Mortality and Morbidity Gaps, Aging Society and Implications on Product Development

July 2012
Executive Summary

- There has never been a better time for us to discuss our customers' protection needs, address the challenges and work together to capture the opportunities ahead of us.

- Opportunities in front of us:
  - Mortality Protection: Under-insurance of over USD 100 billion premium in 2010
  - Health Protection: Under-insurance of over USD 200 billion premium in 2020
  - Aging Society: An old age dependency ratio of over 40% in 2030

- Time for action - Going beyond Numbers
  - Find new ways of educating customers about their protection needs
  - Innovate in products and distribution channels in order to close the gap.
Mortality Protection Gap in Asia
Background of Mortality Protection Gap Study

This is the first protection gap study to feature multiple markets in Asia-Pacific. Swiss Re hopes that such study will be beneficial to both the insurance industry and the public.

The Mortality Protection Gap is calculated as the difference between the resources needed to maintain a given living standard and the resources already available. Specifically, the study focuses on the working population with dependent(s).

This study compares and contrasts mortality protection gap and its trend across the region:

- Resources required
- Income to maintain living standard
- Life insurance
- Savings
- Mortality protection gap
- Resources already available

Provides valuable insights into the stage of development of protection products in different markets. Quantifies growth opportunities for life insurance in Asia.
Expanding mortality protection gap...

A SIZABLE and EXPANDING mortality protection gap in all markets. The total gap has reached USD 41 TRILLION

From 2000 to 2010, the total mortality protection gap has been more than DOUBLED, with average 10% growth per year

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>3,731</td>
<td>6,521</td>
<td>11,162</td>
<td>18,745</td>
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</tr>
<tr>
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<td>6,204</td>
<td>6,556</td>
<td>6,314</td>
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<td>3%</td>
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<tr>
<td>India</td>
<td>2,045</td>
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<td>4,876</td>
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<tr>
<td>South Korea</td>
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<tr>
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<td>550</td>
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<td>1,027</td>
<td>989</td>
<td>6%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>256</td>
<td>443</td>
<td>531</td>
<td>711</td>
<td>11%</td>
</tr>
<tr>
<td>Thailand</td>
<td>294</td>
<td>321</td>
<td>465</td>
<td>533</td>
<td>6%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>396</td>
<td>401</td>
<td>425</td>
<td>473</td>
<td>2%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>171</td>
<td>224</td>
<td>288</td>
<td>380</td>
<td>8%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>99</td>
<td>142</td>
<td>240</td>
<td>365</td>
<td>14%</td>
</tr>
<tr>
<td>Singapore</td>
<td>154</td>
<td>170</td>
<td>225</td>
<td>305</td>
<td>7%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>103</td>
<td>234</td>
<td>197</td>
<td>175</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,762</strong></td>
<td><strong>21,372</strong></td>
<td><strong>29,437</strong></td>
<td><strong>41,411</strong></td>
<td><strong>10%</strong></td>
</tr>
</tbody>
</table>

* CAGR = cumulated annual growth rate

Key Assumptions:
- Income to maintain living is 10x of average annual salary
- Working population: 50% has dependent(s). Non-working population: 80% aged 15-64 (of which 50% has dependent(s)); 20% aged 65+ (of which 25% has dependent(s))
- Savings= household financials assets exclude life insurance
- Life insurance= sum insured of life in force
How about gap per working person?

Mortality protection gap per working person with dependents

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>155,267</td>
<td>208,268</td>
<td>302,746</td>
<td>290,210</td>
<td>6%</td>
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<tr>
<td>Japan</td>
<td>183,520</td>
<td>197,046</td>
<td>188,650</td>
<td>258,037</td>
<td>3%</td>
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<tr>
<td>Hong Kong</td>
<td>234,663</td>
<td>227,585</td>
<td>229,733</td>
<td>253,513</td>
<td>1%</td>
</tr>
<tr>
<td>Singapore</td>
<td>149,475</td>
<td>156,523</td>
<td>183,651</td>
<td>219,939</td>
<td>4%</td>
</tr>
<tr>
<td>Australia</td>
<td>114,483</td>
<td>160,604</td>
<td>185,304</td>
<td>168,630</td>
<td>4%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>35,125</td>
<td>41,686</td>
<td>50,277</td>
<td>61,972</td>
<td>6%</td>
</tr>
<tr>
<td>China</td>
<td>10,279</td>
<td>17,287</td>
<td>28,953</td>
<td>47,515</td>
<td>17%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>21,018</td>
<td>45,630</td>
<td>36,694</td>
<td>31,531</td>
<td>4%</td>
</tr>
<tr>
<td>India</td>
<td>10,610</td>
<td>14,754</td>
<td>22,121</td>
<td>28,673</td>
<td>10%</td>
</tr>
<tr>
<td>Thailand</td>
<td>17,152</td>
<td>17,504</td>
<td>24,386</td>
<td>27,288</td>
<td>5%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>5,248</td>
<td>6,825</td>
<td>10,776</td>
<td>15,360</td>
<td>11%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>5,276</td>
<td>8,449</td>
<td>9,564</td>
<td>12,079</td>
<td>9%</td>
</tr>
</tbody>
</table>

*CAGR = compound annual growth rate

The high gap per working person in developed countries brings opportunities to develop high net worth protection products.

