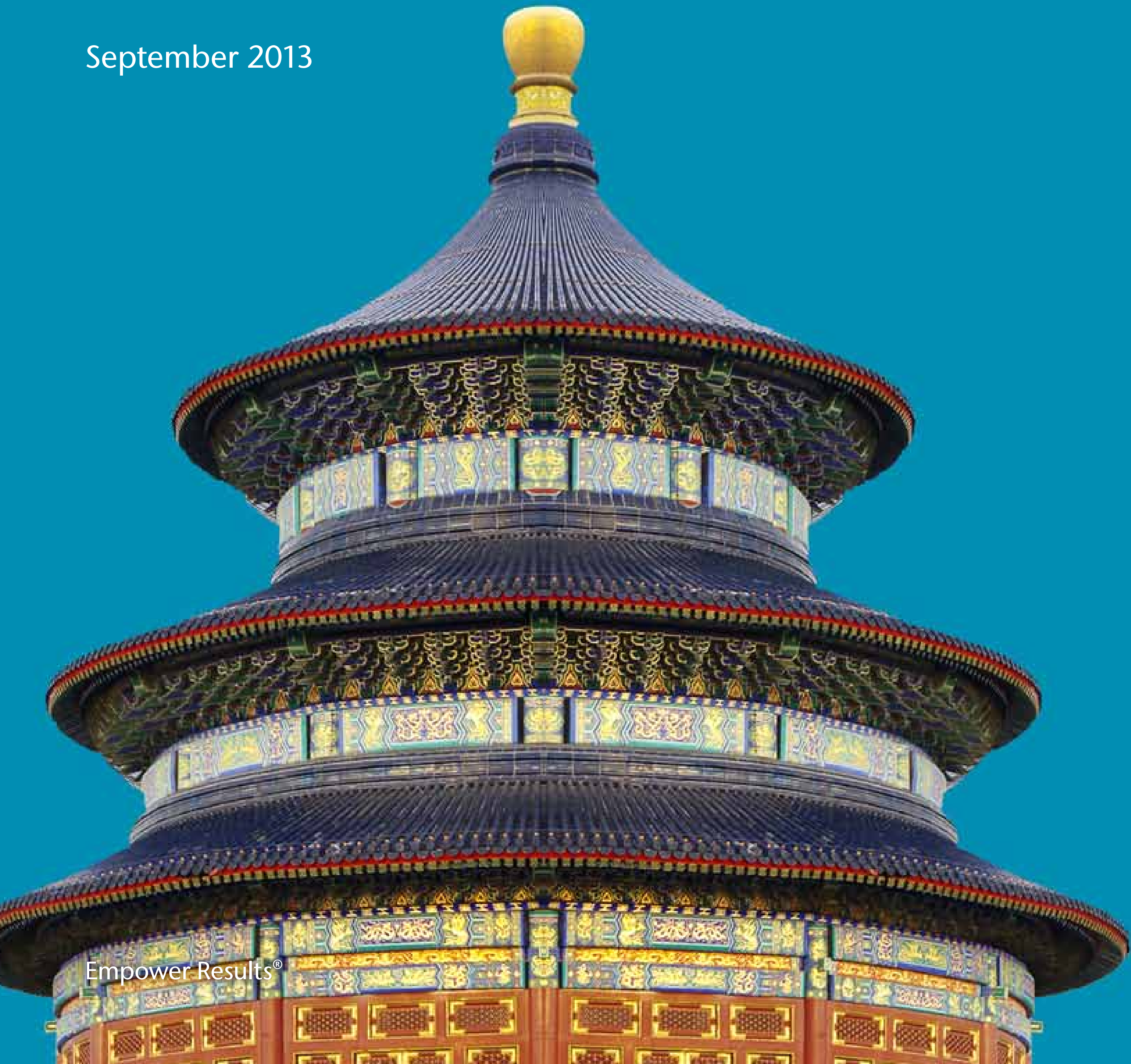
AON BENFIELD

China P&C Insurance and Reinsurance Market Report

September 2013



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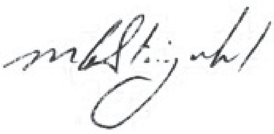
Foreword

Over the past ten years, China has emerged as an insurance and reinsurance market that cannot be overlooked. This, however, does not mean it is well analyzed. When we look beyond the macro growth, underlying opportunities and challenges are not necessarily what they first appear to be. For example, a detailed analysis of the Property market shows that growth has been more in line with GDP than with the faster overall market growth, which is largely driven by Motor business.

This report is not just a collection of statistics but offers the unique perspective of a global industry leader. It attempts to examine the Chinese insurance and reinsurance markets from various angles to assist in revealing many of the opportunities and challenges vital for any insurer or reinsurer forming a strategy for China. Amongst other things, it explores reasons for the slow development of catastrophe insurance and reinsurance in China against a backdrop of rising accumulation exposure to natural hazards.

Despite its rapid expansion in the past few years, the Chinese insurance industry will continue to face major challenges in the years to come. While many of the challenges that the Chinese market faces are not particularly new, we have to acknowledge their complexity. They are amplified by the scale of the market and the speed of its development. Nonetheless, expertise and experience accumulated and tested in the global market is still of much relevance to China.

Aon Benfield is committed to the Chinese market and strives to bring global expertise and capacity to facilitate the development of our clients and the general market. We are fortunate to have witnessed extremely exciting developments in the past ten years. However, in my view, the more exciting momentum is yet to come in the next ten years. Hopefully this report will provide you with a few insights into that exciting future.



CEO — Asia Pacific Aon Benfield

Executive Summary

From 2001 to 2012, China was one of the fastest growing insurance markets in the world and now at 1.58t RMB (249b USD, Life and P&C) represents 5.5% of the world's total insurance premiums (up from c. 1% in 2001). Looking ahead, the China Insurance Regulatory Commission's (CIRC) 12th five year plan targets insurance premiums of 3t RMB (467b USD) in 2015, implying a c. 24% CAGR.

The Chinese P&C market outpaced GDP expansion for the past decade through 2012, growing to 533b RMB (85.5b USD), a 19.2% CAGR. However, underlying penetration levels remain low by international standards. After 37% growth in 2010 (on the back of tax-driven growth in Motor), the P&C market has moderated in 2011 and 2012, with 14.9% and 15.4% growth rate respectively. Current headwinds include rising inflation and slowing vehicle sales. However, some areas of the market continue to expand aggressively. Government subsidies have supported annual growth in Agriculture premiums of greater than 100% from 2005 to 2011, to reach 17.4b RMB (2.8b USD). In the reinsurance market, aggregate premiums ceded by Chinese P&C insurers in 2011 were c.79.3b RMB (12.6b USD), having expanded by 200% since 2005. Around 85% of Chinese reinsurance business is written through Treaty contracts and c. 70% of premiums are assumed by local reinsurance operations.

In terms of perils China has broad exposure, having suffered five of the top 10 deadliest natural disasters in history, three of the top five deadliest Earthquakes, the top five deadliest Floods and more Typhoons than any other country (an average of approximately 11 per annum). In recent history, catastrophes have affected over 70% of China's land area and over half the population. The CIRC's 12th five year plan covers construction of a national natural disaster risk transfer program as well as improvement of loss models and underlying data.

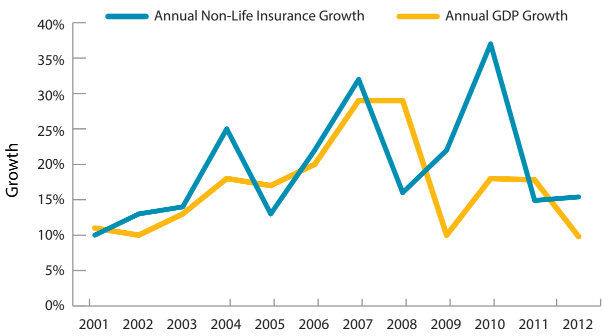
Finally, the evolution of Chinese insurance regulation is bringing the market closer to international best practice. Over time this should support increased transparency and improved profitability, potentially hand in hand with the entrance of more foreign insurers and reinsurers into the Chinese market and the global expansion of Chinese insurers and reinsurers.

Insurance Market Overview

Growth

Over the decade to 2010, China's total Gross Domestic Product (GDP) has expanded at a Compound Annual Growth Rate (CAGR) of 17.2% (5 year CAGR to 2010 of 21.1%), elevating the Chinese economy to be the world's second largest. After posting GDP growth of 17.8% (CAGR) in 2011, the pace of expansion has moderated to 9.8% in 2012, largely on the back of government moves to raise interest rates and tighten bank lending but also in part reflecting global economic headwinds. In 2013, second quarter GDP growth was 7.6%, down from 7.7% in Q1 and 7.8% in Q4 2012. The Chinese Government appears to be focused on rebalancing economic growth away from the historical drivers of exports and fixed asset investment and towards consumption.

Figure 1: China's Non-Life Insurance Growth versus GDP Growth

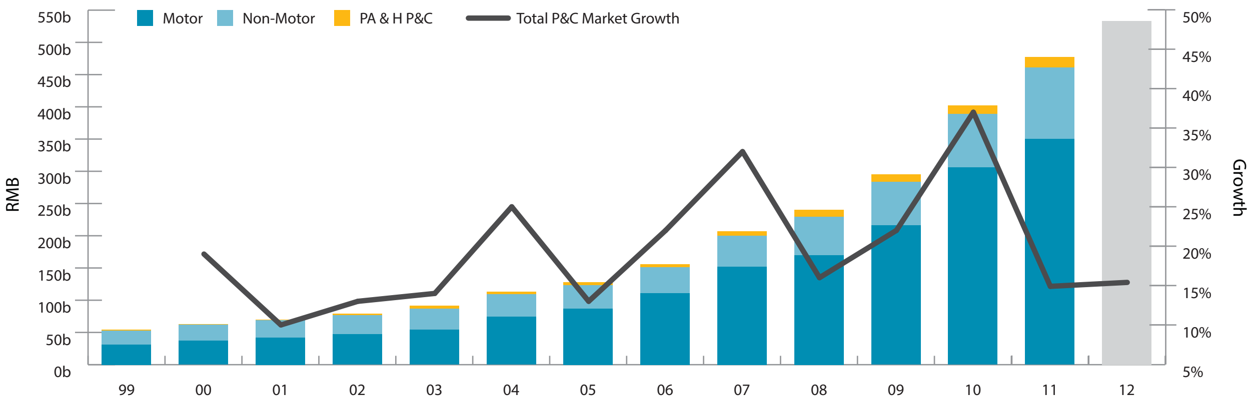


Sources: CIRC, World Bank, Inpoint

Over the years from 2001 to 2010, the Chinese insurance market (P&C and Life) was the second fastest growing national market in the world (behind Malta) and now represents close to 4% of the world's total insurance premiums (up from c. 1% in 2001). Given the still low insurance penetration rate and China's comparative economic outlook, this share can only be expected to grow.

The Chinese Property & Casualty (P&C) market has outpaced economic expansion over the last decade. P&C insurance premiums have grown from 64b RMB in 2000 to 533b RMB (85.5b USD) in 2012, a CAGR of 19.3% for the last decade. This includes Personal Accident & Health (PA & H) written by P&C insurers but excludes all premiums written by Life insurers.

