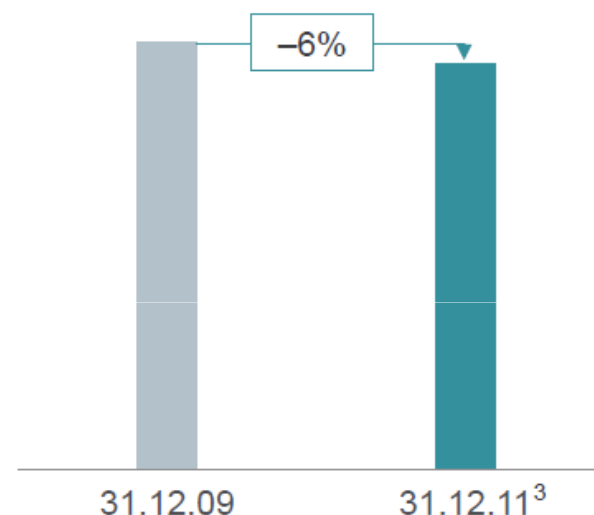
Do TO need Asset-liability management?

Estimated impact on industry AFR



- Realisation of market risk (including those not covered by QIS5)¹
- Shortfall partly compensated for by valuation adjustments²

Impact on Munich Re AFR



- Realisation of market risk dampened by
 - Below-average market risk exposure
 - Spread-profits from German bunds concentration

Munich Re's AFR proved to be far more resilient to market risks than industry

¹ Based on EIOPA's QIS5 Report.

² Partial compensation of losses due to bond spread widening via valuation adjustments, e.g. Counter-Cyclical Premium or Matching Premium.

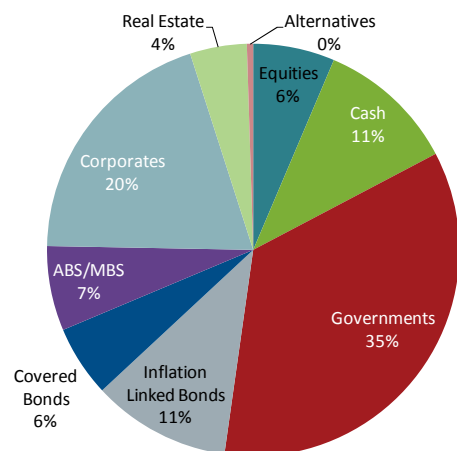
³ Without recognition of the impact of restatement in the AFR.

WHAT ISLAMIC MARKETS LACK AND WHAT RENDERS THEM MOST VULNERABLE



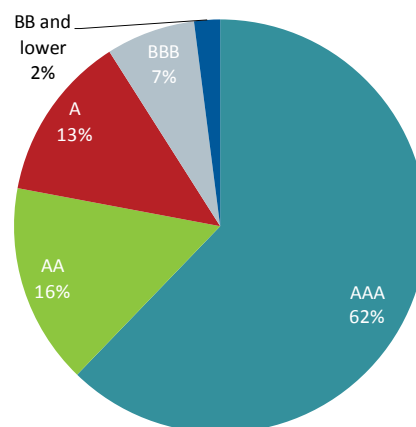
Well-balanced portfolio focused on stable returns with limited downside risk

Asset allocation (74 bn €)



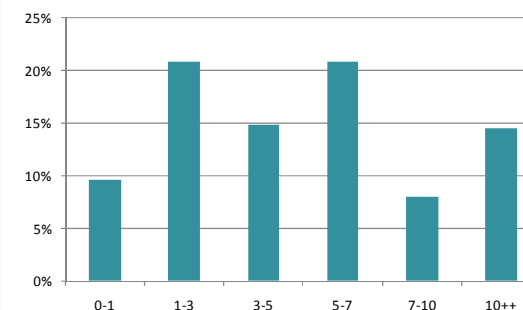
- Large Government Portfolio
- Inflation linked bonds to cover inflation sensitivity of insurance business
- Moderate Risky Asset exposure (Credit, Equities, Private Equity), partly protected

Rating classes



- Predominantly invested in highly rated credit investments
- 98% of fixed income portfolio invested in Investment Grade
- Only little exposure to Greece, Portugal and Ireland

