



Deloitte.

2014 CAS RPM Seminar, International Track

Current Regulatory and Advanced Analytics
Development in China's Insurance Market

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Agenda

- China - A Fast Growing Market
- China P&C Insurance Market Overview
- China Auto Insurance Products
- Current Business Environment & Challenges
- Data Challenges: External Data and A Data Cleansing Example
- Data Analytics and Predictive Modeling Opportunities
- Q&A

China – A Fast Growing Market

- China has a fast growing market since the market opened up in 1978.

Then.....



Now!



China – A Fast Growing Market

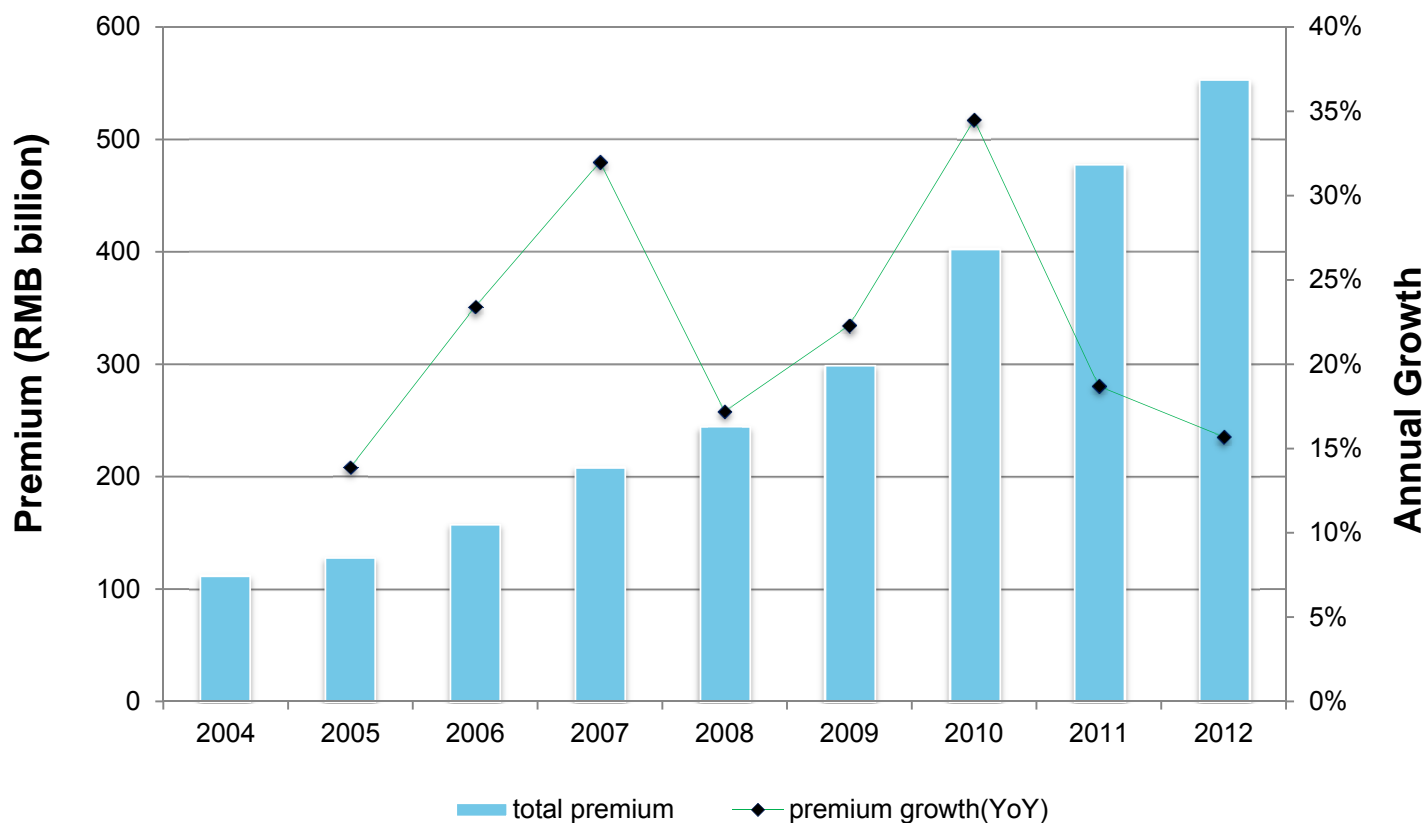
- In 2009, China took over US to become the world #1 country in auto sales, 13.6 million vs. 10.4 million.
- The annual auto sale grew from 2.4 million in 2001 to 18 million in 2011
- In 2013, the total number of registered vehicles in China hit 240 million.



