

2019 ASIA-PACIFIC
ANNUAL SYMPOSIUM



Session 5A, Identify Drivers of Company Value Using Data Analytics

Presenters:
Kin Tse

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ANNUAL SYMPOSIUM**

Identify Drivers of Company Value Using Data Analytics

KIN TSE

Data Scientist

18 June 2019



Speakers and their industry experiences



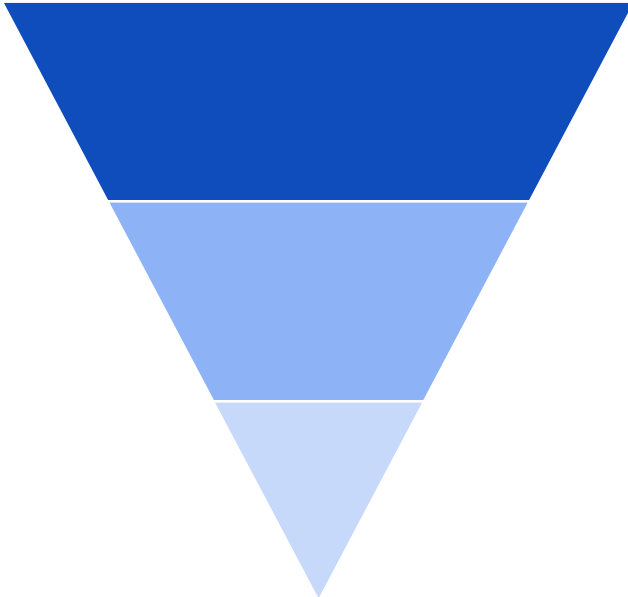
Business Development Manager

Financial Analysts

Business and Finance knowledge

Data driven

Flexibility and automation



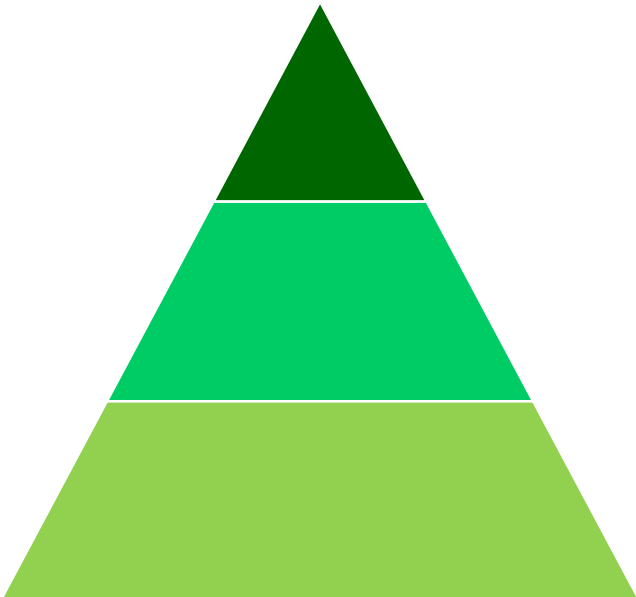
Data Scientist

Data Scientists

Business and Finance knowledge

Flexibility

Data driven, automation and accuracy



Swiss Re's value proposition

Teams in the Business and Analytics domain work together worldwide to provide solutions to the clients

> **200 experts** in Business Development (BD), Structured Solutions (SS) and Digital and Smart Analytics (DSA) teams

Origination and **structuring along with smart analytics capabilities** to provide bespoke reinsurance solutions for both P&C and L&H

