



# Analysis of Chinese Motor Insurance

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**Yao Rui**  
**Tao Qian**

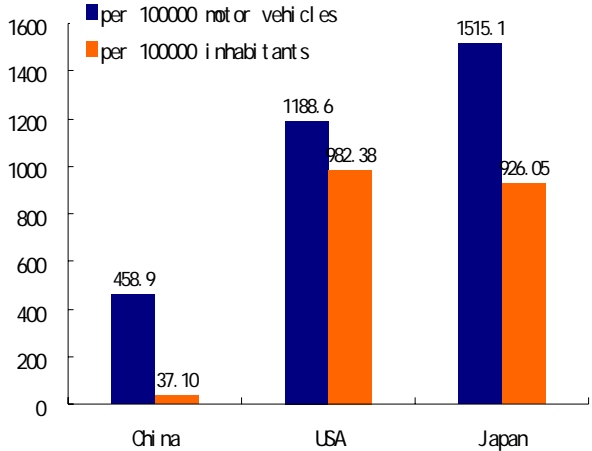
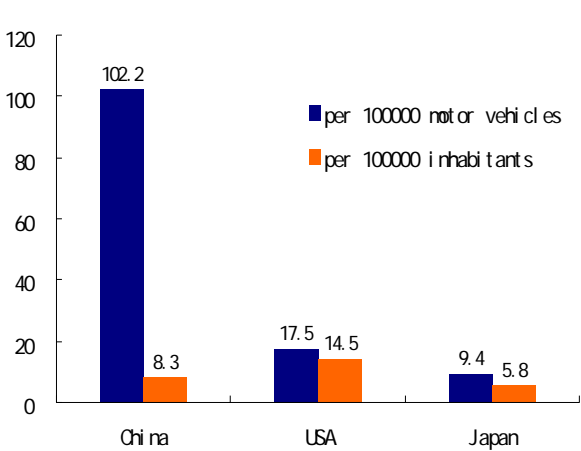
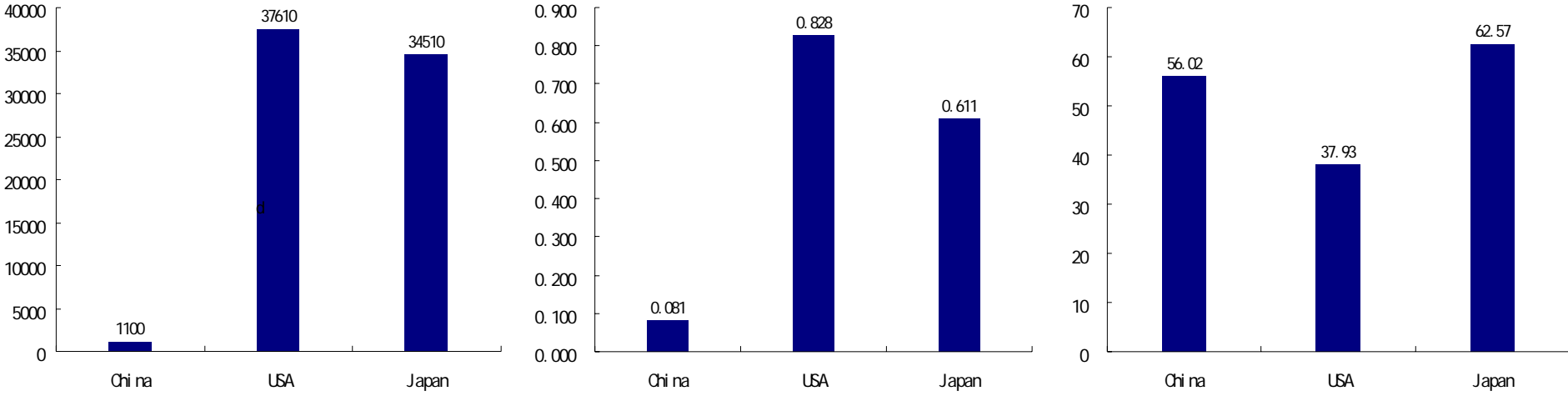
**Orlando, United States**  
**June 2007**