Red: China
Blue: US
Per 10,000 Unit

China – A Fast Growing Market

- In 2012, the total P&C premium in China exceeded \$500 billion RMB (\$80 US billion). The growth rate has slowed down since 2010 to about 15%.



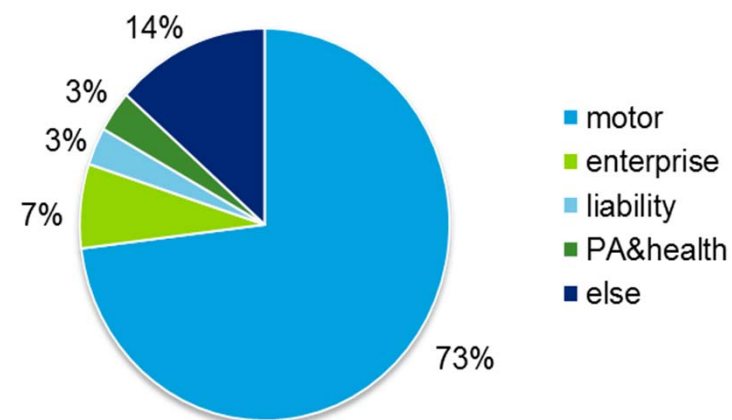
- \$1 US Dollar = 6.2 RMB

China P&C Insurance Market Overview

- As of 12/2012, there are a total 62 P&C insurance companies in China, of which 41 companies are Chinese owned and 21 are foreign owned.
- The total market share of the 20 foreign companies is only 1.2% with a total premium of 6.7 billion RMB (\$1.1 billion US dollars).
- In 2012, the top 3 P&C companies, PICC, Ping An, and CPIC, have a total of 66% market share.

	Company	Premium (RMB Billion)	Annual Growth, %	Market Share, %
1	People Insurance Company of China	193.0	11.3	34.9
2	Ping An Property	98.8	18.5	17.9
3	China Pacific Property	69.6	12.9	12.6
4	China United Property	24.6	17.2	4.4
5	China Life P&C	23.5	43.6	4.3
6	China Continent P&C	17.9	10.1	3.2
7	Sunshine Property	14.7	10.1	2.7
8	Sinosure	14.3	39.3	2.6
9	Tian An	8.1	3.9	1.5
10	Taiping	7.8	33.9	1.4

P&C Product Distribution, 2011



- Auto insurance has been the main growth engine for the China P&C insurance market. As of 2012, Auto insurance accounts for 73% of the total market, about \$57 billion US dollars.
- \$1 US Dollar = 6.2 RMB**
- Due to different regulatory environments, the data quality for auto business is better than the data quality for the other LOB.

China Auto Insurance Products

- There is no difference in the two auto products and their ratings between personal and commercial auto. There has been no/minimum changes in ratings and products since 2008.
- Compulsory “Take All Comers” Third Party Liability Insurance
 - Provides minimum liability coverage required by law. It covers BI with indemnity for death, medical expense, and property damage. No automobiles can be operated on the road without it.
 - The same limits (\$122K RMB limit for BI&PD&MP Staggered) are applied for all vehicles types, both personal and commercial.
 - Premium is regulated and is stipulated by a simple rating table. The premium is differed by vehicle types and few other variables with no territory differentiations at all.
 - Overall, the industry compulsory insurance has suffered UW loss in the last two years due to an increasing severity trend and no rate changes, but the performance varies widely by region due to the loss cost differentiations of fatal accident between poor regions vs. rich regions.
- Voluntary Auto Insurance for Excess Liability and Physical Damage
 - Covering both excess liability and physical damages
 - In the current China’s auto insurance market, there are 4 government approved rating plans, which are similar to each other.
 - There are two parts in each of the 4 rating plans:
 - By coverage base rating and class plan tables
 - Regulated discount rules for all coverage combined: the maximum allowed discount is typically 30% with some variation by risk and by region.