to provide client specific business solutions and services



Acclimate to changes in industry



Generate sustainable financial and strategic value



Insight Generation



Decision Support Visualization

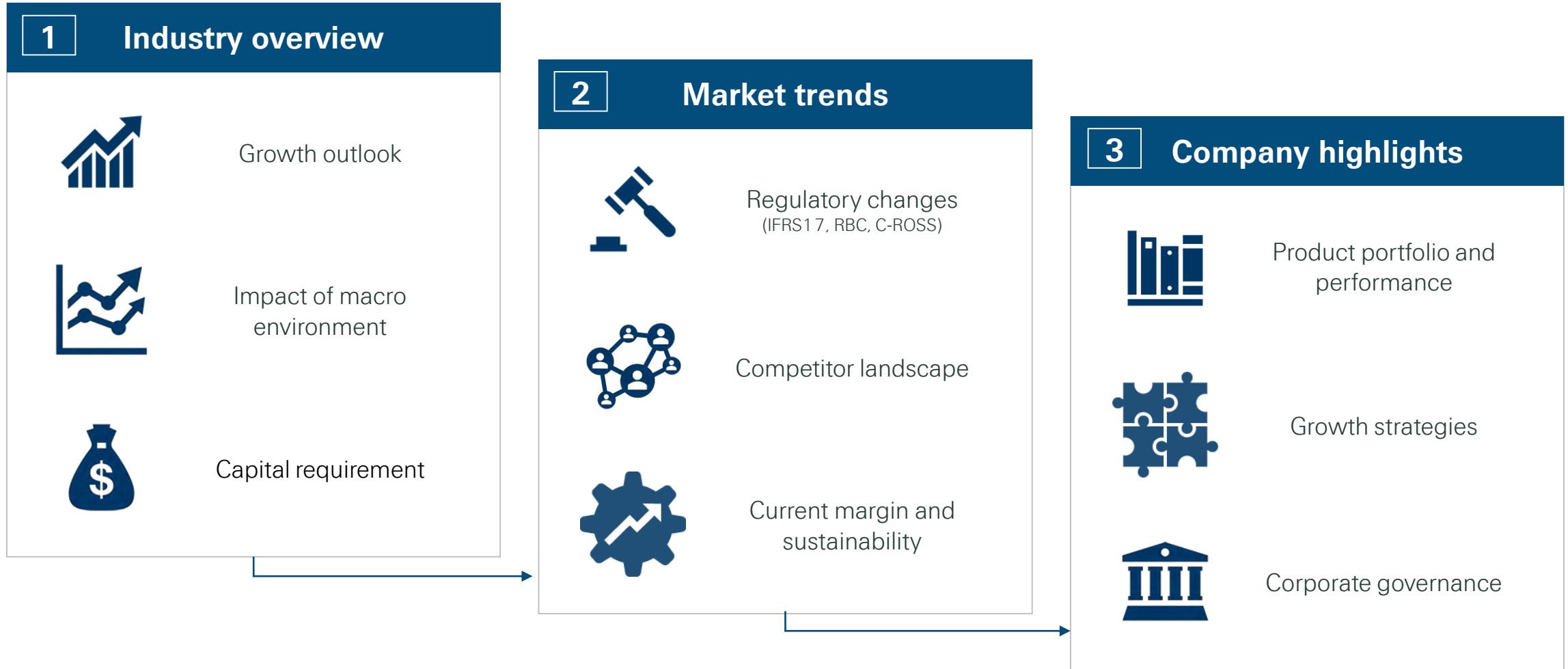


Today we will cover ...

1. **Approaches by the Financial Analysts vs Data Scientists** when identifying drivers of company value
2. **Key themes in 2019 for Asia** and their emergence
3. **How technology and analytics are helping to make better data driven decisions** that impact valuation of insurance companies
4. **Case studies on how smart analytics** influence risk management decisions including business steering and risk strategy



Financial Analysts take on valuing a company



How Data Scientists view a problem statement?