# Agenda

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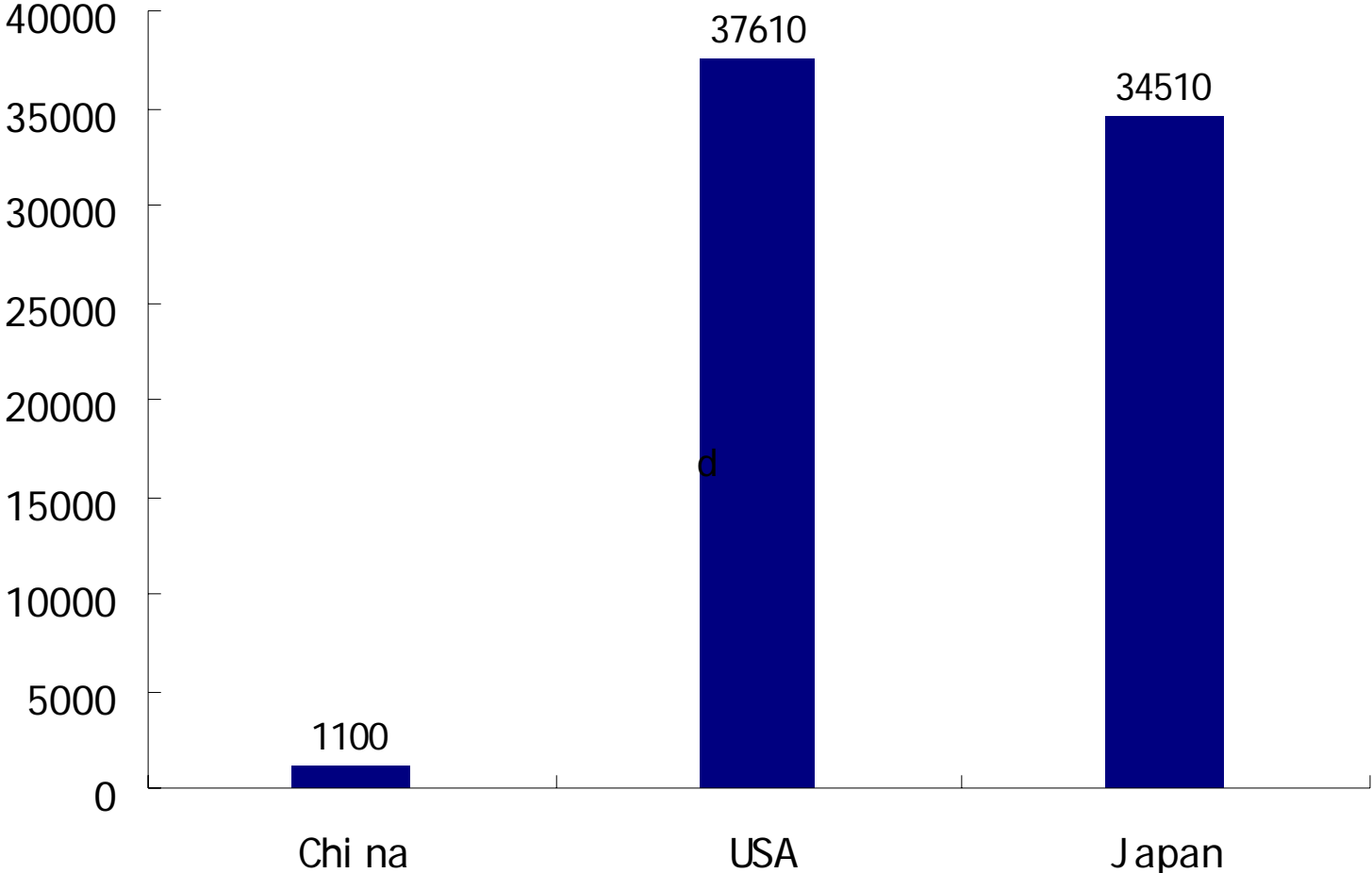
- Motor insurance market context
- Third Party Motor Insurance in China
- Motor vehicle insurance rating
- Final Considerations

# Motor insurance market context



# Motor insurance market context

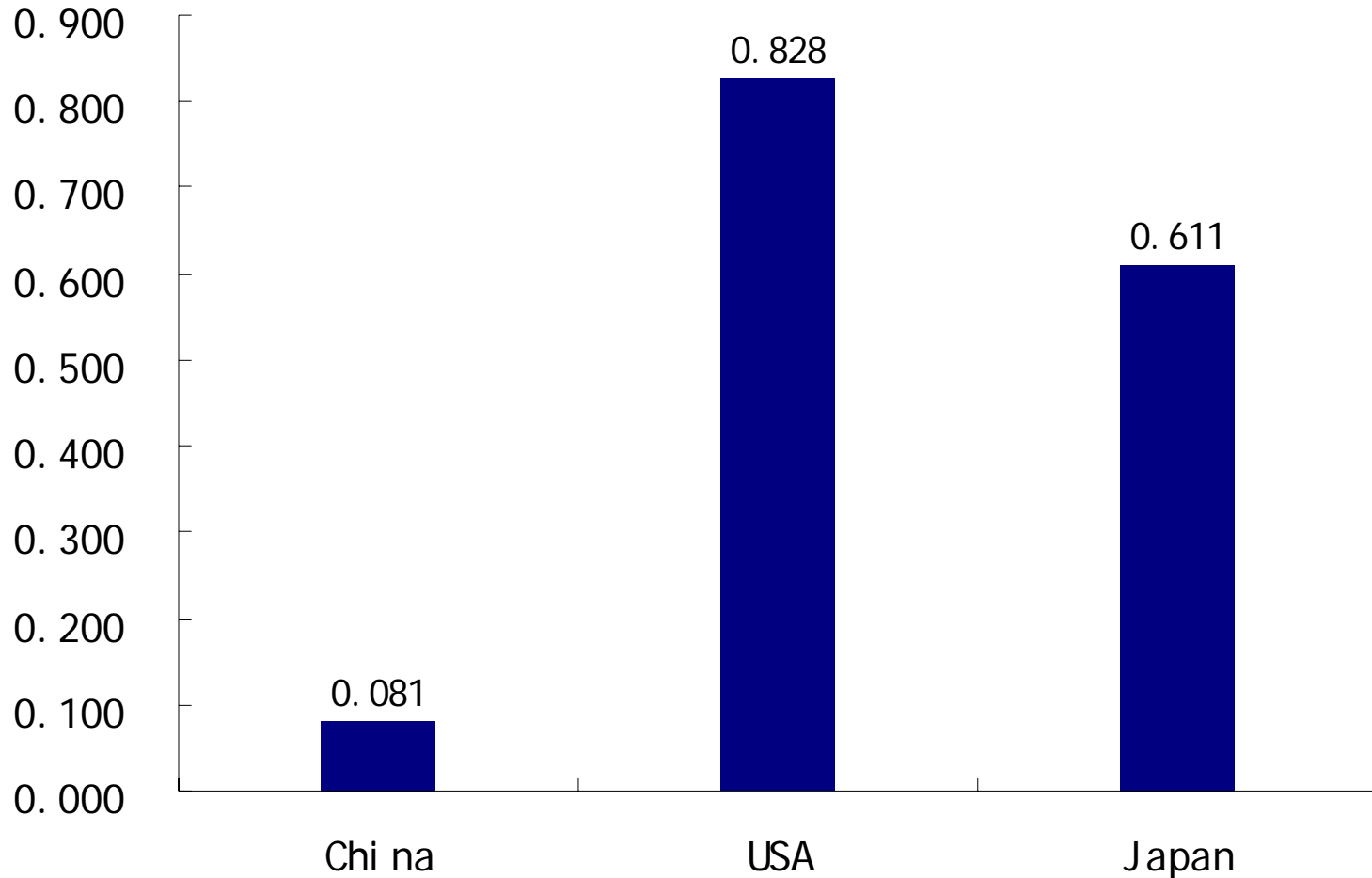
- **Economic Activity and Traffic ---- GDP (\$) per inhabitant**