ASIA

- We can see the gap ranges widely, from USD 12,079 (in Indonesia) to USD 290,210 (in South Korea), suggesting huge heterogeneity across the region.
- Especially for developed and matured markets, the gap can be very substantial. This can be, at least partly, explained by high income and cost of living in these markets.
Increase in current insurance coverage is not enough to fill the gap...

The average sum insured per working person with dependents in most of the countries has increased between 2000 and 2010

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>67,446</td>
<td>111,570</td>
<td>168,399</td>
<td>269,306</td>
<td>15%</td>
</tr>
<tr>
<td>Japan</td>
<td>139,614</td>
<td>125,691</td>
<td>104,145</td>
<td>129,101</td>
<td>-1%</td>
</tr>
<tr>
<td>Singapore</td>
<td>46,500</td>
<td>58,992</td>
<td>86,730</td>
<td>110,034</td>
<td>9%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>108,892</td>
<td>77,529</td>
<td>89,060</td>
<td>96,154</td>
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</tr>
<tr>
<td>Hong Kong</td>
<td>48,168</td>
<td>53,822</td>
<td>58,470</td>
<td>68,396</td>
<td>4%</td>
</tr>
<tr>
<td>South Korea</td>
<td>19,708</td>
<td>29,504</td>
<td>44,524</td>
<td>37,434</td>
<td>7%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>6,793</td>
<td>9,101</td>
<td>11,386</td>
<td>12,842</td>
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<tr>
<td>Thailand</td>
<td>1,029</td>
<td>1,261</td>
<td>2,315</td>
<td>3,572</td>
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<tr>
<td>India</td>
<td>248</td>
<td>467</td>
<td>1,518</td>
<td>2,158</td>
<td>24%</td>
</tr>
<tr>
<td>China</td>
<td>110</td>
<td>343</td>
<td>502</td>
<td>1,796</td>
<td>32%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>207</td>
<td>323</td>
<td>640</td>
<td>973</td>
<td>17%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>44</td>
<td>213</td>
<td>239</td>
<td>290</td>
<td>21%</td>
</tr>
</tbody>
</table>

* CAGR = compound annual growth rate

In spite of rising sum insured, the protection gap still widens, as the growth of life insurance coverage has lagged behind economic growth

+ The CAGR for sum insured in Taiwan from 2000 to 2010 is -1%. This is mainly attributable to the decrease in sum insured for group business (-5.8% from 2000 to 2009); the sum insured for individual business has actually increased by 4.3% throughout the years.

The life in force has contributed to the tightening of the mortality gap, especially in the developed markets.
Trend of the gap...

**LARGE GAP**
Inadequacy of protection in Asia and in particular the developing markets.

**FALLING RATIO, but...**
Does not necessarily mean a shrinking protection gap in absolute sense. Due to economic growth, the aggregate protection need increase, leading to insurance market expansion.

**HUGE POTENTIAL FOR BUSINESS!!!**
Asia Region Protection Gap

Per Capita Protection Gap (Average 2010)

- Protection Gap per person with dependents: USD 76,239
- Protection Gap per working person with dependents: USD 117,896
- Protection lacking
- Protection needed: 69.1%

The huge mortality protection gap implies massive room for insurers to offer good value insurance products to customers.

The high gap per working person brings opportunities to develop high net worth protection products.

2010 Protection Gap = USD 41,411bn

Life insurance = USD 8,507bn

Savings = USD 4,693bn
Protection Gap in Various Markets

Japan = 8,445bn
China = 18,745bn
Thailand = 533bn
Hong Kong = 473bn

South Korea = 3,615bn
India = 6,676bn
Vietnam = 365bn
Malaysia = 380bn

Indonesia = 711bn
Australia = 989bn
Singapore = 305bn
Taiwan = 175bn

= Protection Gap  = Life Insurance  = Savings
What is the implication for Insurers?

Total Protection Gap in 2010 = USD 41,411bn

The gap equals to about **5 TIMES** the current amount of life insured in all the 12 Asian markets

Potential total new annual premium volume = USD 41,411bn x 0.3%*
= USD 124.2bn

* Based on Swiss Re's assumptions
### Actions by Insurers & Regulators?