1 Ideation phase

- Business case development
- Feasibility assessment



Unstructured data



Structured data

2 Validation phase

- Proof of concept
- Prototype



Predictive modelling



Deep learning



Visual analytics



Machine learning



Text mining



Big Data analytics

3

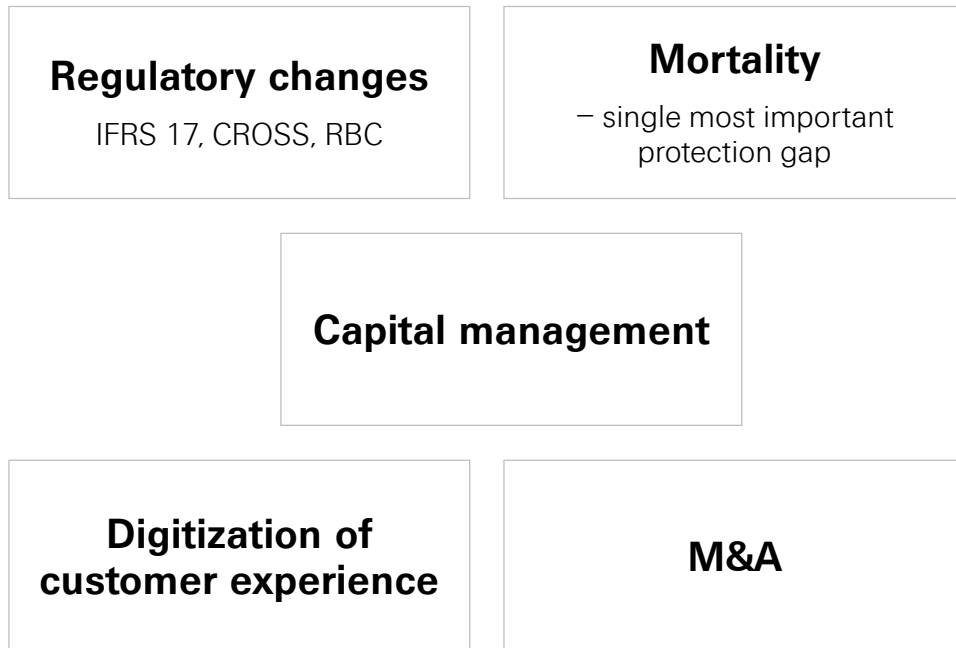
Factoring Phase

- Pilot
- Production

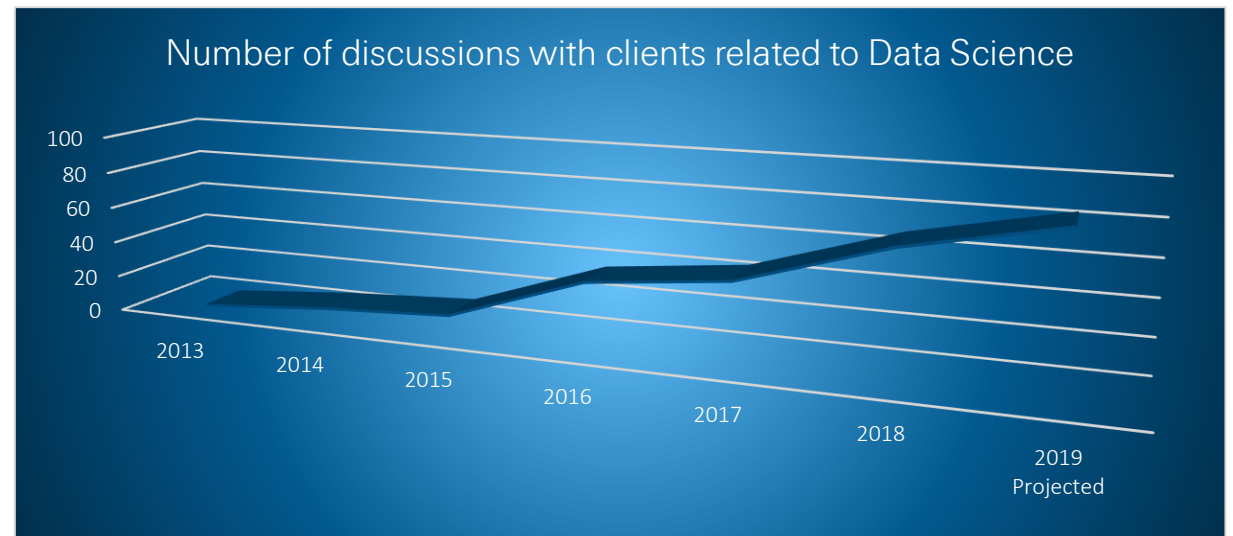
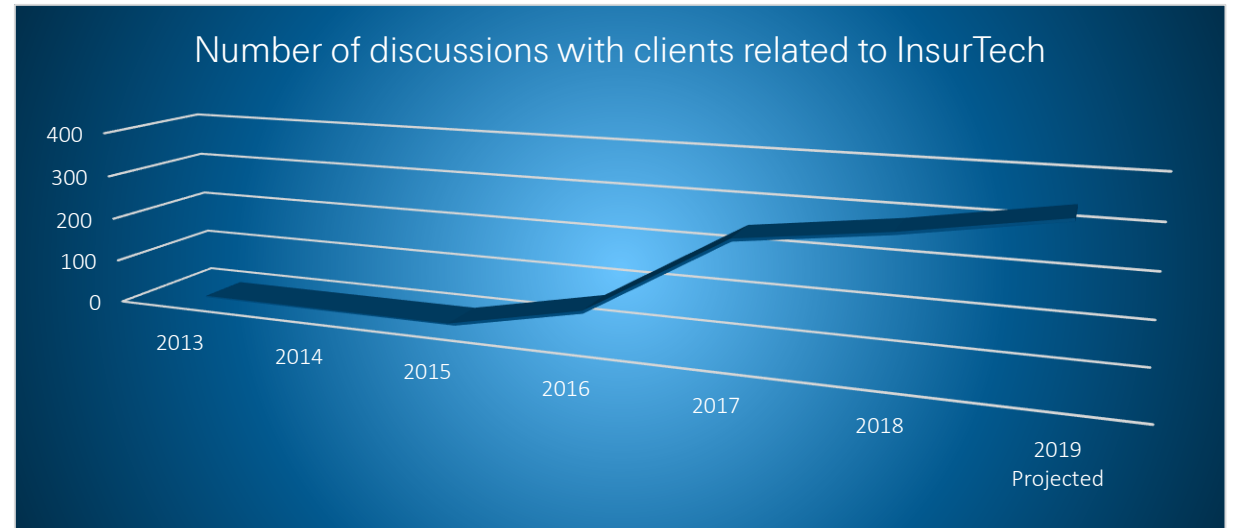
Using platforms:



Key themes for Asian life insurers in 2019



Notes:
(1) Market reports by Willis Towers Watson, EY and Deloitte
(2) Using the count of discussions with clients on their strategies



**Traditionally,
company disclosures
and market trading
multiples are used to
measure company
performance**



Leveraging smart analytics for market screening

Extracting insights from financial reports and enriching lead generation ahead of the competition

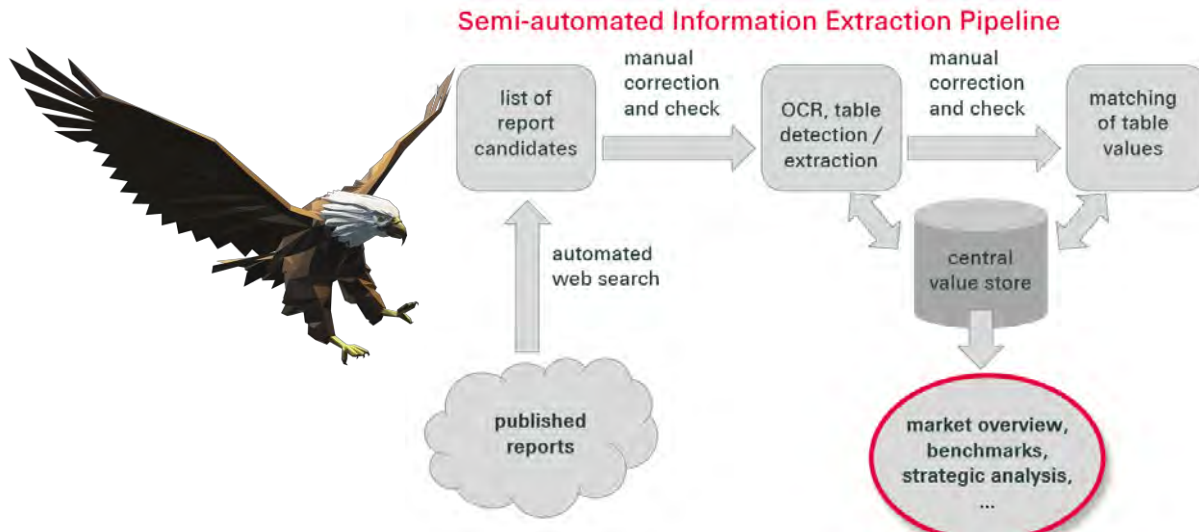
Used smart analytics to **convert unstructured data into user friendly templates** to generate insights

This boosted our lead generation capabilities to:

- **gain insights into our clients' business**, and
- understand the needs of our clients **to prioritize our focus areas**