[Back](#)

# Motor insurance market context

## ■ Economic Activity and Traffic ---- Motor vehicles per inhabitant

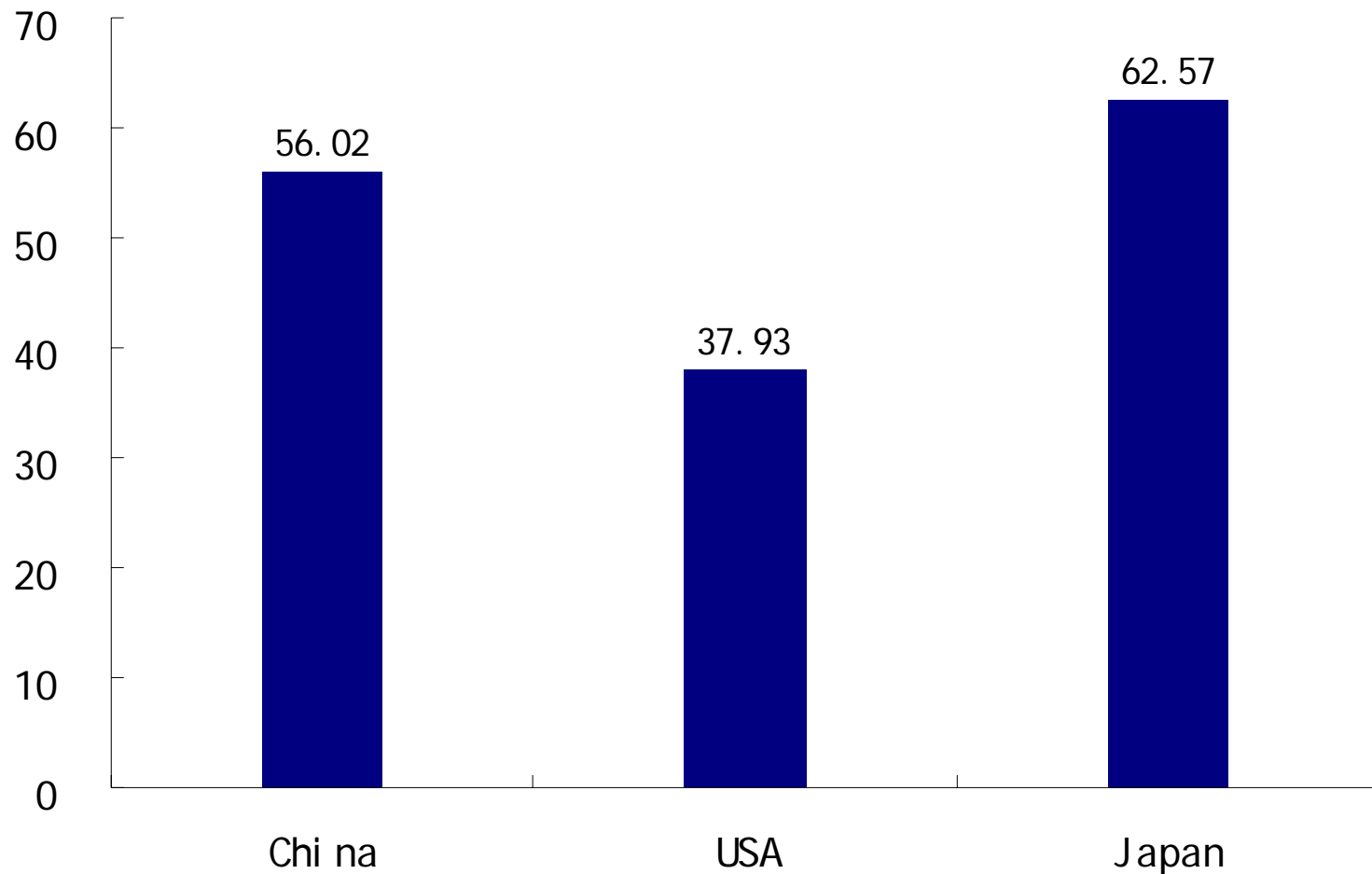


[Back](#)