<table>
<thead>
<tr>
<th>Arouse public awareness</th>
<th>• Insurance companies, governments and industry regulators help publicise the report and worked collectively to promote greater awareness of the benefits of insurance protection to the general public.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinct Solutions &amp; Channels</td>
<td>• The report shows markets with a modest gap per capita but a very large population - such as India and China; while there are others with fewer customers with insurance needs but where the potential size per policy is large - such as Hong Kong. These two scenarios require different product and distribution solutions.</td>
</tr>
<tr>
<td>Address the rationale</td>
<td>• Apart from looking at the numbers, we should focus on the underlying rationale behind the large protection gap – Is the gap initiated by the Asian traditional reliance on support from extended families? Or insurers not providing enough clear message of the value and cost of life insurance?</td>
</tr>
</tbody>
</table>
| Propose Solutions | • In order to tackle the protection gap challenge, life insurers should come up with strategies including diversifying distribution channels, focus on direct-to-consumer approach etc.  
• Insurers, governments and industry regulators should also frame discussions about potential solutions to close the protection gap. |
Health Protection Gap in Asia
Massive opportunities in the health and medical insurance market...

Massive room and opportunities for insurers to offer good value health/medical insurance products to customers!
Major trends leading to the increasing need of health/medical insurance

Major Trends in Asia

- **Aging Population**
  - The aging population will add pressure to the medical expenses needed in the region. There will also be less contribution from the society.

- **Wealthier Societies**
  - People tend to spend more on health and medical as they get wealthier.

- **Rising Government Health Expenditure Burden**
  - A lot of governments in Asia are undergoing health reforms in order to trim down the financial burden from health expenditure.

- **Health Costs Inflation driven by advances in medicine**
  - The health and medical cost has been increasing rapidly over time, leading to elevating health expenditure.

- **Increasing Volatility of single case costs**
  - Apart from the increasing medicine cost, the surgical cost and hospital utilisation cost also amplify the needs for insurance.

- **Growing Perception of insurance needs**
  - People are now more aware of the risk of getting serious illness and inability to pay medical expenses and demanding for more insurance.
The Composition of Health Expenditure across Asia shows a material amount of "out of pocket" expenditure

Health Expenditure Breakdown in 2010
(expressed as a percentage of total health expenditure)

Source: World Health Organisation
The size of health protection gap is "a matter of choice"...

Some demand higher level of health/medical services which triggers use of own savings/assets.

People who are comfortable with the quantity and quality of public health/medical services; they have no health gap.

Government Provisions

Required Level of Medical Service

Employee/Social Benefits

Private Insurance Coverage

Out of Pocket Expense

Some people may require additional health/medical services which requires coverage from employee/social benefit and private insurance.
Background of Health Protection Gap Study

This is the first health protection gap study to feature multiple markets in Asia-Pacific. Swiss Re hopes that such study will be beneficial to both the insurance industry and the public.

In this study, the healthcare spending protection gap is measured as the difference between the level of healthcare spending ($S_1$) that an economy would need over time and the amount it would spend ($S_2$).

Provides valuable insights into the stage of development of protection products in different markets
Quantifies growth opportunities for health/medical insurance in Asia
Healthcare spending in Asia is projected to increase to USD2.6 trillion by 2020. The insurance industry has a great opportunity to step in and participate in this fast growing market by providing effective solutions to consumers.

Note: Countries included Australia, China, Hong Kong, India, Indonesia, Japan, South Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam
Source: United Nations, National Statistics, Swiss Re
Even if the Asian governments continue to fund healthcare expenditure as a stable share of GDP, there remains a sizeable health gap of **USD226 billion** by 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>S1 Swiss Re projection USD bn</th>
<th>S2 Individual countries THE/GDP ratio unchanged at 2009 USD bn</th>
<th>S1-S2 The Gap USD bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 F</td>
<td>1,091</td>
<td>1,074</td>
<td>17</td>
</tr>
<tr>
<td>2011 F</td>
<td>1,252</td>
<td>1,214</td>
<td>38</td>
</tr>
<tr>
<td>2012 F</td>
<td>1,371</td>
<td>1,331</td>
<td>41</td>
</tr>
<tr>
<td>2013 F</td>
<td>1,488</td>
<td>1,429</td>
<td>59</td>
</tr>
<tr>
<td>2014 F</td>
<td>1,616</td>
<td>1,539</td>
<td>78</td>
</tr>
<tr>
<td>2015 F</td>
<td>1,758</td>
<td>1,657</td>
<td>101</td>
</tr>
<tr>
<td>2016 F</td>
<td>1,909</td>
<td>1,780</td>
<td>130</td>
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<tr>
<td>2017 F</td>
<td>2,069</td>
<td>1,912</td>
<td>157</td>
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<tr>
<td>2018 F</td>
<td>2,240</td>
<td>2,057</td>
<td>183</td>
</tr>
<tr>
<td>2019 F</td>
<td>2,421</td>
<td>2,215</td>
<td>206</td>
</tr>
<tr>
<td><strong>2020 F</strong></td>
<td><strong>2,613</strong></td>
<td><strong>2,387</strong></td>
<td><strong>226</strong></td>
</tr>
</tbody>
</table>