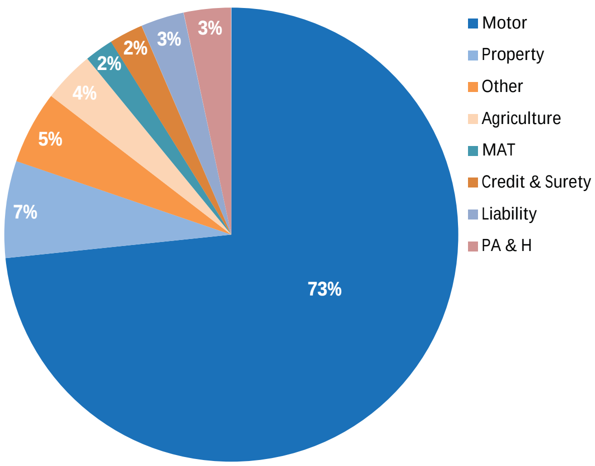
Figure 2: Total P&C Insurance Premiums



* Jan - Aug 2012. No line of business split available
Sources: CIRC, The 2012 Yearbook of China's Insurance, Inpoint

Historically, growth in the Chinese insurance market has been underpinned by Motor lines, which accounted for 76% of total P&C insurance premiums in 2010. Other than Motor lines, Agricultural insurance has been the other main focus. The second largest premium line, Property, has seen more modest growth.

Figure 3: P&C Insurance Premium Split



Sources: The 2012 Yearbook of China's Insurance, Inpoint

After growing by 37% in 2010 (largely on the back of a tax-driven spurt in motor vehicle sales), the Chinese P&C market has moderated in 2011. Through the first eight months of 2011, Chinese P&C insurance premiums excluding PA & H tallied 318b RMB (48.8b USD), up 13% on the same period in 2010. This was a slight decrease on the performance for the six months to June 2011, that saw 16% growth in P&C premiums. The CIRC Chairman, Mr Wu Dingfu, has indicated that the Chinese insurance industry will continue to face challenges for the remainder of 2011, including rising inflation, higher interest rates, low yields of some insurance products and the impact of slower vehicle sales.

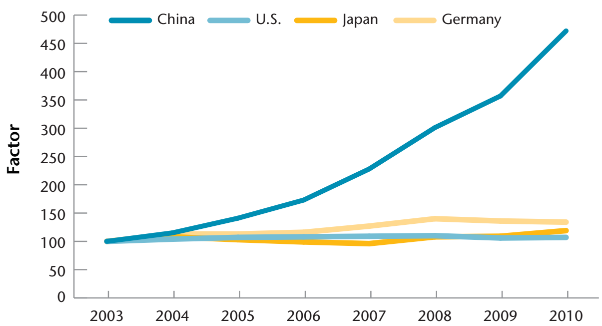
Figure 4: Chinese Insurance Premiums

	GWP RMB (b)		Growth (to 2010)	
LoB	2010	2011	10 yr CAGR	5 yr CAGR
Motor	306	351	21.1%	12.1%
Property	28	33	7.3%	5.5%
Agriculture	14	17	37.8%	29.8%
MAT	13	15	8.8%	8.5%
Liability	12	15	19.7%	8.5%
PA & H	13	16	18.6%	7.0%
Other	16	25	11.4%	5.2%
	402	472	20.2%	25.7%

Sources: CIRC, The 2012 Yearbook of China's Insurance, Inpoint

Between 2003 and 2010, Chinese premium per capita grew almost fivefold, whereas the premium spent in developed countries remained relatively stable. In 2010, the average insurance spend per capita in China was 361 RMB (53 USD) compared to the average spend of 5,032 RMB (739 USD) in Europe.

Figure 5: Premium Per Capita Growth (base 100 in 2003)

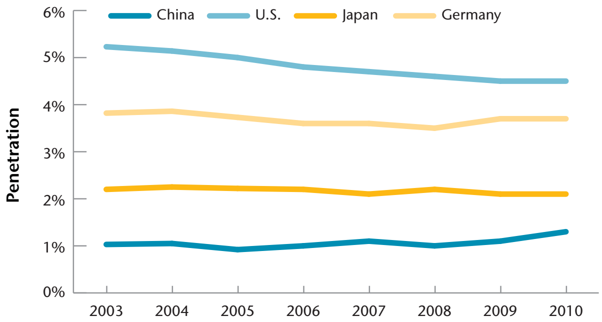


Sources: Swiss Re, Inpoint

China's Non-Life insurance penetration as a percentage of GDP only achieved a slight uptick in 2009 and 2010, to 1.1% and 1.3% respectively. In comparison, Germany fluctuated under 4% and the US fell from over 5% to 4.5%.

While the potential is clear, headwinds to increased insurance penetration remain. Private insurable asset ownership is currently limited in China. Personal savings rates are high and continue to rise while personal income as a component of GDP is retreating. Cultural shifts will be required to realise materially higher penetration.

Figure 6: P&C Insurance Penetration as % of GDP



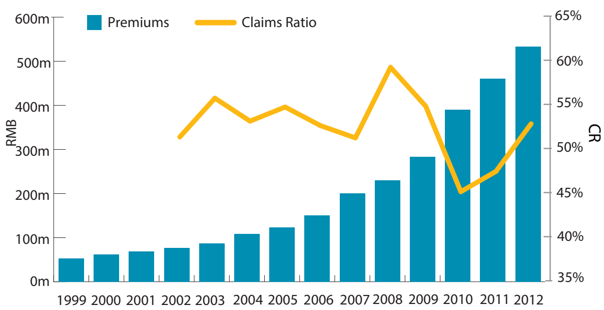
Sources: Swiss Re, Inpoint

While not the focus of this report, over the last decade total Chinese Life insurance premiums have grown from 98b RMB (11.9b USD) in 2000 to 1,051b RMB (154b USD) in 2010, a CAGR of 26.7%. Life business for the eight months to August 2011 decreased by 5%, driven by restrictions on bancassurance business and the effect of the global economic environment. It is worth noting that over this time, total PA & H premiums grew by 7%. Around 13% of Chinese PA & H business is written by P&C insurers.

Profitability

Company and industry data released by the China Insurance Regulatory Commission (CIRC) was a key information source underpinning our analysis of the Chinese insurance and reinsurance markets. It is important to note that it is our understanding that Loss information released by the CIRC is typically on a gross and paid basis. On that basis, as a proxy for loss performance, we have compared aggregated premiums and claims reported to CIRC by Chinese P&C insurers since 1999.

Figure 7: Total P&C Insurance Premiums



Note: CR's compare gross premiums and paid claims
Sources: CIRC, The 2012 Yearbook of China's Insurance, Inpoint

We have also collated Combined Ratios for the top three Chinese Property & Casualty insurers. Given each of these entities have premiums dominated by largely homogenous Motor lines, it is no surprise that the variation between companies is minor. These ratios have been calculated on net earned premiums and net claims incurred from the companies' respective financial reports.

Figure 8: Performance Ratios

	Loss Ratio		
Year	PICC	Ping An	China Pacific
'08	75.9%	68.1%	64.9%
'09	69.2%	57.0%	61.0%
'10	67.4%	55.4%	57.4%
'11	65.8%	57.8%	58.6%
'12	63.6%	59.4%	61.2%

	Expense Ratio		
Year	PICC	Ping An	China Pacific
'08	27.4%	35.9%	37.3%
'09	33.1%	41.6%	36.5%
'10	30.4%	37.8%	36.3%
'11	28.2%	35.7%	34.5%
'12	31.5%	35.9%	34.6%

	Combined Ratio		
Year	PICC	Ping An	China Pacific
'08	103.3%	104.0%	102.2%
'09	102.2%	98.6%	97.5%
'10	97.8%	93.2%	93.7%
'11	94.0%	93.5%	93.1%
'12	95.1%	95.3%	95.8%

Sources: Company accounts, Inpoint

Geographic Spread

Domestic insurance premiums are concentrated in the highly industrialized and prosperous Southeast region of the country, otherwise known as the Pearl Delta.

Figure 9: Chinese P&C Insurance Market by Region (Excl. PA & H)

		12 Months to December 2012			6 Months to June 2013		
Rank	Region	GWP RMB(m)	GWP USD(m)	Market share	GWP RMB(m)	GWP USD(m)	Market share(%)
1	Jiangsu	44,092	7,077	8.3	25,765	4,198	8.2
2	Guangdong	41,680	6,690	7.8	23,547	3,836	7.5
3	Zhejiang	35,822	5,750	6.7	20,275	3,303	6.5
4	Shandong	31,762	5,098	6.0	17,917	2,919	5.7
5	Hebei	25,865	4,152	4.9	15,336	2,499	4.9
6	Shanghai	25,638	4,115	4.8	15,276	2,489	4.9
7	Sichuan	27,151	4,358	5.1	15,224	2,480	4.9
8	Beijing	26,702	4,286	5.0	14,213	2,316	4.5
9	Henan	19,577	3,142	3.7	11,942	1,946	3.8
10	Anhui	16,906	2,713	3.2	9,772	1,592	3.1
11	Hunan	14,496	2,327	2.7	9,072	1,478	2.9
12	Hubei	13,525	2,171	2.5	8,670	1,413	2.8
13	Shenzhen	15,451	2,480	2.9	8,403	1,369	2.7
14	Liaoning	14,324	2,299	2.7	8,366	1,363	2.7
15	Fujian	13,377	2,147	2.5	7,985	1,301	2.6
16	Yunnan	12,354	1,983	2.3	7,782	1,268	2.5
17	Shanxi	12,779	2,051	2.4	7,641	1,245	2.4
18	Xinjiang	9,368	1,504	1.8	7,254	1,182	2.3
19	Inner Mongolia	11,984	1,923	2.2	6,950	1,132	2.2
20	Shaanxi	11,578	1,858	2.2	6,945	1,132	2.2
21	Heilongjiang	9,925	1,593	1.9	6,894	1,123	2.2
22	Jiangxi	9,749	1,565	1.8	5,844	952	1.9
23	Guangxi	9,225	1,481	1.7	5,656	922	1.8
24	Chongqing	9,520	1,528	1.8	5,553	905	1.8
25	Tianjin	9,079	1,457	1.7	5,327	868	1.7
26	Jilin	7,811	1,254	1.5	4,927	803	1.6
27	Ningbo	8,623	1,384	1.6	4,840	789	1.5
28	Guizhou	7,039	1,130	1.3	4,430	722	1.4
29	Gansu	5,594	898	1.0	3,706	604	1.2
30	Qingdao	6,493	1,042	1.2	3,650	595	1.2
31	Dalian	5,766	925	1.1	3,181	518	1.0
32	Xiamen	4,150	666	0.8	2,303	375	0.7
33	Hainan	2,515	404	0.5	1,715	279	0.5
34	Ningxia	2,647	425	0.5	1,653	269	0.5
35	Qinghai	1,615	259	0.3	960	156	0.3
36	Tibet	652	105	0.1	480	78	0.2
37	Other	8,256	1,325	1.5	3,210	523	1.0
		533,093	85,565		312,666	50,943	

Exchange Rate: RMB:USD=0.1605 (31 Dec 2012)
Exchange Rate: RMB:USD=0.1629 (28 June 2013)
Sources: CIRC

Figure 10: China GWP by Province

Sources: Aon Benfield, Inpoint

International experience suggests that when per capita GDP is between 5k-10k USD (32k-64k RMB), the growth rate of insurance premiums will exceed that of GDP. Ten provinces in China currently fit this description, highlighting the potential for insurance premium growth within these regions. Of the remaining regions, there is potential for the further development of micro insurance products.

In 2008, the CIRC became a member of the International Association of Insurance Supervisors and Consultative Group to Assist the Poor micro insurance working group and began to promote micro insurance in China with the implementation of a micro insurance scheme. In the same year, total Gross Written Premium (GWP) from rural counties accounted for 30.6% of the total national GWP, and farmer's annual average net income was 4,761 RMB (742 USD).

By 2009, micro insurance premiums totaled 270m RMB (39.6m USD), and by 2011, China Pacific, Ping An, New China Life, Taikang, China United and Anxin had all launched micro insurance businesses including Life, PA & H, Agriculture and Property products. It is expected that this will be an area of focus moving forward and it has already started to gather momentum, albeit from a small base.