# Motor insurance market context

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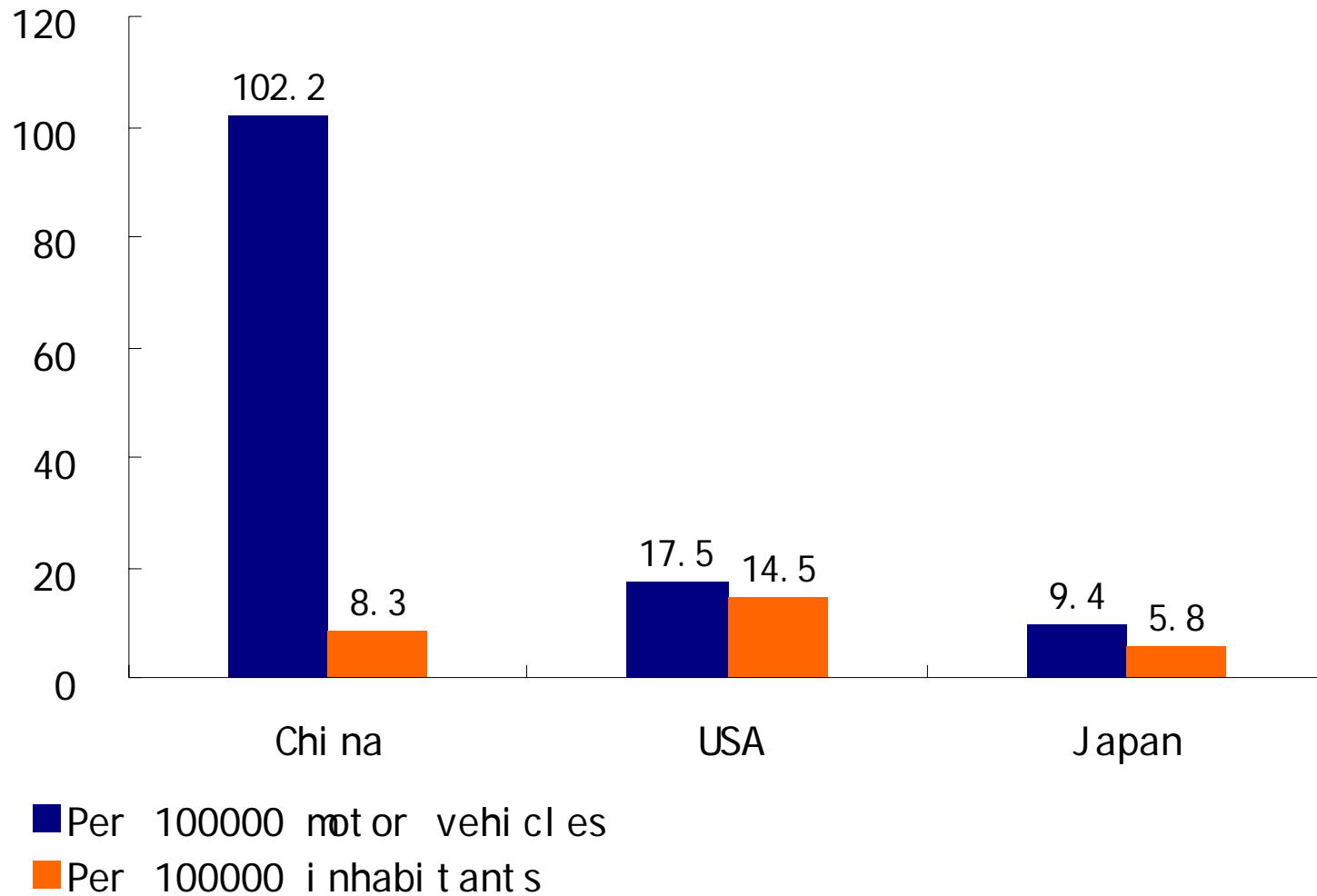
## ■ Economic Activity and Traffic ---- Motor vehicles per road-km



[Back](#)