2000-2009 average growth: 6.1%  
2010-2020 average growth: 9.1%

Note: S1 based on projections of economic growth, medical inflation and population growth; S2 based on individual country's stable share of total health expenditure of GDP at 2009 level  
Source: United Nations, National Statistics, Swiss Re
Healthcare protection gap in different Asian Countries

Asia's healthcare spending/GDP share (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia</th>
<th>China</th>
<th>Hong Kong</th>
<th>India</th>
<th>Indonesia</th>
<th>Japan</th>
<th>Korea</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>8.0%</td>
<td>4.6%</td>
<td>5.1%</td>
<td>4.6%</td>
<td>2.0%</td>
<td>7.7%</td>
<td>4.8%</td>
<td>3.2%</td>
<td>3.4%</td>
<td>2.8%</td>
<td>5.5%</td>
<td>3.4%</td>
<td>5.4%</td>
<td>6.5%</td>
</tr>
<tr>
<td>2005</td>
<td>8.4%</td>
<td>4.7%</td>
<td>5.1%</td>
<td>4.0%</td>
<td>2.1%</td>
<td>8.2%</td>
<td>5.7%</td>
<td>4.1%</td>
<td>3.6%</td>
<td>3.0%</td>
<td>6.0%</td>
<td>3.5%</td>
<td>6.0%</td>
<td>6.4%</td>
</tr>
<tr>
<td>2009</td>
<td>8.5%</td>
<td>4.6%</td>
<td>5.1%</td>
<td>4.2%</td>
<td>2.4%</td>
<td>8.3%</td>
<td>6.5%</td>
<td>4.8%</td>
<td>3.8%</td>
<td>3.9%</td>
<td>6.7%</td>
<td>4.3%</td>
<td>7.2%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

Asia's healthcare protection gap (S1 minus S2), USD bn

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia</th>
<th>China</th>
<th>Hong Kong</th>
<th>India</th>
<th>Indonesia</th>
<th>Japan</th>
<th>Korea</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010F</td>
<td>0.1</td>
<td>15.6</td>
<td>0.1</td>
<td>-0.8</td>
<td>0.2</td>
<td>0.9</td>
<td>0.3</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.0</td>
<td>0.2</td>
<td>0.2</td>
<td>17.2</td>
</tr>
<tr>
<td>2011F</td>
<td>0.1</td>
<td>32.8</td>
<td>0.1</td>
<td>0.5</td>
<td>0.5</td>
<td>1.5</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>0.0</td>
<td>0.6</td>
<td>0.2</td>
<td>0.2</td>
<td>38.3</td>
</tr>
<tr>
<td>2012F</td>
<td>0.2</td>
<td>32.1</td>
<td>0.1</td>
<td>0.7</td>
<td>0.9</td>
<td>0.8</td>
<td>2.7</td>
<td>0.3</td>
<td>0.1</td>
<td>0.4</td>
<td>0.2</td>
<td>1.9</td>
<td>0.2</td>
<td>40.6</td>
</tr>
<tr>
<td>2013F</td>
<td>0.2</td>
<td>45.5</td>
<td>0.2</td>
<td>1.1</td>
<td>1.4</td>
<td>6.2</td>
<td>2.9</td>
<td>0.5</td>
<td>0.1</td>
<td>0.4</td>
<td>0.1</td>
<td>2.3</td>
<td>0.3</td>
<td>58.9</td>
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<tr>
<td>2014F</td>
<td>0.4</td>
<td>56.4</td>
<td>0.2</td>
<td>1.3</td>
<td>2.2</td>
<td>8.5</td>
<td>4.0</td>
<td>0.9</td>
<td>0.2</td>
<td>0.4</td>
<td>0.1</td>
<td>2.9</td>
<td>0.3</td>
<td>77.6</td>
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<tr>
<td>2015F</td>
<td>0.5</td>
<td>68.9</td>
<td>0.2</td>
<td>7.1</td>
<td>3.1</td>
<td>9.9</td>
<td>5.4</td>
<td>1.1</td>
<td>0.3</td>
<td>0.4</td>
<td>0.1</td>
<td>3.4</td>
<td>0.2</td>
<td>100.6</td>
</tr>
<tr>
<td>2016F</td>
<td>0.5</td>
<td>85.8</td>
<td>0.3</td>
<td>13.2</td>
<td>4.0</td>
<td>12.0</td>
<td>7.2</td>
<td>1.4</td>
<td>0.5</td>
<td>0.5</td>
<td>0.1</td>
<td>3.9</td>
<td>0.2</td>
<td>129.7</td>
</tr>
<tr>
<td>2017F</td>
<td>0.6</td>
<td>100.6</td>
<td>0.5</td>
<td>17.9</td>
<td>5.0</td>
<td>15.2</td>
<td>9.4</td>
<td>1.6</td>
<td>0.6</td>
<td>0.5</td>
<td>0.1</td>
<td>4.5</td>
<td>0.3</td>
<td>156.8</td>
</tr>
<tr>
<td>2018F</td>
<td>1.1</td>
<td>111.8</td>
<td>0.6</td>
<td>23.3</td>
<td>6.3</td>
<td>18.7</td>
<td>12.1</td>
<td>1.9</td>
<td>0.9</td>
<td>0.6</td>
<td>0.2</td>
<td>5.0</td>
<td>0.4</td>
<td>182.9</td>
</tr>
<tr>
<td>2019F</td>
<td>1.3</td>
<td>118.8</td>
<td>0.8</td>
<td>29.8</td>
<td>7.6</td>
<td>22.2</td>
<td>15.4</td>
<td>1.7</td>
<td>1.1</td>
<td>0.7</td>
<td>0.2</td>
<td>5.6</td>
<td>0.4</td>
<td>205.6</td>
</tr>
<tr>
<td>2020F</td>
<td>1.1</td>
<td>120.0</td>
<td>0.9</td>
<td>37.5</td>
<td>8.9</td>
<td>27.0</td>
<td>19.4</td>
<td>2.2</td>
<td>1.5</td>
<td>0.8</td>
<td>0.2</td>
<td>6.2</td>
<td>0.4</td>
<td>226.2</td>
</tr>
</tbody>
</table>