Figure 11: Economic Indicators by Region for the 12 months to December 2012

Region	GDP RMB(m)	GDP USD(m)	Population(m)	Per Capita GDP(m)	2012 GDP Growth Rate
Tianjin	1,288,500	206,804	12.94	99,575	13.8%
Shanghai	2,010,100	322,621	23.02	87,320	7.5%
Beijing	1,780,100	285,706	19.61	90,775	7.7%
Jiangsu	5,405,800	867,631	78.66	68,724	10.1%
Zhejiang	3,460,600	555,426	54.43	63,579	8.0%
Inner Mongolia	1,598,800	256,607	24.71	64,703	11.7%
Guangdong	5,706,800	915,941	104.3	54,715	8.2%
Liaoning	2,480,100	398,056	43.75	56,688	9.5%
Fujian	1,970,200	316,217	36.89	53,407	11.4%
Shandong	5,001,300	802,709	95.79	52,211	9.8%
Jilin	1,193,800	191,605	27.46	43,474	12.0%
Chongqing	1,145,900	183,917	28.85	39,719	13.6%
Hubei	2,225,000	357,113	57.24	38,871	11.3%
Hebei	2,657,500	426,529	71.85	36,987	9.6%
Shaanxi	1,445,100	231,939	37.33	38,711	12.9%
Ningxia	232,700	37,348	6.3	36,937	11.5%
Heilongjiang	1,369,200	219,757	38.31	35,740	10.0%
Shanxi	1,211,300	194,414	35.71	33,920	10.1%
Xinjiang	753,000	120,857	21.81	34,525	12.0%
Hunan	2,215,400	355,572	65.68	33,730	11.3%
Hainan	285,500	45,823	8.67	32,930	9.1%
Qinghai	188,400	30,238	5.63	33,464	12.3%
Henan	3,000,000	481,500	94.02	31,908	10.1%
Sichuan	2,385,000	382,793	80.42	29,657	12.6%
Jiangxi	1,294,900	207,831	44.57	29,053	11.0%
Guangxi	1,303,100	209,148	46.03	28,310	11.3%
Anhui	1,721,200	276,253	59.5	28,928	12.1%
Tibet	70,100	11,251	3	23,367	11.8%
Gansu	556,900	89,382	25.58	21,771	12.6%
Yunnan	1,031,000	165,476	45.97	22,428	13.0%
Guizhou	680,200	109,172	34.75	19,574	13.6%

Exchange Rate: RMB:USD=0.1605 (31 Dec 2012)
Sources: National Bureau of Statistics of China

Concentration

The Chinese P&C market is extremely concentrated. PICC, Ping An, CPIC and China United wrote close to 70% of Chinese Non-Life insurance business in 2012, which was consistent with the six months to June 2013.

Figure 12: Chinese P&C Insurance Market by Company

			12 Months to December 2012			6 Months to June 2013		
Rank	Company Name	Domestic/ Foreign	GWP RMB(m)	GWP USD(m)	Market share	GWP RMB(m)	GWP USD(m)	Market share
1	PICC	D	193,018	30,979	34.9%	115,341	18,789	35.3%
2	Ping An Property Ins.	D	98,786	15,855	17.9%	53,744	8,755	16.4%
3	CPIC (China Pacific)	D	69,550	11,163	12.6%	42,307	6,892	12.9%
4	China United Property	D	24,556	3,941	4.4%	16,300	2,655	5.0%
5	China Life Property & Casualty	D	23,542	3,778	4.3%	15,885	2,588	4.9%
6	CICC (China Continent P&C)	D	17,902	2,873	3.2%	9,879	1,609	3.0%
7	Sunshine Property & Casualty	D	14,660	2,353	2.7%	8,093	1,318	2.5%
8	China Export Credit Ins. Corp.	D	14,260	2,289	2.6%	5,422	883	1.7%
9	Tian An Ins. Co. Ltd.	D	8,127	1,304	1.5%	4,956	807	1.5%
10	Tai Ping Property Ins.	D	7,768	1,247	1.4%	5,240	854	1.6%
11	An Bong	D	7,064	1,134	1.3%	3,316	540	1.0%
12	Yong An Property Ins. Co.	D	7,025	1,128	1.3%	3,922	639	1.2%
13	Sinosafe General In. Co. Ltd.	D	5,741	921	1.0%	3,194	520	1.0%
14	Huatai Ins. Co. of China	D	5,592	897	1.0%	3,233	527	1.0%
15	All Trust Insurance Co. Ltd.	D	5,557	892	1.0%	3,103	505	0.9%
16	Yingda P&C	D	5,015	805	0.9%	4,475	729	1.4%
17	Tian Ping Car Ins.	D	4,646	746	0.8%	2,212	360	0.7%
18	Bank Of China Ins.	D	4,145	665	0.7%	2,634	429	0.8%
19	Dubon P&C Ins. (All State)	D	3,096	497	0.6%	1,831	298	0.6%
20	Cinda P&C Ins.	D	2,422	389	0.4%	1,547	252	0.5%
21	Anhua Agro Ins.	D	2,361	379	0.4%	1,510	246	0.5%
22	Zking P&C Ins.	D	2,313	371	0.4%	1,564	255	0.5%
23	Zheshang P&C Ins.	D	2,293	368	0.4%	1,464	238	0.4%
24	Sunlight Agricultural Mutual Ins. Co.	D	2,258	362	0.4%	2,265	369	0.7%
25	Ming An Insurance Co. Ltd.	D	2,130	342	0.4%	1,415	230	0.4%
26	Guo Yuan Agricultural Ins.	D	1,984	318	0.4%	799	130	0.2%
27	Chang An	D	1,789	287	0.3%	1,181	192	0.4%
28	Dazhong Ins. Co. Ltd.	D	1,585	254	0.3%	782	127	0.2%
29	Bohai Property	D	1,528	245	0.3%	811	132	0.2%
30	Dinghe Ins.	D	1,474	237	0.3%	1,316	214	0.4%
31	An Cheng P&C Ins.	D	1,376	221	0.2%	949	155	0.3%
32	AIG	F	1,103	177	0.2%	575	94	0.2%
33	Shanghai Anxin	D	811	130	0.1%	549	89	0.2%
34	Liberty Mutual Chongqing	F	716	115	0.1%	372	61	0.1%
35	Groupama Ins.	F	706	113	0.1%	518	84	0.2%
36	Allianz	F	575	92	0.1%	373	61	0.1%
37	Samsung Fire	F	515	83	0.1%	277	45	0.1%
38	Jintai	D	492	79	0.1%	316	52	0.1%

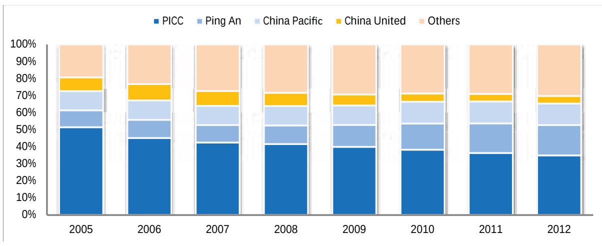
			12 Months to December 2012			6 Months to June 2013		
Rank	Company Name	Domestic/ Foreign	GWP RMB(m)	GWP USD(m)	Market share	GWP RMB(m)	GWP USD(m)	Market share
39	Tokyo Marine Shanghai	F	472	76	0.1%	267	44	0.1%
40	Mitsui Sumitomo	F	460	74	0.1%	256	42	0.1%
41	Taishan P&C Insurance	D	385	62	0.1%	343	56	0.1%
42	Huanong P&C Ins.	D	363	58	0.1%	211	34	0.1%
43	Zurich Ins.	F	347	56	0.1%	190	31	0.1%
44	Sompo Japan Insurance	F	295	47	0.1%	149	24	0.0%
45	Cathay Property	F	263	42	0.0%	219	36	0.1%
46	Winterthur Shanghai	F	262	42	0.0%	125	20	0.0%
47	Urtrust	D	258	41	0.0%	262	43	0.1%
48	Generali P&C Ins.	F	228	37	0.0%	98	16	0.0%
49	China Coal	D	218	35	0.0%	240	39	0.1%
50	Fubon Insurance	F	162	26	0.0%	163	26	0.0%
51	Royal & Sun Shanghai	F	159	26	0.0%	102	17	0.0%
52	Chubb Shanghai	F	140	22	0.0%	72	12	0.0%
53	Chang Jiang	D	111	18	0.0%	155	25	0.0%
54	Hyundai P&C Ins.	F	93	15	0.0%	49	8	0.0%
55	LIG P&C Ins.	F	87	14	0.0%	51	8	0.0%
56	Aioi	F	48	8	0.0%	30	5	0.0%
57	Nipponkoa	F	44	7	0.0%	28	5	0.0%
58	Champion	D	42	7	0.0%	74	12	0.0%
59	XL Insurance	F	41	7	0.0%	18	3	0.0%
60	Sanguard	D	25	4	0.0%	83	14	0.0%
61	China Reliable	D	6	1	0.0%	28	5	0.0%
62	Lloyd's	F	0.4	0.1	0.0%	0.1	0.0	0.0%
			552,988	88,755		326,882	53,249	

Exchange Rate: RMB:USD=0.1605 (31 Dec 2012)
Exchange Rate: RMB:USD=0.1629 (28 June 2013)
Sources: CIRC

Despite the consistency of the top four domestic insurers between 2010 and 2011, the few years preceding this show another side to the evolving domestic insurance market. In 2005, the four leading insurers accounted for over 80% of the market. PICC in particular has dropped from a market share of almost 51% in 2005 to just over 37% in 2010. For Liability lines, PICC dropped c. 7% market share between 2009 and 2010 alone.

This migration in market share has been underpinned by price competition, increasing pressure on many insurers' financial positions. In an attempt to increase regulatory alignment with more developed insurance markets, the CIRC has initiated a series of measures to improve the solvency of domestic insurers. However, implemented changes have been incremental to date.

Figure 13: Market Share Movements over Time



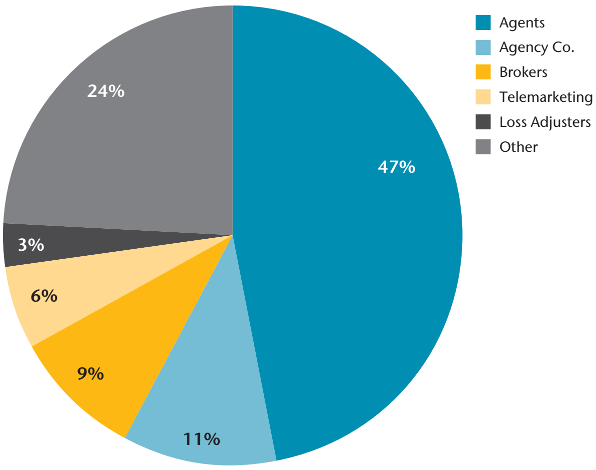
Sources: The 2012 Yearbook of China's Insurance, Inpoint

Distribution

Direct

According to the CIRC, most Chinese insurance business is transacted on a direct basis for large Commercial accounts, as well as most Personal lines. The direct channel has broadened in recent years to include telemarketing and e-commerce platforms. Bancassurance is another channel experiencing growth. The CIRC's 12th five year plan specifically mentions an intention to increase regulation on sales from telephone, internet and other newly created sales channels in order to prevent anti-competitive behavior.

Figure 14: Insurance Distribution Channels (2010)



Sources: CIRC, Inpoint

Telemarketing

Under current regulations it is not possible to obtain a nationwide telemarketing license. As a result, insurers are establishing separate provincial call centers wherever they have an insurance license and are rejecting calls from outside their designated business areas. Despite these geographical restrictions, telemarketing is anticipated to one of the fastest growing distribution channels for P&C insurance in coming years. For the six months to June 2011, national telemarketing premiums totaled 18b RMB (2.7b USD), equivalent to the entire 2010 premiums from the channel.