Methods: **Advanced Text Analytics**

Data: **Financial Reports**



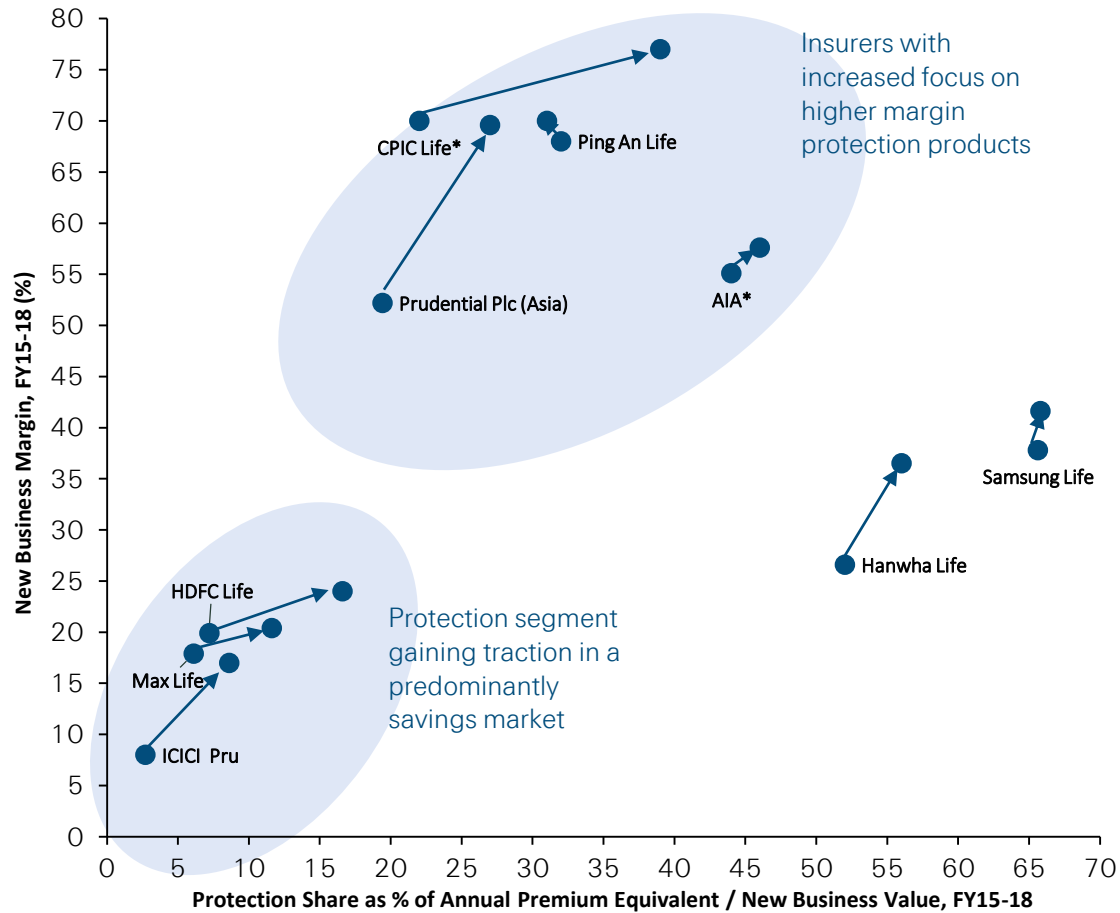
All companies summ

Company		Home Country	Top 5 countries (by amount of gross premium written) - life obligations						Total Top 5 and home country
Annex I S.05.02.01 Premiums, claims and expenses by Country Amounts in 000s			C0150	C0160	C0170	C0180	C0190	C0200	C0210
			IE	BE	IM	JE	GG		
			C0220	C0230	C0240	C0250	C0260	C0270	C0280
Allianz-in	R1400								
Aspen-Ins									
Aviva-An									
Aviva-Int									
Aviva-Lif									
Aviva-plc									
British-sa									
Bupa-insu									
CIS-Genz									
Chubb-ins									
Ecclesiast									
Friends-Li									
Legal-and									
Legal-and-general-group									
Liverpool-Victoria-Ins-Comp									
LiverpoolVictoria-Friendly-Soc									
NFUM-Insurance-Society-Ltd									
National-Farmers-Union-Mutual-Limited-Society									
Phoenix-Life-Assurance-Limited-LE-SFCR-2016-QRT									
Prudential-Assurance-Co-Ltd-PAC-LE-SFCR-2016-QRT									
RSA-Insurance-Group-plc									
RSA-Insurance-Plc									
Rothesay-Life									
Royal-London-Mutual-GROUP-UK-SFCR-2016-QRT									
Scottish-Equitable-Plc-AEGON-LE-UK-SFCR-2016-QRT									
Scottish-Windows-Limited									
Standard-Life-Assurance-Limited									
Standard-Life-International									
Tesco-Underwriting									
UK-Insurance-Limited									
Unum-Limited									
8	Premiums written								
9	Gross	R1410	2,064,301	193,686	15,432	10,686	5,998	3,856	2,293,958
10	Reinsurers' share	R1420	4,101,266	50,630	27,946	14,592	18,341	14,368	4,227,143
11	Net	R1500	-2,036,965	143,056	-12,515	-3,906	-12,343	-10,512	-1,933,185
12	Premiums earned								
13	Gross	R1510	2,064,301	193,686	15,432	10,686	5,998	3,856	2,293,958
14	Reinsurers' share	R1520	4,101,266	50,630	27,946	14,592	18,341	14,368	4,227,143
15	Net	R1600	-2,036,965	143,056	-12,515	-3,906	-12,343	-10,512	-1,933,185
16	Claims incurred								
17	Gross	R1610	5,526,487	246,244	12,241	23,113	27,467	17,173	5,852,725
18	Reinsurers' share	R1620	924,624	39,635	18,983	8,410	5,101	3,287	1,000,041
19	Net	R1700	4,601,863	206,609	-6,741	14,702	22,366	13,885	4,852,683
20	Changes in other technical provisions								
21	Gross	R1710	1,253,357	-14,125	13,225	3,307	20,515	12,530	1,288,808
22	Reinsurers' share	R1720	4,118,855	23,976	16,736	11,509	21,678	14,135	4,206,888
23	Net	R1800	-2,865,499	-38,101	-3,511	-8,202	-1,163	-1,605	-2,918,080
24	Expenses incurred	R1900	1,095,887	82,704		556	855	508	1,180,510
25	Other expenses	R2500							2,568
26	Total expenses	R2600							1,183,078