Source: United Nations, National Statistics, IMF, Swiss Re

- Asia countries will see rising health spending protection gap over time
- Some markets start with a relatively high healthcare/GDP ratio in 2009, which likely results in a smaller gap. There is also a lingering concern on whether that level of healthcare/GDP ratio can be maintained over the long-run
Total healthcare expenditure by Asian economies will continue to increase in the next decade. Emerging markets, with low healthcare expenditure as share of GDP, will see faster growth.

What should be done next?

Implications and questions for insurance companies to address given massive health protection gap

- Do you have a health strategy?
- Does your range of products today cover your different customer segments?
- Have your distribution channels been trained to sell health/medical products?
- Do you know how your customers want to buy?
The Ageing Society and Consumer Perceptions
The aging problem in Asia is emerging and worsening...

Percent population aged 65 and over: 2008

Source: U.S. Census Bureau, 2008
...more than 11% of population in Asia will be aged 65 years and over in 2040...

Source: U.S. Census Bureau, 2008
The percentage of 65 years old and over age group in Asia will more than quadruple over the century, according to United Nations.

- Aging population in the developed world
- Continuous improvement of average global standard of living

- Humanity's fundamental desire to prolong life will ensure this phenomenon will be hard to stop

Source: Swiss Re, Economic Research and Consulting
The dependency ratio is increasing rapidly since 2010 and is projected to further rise rapidly...

Old-Age Dependency Ratio (65+ vs 15-64)

Source: UN - World Population Prospects: 2008 Revision
How big a problem is this?

Net present value of the impact on fiscal imbalance deficits of the financial crisis and ageing-related spending for selected countries.

"Innovative financial solutions, such as longevity risk transfer instruments, combined with improved data, may also help those currently bearing these risks."

Sources: Global Risks Report 2011 & Fiscal Implications of Global Economic and Financial Crisis, IMF Staff Position Note SPN/09/13, 9 June 2009
The approaching fiscal challenge

Public expenditure, per cent of GDP (OECD)
Sustainability of current systems

- A recent OECD report says that many of Asia's retirement-income systems are ill prepared for the rapid population ageing that will occur over the next two decades. (Source: http://www.oecd.org/document/4/0,3746,en_21571361_44315115_49454212_1_1_1_1,00.html)

Source: World Bank Pension Database.
Higher health and medical cost for the elderly...