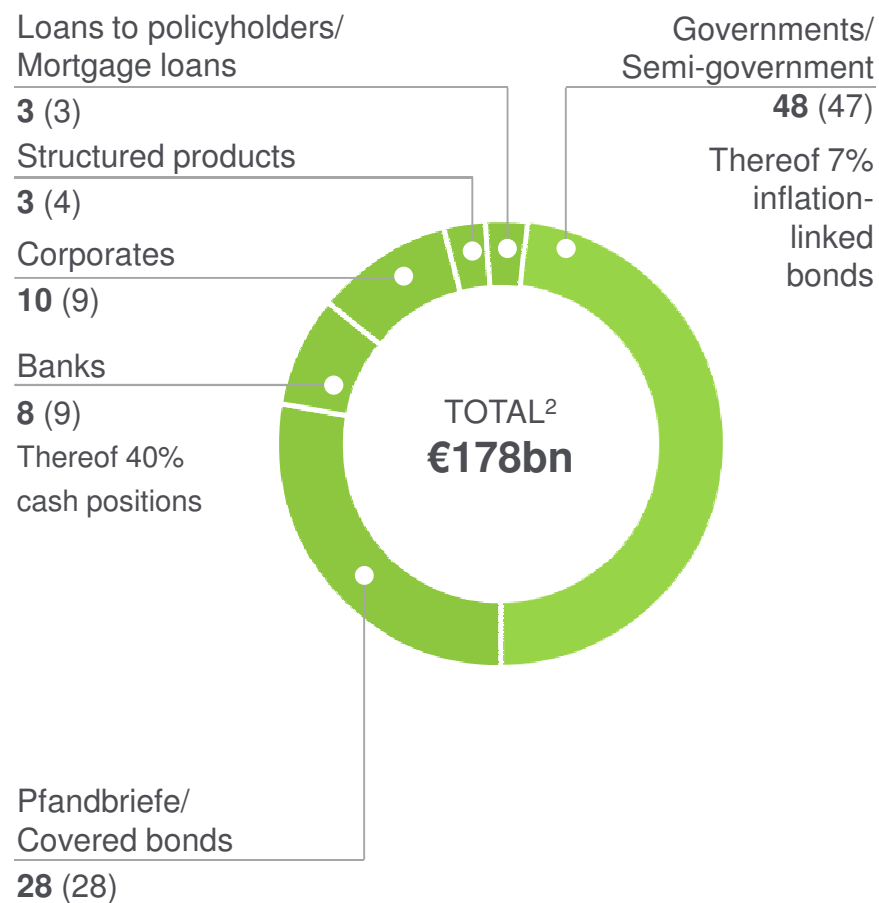
Term structure



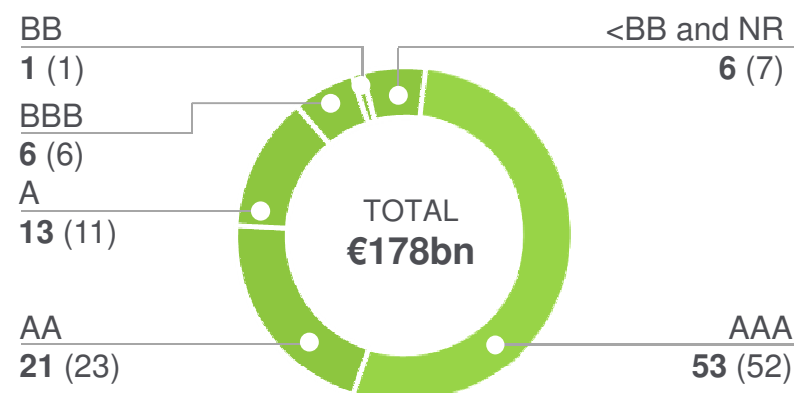
- Maturities of fixed income investments predominantly in line with insurance cash flows
- Currently duration long position against ENP in steepest part of yield curve