Current Business Environment & Challenges

- External Economic Impacts:
 - Slower growth of global economy
 - Double-digit growth no longer an easy task for China
 - Growth of automobile sales in China slowing down
- Challenges faced by Chinese insurance industry, especially in risk selection and pricing for risks:
 - Loss cost keeps increasing. The current practice of pricing along with the regulatory bottom line is no longer working
 - Risk selection and risk pricing in insurance business become more important due to higher risk and lower profit of investment
- Possibilities of changes in pricing:
 - Maintain the current basic pricing, but gradually lower the regulatory bottom line
 - Allow a few company to develop their own pricing, but all other companies follow the same basic pricing and regulatory bottom line
 - Enforce a unified pricing in the market
- Since the rating product is regulated and unchangeable, applying underwriting modeling for risk segmentation and underwriting pricing is getting more and more popular in the current auto insurance industry

Current Business Environment & Challenges - Cont.

- **In China, each vehicle may have two policies, one is for a compulsory liability coverage, one is for voluntary insurance**
 - The two policies could have different effective date. That creates difficulties for product management, especially for non-private accounts which could have large number of vehicles.
 - For a given policy, policy number is changed in each renew. To link the history of a vehicle, vehicle id must be used as a key field.
 - Frequently, it is difficult to decide customer keys to link all policies to corresponding customers
- **Insufficient driver information:**
 - In new business sales, especially the sales are from a brokerage channel, driver information is frequently not available.
 - Driver age and gender are not used as base rating variables, they are only used as discounting variables with very flat discount factors (see next slide)
 - Marital status is never used for either rating or underwriting
- **Vehicle symbol is not valid for either physical damage or liability. The VIN number system has not been standardized.**
- **Territory rating is not sufficient**
 - Current territory rating is only by province

Current Business Environment & Challenges - Cont.

Current Driver Related Factors in the Rating Table in China for personal vehicle:

Factor (F12)	Gender	Years of Driving	Driver's Age				
			< 25	[25, 30)	[30, 40)	[40, 50)	≥ 50
Factor (F12)	Male	≤ 1	0.99	0.97	0.95	0.95	0.99
		(1, 5]	0.97	0.95	0.93	0.93	0.97
		> 5	0.95	0.93	0.91	0.91	0.95
	Female	≤ 1	0.98	0.96	0.94	0.94	0.98
		(1, 5]	0.96	0.94	0.92	0.92	0.96
		> 5	0.94	0.92	0.90	0.90	0.94

Data Challenges: External Data

Internal Data Vs. External Data:

- The powerful external data resources frequently used in US auto rating and underwriting, such as credit data, demographic data, Carfax data, weather data and etc. are not available in China.
- There are two industry data bases:
 - Industry Vehicle Type Database
 - ❑ Using make-model as key field
 - ❑ Linked fields including new car value, car weight, number of seats, engine power, etc.
 - Regulated Accident Reporting Platform (similar to MVR in US)
 - ❑ A major data source for rate discount
 - ❑ On vehicle basis, not on driver basis
 - ❑ The platform effective dates were differed by province between 2010 and 2012. The claim frequency was decreased after the platform was effective, but the claim severity was increased.
 - ❑ Separated by Compulsory Third Party Liability Insurance Vs. Voluntary Insurance

Data Challenges: A Data Cleansing Example

- **Data Issues:**

- Issue 1 : Inadequacy of case reserve
 - The liability limits of both compulsory liability coverage and voluntary liability coverage are very low, the liability claims are closed fast
 - In most of the companies in China, case studies are not regularly performed as in US, it's common that case reserve of open claims are inadequate. It's hard to perform an open claim loss development which is a routine for generating ultimate losses in a predictive modeling project.
- Issue 2 : Different loss pattern - before Vs. after the regulatory claim reporting platform was effected.