The hospital admission rate for the aged (65+) are much higher.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Overall Admission Rate</th>
<th>Public Share</th>
<th>Private Share</th>
<th>Overall Admission Rate</th>
<th>Public Share</th>
<th>Private Share</th>
<th>Overall Admission Rate</th>
<th>Public Share</th>
<th>Private Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-64</td>
<td>12%</td>
<td>37%</td>
<td>63%</td>
<td>15%</td>
<td>87%</td>
<td>13%</td>
<td>14%</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>65+</td>
<td>33%</td>
<td>38%</td>
<td>62%</td>
<td>57%</td>
<td>93%</td>
<td>7%</td>
<td>56%</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>Total</td>
<td>13%</td>
<td>37%</td>
<td>63%</td>
<td>23%</td>
<td>90%</td>
<td>10%</td>
<td>19%</td>
<td>78%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Source: Hong Kong Healthcare Reform Second Stage Consultation Document 2010

Not only the aged will incur a higher medical expense; they are also less insured, both by employer provided medical benefits and individually purchased Insurance.
### Perceptions of Longevity

- **Swiss Re's Would You Risk It (WYRI) Survey**
  - 13,800 people aged 20 to 40 across major cities of 11 Asia-Pacific markets in April and May 2011 (at least 1,000 responses in each country)

<table>
<thead>
<tr>
<th>Markets</th>
<th>Official average life expectancy (A)</th>
<th>Average life expectancy perceived by respondents (B)</th>
<th>Underestimation (overestimation) of life expectancy (A-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>75</td>
<td>59</td>
<td>15</td>
</tr>
<tr>
<td>Japan</td>
<td>84</td>
<td>75</td>
<td>9</td>
</tr>
<tr>
<td>Singapore</td>
<td>82</td>
<td>75</td>
<td>7</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>84</td>
<td>77</td>
<td>7</td>
</tr>
<tr>
<td>Taiwan</td>
<td>80</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>Australia</td>
<td>83</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>India</td>
<td>71</td>
<td>70</td>
<td>2</td>
</tr>
<tr>
<td>South Korea</td>
<td>81</td>
<td>81</td>
<td>0</td>
</tr>
<tr>
<td>Vietnam</td>
<td>75</td>
<td>78</td>
<td>(3)</td>
</tr>
<tr>
<td>China</td>
<td>76</td>
<td>82</td>
<td>(5)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>72</td>
<td>81</td>
<td>(9)</td>
</tr>
</tbody>
</table>
Are people just being pessimistic?

- We asked people WHY they estimated their own life expectancy the way that they did?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Hong Kong</th>
<th>Japan</th>
<th>Malaysia</th>
<th>Singapore</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history</td>
<td>21.9</td>
<td>24.7</td>
<td>41.4</td>
<td>25.7</td>
<td>14.2</td>
</tr>
<tr>
<td>Personal health</td>
<td>50.0</td>
<td>38.8</td>
<td>40.7</td>
<td>45.6</td>
<td>44.4</td>
</tr>
<tr>
<td>Average life expectancy</td>
<td>51.7</td>
<td>44.5</td>
<td>47.6</td>
<td>56.5</td>
<td>50.5</td>
</tr>
<tr>
<td>Habits (e.g. exercise or smoking)</td>
<td>27.2</td>
<td>28.4</td>
<td>22.9</td>
<td>30.5</td>
<td>23.2</td>
</tr>
<tr>
<td>Positive attitude / Being optimistic</td>
<td>35.6</td>
<td>21.8</td>
<td>22.3</td>
<td>38.3</td>
<td>41.6</td>
</tr>
<tr>
<td>Negative attitude / Being pessimistic</td>
<td>7.3</td>
<td>8.6</td>
<td>4.8</td>
<td>5.0</td>
<td>5.9</td>
</tr>
<tr>
<td>Improving medical technique</td>
<td>45.7</td>
<td>23.1</td>
<td>21.3</td>
<td>37.3</td>
<td>49.2</td>
</tr>
<tr>
<td>Environmental issues (e.g. pollution,</td>
<td>18.5</td>
<td>6.4</td>
<td>24.8</td>
<td>17.4</td>
<td>18.3</td>
</tr>
<tr>
<td>population density)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Around 50% thought that they were in line with the average
- 20-40% thought that they were being optimistic!

Bear in mind that survey respondents were urban lives, weighted towards high socio-economic groups, so should have **even higher** life expectancy than national averages.
Around 40% say their families would/might struggle financially in case of an adverse event.

Response to household financial position if the respondent passes away, suffers from a long-term serious illness or disability (in %)
Getting serious illness and inability to pay medical expenses are two biggest drivers for insurance purchases.