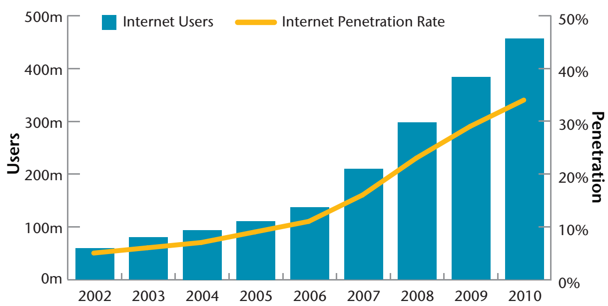
The channel is dominated by the leading insurers and Ping An has been the market leader since 2007. In 2010 it sold 12b RMB (1.8b USD) of P&C premiums via telemarketing, with year on year growth of c. 180%. This was equivalent to c. 20% of its total P&C premiums. Ping An has had great success distributing its Motor products in particular through telemarketing.

PICC created its own telemarketing platform in 2009 and one year later the platform had contributed c. 3b RMB (0.4b USD) to total company premiums, or c. 2%-3%. PICC intends to continue to expand its telemarketing platform to become a major revenue generator for the business, as demonstrated by the addition of a third call center in Beijing recently.

E-Commerce

China leads the world in terms of internet users. In 2010 there were over 457 Million internet users in China, concentrated in Beijing, Shanghai and Guangzhou. Of this, 450m had access to broadband and 66% had access through mobile devices. Internet penetration in 2010 was 34%, higher than the world average, and although China remains predominantly a cash society, credit card use is accelerating rapidly.

Figure 15: Chinese Internet Users



Sources: China Internet Watch, Inpoint

Although data for this channel is yet to be published specifically for the insurance industry, several large insurers have fully interactive websites for Personal lines like Travel and Personal Accident providing quotes, payment of premiums and claims notifications. Premiums are typically discounted by up to 15% compared to agency premiums. Motor insurance has proven the easiest Line of business to sell through this channel.

The CIRC have issued draft guidelines on internet sales which mandate that only insurers and insurance brokers may conduct business through this medium. Additionally, these companies must have a CIRC business license and satisfactory management control systems for their internet operations. As a result, some insurers have been unable to secure the CIRC's permission for internet selling.

Bancassurance

In October 2010, the China Banking Regulatory Commission issued a notice which impacted insurers' ability to distribute insurance products through the bancassurance channel. It restricted each bank branch to three insurance product providers and banned Life agents from bank branches altogether. In order to protect market share, insurers have responded in a number of ways. Some have sought to become financial conglomerates, others have undergone a reweighting towards the agency channel. Others have attempted to convert agents into bank staff, similar to the Prudential UK and Standard Chartered Bank model in Hong Kong.

Although there is opportunity for banks to increase market share, in some cases this will be subject to securing insurance licenses from the CIRC, sub-scale policy administration capacity and the incremental capital demands of writing insurance business. As of March 2011, six banks were in the process of acquiring majority stakes in insurers. As Life business is much more prevalent through the bancassurance channel, these changes are more likely to affect Life insurance business. China Taiping and China Pacific have the largest exposure to the bancassurance channel at 40% and 25% respectively, compared with China Life (10%) and Ping An (under 5%).

Bancassurance in China is generally perceived to offer lower margin business. The number of branches and postal offices selling bancassurance products reached 138,477 in December 2010 (113,632 bank branches and 24,845 postal offices), up c. 30% from June 2010. For the nine months to September 2010, premium income for Life and P&C markets stood at 392b RMB (58.9b USD) (320b RMB (48b USD) from bank branches and 72b RMB (10.8b USD) from postal offices), up 41% compared with the same period in 2009. This accounted for c. 35% of total (Life and Non-Life) premiums.

Agency Companies and Agents

In the 12 months to December 2010, agency companies contributed 48.2b RMB (7.1b USD) premiums, an increase year on year of 46.5%. The P&C portion totaled 34.3b RMB (5.0b USD) (71%) and Life 13.9b RMB (2.0b USD) (29%). This represented 8.8% of national P&C premiums and 1.3% of Life premiums.

For the six months to June 2011, agency companies contributed 39.2b RMB (6.0b USD) premiums, an increase year on year of c. 66%. Of this, P&C was 25b RMB (3.8b USD) and Life was 14.2b RMB (2.2b USD). This accounted for 10.6% of P&C premiums and 2.5% of Life premiums.

In September 2010, the number of insurance agents in the Chinese market reached 3,146,450, up 122,838 from June 2010, however only c.11% of these were Non-Life agents.

Premiums generated by agents for the nine months to September 2010 totaled 386b RMB (58b USD), an increase of 9% compared with the same period in 2009. This included c. 278b RMB (42b USD) of Life premium income and c. 106b RMB (16b USD) of Non-Life premium income, accounting for 37% and 36% of national Life and Non-Life premiums respectively.

The CIRC's 15% limit on commissions had a negative impact on the agency channel, particularly Motor agents. Previously charging commissions up to 35%, agents had greater leverage to offer more competitive net premiums. The new ceiling has constricted their ability to compete. The agency channel is generally perceived to be inefficient and expensive.

Brokers

Many brokers are state-owned and only place business for their parent group. Others offer limited technical services or handle only Motor business.

At this point, brokers are not materially involved in Personal lines or Agriculture but it is estimated that brokers hold a c. 15% market share in Commercial lines. The broker channel is fragmented with 392 insurance brokers reported as at December 2010, however the top 10 brokers account for c. 50% of broked business.

Top 10 Insurance Brokers in China
(6 Months to June 2011)

Insurance Broker	2011 Market Share of Broked Business
Chang'an Insurance Brokers Co Ltd	12.8%
Beijing Union Insurance Brokers Co Ltd	3.9%
Jiang Tai Insurance Brokers Co Ltd	5.1%
AON – COFCO Insurance Brokers Co Ltd	5.5%
Willis Insurance Brokers Co Ltd	3.8%
Marsh (Beijing) Insurance Brokers Co Ltd	3.4%
Jinsheng Insurance Brokers Co Ltd	3.3%
Huatai Insurance Consultancy Service Ltd	2.5%
Zhongsheng Int. (PICC & Tokio Marine JV)	2.0%
China Insurance Brokers Co Ltd	2.0%

Sources: CIRC, Inpoint

Insurance brokers are authorized to conduct business nationally. Operating licenses are granted for a period of three years and are subject to renewal by the CIRC.

To qualify, a foreign broker must have 30 consecutive years of operating history and have had a representative office in China for at least two years. Foreign brokers are only allowed to handle large-scale Commercial risks, for example enterprises with an asset value over 150m RMB (23m USD) and an annual premium over 400k RMB (62k USD).

Foreign brokers are experiencing challenges penetrating the domestic insurance market, partly because the largest Chinese corporations often have their own in-house brokers and typically only turn to international brokers for a limited range of specialist classes. As a result, foreign brokers tend to focus on servicing multinational clients. There are approximately 10 foreign-invested insurance brokers in China and their market share is a combined c. 15%.

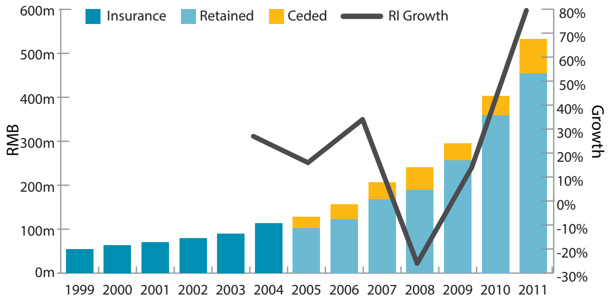
In the 12 months to December 2012, premiums placed by brokers reached 42.1b RMB, a year-on-year increase of 10.8%. The P&C portion totaled 34.0b RMB (5.5b USD) and Life was 6.5b RMB (1.0b USD). This accounted for 6.4% of P&C premiums and 0.6% of Life premiums to December 2012.

Reinsurance Market Overview

Growth

Sourcing accurate and detailed data for the Chinese reinsurance market is challenging. The CIRC issued a directive in 2010 that P&C insurers report relevant reinsurance information to the CIRC on a quarterly basis. Our analysis is primarily based on the CIRC's data, complimented by company financial statements where available.

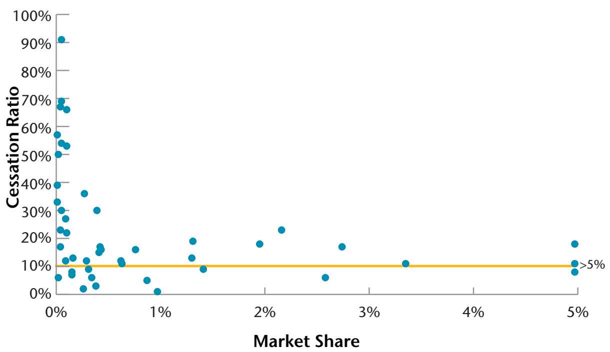
Figure 17: P&C Insurance and Reinsurance: Premiums & Growth



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Aggregate premiums ceded by Chinese P&C insurers in 2011 totaled c. 79b RMB (12.7b USD), up from 44b RMB (6.5b USD) in 2010. Aggregate annual premiums ceded by Chinese P&C insurers have expanded by 67% since 2005. However, 2008 saw ceded premiums jump to c. 52b RMB (7.5b USD), up 34% on 2007. This was driven by a material increase in premiums ceded by PICC Property and Casualty (to c. 23b RMB (3.3b USD) from c. 13b RMB (1.7b USD). PICC wound back ceded premiums in 2009, contributing to a 26% contraction in aggregate reinsurance premiums ceded by Chinese P&C insurers.

Figure 18: Insurer Market Share versus Cession Ratio



Weighted Average Cession Ratio: 10.7% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Around 85% of Chinese reinsurance business was written through Treaty contracts in 2010, down from 87% in 2009 and 89% in 2008. The majority of Treaty programs are written on a quota share basis. Chinese cedents prefer this method as it provides them with immediate solvency relief. However, Excess of Loss (XoL) programs are gradually becoming more common.

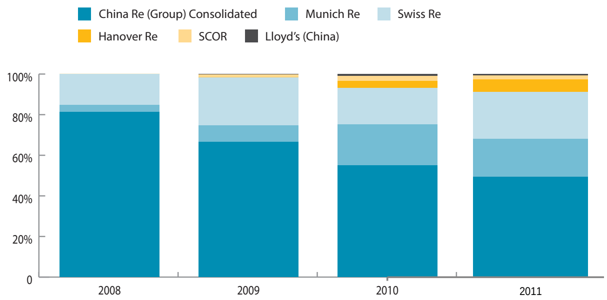
Facultative business is done via additional channels to those which are typical in more developed insurance markets. One such way to write Facultative business is for second and third tier Chinese insurer syndicates to provide capacity to the leading domestic insurers. This provides the mid-tier insurers with access to premiums and risks they would not otherwise be able to write. Additionally, some branches of local insurers transfer risks on a Facultative basis through coinsurance with other local insurers.

Onshore Business

Over the last three years, c. 70% of premiums ceded by Chinese P&C insurers was assumed by reinsurance operations in China and regulated by CIRC. We will refer to these placements as Onshore business. The remainder was assumed by reinsurance operations outside of China. We will refer to these placements as Offshore business.

China Re (Group) remains the dominant carrier for Onshore P&C reinsurance business, holding a c. 50% market share in 2011 (down from 55% in 2010) Since 2005 the CIRC has modified many of the domestic reinsurance rules including the phasing out of compulsory sessions. As a result, the Chinese reinsurance market is now more accessible to foreign insurers, albeit cultural issues, relationships and licensing requirements continue to present significant barriers to entry.