Fixed income portfolio

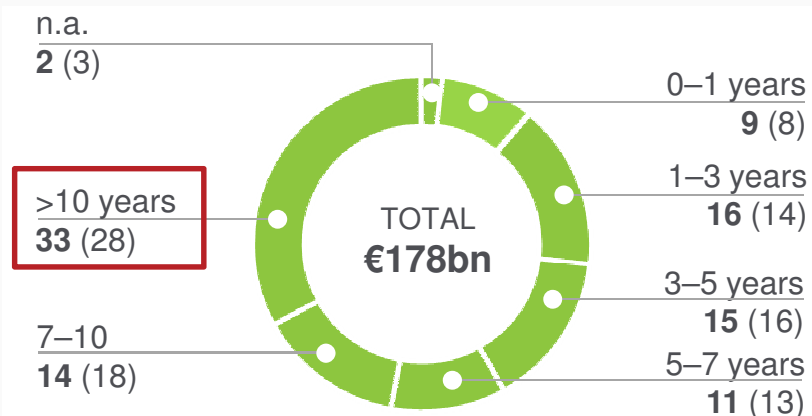
Allocation¹



Rating structure in %



Maturity structure in %

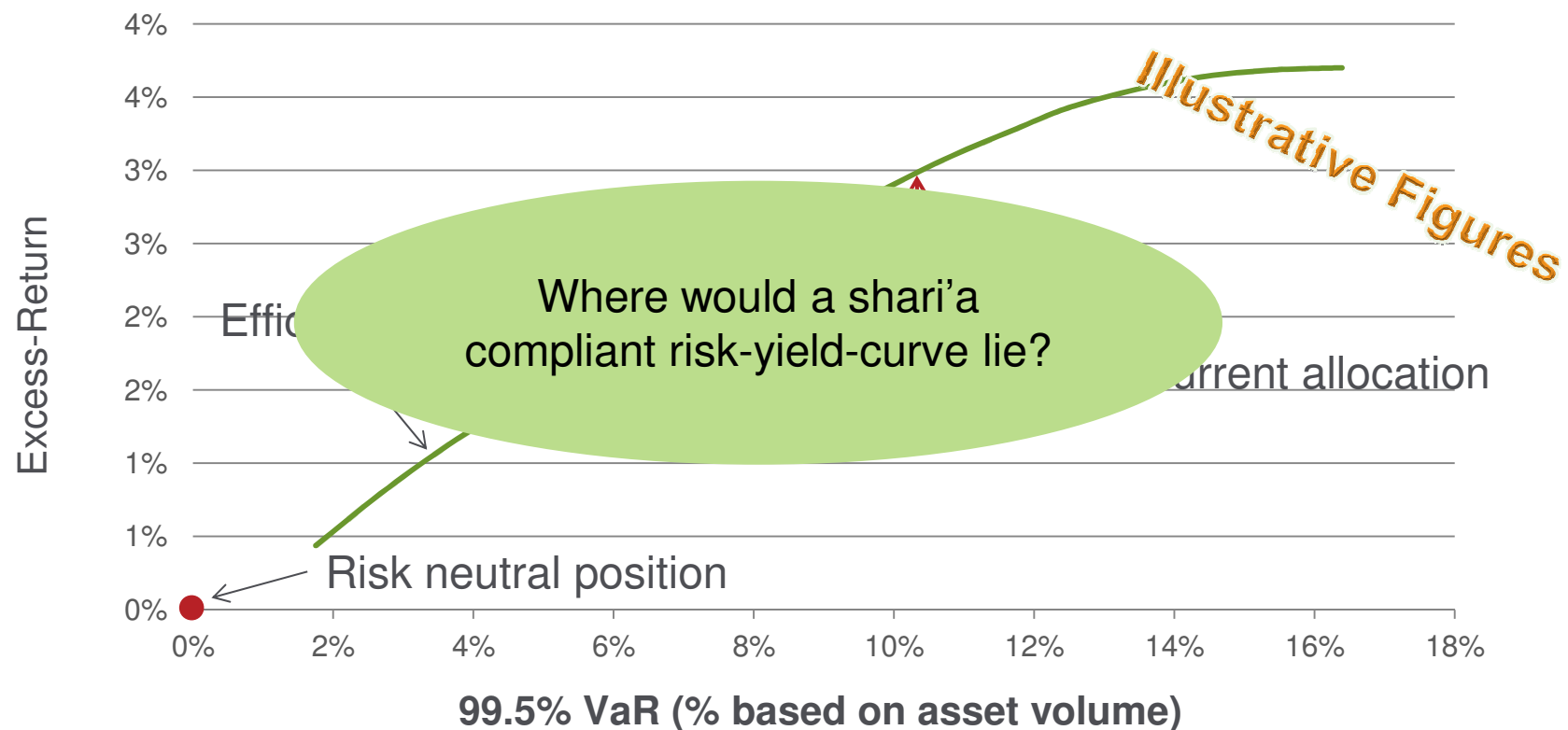


¹ Incl. loans, parts of other securities, other investments and cash positions. Fair values as at 31.12.2011 (31.12.2010).