# Motor insurance market context

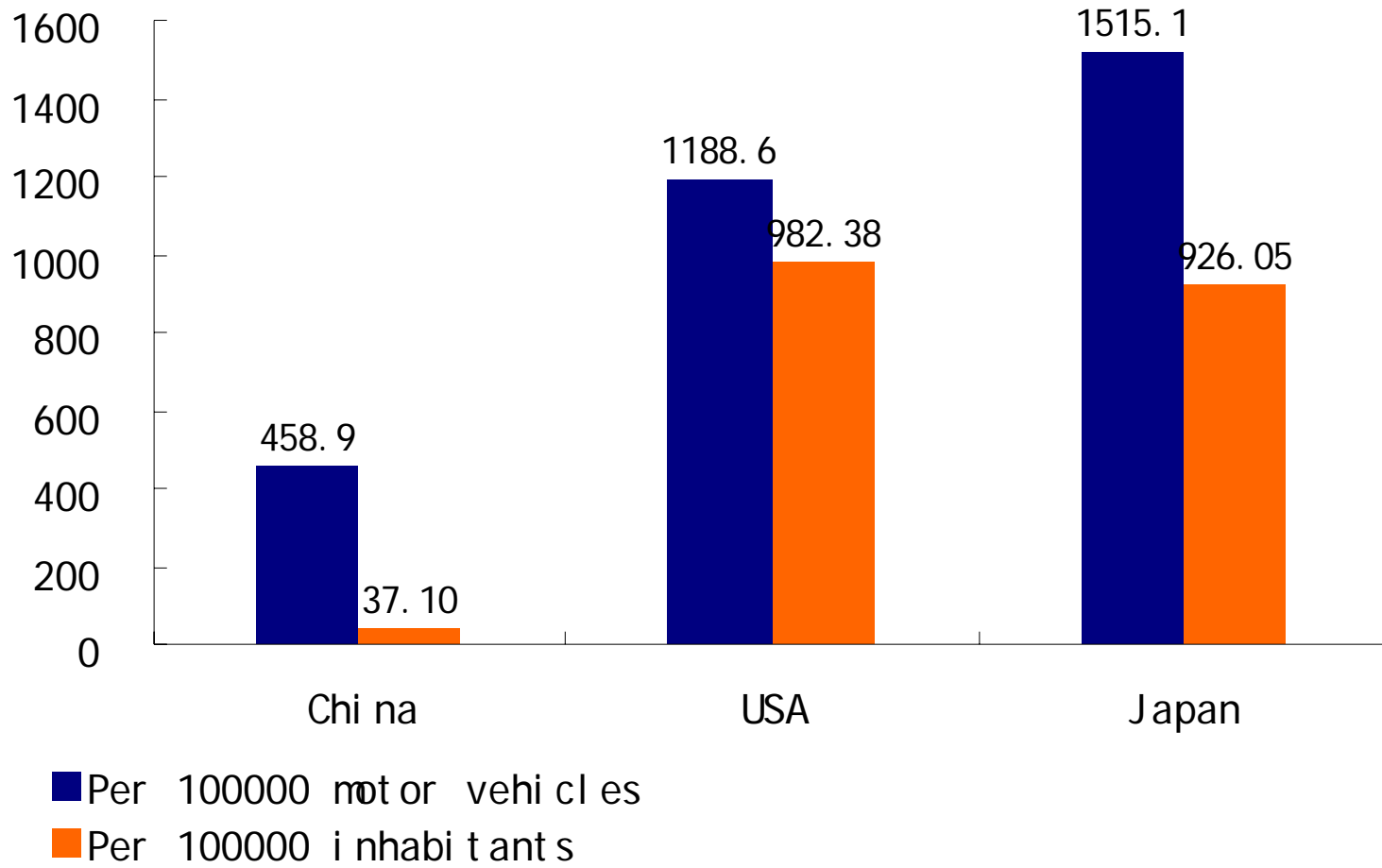
## ■ Economic Activity and Traffic ---- Road deaths



Back

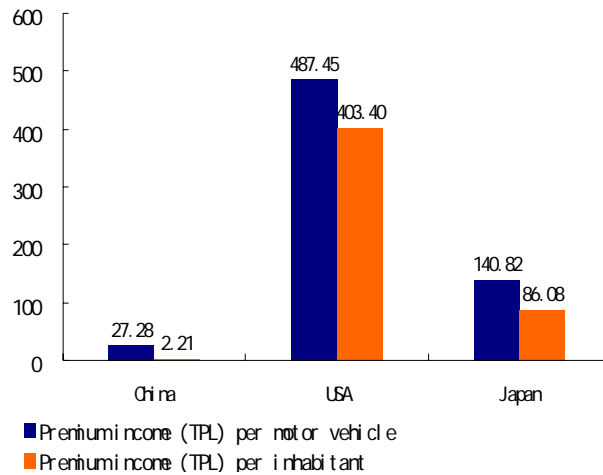
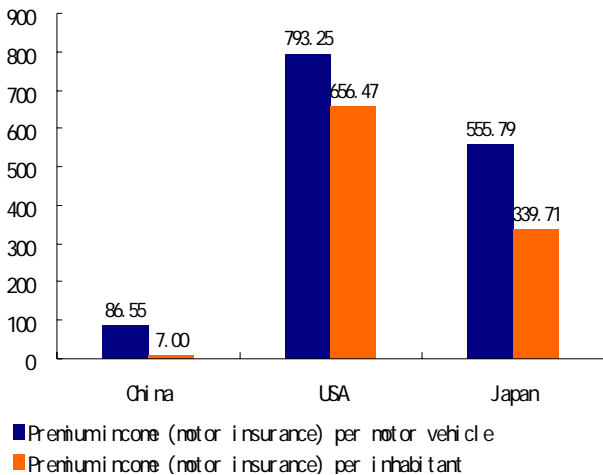
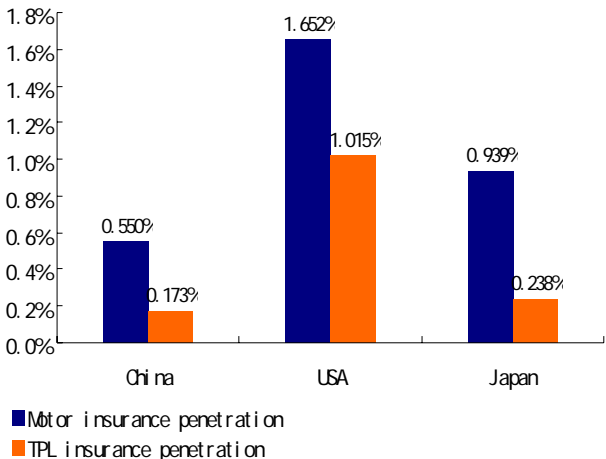
# Motor insurance market context