Main worries/concerns for the future that might lead you to consider buying life/health insurance (in %)

- Getting a serious illness
- Unable to pay for long term medical expenses
- Early death
- Unable to maintain my living standard after retirement
- Supporting the family (e.g. elderly/children)
63% are planning to buy life/health insurance in next 12 months – higher ratios in some emerging markets

Insurance products considered to purchase in next 12 months (in%)

- A life insurance policy that would pay out in case of death
- A policy that combines investments (e.g. investment funds) and life insurance protection
- A policy that would pay me an amount if I contracted a serious illness (e.g. cancer)
- A policy that would pay me an amount if I became disabled (e.g. losing an arm)
- A policy that would cover hospitalisation expenditure

Percentage of respondents planning to buy any of the above insurance
Life insurance is affordable

Over half of respondents are willing to pay at or above the market price range for a term life insurance coverage (in %)

<table>
<thead>
<tr>
<th>Country</th>
<th>Willing to Pay “Above” (%)</th>
<th>Willing to Pay “At” (%)</th>
<th>Willing to Pay “Below” (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>62</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Singapore</td>
<td>54</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Indonesia</td>
<td>36</td>
<td>38</td>
<td>26</td>
</tr>
<tr>
<td>South Korea</td>
<td>45</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>41</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>Taiwan</td>
<td>38</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td>Australia</td>
<td>30</td>
<td>23</td>
<td>47</td>
</tr>
<tr>
<td>Japan</td>
<td>24</td>
<td>24</td>
<td>52</td>
</tr>
<tr>
<td>Malaysia</td>
<td>38</td>
<td>8</td>
<td>54</td>
</tr>
<tr>
<td>China</td>
<td>26</td>
<td>16</td>
<td>58</td>
</tr>
<tr>
<td>Vietnam</td>
<td>21</td>
<td>8</td>
<td>70</td>
</tr>
</tbody>
</table>

Notes:
Assumed coverage for developed markets: USD 100,000
Assumed coverage for emerging markets: USD 20,000 – 50,000
So what is the opportunity?

<table>
<thead>
<tr>
<th>Finding</th>
<th>Implication / Opportunity for you</th>
</tr>
</thead>
<tbody>
<tr>
<td>People underestimate their life expectancy – longevity risk and protection gap exists</td>
<td>Consumer education + Products designed to meet much longer term needs and greater uncertainty</td>
</tr>
<tr>
<td>40% respondents believe their families will struggle if they suffer from a major event</td>
<td>Effective marketing and distribution</td>
</tr>
<tr>
<td>60% respondents are concerned about the affordability of future medical expenses, and this and morbidity risk are the 2 biggest drivers for purchasing insurance products</td>
<td>Need for products which take away long term uncertainty. Product development should focus on these areas – pre and post retirement.</td>
</tr>
<tr>
<td>63% respondents are preparing to purchase insurance in the next 12 months</td>
<td>Demand and purchasing will are strong – time to capture the market!</td>
</tr>
<tr>
<td>Over 50% of respondents are willing to pay at or above the market price range for a term life insurance coverage (in %)</td>
<td>This is a profitable market to explore!</td>
</tr>
</tbody>
</table>
Implications on Product Development
An Expanded Role of Insurers to Close the Gap and Manage the risk of Aging Society

**GOVERNMENT**

- Regulatory Reform must be undertaken to create a more robust pension and health system

**RE)INSURERS**

- Insurer can play a key role in educating individuals about increasing challenges that they will face to sustain their living standard in long term
- (Re)insurers should proactively drive and support reforms on pension and health system

- "Joint Risk Management" between insurers and government can strongly support the development of pension and health system
Further Understand Customer Insights and Innovate with Products and Channels

- De-averaging customer groups through segmentation, which could enable them to identify niche segments with distinct risk-pricing profiles.
- For customers in each segment, insurer can also customize value propositions to differentiate their strategies.
- Solutions to supplement national pension and health system and to evaluate opportunities to cover uncovered groups.
- Integrate more "services" components into new products to address customer needs. Long term care products with services as benefits rather than fixed payments?
- Innovative distribution channels: cooperate with HR consultants, delegated pension sales.
The way forward?

- Where is the answer?
  - probably a mix of public and private cover
  - need to find a way of accessing significant rollover funds
  - consumer attitudes to buying will need to change
  - private sector and individuals need to be incentivised to participate
  - may need to wait until younger generations become more aware of the risk?
Significant implications of continuing with the current social security system

The cost of not closing the gaps will be substantial

**Individuals**
- Delayed retirement age
- Reduction of retiree benefits
- Health and long-term care resources falling short of actual needs

**Government**
- Onerous pension-deficit burden
- Citizens lose faith of social security system
- Social insecurity

**Overall**
- Hinder the construction of a harmonious society

All stakeholders have an active role to play

**Government**
- Reform the national pension system (Pillar I)
- Create a more favorable environment toward commercial insurance

**Corporations**
- Be more proactive in providing post-retirement benefits to employees

**Insurers**
- Play a larger role in the aging issue
- To be explored in detail in next section
Longevity
Components of Longevity Risk

- Volatility Risk
  - Statistical fluctuations - risk that individuals die earlier or later than expected
  - Diversifiable within a pool of individuals

- Mortality Level Risk
  - Risk that current levels of mortality are misestimated
  - Partially diversifiable across different pools of individuals, across different ages, across different market segments, across different geographic areas, etc

- Mortality Trend Risk
  - Risk that future trends in mortality are misestimated
  - Slightly diversifiable to the extent that different factors drive differences in mortality trends across different pools of individuals
  - Not diversifiable to the extent that mortality trends are driven by factors that are common across the globe
You will not know if you got it right for some time.