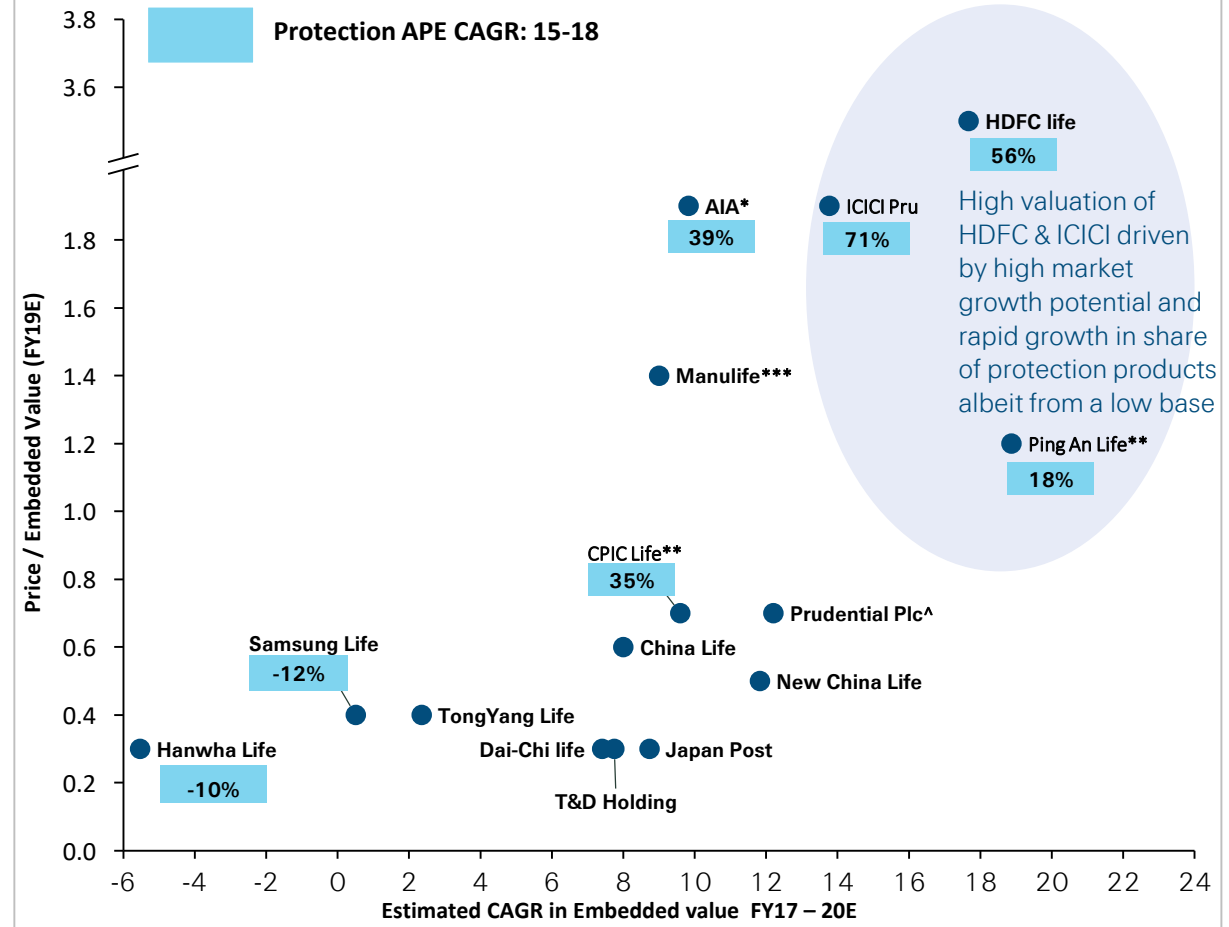
Identifying the growth potential & profitability drivers in industry