- **Analysis:**

- In 1/12012-6/30/2012, the regulatory claim reporting platform is effective in all the provinces
- The percentage of policies which are effective in 1/12012-6/30/2012 and associate with an open claim is low.
- The data of 1/12012-6/30/2012 after cleansing is credible for the Rating Plan Development project

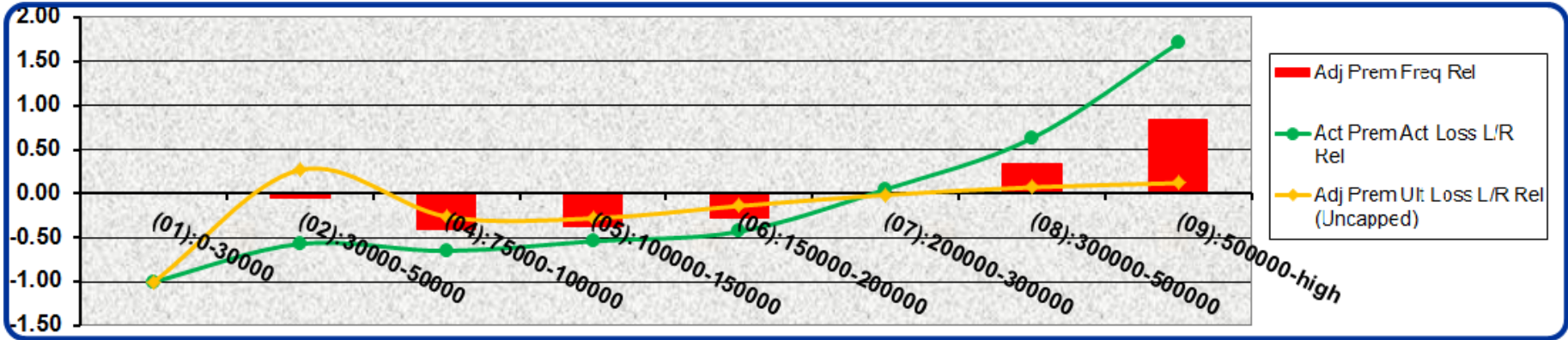
- **Solution:**

- Only keep the data records with effective date within 1/12012-6/30/2012, and no open claim associated.

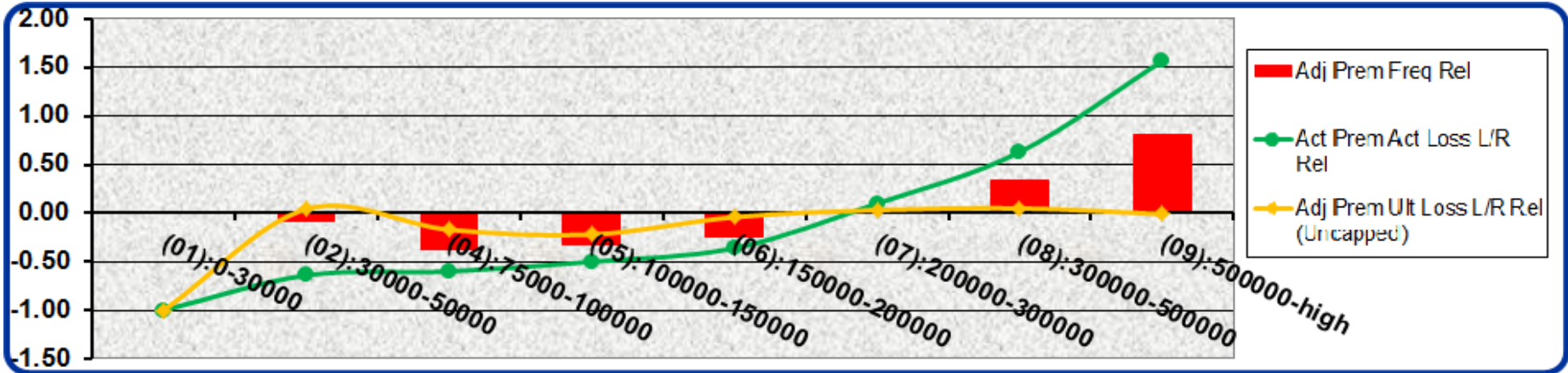
Data Challenges: A Data Cleansing Example – Cont.