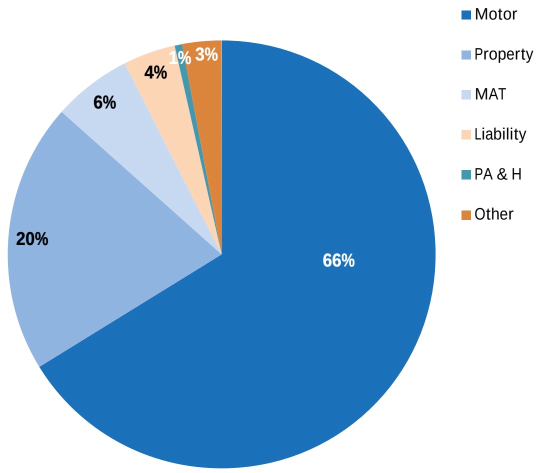
Figure 19: Reinsurance Market Share Movements



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Reflecting the underlying insurance market, Motor represents the largest part of Onshore reinsurance business.

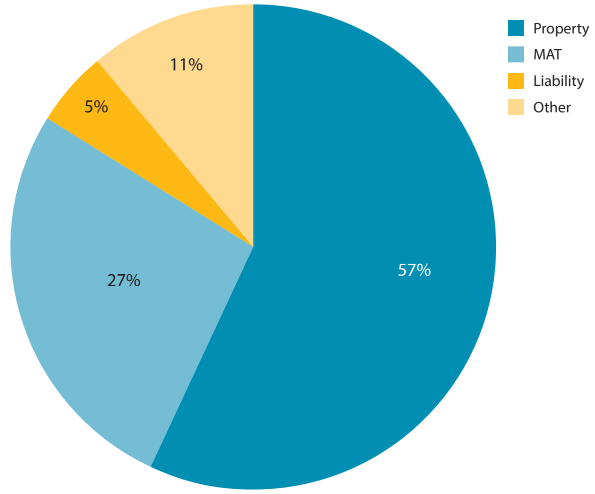
Figure 20: Reinsurance Premiums Assumed in China (2011)



Sources: Company Reports, The 2012 Yearbook of China's Insurance, Inpoint

Treaty placements represent the bulk of Onshore business. The split by class for Onshore Treaty business is very similar to the overall Onshore split by class (i.e. dominated by Motor). However, the Onshore Facultative business split by class is biased towards Property.

Figure 21: Facultative Premium Assumed in China (2011)



Sources: Company Reports, The 2012 Yearbook of China's Insurance, Inpoint

Offshore Business

It is estimated that most Offshore business is assumed by reinsurance companies based in the Asia Pacific region, particularly Singapore, while European and London based reinsurers continue to participate.

Offshore business has exhibited a c. 60%/40% Treaty/Facultative split over the last 3 years.

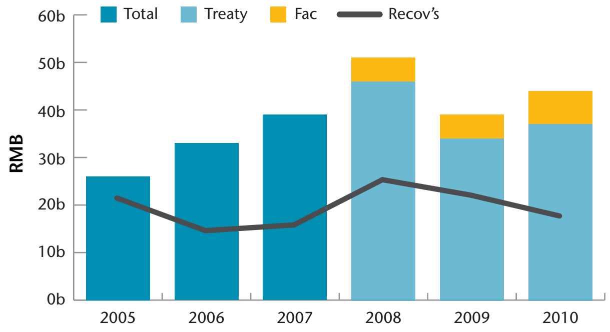
Figure 22: Chinese Offshore P&C Reinsurance Premiums

Sources: The 2011 Yearbook of China's Insurance, Inpoint

Profitability

Overall profitability of Chinese reinsurance programmes is challenging to analyse. As a proxy for loss performance, we have aggregated reinsurance recoveries reported to the CIRC by Chinese P&C insurance companies and compared these to aggregate premiums ceded. In absolute terms, aggregate recoveries have been falling since 2008.

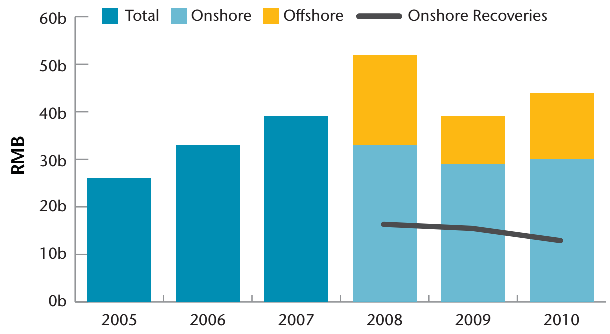
Figure 23: P&C Reinsurance: Premiums & Recoveries



Sources: The 2011 Yearbook of China's Insurance, Inpoint

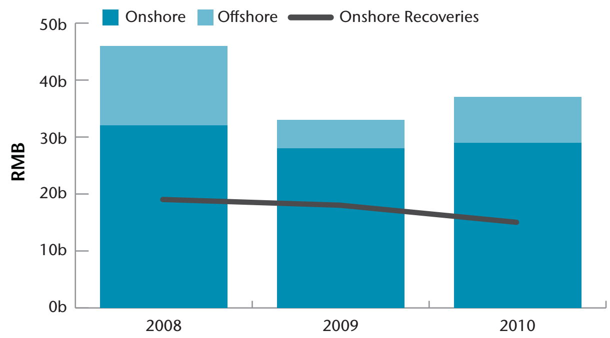
Again, as a proxy for Onshore business loss performance, we have aggregated P&C paid claims reported to CIRC by reinsurers operating in China. Unsurprisingly, loss experience for Onshore Facultative business has been more favorable than for Treaty business.

Figure 24: P&C Reinsurance.
Premiums & Onshore Recoveries



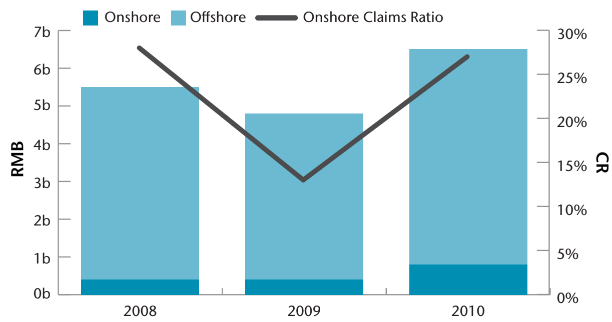
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Figure 25: P&C Treaty Reins.
Premiums & Onshore Recoveries



Sources: The 2011 Yearbook of China's Insurance, Inpoint

Figure 26: P&C Fac Reins.
Premiums & Onshore Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Pricing and Coverage

Following the spate of recent events in the Asia Pacific (APAC) region, there was immediate expectation that reinsurance pricing would rise markedly. At this point in time, the industry feels that this has already been reflected within the most recent renewals, with prices hardening mainly for those portfolios which had experiencing losses. Regardless, even those that have changed have not moved materially, with Catastrophe (CAT) XoL Treaty prices for example not changing greatly, despite several major international CAT losses in the first half of 2011. Other than the CAT events, the overall spend increases that have eventuated can be traced back to continuously increasing exposures and fast growing premium income. In summary, although the downward price movement of the last six to eight years throughout APAC has steadied, there has not been the anticipated backlash in Chinese risk pricing that has been witnessed in many other countries throughout the region.

Reinsurers continue to show interest in China with ample capacity available in both the Non-Proportional and Proportional programs. Due to the positive performance of Non-Marine Proportional Treaty business in 2009 and 2010, the renewal terms and conditions are more or less the same or slightly improved. Coverage requested by cedents is largely unchanged with only a few Marine related clauses (such as Sanction Clauses) introduced by reinsurers.

Distribution

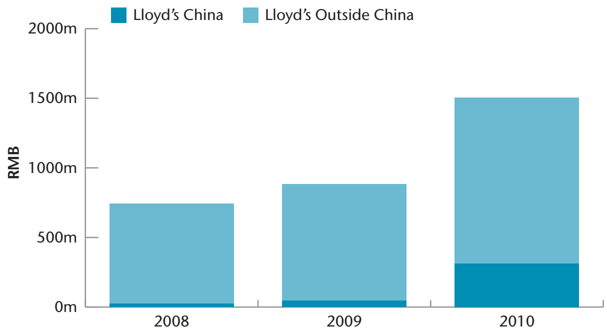
Although brokers place c. 30% of reinsurance business, in monetary terms, this amount is relatively small. Motor risk is largely retained. With the exception of specialist classes such as Aviation, most reinsurance placed outside of China goes to Asian markets by brokers operating out of Hong Kong or Singapore. The leading reinsurance brokers for Chinese business are Guy Carpenter, Aon Benfield (Aon-COFCO) and Willis Re.

There are an increasing number of Treaty reinsurers in Singapore writing Chinese business. A sizeable amount of Proportional business flows to Singapore (in 2009; 3.2b RMB, or 466m USD) and this will increase due to organic growth and given that business no longer flows to Bermuda.

Lloyd's China

Lloyd's established a Chinese Non-Life reinsurance business in March 2007. In 2010, total reinsurance business ceded from Chinese insurers to Lloyd's was predominantly Marine (c. 35%), Property (31%) and Aviation (19%), with c. 83% written through Proportional Treaties. Lloyd's China represented 21% of the premium ceded by Chinese insurers to Lloyd's in 2010, up from 5% in 2009. For the nine months to September 2011, the Lloyd's China business had written 372m RMB (57.9m USD) in Chinese reinsurance business, a 26% lift on the prior year.

Figure 27: Lloyd's Reins. Business Ceded from China



Sources: Lloyd's, Inpoint

In May 2010 the CIRC broadened Lloyd's local reinsurance license to include Non-Life insurance. Lloyd's issued its first direct insurance policy in China in September 2011. Over the immediate term, Lloyd's China's four managing agents (Travelers, Starr, Sportscover and Navigators) are anticipated to write Directors' & Officers', Marine Cargo and Sports Contingency insurance lines.

Insurance Linked Securities

Since insurance securitisation was pioneered in the mid-1990s, more than 45b USD (289b RMB) of property-exposed risk has been transferred to the capital markets in the form of catastrophe bonds and sidecars.

While various perils have been securitised, the Insurance Linked Securities (ILS) market largely maintains a niche focus on peak property risks, particularly U.S. hurricane risk. However, economic growth and demographic changes in China are expected to continue to increase take up rates for insurance products. Coupled with the prospect of continued catastrophic loss activity, this may have an impact on how peak exposure zones are defined in the future.

The various structural options available for recovery under ILS products broadly fit into indemnity vs. non-indemnity types. Indemnity structures most closely resemble the traditional market ultimate net loss ("UNL") cover and offer sponsors the ability to recover based on actual losses.

ILS penetration into new markets such as China is often first accomplished via non-indemnity structures due to ease of transaction structure, ease of data collection and review, as well as more comfort and better pricing by investors with reliance on model output and independent risk analysis versus specific underwriting and diligence.

For the immediate future, it is anticipated that penetration of ILS products for non peak exposure zones, including China, will continue to be at the margin. One key issue at the moment is that reinsurance coverage is competitive for Chinese insurers and reinsurers. Nonetheless, ILS markets have potential to provide cover to state governments, and government-sponsored disaster schemes, without ready access to underlying exposure data. This protection is event-based and not property-based to protect infrastructure, uninsured risks and overall government solvency post catastrophic events. In China, an example of a potentially relevant ILS would be an event-based coverage for Typhoon risk.