² Additional inflation-linked exposure in swaps 2% and bank and corporate exposure in credit default swaps 2% of fixed-income portfolio.
Economic view – not fully comparable with IFRS figures.

Optimization of clients investment portfolio by taking liabilities into account

Current allocation vs. efficient frontier



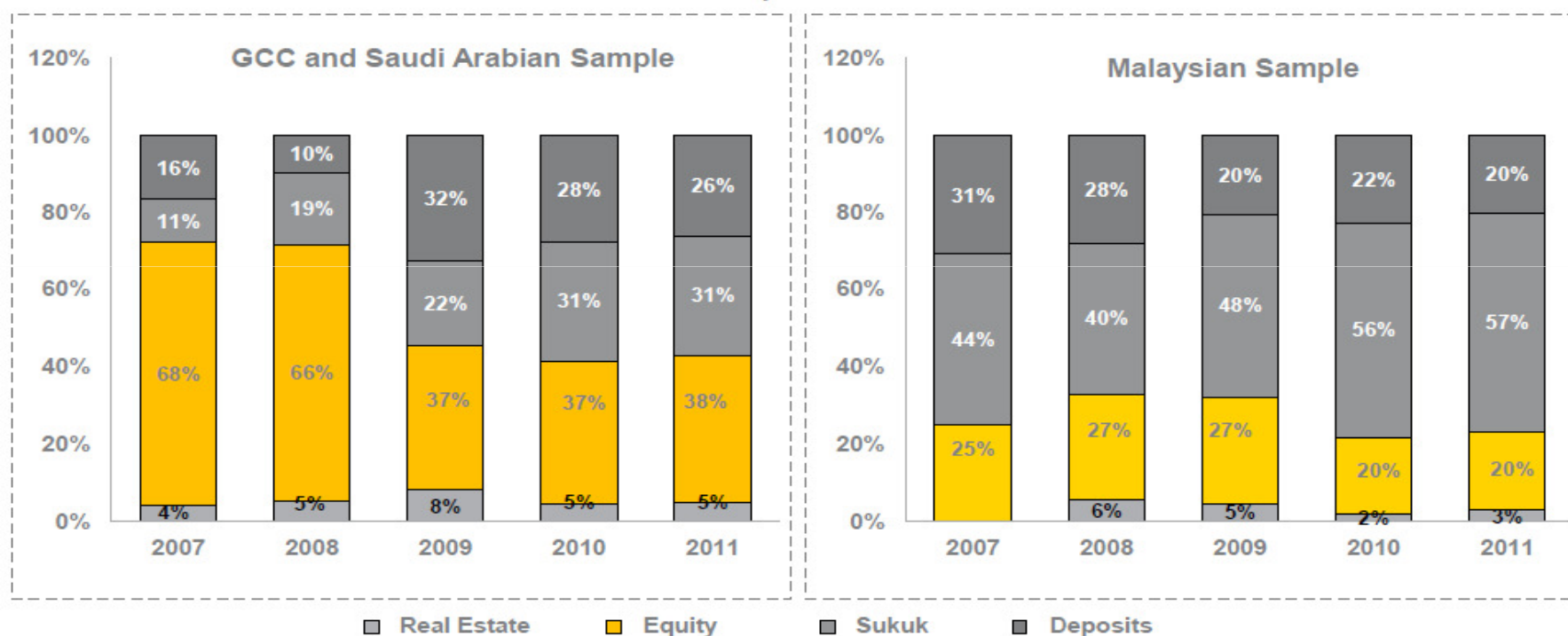
Alpha helps to increase the efficiency of clients investment portfolio. Clients profit from a decrease in risk with the same expected return or from a increase in return by keeping the risk level at the current portfolio.

Investment composition

Investment strategies have remained largely unchanged over the last couple of years



Average investment portfolio composition for a sample of Takaful operators, insurance companies and cooperatives



Notes:

1. Where possible, publicly available corporate information has been used.
2. GCC and Saudi Arabian sample includes cooperative insurance companies.
3. Quarterly results along with discussions with industry leaders, have been used in 2011 to approximate data where annual accounts were not available..