Validation Using Univariate Analysis example: Coverage Limit

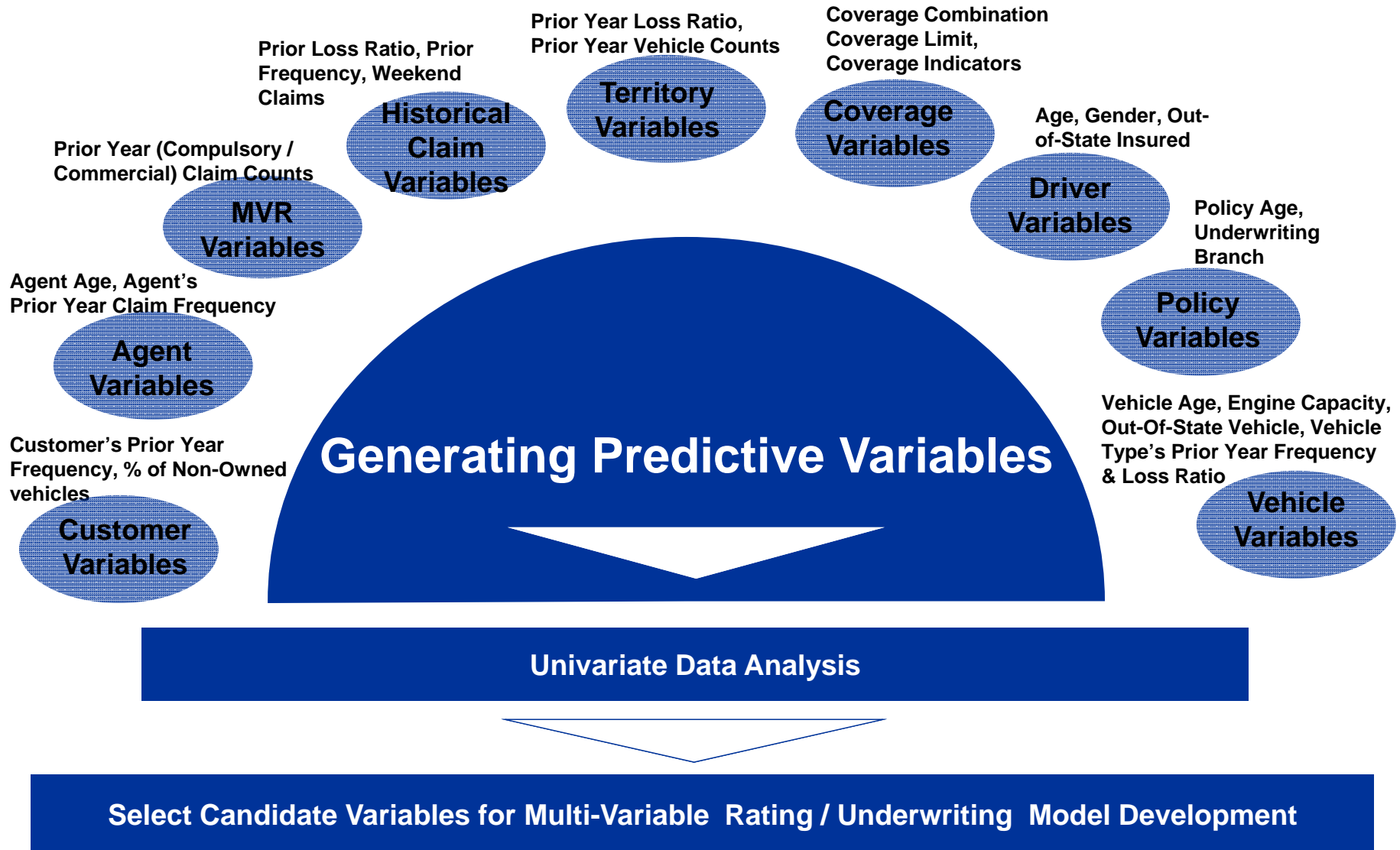
Before Data Cleansing



After Data Cleansing



Data Analytics and Predictive Modeling Opportunities





Q&A