Out of 1,000 people aged 65, at what age will people die?

- 43% of Males are expected to die between ages 78 and 87.
- 46% of Females are expected to die between ages 83 and 92.

Source: 2009 Korea Life Table
Factors for a healthy annuity market

Annuities sell well where
- It is mandatory to take some retirement savings in the form of an income stream
- there are significant incentives or for annuity purchase
- tax benefits
- subsidies
- interest rates are high, making annuities look like good value for money
- long term assets exist to match liabilities

Annuities do not sell well
- Everywhere else
# Longevity Action in Asia

<table>
<thead>
<tr>
<th>Country</th>
<th>Retirement Savings</th>
<th>Longevity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUSTRALIA</td>
<td>Superannuation</td>
<td>Old-Age Pension</td>
</tr>
<tr>
<td>CHINA</td>
<td>Enterprise Annuity</td>
<td>Social Insurance</td>
</tr>
<tr>
<td>HONG KONG</td>
<td>MPF</td>
<td>NA</td>
</tr>
<tr>
<td>INDIA</td>
<td>New Pension</td>
<td>Govt &amp; Private Pensions</td>
</tr>
<tr>
<td>JAPAN</td>
<td>Various Pensions</td>
<td>National Pensions</td>
</tr>
<tr>
<td>KOREA</td>
<td>Various Pensions</td>
<td>National Pensions</td>
</tr>
<tr>
<td>MALAYSIA</td>
<td>EPF</td>
<td>NA</td>
</tr>
<tr>
<td>SINGAPORE</td>
<td>CPF</td>
<td>CPF Life</td>
</tr>
<tr>
<td>TAIWAN</td>
<td>New Labour Pension</td>
<td>National Pensions</td>
</tr>
<tr>
<td>THAILAND</td>
<td>NPF</td>
<td>Old Age Pension</td>
</tr>
</tbody>
</table>

**Bold** = mandatory / near-universal, **italics** = voluntary / limited coverage
Morbidity
Lifestyle & screening
Cancer Trend in Korea 99-07
Screening Technology Effect

- US Prostate Cancer incidence

![Graph showing incidence and prevalence of PSA testing from 1975 to 2005. The incidence rate increases significantly in the 1990s, peaking and then declining. The prevalence of PSA testing also increases, peaking around 1990 and then stabilizing.](image-url)
Genetics Cancer Trend in Singapore

- Major cancer sites and incidence trends both differ by ethnic group
  - Lifestyle and genetic differences can play a part

Morbidity – an equation!

longer life + age related illness =

- need for morbidity products can be used to meet (some of) the cost of ageing preference for longer terms = guarantees
- BUT cost is unlikely to be self-fundable
- diagnosis + treatment needs
Long-Term Care (LTC)
Does anyone buy LTC Insurance?

- In markets without government incentives or support, sales of LTC insurance are close to zero.
- LTC sales are better in markets with government incentives or support.
- Reinsurers have been trying to build interest in LTC since the 1990s.
- More effective growth strategy maybe to convince governments and stay aligned with government policy rather than marketing direct to consumers.
- Alternative exposure to demographic drivers of LTC needed via investments in nursing homes, assisted living facilities, etc.
Potential LTC Products

Supplemental to government LTC provision

- Japan, Korea, Singapore have government-sponsored LTC
- Supplemental LTC products in these markets viable from a sales perspective

Death and LTC "Combo" products

- Markets where awareness of LTC is low
- LTC income benefit paid as acceleration of Death benefit
  - 2% per month for up to 50 months upon ADL failure / Cognitive Impairment
- Appeal to ageing population
- "Combo" structure to overcome concerns that benefits might never be needed
The post retirement conundrum

- Most people are better at saving than providing protection for their families.
- Most people will have a pension pot or savings pot accumulating for their use at retirement.
- Many people are unsure about how long they will live, what their costs of living will be as well as what their medical expenses bills will be (particularly if they will suffer from cancer or need long term assistance and families may not be willing or able to provide).
- Is there an opportunity for us to design new post retirement products to access savings at retirement which remove or reduce the combined uncertainties individuals face?
What is Swiss Re doing about aging?
Our focus must be on the future – BOTH THE GOOD
- AND THE BAD that will be with us for some time
Living too long...

In all cases the support from a forward thinking government and regulator is vital in the success of these products.
Q & A Session
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