Life insurers focusing on protection business in Asia are viewed favorably by investors

Change in share of protection vs change in new business margins



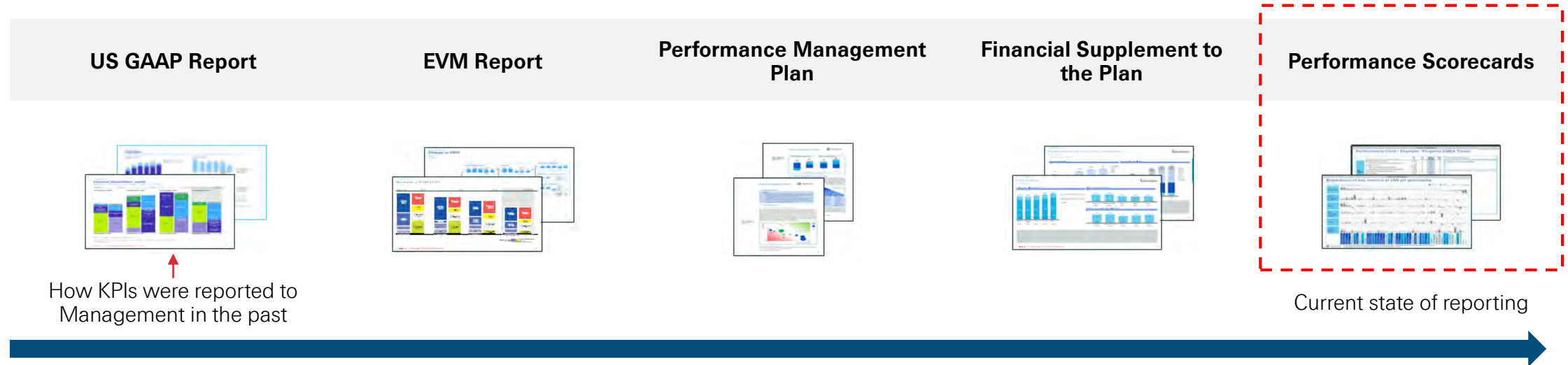
P/EV multiple vs EV growth forecast



Notes: (1) AIA*: % change in share of protection premiums based on New Business Value between FY16-18 (2) Ping An Life, CPIC Life**: % change in protection premiums based on FYP i.e. First Year Premiums between FY15-1H18 and FY15-18 respectively (3) Prudential Plc^: P/EV estimates from Credit Suisse for Global business; NBM margins calculated as New Business Profit / APE; Protection share FY15-17 (4) Manulife***: P/EV calculated as of 5th April '19. EV does not include Wealth management, bank businesses, P&C and Reinsurance business. Manulife CAGR is based on 2 year historical growth rate of EV (5) Source: Company Annual reports, Company Presentation, UBS report, J.P Morgan report for P/EV, Credit Suisse reports, SNL, Bloomberg

How Senior Management can better monitor its KPIs

Swiss Re's journey of monitoring and steering business KPIs from financial reporting to dynamic scorecard method



Performance Scorecard Dashboard



- Performance Scorecards for **efficient and dynamic reporting of KPIs**
- **Automated data production with improved consistency**
- **Market view** to provide a view **closer to the organizational structure, to assign accountability** and to **track performance** of Swiss Re's markets.

With access to new sources of data, smart analytics are being used to develop solutions capturing changing our client needs



DSA Case Studies

1

To gain deeper understanding of portfolio and drivers of claims cost

2

Anomaly detection to identify fraudulent behavior in claims

3

Property Risk Screener for getting insights from unstructured data

...and other use cases delivered



1 To gain deeper understanding of portfolio and drivers of claims cost



Business Need

For the last 2 years, **loss ratio of a large life insurer was disappointing** and only a general price increase helped to stabilize it.

However, the situation **needed more sensitive and data driven pricing**. The goal was **to gain deeper understanding of the portfolio and to identify drivers of claims cost** in order to outperform the plan for 2017 and 2018.



Analytics Approach

Developed predictive models for:

- **Pricing** – with insight about burning cost dependency on the structure of portfolio,
- **Transition** – to optimize premium changes with insight about price sensitivity and resulting lapses/package downgrades



Business Impact

- ✓ **Improved loss ratio**
- ✓ **Review of whole portfolio**

In total, a 0.25% improvement in the loss ratio translates to around 1.5m USD reduction in claims cost.

Cost and transition predictions for
> 350'000 individuals

i

Reinsurance L&H



How can we identify fraudulent behavior from policy and claims data?