## ■ Economic Activity and Traffic ---- Road injuries



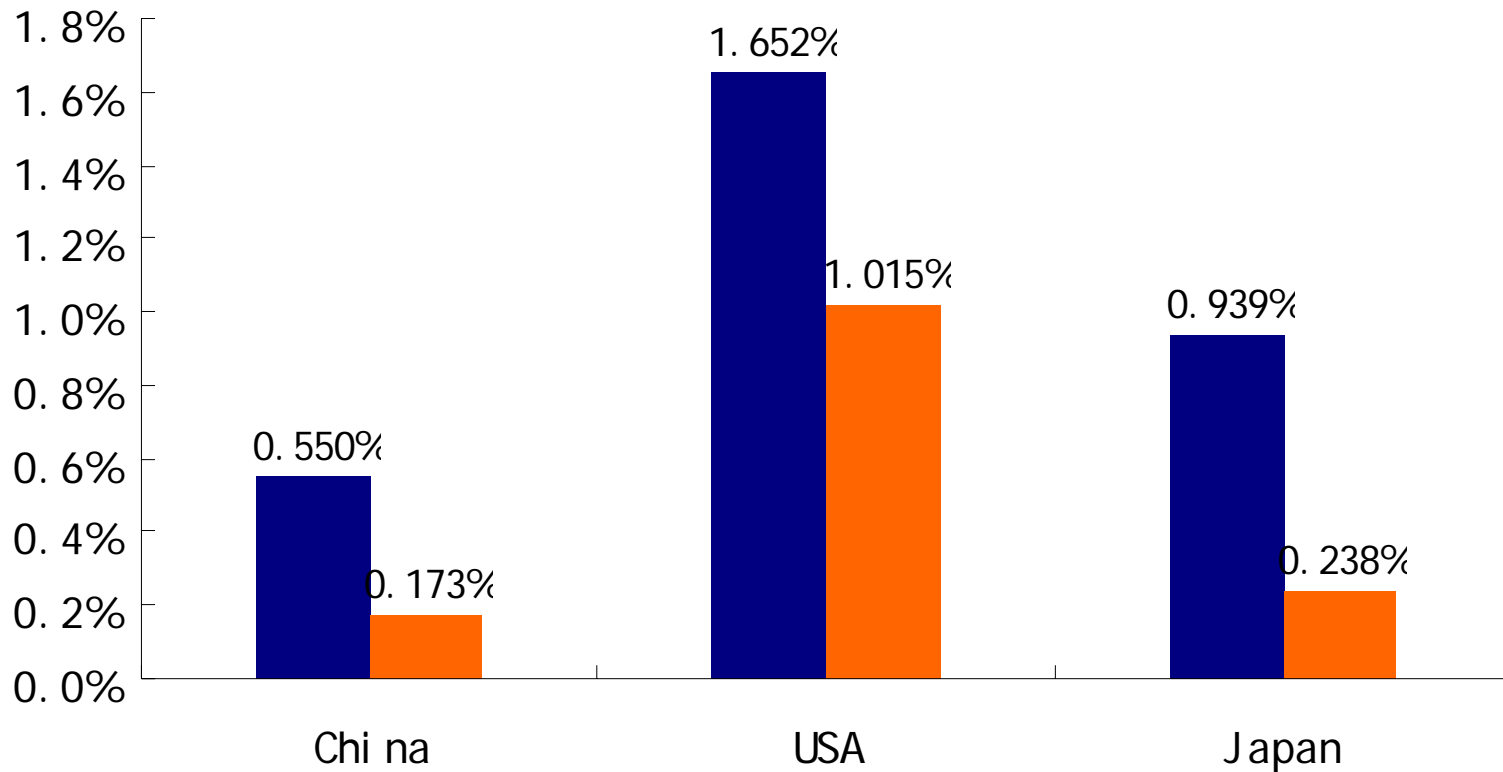


# Motor insurance market context



# Motor insurance market context

## ■ Gross Premium Revenue --- insurance penetration

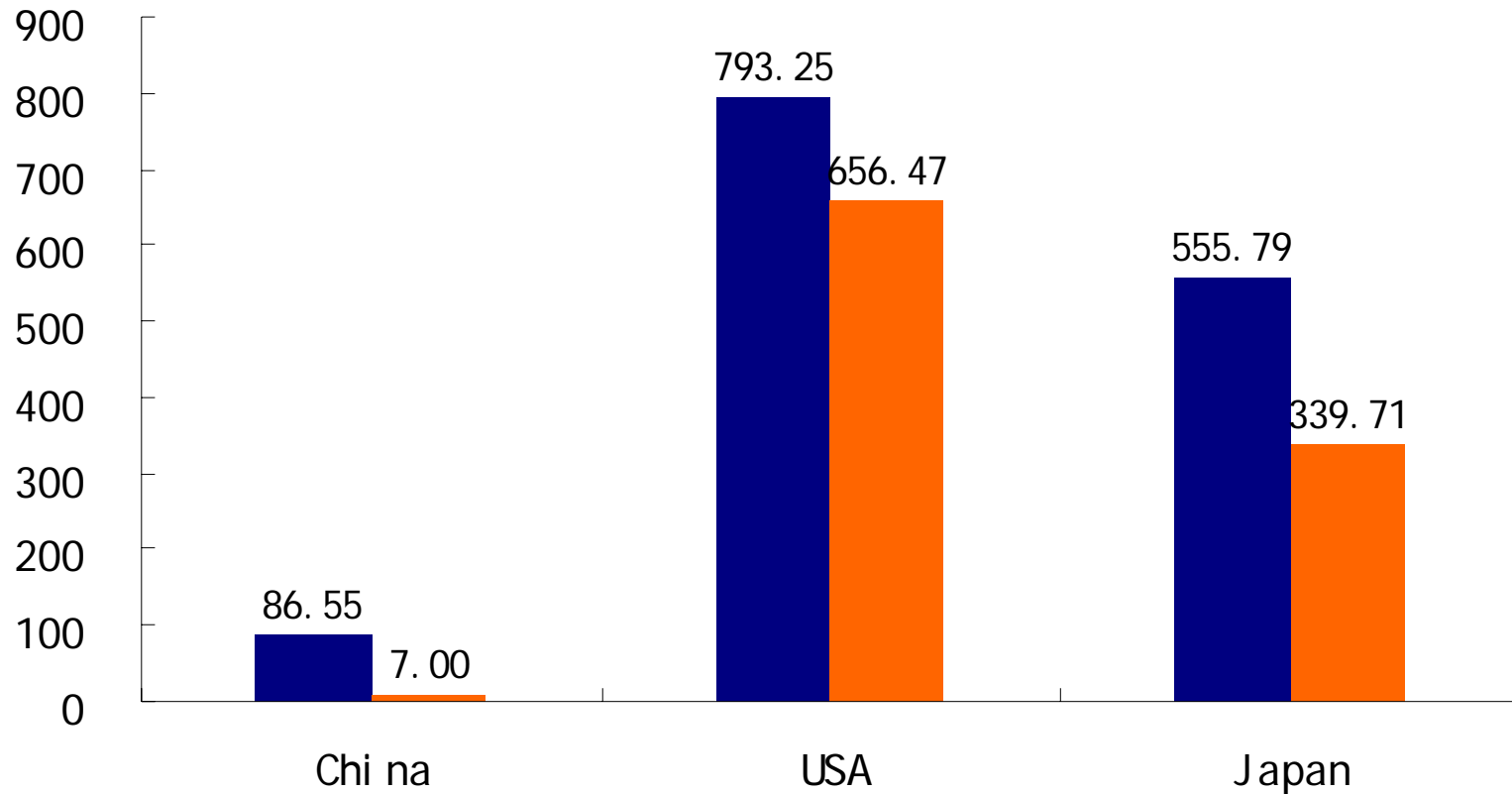


■ Motor insurance penetration  
■ TPL insurance penetration

Back

# Motor insurance market context

## ■ Premium income (total motor insurance) per unit



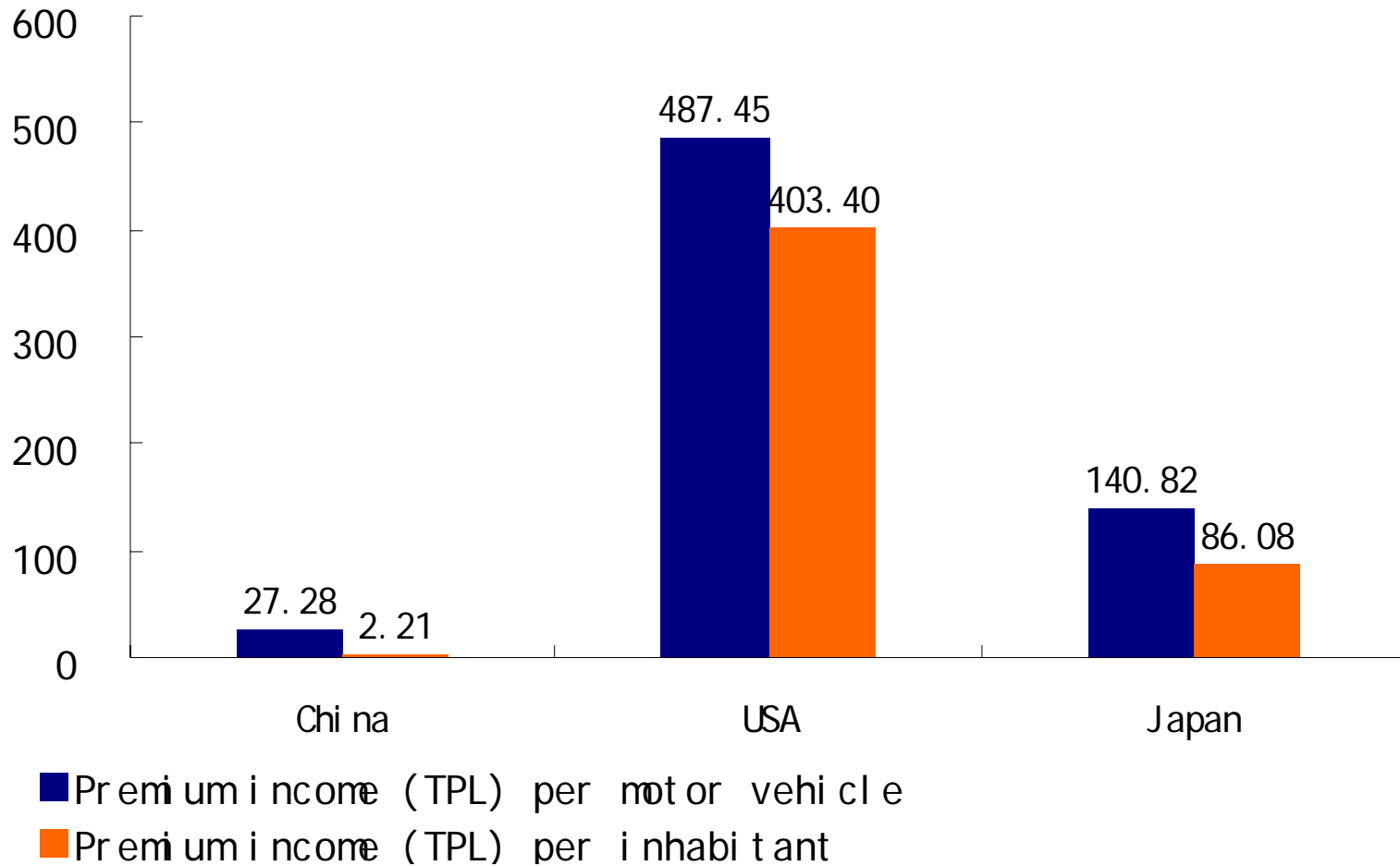
■ Premium income (total motor insurance) per motor vehicle

■ Premium income (total motor insurance) per inhabitant

Back

# Motor insurance market context

## ■ Premium income (TPL) per unit



# Third Party Motor Insurance in China

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## ■ Regulation development for TPL

Date	Event
1999	Statutory automobile liability insurance was listed on the legislation program
May 1st 2004	Requiring all motor vehicles must be covered by SALI. In addition, owners of motor vehicles may buy voluntary TPL insurance on themselves.
March 28th 2006	Automobile traffic accidents statutory liability insurance clause was promulgated
July 1st 2006	SALI was promulgated formally and came into force on that day.