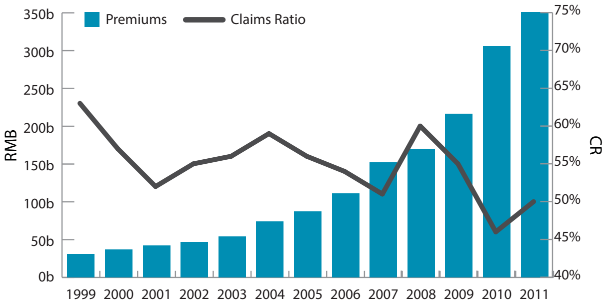
Finally, it is worth noting that that Chinese securities, tax and accounting standards have no explicit section relevant to ILS products in China and may not currently allow domestic companies to issue catastrophe bonds without some amendments.

Lines of Business

Motor

Motor insurance lines accounted for 76% of the Chinese P&C insurance market in 2011 excluding PA & H, making it the largest individual line of business. The main influences upon growth in Motor insurance lines have been the fluctuating demand for vehicles, and in turn, the changing regulatory environment. In 2010, Motor insurance premiums grew over 40%, reaching 306b RMB (45b USD) and the claims ratio for the line fell to c. 46%.

Figure 28: Motor Insurance: Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: CIRC, The 2012 Yearbook of China's Insurance, Inpoint

The fluctuating number of vehicle sales in China has been the main contributor to the expansion of total Motor insurance premiums. Since 2002, the number of new passenger vehicle registrations has multiplied 5 fold.

Regulatory changes have been the other main influencing factor on the growth of the Motor insurance market. Over the last decade, some of the most important were:

- The introduction of the compulsory vehicle insurance system (May 2004);
- The insurer being required to compensate within the limit of the compulsory third party liability insurance when vehicles are involved in a traffic accident causing casualties or property losses (July 2006); and
- When the driver is not at fault, liability is capped at 10% (May 2008).

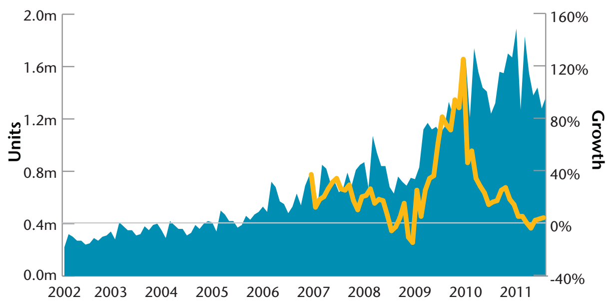
However, the regulatory change causing the greatest short term impact on Chinese auto sales was the implementation of the Vehicle Purchase Tax. To stimulate vehicle sales during the 2008 financial crisis, the Vehicle Purchase Tax for small cars was decreased from 10% (2008) to 5% (2009). This had the desired effect with total vehicle sales for the year ended December 2009 reaching 13m. This stimulus has since been reversed, with rates stepped back to 2008 levels (7.5% in 2010 and 10% in 2011).

Amidst concerns that the incentives would not be extended, an avalanche of additional car sales eventuated. As such, 2010 vehicle sales were artificially inflated, hitting an all-time high of 18m for the year, or c. 33% year on year growth following c. 46% growth in 2009.

Going into 2011, additional factors influenced the Chinese auto market. These included the increasingly stringent rules governing traffic, the ongoing trials to fully liberalize the premium rate for Commercial Motor insurance, the heightened restrictions on vehicle purchases in cities such as Beijing and the continuously expanding public transport system. Combined with the reversion of the Vehicle Purchase Tax, the growth of the prior two years will be difficult to repeat.

Data published by the Civil Aviation Administration of China (CAAC) for the eight months to August 2011 recorded that passenger vehicle sales Year on year had risen only 6%, and commercial vehicle sales actually fell 4.8%, a net increase of 3.3%. Chinese auto production figures for the same period mirrored sales data. Each of these results has fallen well short of commentators' forecasts. Despite the lower new car volumes, the Motor insurance market was able to achieve 14% growth for the first half of 2011.

Figure 29: China's Vehicle Sales per Month and YoY Growth



Sources: CAAM, 2011 Chinese Statistical Yearbook, Inpoint

With the momentum of vehicle sales slowing by

the month throughout 2011, and the seasonally low second and third quarters still to play out, the auto industry appears set for moderated growth for the 2011 year. Given Motor insurance is such a large portion of domestic insurance premiums, the Chinese P&C insurance market would be expected to encounter a similar moderation.

Another impediment to the growth of the Chinese Motor insurance market is that compulsory classes of Motor insurance are excluded from China's WTO commitments. As a result, no foreign insurance companies are currently authorized to write Motor Third Party Liability (MTPL).

However, the possibility remains that the CIRC may open MTPL to foreign insurers in future. In doing so, it is expected that this could lead to an improvement in the quality of risk management, a reduction of claims and some alleviation of solvency pressure for domestic insurers. As voluntary Motor business is normally packaged with compulsory MTPL, the clearing of this barrier would also allow foreign insurers to access more market share.

Insurers have historically competed via excessive agency commissions, but these were brought under strict control in 2009. Leading insurers have since turned to developing direct business, particularly via their call centers.

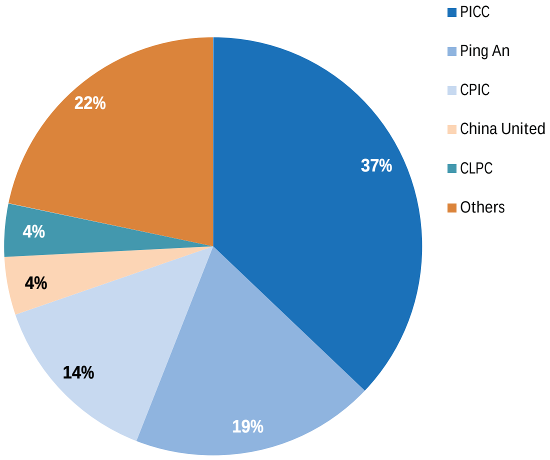
Commercial vehicles and car fleets represent the largest part of the Motor market. As in the private car market, all insurers use the same gross rate tariffs for commercial vehicles and fleets. The CIRC regulations require two policies to be issued for each vehicle in a fleet, one for compulsory MTPL and one for voluntary Motor. Fleet departments, therefore, require administration resources to issue policies. Insurers are not permitted to write nationwide programs unless they can demonstrate to the CIRC that they can offer a full service capability nationally.

A bonus/malus system for compulsory MTPL was introduced in July 2007. This allows a discount of 10% for every year without a fault claim up to a maximum of 30% after three years. One fault claim in the previous year cancels the bonus, two fault claims earn a 10% malus loading, whilst a fault claim involving death carries a 30% loading. Currently, databases recording drivers' accident histories only exist in a limited number of cities including Beijing and Shanghai, but the intention is to roll these out across the country.

In June 2010, the CIRC introduced a pilot scheme in Shenzhen for the removal of tariffs for Motor policies so insurers are now allowed to use their own parameters to set premiums. The reform only covers Shenzhen Commercial Motor policies at this point and not compulsory Third-Party Liability policies. Statistics for the region show that average insurance premium fell by 4.6% between March and May. The average premium for Motor policies for individuals slid by 6% while that for group Motor policies declined by 3.6%. Small and medium sized insurers may find it challenging to implement flexible pricing that requires actuarial computations, operations management and IT system changes. As such, there is some risk that reforms in Motor insurance pricing will not proceed on schedule.

There are a large number of insurers underwriting Motor policies, however the market is extremely concentrated, dominated by PICC, Ping An, China Pacific and China United who represent 72% of the market. The remaining 28% of the market is split between 37 companies with the majority of these underwriting premiums less than 1b RMB (0.1b USD). Despite the relative strength of PICC, its market share decreased by c. 2% in 2010.

Figure 30: Motor Vehicle Insurance: Market Share (2011)

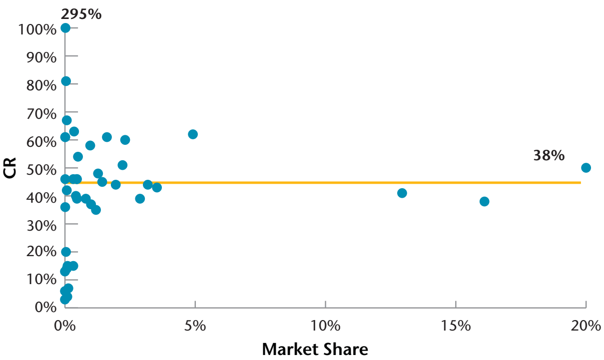


Sources: The 2012 Yearbook of China's Insurance, Inpoint

Chinese Motor insurers are beginning to offer fast claim payout systems to attract additional business. Ping An Insurance is at the forefront of the offering, advertising claims settlement within three days and in some cases only one day. This is a positive sign for the future of claims processing in Chinese Motor lines.

National Motor Third Party Liability results for the year to December 2010 netted to a 9.7b RMB (1.4b USD) underwriting loss (before investment income). Of the total 33 companies writing MTPL policies, 32 had underwriting loss, the exception being one newly established underwriter. Taking into consideration investment profits, only 2 achieved positive results. Commercial cars, commercial trucks and motor trucks accounted for 6.7b RMB (1b USD) of the losses.

Figure 31: Motor Vehicle Insurance: Market Share (2010)



Weighted Average Claims Ratio: 45.7% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

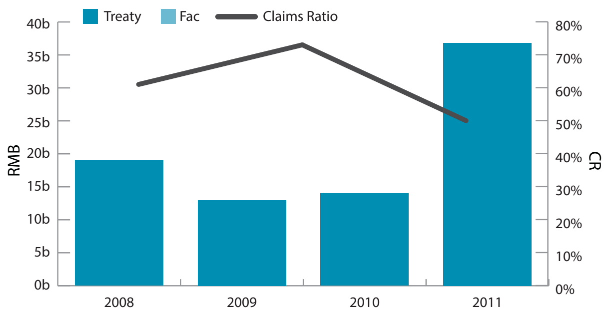
Beyond current moderation, Motor lines are expected to continue to grow over time, supporting ongoing interest from foreign insurers. A recent example of this was Australian insurer IAG acquiring 20% of Tianjin-based Motor insurer Bohai Property Insurance in August 2011. However, combined ratios in excess of 100% for the recent two years will act as a caution for those thinking of entering the market.

Reinsurance

Chinese compulsory MTPL is not reinsured; Quota Share Treaty contracts are available for voluntary Motor business. As Motor lines become more profitable and insurer's capital positions improve, there is some downward pressure on reinsurance volumes. Typically, Quota Shares for Motor will cede 5%-20% of premium income and be included within a Non-Marine Treaty policy covering all line of business. Placement of XoL protection is gradually increasing.

As a proxy for loss performance, we have aggregated Motor claims reported to the CIRC by Chinese reinsurers and shown these as a percentage of aggregated reported Motor reinsurance premiums over the last three years. On this basis, reinsurance loss performance appears to have been less favorable than primary insurance.

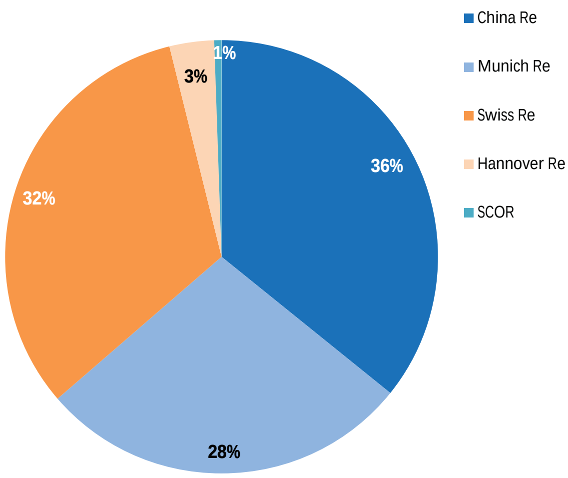
Figure 32: Onshore Motor Reinsurance Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2012 Yearbook of China's Insurance, Inpoint

China P&C Re accounted for almost 50% of the Onshore Motor reinsurance market in 2010, with Munich Re and Swiss Re the only other providers with licenses to operate domestically.