Data

- **Policy** and **Claims** data provided by clients
- **Portfolio data** to identify the causes of the abnormal losses and establish cost reduction solutions on a reliable basis



Analytics Approach

- **Anomaly detection modeling** to identify the loss patterns with respect to **diseases, doctors, hospitals and agents**
- **Text analytics** to **link doctors' to hospitals' names**
- **Clustering** to identify **abnormal loss patterns**
- **Visual analytics** to highlight insights and communication process



Business Impact

- The solution helped **streamline costs** by identifying inflated claims
- The end-to-end solution, Portfolio Optimizer helps tackle various aspects of claims process and led to **\$6m potential** savings

Potential savings > **6 million**
due to identification of abnormalities
in the portfolio

i

4 months
implementation



Property risk screener for getting insights from unstructured data



Business Need

- 4-16h to review risk assessment report
- Inaccuracies in copying into the risk tool
- Limited capacity of risk engineers to process more cases



Business Impact

By applying Smart Analytics we reduced the time to conduct a desktop risk assessment from **4 hours to less than 1/2 hours**. This leads to increased coverage of assessed risks and subsequently to more accurate pricing.

1 Broker Risk Assessment

2 Swiss Re Guidelines

- **Fire Protection/Fire Water Supply**
- **Fire Protection/Fire Brigade and Public Fire Department**
- **Fire Protection/Fire and smoke detection measure**
- **Process Control/Emergency Shutdown**
- **Process Control/Combustible Gas and Dust Control (Explosive)**

3 Swiss Re Assessment & Rating

- Fire Water Supply A
- Fire Brigade A
- Emergency Shutdown B



... other use cases delivered



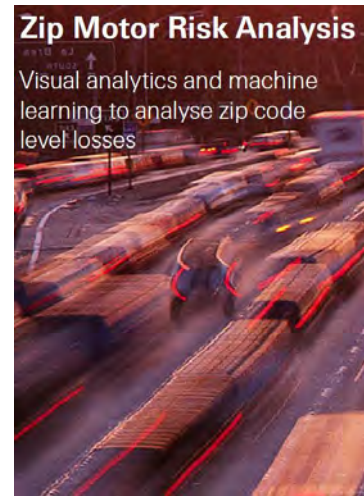
Canadian Wildfire Analysis
Mapping wildfire trends and drought patterns to understand Fort McMurray



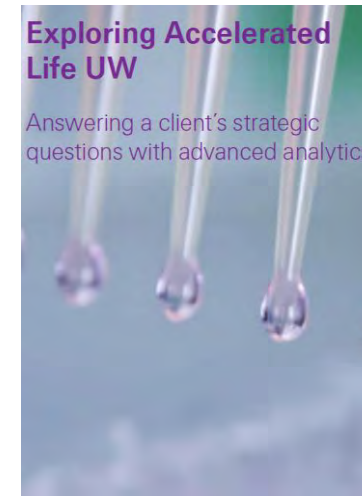
Global Tsunami
Improving the accuracy and resolution of the global hazard model



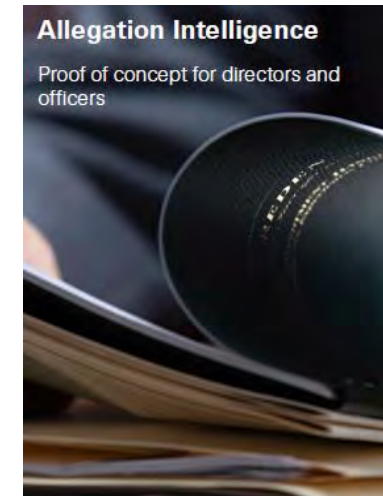
Flood Event Monitoring
Leveraging alternative data sources for fast flood impact assessment



Zip Motor Risk Analysis
Visual analytics and machine learning to analyse zip code level losses

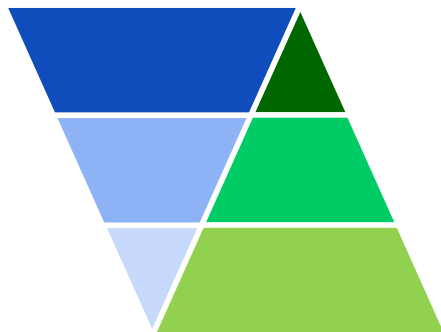


Exploring Accelerated Life UW
Answering a client's strategic questions with advanced analytics



Allegation Intelligence
Proof of concept for directors and officers

Success is guaranteed when both profiles work together



- ↑ Subject matter knowledge
- ↑ Flexibility
- ↑ Data driven results and automation