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ASNY Annual Meeting

Asset Liability Management for Optimizing Insurance Company Value

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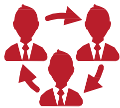
Executive Summary



- Maximizing an insurance company's shareholder value is highly reliant on maximizing return on equity (or risk-adjusted return on capital prospectively).

- Having sophisticated analytical capabilities to optimize the financial impacts of different strategies (e.g. asset allocation, reinvestment strategy, hedging strategy, M&A strategy) allows an insurance company to optimize return on capital.

- An insurer must first articulate and prioritize the company's strategic objectives (e.g. risk-adjusted return on capital, the net present value of statutory dividends, etc.) and constraints (e.g. required collateral, required liquidity, available capital, etc.).

- Cutting edge modeling capabilities can then be applied to build the analytical platform to optimize decision making and thus financial value across the prioritized strategic objectives reflecting the constraints.

- Companies that have implemented this approach have a tremendous strategic advantage over their competitors, and have a substantial opportunity to outperform (e.g., Rothesay Life).

Market Valuations driven by Return on Equity - Life

$R^2 = 90.7\%$

P/B YE 2017

4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

0 5 10 15 20 25 30 35 40

FY 2018 Est RoE

AMERIPRISE
PRIMERICA
AMERICAN FINANCIAL
GREATWEST
TORCHMARK
PRINCIPAL
HARTFORD
FIDELITY & GUARANTY
ZURICH
SUNLIFE
ALLIANZ
MANULIFE
UNUM
CNA
ATHENE
RGA
AMERICAN EQUITY
AIG
VOYA
AXA
METLIFE
LINCOLN
CNO
PRU US
BRIGHTHOUSE
AEGON
GENWORTH

Source: Bloomberg; information as of June 2018; estimated RoE is the mean of sell-side analyst estimates.

Market Valuations driven by Return on Equity – P&C

P/B Q3 2018

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

PROGRESSIVE
UNIVERSAL
AMERISAFE
$R^2 = 84.6\%$
HANOVER
SAFETY
JAMES RIVER
AMERICAN
WR BERKLEY
NATIONAL GENERAL
NAVIGATORS
MERCURY
KEMPER
TRAVELERS
CINCINNATI
HORACE MANN
HARTFORD
EMPLOYERS
ASSURANT
BERKSHIRE
ARCH
CHUBB
AXIS
ARGO
AMTRUST
AIG

0 5 10 15 20 25 30

ROE FY 2019 Est

Source: Bloomberg; information as of June 2018; estimated RoE is the mean of sell-side analyst estimates.

Objectives and Constraints

This optimization approach entails:

- Articulating and prioritizing the company's strategic objectives to help define the prioritized objective functions for the optimization.
  - As an example, one could seek to optimize in order of priority:
    - Risk adjusted return on capital over time; and
    - The distribution of excess capital over time.

- Constraints must also be identified as well, including:
  - The amount of required capital (i.e., with respect to economic capital, rating agency capital and/or regulatory capital);
  - The amount of required liquidity over time;
  - The amount of collateral available;
  - Financial and operating leverage ratio limits;
  - Probability of ruin limits; and
  - Counterparty credit risk limits.

Optimization Approach

- To facilitate the optimization, **each individual business needs to be modeled in a consistent manner with respect to methodology and shared assumptions** (e.g., interest rate and equity scenarios, credit market performance, mortality experience, lapse experience, etc.), and combined using certain correlation assumptions.
  - Assumptions based on **best-estimate internal experience and credibility weighted with industry or general population experience** where necessary;
  - **Appropriately parameterized stochastic assumptions** for the relevant variables (e.g. interest rates, equity returns, credit spreads, mortality, lapses, etc.);
  - **Consistent underlying mortality scenarios** for all business lines, with **specific distributions of the indemnity risk by business line** to understand the mortality and longevity exposures and their interactions; and
  - **Correlation assumptions** for simulating the interest rate, equity, credit, mortality and lapse outcomes for each time period for each scenario.

- The approach must utilize state of the art modeling of both sides of the balance sheet using efficient coding, the cloud, and an appropriate approach to distributed computing to reach the desired real-time analysis.

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