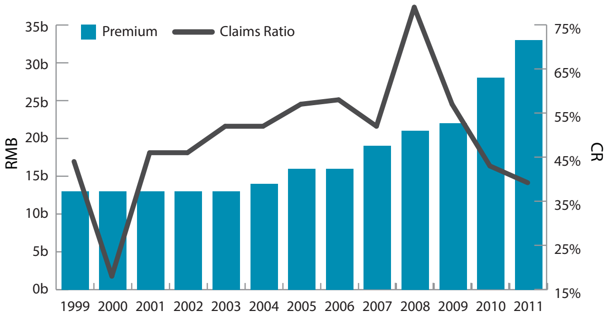
Figure 33: Market Share of Onshore Motor Reinsurance (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Property

Figure 34: Commercial Property Insurance:
Premiums & Claims Ratio

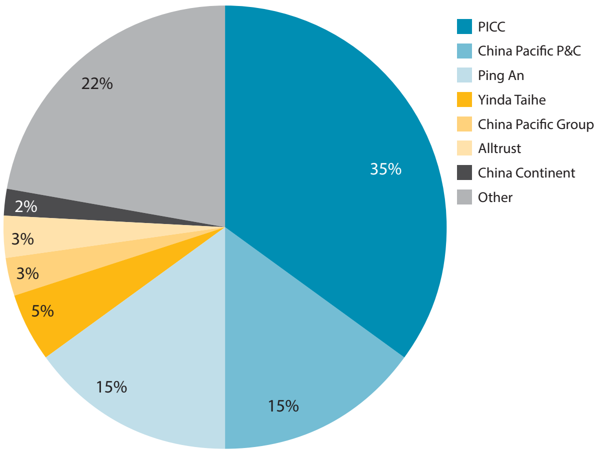


Note: CR's compare gross premiums and paid claims
Sources: CIRC, The 2012 Yearbook of China's Insurance, Inpoint

In 2009, premiums from Property insurance lines represented only c. 7% of total Chinese P&C premiums including PA & H, or 28.3b RMB (4.2b USD). Of this, 93% was Commercial and the balance was purchased by Households. The size of the Property insurance market reflects the low underlying penetration rate.

The concentration of Property insurers is high. The top three insurers, PICC, China Pacific and Ping An wrote a combined 66% of the market in 2010, down from 71%. At the other end of the spectrum, only one of the remaining 49 providers wrote more than 1b RMB (0.1b USD).

Figure 35: Commercial Property Insurance:
Market Share (2011)

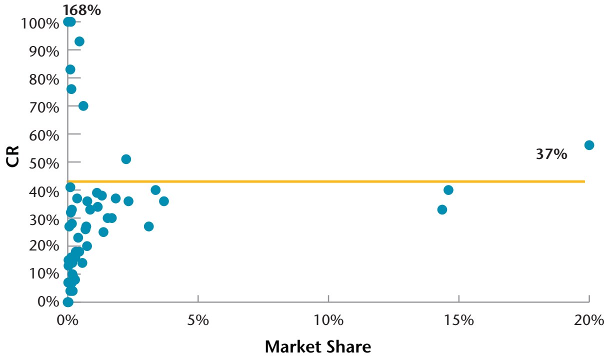


Sources: The 2012 Yearbook of China's Insurance, Inpoint

Insurers continue to aggressively compete for market share, which is in turn forcing domestic rates below international averages. However, 2009 saw a slight increase in rates in response to major Snowstorm and Earthquake losses in 2008.

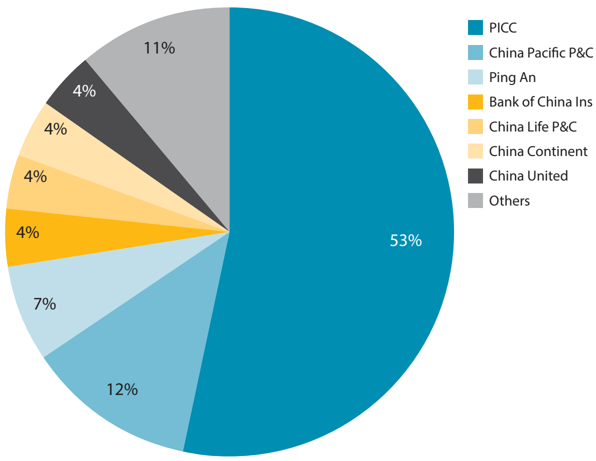
As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, the weighted average ratio for Commercial Property was 42.9% in 2010, compared to only 27.9% for Household Property business. PICC, the largest provider in both lines, held 37% and 52% market shares for Commercial and Household business respectively in 2010.

Figure 36: Commercial Property Insurance:
Company Performance (2010)



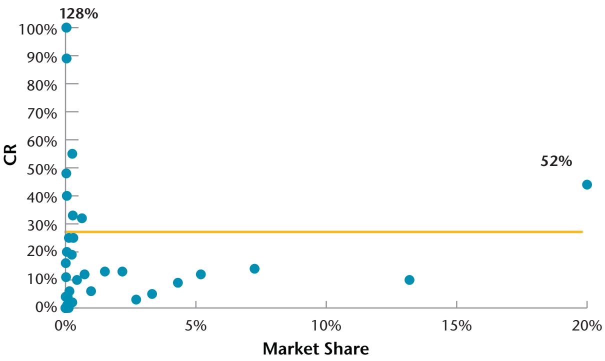
Weighted Average Claims Ratio: 42.9% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Figure 37: Household Property Insurance:
Market Share (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Figure 38: Household Property Insurance: Company Performance (2010)



Weighted Average Claims Ratio: 27.9% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Most Chinese Property policies are written on a sum insured basis. Although there is no legal objection to issuing policies with single loss limits, multi-location Property policies normally have a separate sum insured for each location. Standard market wordings are available on either a Fire and Specified Perils or Property All Risks (PAR) basis. The former is generally used for domestic risks and the latter for foreign risks.

Specified perils comprise Lightning, Hurricane, Typhoon, Tornado, Flood, Hailstorm, Landslide, Volcanic eruption, Subsidence and impact by aircraft or motor vehicles. Standard exclusions include Earthquake, Tsunami, Strikes, Riots, Civil Commotion (SRCC), Terrorism and gradual pollution. Earthquake and SRCC may be added for a nominal rate increase.

Earthquake is written as an extension to a Fire or PAR policy, but Earthquake and Tsunami are typically automatically covered by Construction policies. This extension covers Earthquake shock and Fire as well as Tsunami. Earthquake cover under Commercial Property policies are typically sub-limited to 80% of the sum insured, while cover under Construction policies is typically sub-limited to 70%-80% of the contracts' value.

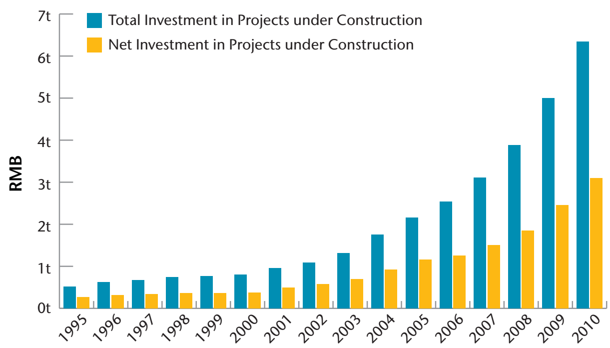
Household Property insurance penetration is estimated at less than 5%. Even in Beijing and Shanghai, the penetration rate for Household insurance is c. 5-7% and this business accounts for less than 3% of total P&C premiums. The lack of demand for Household cover means insurers currently in the market are doing little to promote the line.

Not helping the cause is the fact that insurers typically exclude events like Robbery, Earthquake and Tsunamis, as well as not covering valuables such as cash and jewelry.

Foreign owned assets, debt funded projects and infrastructure investments, underpinned by the stimulus packages implemented during the 2008 financial crisis, have been driving both the Property and Construction insurance markets. Foreign invested enterprises tend to insure their assets following international best practices.

Closely linked to Property is the Construction market. Investment in construction has been strong over the last decade (10 year 23.0% CAGR to 2010, five year 11.4% CAGR). The government's stimulus packages during the financial crisis had a positive impact on the construction industry. The downside has been that the overwhelming demand for construction has created a shortage of experienced engineers, introducing the construction quality risk. Large construction projects typically attract coinsurance amongst five or more insurers to provide a wider spread of risks.

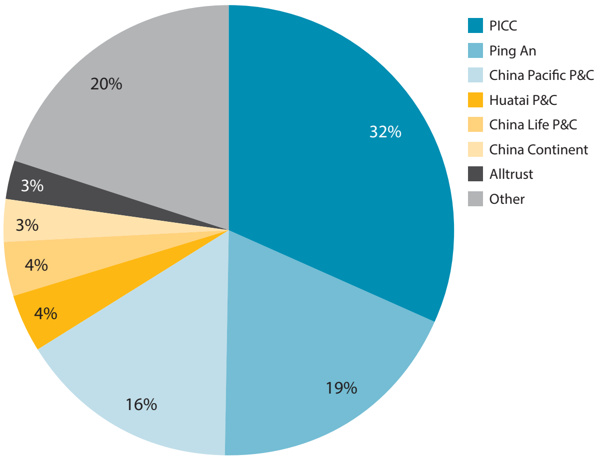
Figure 39: Chinese Investment in Projects under Construction



Sources: 2011 Chinese Statistical Yearbook, Inpoint

Market shares for participants within the Construction insurance business closely reflect those of Property lines. The same three insurers held 71% of the market in 2009, but fell to 66% in 2010. The bottom 45 companies shared just over 2.6b RMB (0.4b USD) between them.

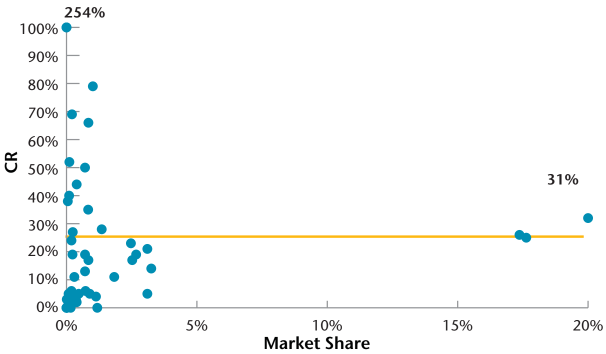
Figure 40: Construction Insurance: Market Share (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, in 2010 the claims paid to gross premiums ratios for Construction lines posted a weighted average of 25.6%. Other than two small insurers who experienced ratios over 100%, all other participants achieved claims ratios under 80%.

Figure 41: Construction Insurance:
Company Performance (2010)



Weighted Average Claims Ratio: 25.6% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Reinsurance

The main protection sought for Property business in the Chinese market is via Proportional Treaties and most companies reinsure their Property portfolios on a Surplus basis. There is emerging demand for XoL protection to cover net retentions and risk accumulations and this trend is expected to continue.

However, data management limitations and competitiveness of primary market rates present headwinds to this shift.

With regards to capacity, competitive start-up insurers possess a minimum capacity of c. 400m RMB (62m USD), mid-size insurers average capacity of c. 800m-1b RMB (125m-156m USD) and large insurers have up to c. 3.5b RMB (500m USD) capacity. However, Probable Maximum Loss assessments are broadly challenging for domestic insurers and consequently they typically cede Treaty risks on a sum insured basis.