Source: Companies' annual reports, Ernst & Young analysis

| Sample: No. of Companies | 2007 | 2008 | 2009 | 2010 | 2011 |
|--------------------------|------|------|------|------|------|
| GCC and Saudi Arabia | 6 | 9 | 6 | 5 | 5 |
| Malaysia | 3 | 4 | 2 | 3 | 3 |

Create long term assets, e.g. via renewable energy sukuk

Takaful's climate change strategic areas

Risk assessment

- Possibly nothing on the primary Takaful side

Business opportunities

- Growing demand for risk transfer solutions such as traditional renewable energy covers
- Business opportunities also for emerging risks such as performance covers for solar modules

Asset management

- Integration of sustainability criteria into investment strategies
- Demand for solar energy
sukuk market

Tying to a clean and innovative market segment

Supporting climate initiatives (MACCA). PPP's for diverting subsidies

Enabling local acceptance to developing of a de-centralized under-storey

Excellent reputation, market leadership

A NEW CONVERGENCE OF CONVENTIONAL TO ISLAMIC MARKETS?



Most sovereigns are running out of flexibility

Debt-to-GDP ratios 1932



Debt-to-GDP ratios 2009

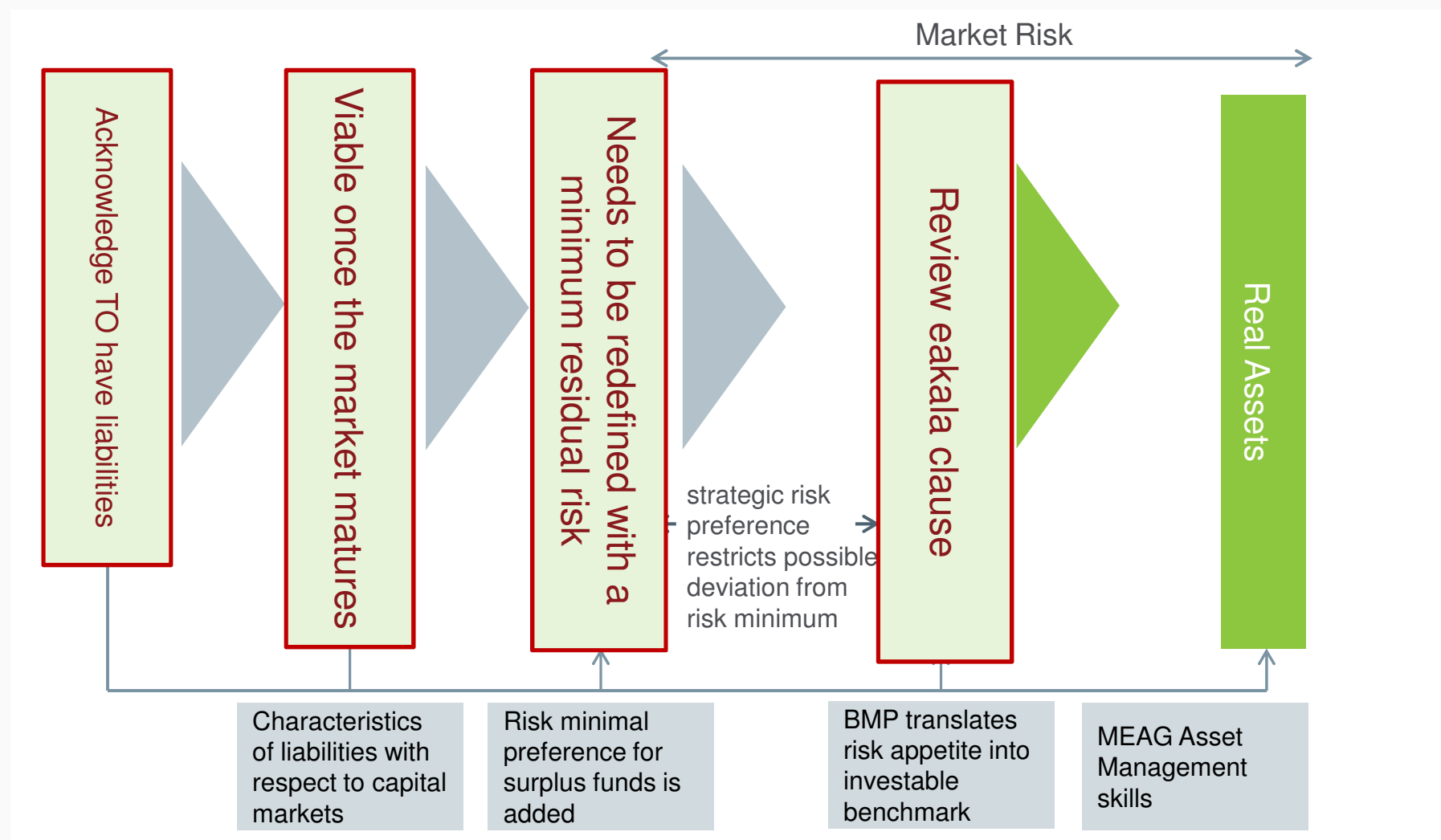


Country sizes are proportional to their 2009 GDP level (in PPP terms)
Source: Abbas, Belhocine, ElGanainy, Horton (IMF Working Paper, 2010)

SKETCH OF TAKAFUL-COMPLIANT ALM



The Liability Driven Investment Process Adapted to the Needs of Takaful Operators

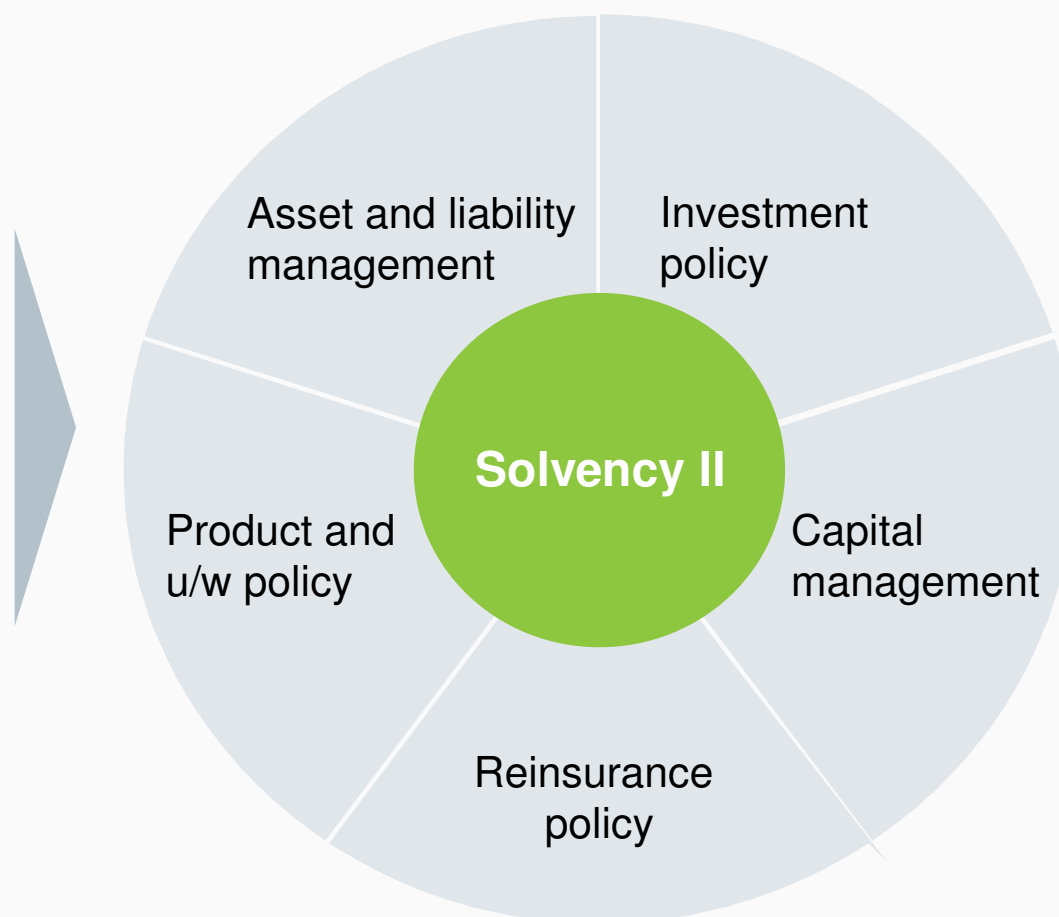


Where do we go – Increasing complexity of risks requires new risk-based approach to Solvency

Risk categories relevant to solvency and risk management (quantitative und qualitative):

- Insurance / underwriting
- Investment, AL mismatch
- Credit
- Operational

Both standard formula and internal models eligible



Solvency II as the driver of a more professional and holistic corporate management



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FOR YOUR ATTENTION

Ludwig Stiftl

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