# Third Party Motor Insurance in China

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- **Introduction to SALI**
- **Introduction to commercial TPL**
- **Distinctions between SALI and commercial TPL**
  - Compulsoriness
  - Coverage
  - Limits of liability
  - Exclusions and Deductible
  - Premium
  - Profit

# Motor vehicle liability insurance rating

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- **Agenda**

- **Rating of SALI**

- **Rating of commercial TPL**

- Primary tariff
    - Adjustment coefficients
    - Rating factors
    - Bonus Malus System

# Motor vehicle liability insurance rating

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## ■ Rating of SALI

- “No-loss, No-profit” rules
- Uniform regulation and primary tariff
- Independent management and account
- Revise future premium rates.



# Motor vehicle liability insurance rating

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- **Rating of commercial TPL**
  - **Main classes of risk rating factors**
    - Motor vehicles
    - Drivers
    - Driving environment.

- **Rate**

$$\text{Final rate} = \text{Primary tariff} \times C_1 \times C_2 \times \cdots \times C_n$$

where  $C_1, C_2, \dots, C_n$  are adjustment coefficient.

# Motor vehicle liability insurance rating

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- **Primary tariff**

- **Rating factors**

- usage
    - number of seats
    - tonnage
    - limit of insurance liability
    - place of registration/residence (region)

# Motor vehicle liability insurance rating

## Adjustment coefficients

<i>Premium differentiation factor</i>	<i>classes</i>	<i>spread</i>
<b><i>Driver/owner classification</i></b>		
agender	2	5%
age	5	1.11
age of driving license	3	1.05
loyalty bonus	2	10%
additional Contract with insurer	2	5%
<b><i>Use classification</i></b>		
BMS	7	1.86
motoring fines	2	10%
user group(No. of drivers)	2	10%
low-mileage discount	3	1.44
region of use4	4	1.25
<b><i>Motor vehicle classification</i></b>		
type of car/model	3	1.54
<b><i>Additional classifications</i></b>		
motorcade management	*	*
experience & excepted loss ratio	5	1.86
No. of cars insured	4	1.25

The overall spread with regard to the primary premium differentiation is approx. 1 to 21.23

# Motor vehicle liability insurance rating

## Rating factors- I

<i>Tariff Criterion</i>	<i>USA</i>	<i>China</i>	<i>Japan</i>
<b>Driver/owner classification</b>			
gender	✓	✓	
age	✓	✓	
marital status	✓		*
additional Contract with insurer	✓	✓	*
motoring fines	✓	✓	
safety training	✓		✓
membership in automobile club	✓		
loyalty bonus	✓	✓	✓
age of driving license		✓	✓
public transport user (railcar, etc)		✓	
state of health			✓
sign of zodiac			✓
owner-occupied Home			✓
compr. insurance discount			✓

# Motor vehicle liability insurance rating

## Rating factors- II

<i>Tariff Criterion</i>	<i>USA</i>	<i>China</i>	<i>Japan</i>
<b>Use classification</b>			
place of registration/residence(region)	√	√	
commercial use	√	√	
low-mileage discount	√	√	
user group (No. of drivers)	√	√	
second car use	√		
region of use		√	√
<b>Motor vehicle classification</b>			
type of car/model	√	√	
age of car	√		
maximum speed			√
safety equipment	√		*
structural modifications			√
<b>Additional classifications</b>			
no rental car			√
full information provided			√

# Motor vehicle liability insurance rating

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## ■ **Bonus Malus System**

- In 2003, only four to five classes
- In June 2006
  - Three different BMS
  - Ten different classes
- In April 2007
  - The new BMS that is being used
  - Seven classes
  - Premium fluctuation spread are much smaller

# Motor vehicle liability insurance rating

## Bonus Malus System

No.	class	premium	No claims in the past			Downgrading			
			1 year	2 years	3 years	after less than 3	after 3	after 4	after more than 4
			upgrading to the class			claims to the class			
1	7	130%	3	2	1	4	5	6	7
2	6	120%	3	2	1	4	5	6	7
3	5	110%	3	2	1	4	5	6	7
4	4	100%	3	2	1	4	5	6	7
5	3	90%	3	2	1	4	6	6	7
6	2	80%	3	2	1	4	5	6	7
7	1	70%	3	2	1	4	5	6	7

The spread for the BMS is 1.857

# Motor vehicle liability insurance rating

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## ■ **Appraisal**

- Easy to understand and to use
- It is not a optimal BMS
- Bonus and malus are insensitive to the claim frequency
- Induce adverse selection
- Premium income might decrease



# Final Considerations

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- **Further development**
  - Market
  - Actuarial technologies
    - Rating factors
    - BMS
- **SALI presents many uncertainties for the market**
- **Much further research remains to be done**

Yao Rui and Tao Qian

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That's all.  
Thank you!