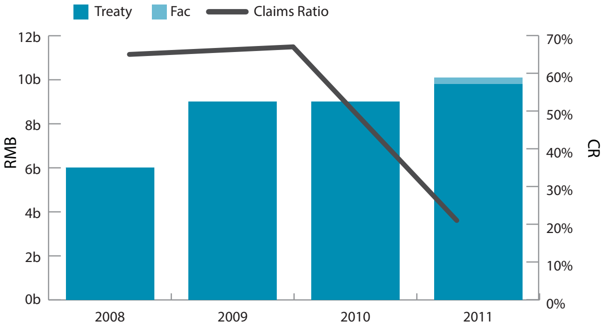
Available Construction capacity is lower than that for Property. This is mainly due to unfavourable underwriting results compared to Fire, in addition to reduced sub-limits in 2009 for bridges, tunnels, harbors and breakwaters. Capacity is typically provided by Construction sub-sections to multiline Surplus Treaties, though some companies have separate arrangements. Construction risks are also typically included in XoL contracts. Since 2009 most cedents have been forced to revise their retention level based on the risks' quality.

Typical Treaty exclusions for Construction business include transmission and distribution lines, mining, tunnels, wet risks, metro lines, combine cycle power plants and terrorism. For petrochemicals, semiconductors and most other high hazard occupations, Treaty capacity is typically reduced by 50%. Reinsurers have made some attempt to limit their accumulations by imposing coinsurance clauses, inward reinsurance clauses and event limit clauses. Treaties arranged on a direct basis are typically Proportional, while intermediated Treaty placements include both Proportional and Non-Proportional business.

There is limited demand for Facultative reinsurance due to the prevalence of coinsurance.

As a proxy for loss performance, we have aggregated Property claims reported to the CIRC by Chinese reinsurers and shown these as a percentage of aggregated reported Property reinsurance premiums over the last three years. In the third quarter of 2011, it is estimated that Commercial Property reinsurance rates reduced by c. 15%-20%, following improved loss experience in 2010.

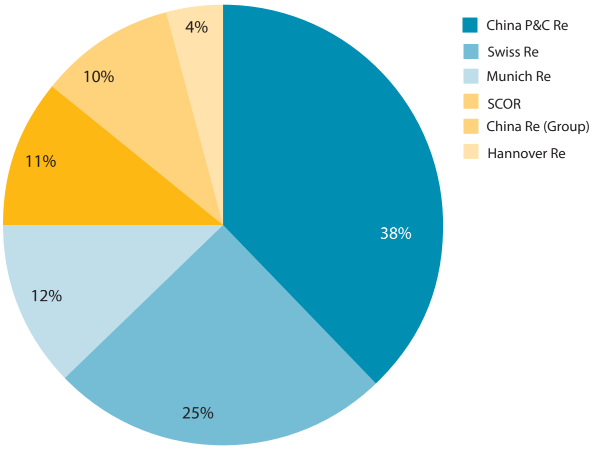
Figure 42: Onshore Property Reinsurance Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2012 Yearbook of China's Insurance, Inpoint

In terms of market share, China Re (Group) and its subsidiaries accounted for c. 48% of the Onshore Property reinsurance market in 2011.

Figure 43: Market Share of Onshore Property Reinsurance (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Agriculture

Mainland China can be split into 31 major administrative divisions, consisting of 22 provinces, 5 autonomous regions and 4 municipalities. The regions with the largest agricultural production are located in the South-Central and Southeastern areas of the country. Further, three major rivers (the Pearl River, the Yangtze River, and the Yellow River) segregate the Agricultural regions.

The "Rice Bowl" in the Hunan and Jiangxi provinces in South-Central China is the country's richest and most productive Agricultural region. The rich soils and abundant precipitation foster more than half of the country's rice production. Rice is the main insured crop, followed by cotton, tea and oilseed.

China's southeast regions are mountainous, with only 10% of the area being flat enough to permit row cropping. Precipitation is plentiful, nurturing the Pearl River delta plain in the Guangdong province. Northern China is dry, and as such mainly drought-tolerant crops such as sorghum are grown. Wheat and corn are also planted but mainly where there is irrigation. The main insured crop is again rice, with others including spring wheat, corn, sorghum and soybeans. Heavy farm machinery is used extensively.

Tibet (Xizang) in Western China experiences a short growing season. Farmers have few resources and usually grow only enough resources to provide for their own families. Herding is the primary economic activity, though only where water is available, which is limited due to the lack of precipitation. The major insured crops are cotton, corn, soybeans and wheat. Appendix 1 contains region specific crop and risk tables as well as typical coverage purchased by crop.

For the last decade, Chinese national inflation has been fuelled by food products. For the eight years from 2002 to 2009, inflation in the food category has been consistently above the national general index. Appendix 2 provides a table outlining the persistent strength of food prices since 2001 compared to other notable sectors in the Chinese economy. However, the food component in the Chinese CPI data has potentially peaked. It is estimated that c. 40% of the country's population is focused on Agriculture.

China has the largest agricultural output in the world, however, according to census data, insurance penetration is

extremely low. The simplest reflection of this is that total Chinese irrigated area is c. 50m ha of the c. 150m ha total cropped area. Despite this, China's Crop insurance market is already the second largest in the world.

Chinese agriculture is very diversified geographically, supporting broadly favorable underwriting results for Crop coverage. Claims ratios for Livestock have not been so profitable in recent years. In 2011, increasing Drought and Flood risks have hit the country's Agriculture sector with rising claims costs. Although Drought is a key risk in China, excessive rainfall in the Southern and Central parts of China caused higher than normal claims in 2010. Severe natural CAT risks and the lack of advanced claims evaluation techniques are stunting China's Agricultural insurance market.

On average, c. 52% of all agricultural losses in China are the result of Drought, c. 28% arise due to Floods, Hail accounts for c. 10%, Frost c. 6% and Typhoon c. 4% (despite China's overall exposure to Typhoon risk).

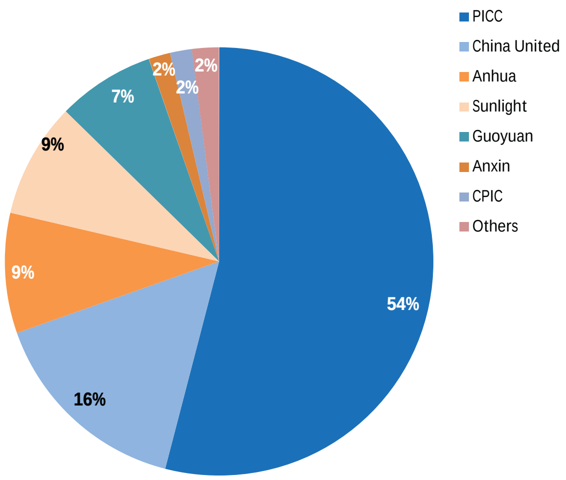
Given the geographic spread of the population, providing the necessary infrastructure for policy distribution, administration and loss assessment to a large number of small scale farmers appears challenging. Products do not yet cater for all effects of Business Interruption, and are not generally available for industries reliant on farm produce to survive, nor do they insure against fluctuations in prices. Mitigation options such as irrigation are also often limited.

The growth of Agricultural insurance in China has been stunted since inception, heavily impacted by regulation. PICC first offered Agricultural insurance in 1950; however political reasons meant that the offering was frozen between 1958 and 1982. To increase competition, China United entered the market in 1986, and by 2004 had achieved a 45% market share. At this time, penetration was still extremely low.

In 2004, the Chinese Central Government's Number One Central Document was directed toward increasing farm income. The release of this policy marked the start of a period of rapid growth in Chinese Agricultural insurance. Since 2004, each Number One Central Document has focused on Agriculture, with themes such as developing modern agricultural practices, security of food production and finance for agriculture. The 2010 document, for example, dedicated increased government funding for the sector and encouraged rural banks to increase agricultural lending.

Since the government's increased attention to Agricultural insurance in 2004, four new specialized Agricultural insurance companies have been established – Anxin Agriculture Insurance Company, Anhua Insurance Company, Sunlight Mutual Agricultural Insurance Company Ltd and Guoyan Agricultural Insurance Company. These companies held the third to sixth largest market shares in 2009, trailing only the two previously established players. As the market has grown, PICC has retained a dominant market share, with over 50% in 2010, followed by China United with 14%.

Figure 44: Agriculture Insurance: Market Share (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

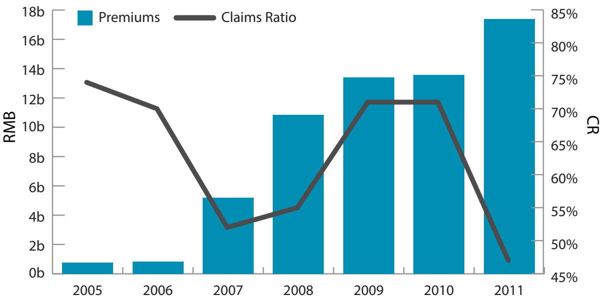
Since 2007, the growth of Agricultural lines has occurred in controlled phases, with initial pilot programs expanding to full scale schemes, predominantly offering multi-peril and all risks mortality style coverage. In March 2007, the Ministry of Finance introduced premium subsidies in six provinces, covered by Central and Provincial Governments. The 2b RMB (0.3b USD) allowed farmers' premiums to be subsidized by 50%. In the same year, subsidies were implemented for pig (breeding sow) insurance to the value of 1.15b RMB (0.1b USD). Since then, the range of products and the geographical territories in which they are offered have continued to increase. In 2009, premium subsidies were available to farmers insuring corn, rice, wheat, cotton, soybeans, peanuts, oilseed, rapeseed, pigs, dairy cows, forestry, rubber and potatoes. Depending on the product and region, subsidies ranged from 30%-80% of premium values.

As at 2010, 23 provinces enjoyed central government subsidy

support for Crop programs.

These schemes drove annual growth of c. 92.6% in Agricultural lines from 2005 to 2010, stretching premiums to 17.4b RMB (2.8b USD) in 2011.

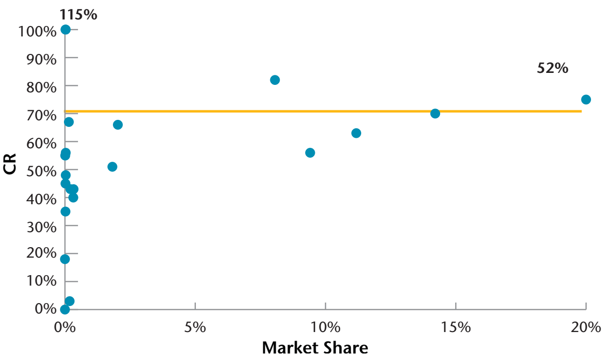
Figure 45: Agriculture Insurance: Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2012 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, over the five years to 2010, claims ratios have remained moderate at 71%. Livestock in 2009 saw claims ratios over 100% whilst claims ratios for Crop were between 60%-70% for the same period. Two minor insurers suffered claims ratios over 100% in 2010.

Figure 46: Agriculture Insurance:
Company Performance (2010)



Weighted Average Claims Ratio: 70.6% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

It is expected that government support for Agriculture will continue to increase both the geographical areas and crop types which are covered by premium subsidies. One of the CIRC's initiatives is to develop legislation and policy to encourage insurance companies to further develop Agricultural insurance.

It is to be noted that the Agriculture market presents a couple of hurdles as the number of small scale farmers is still considerable, bringing numerous challenges and requiring an effective distribution network which only the large insurers possess. China's geographical diversification of risks has led to overall positive underwriting results. However, several natural CAT risks and the lack of advanced claims evaluation techniques may hinder China's Agricultural insurance market going forward.

Although Drought is a key risk in China, excessive Rainfall in the Southern and Central parts of China caused higher than normal claims in 2010. In mid to late June 2011, Suzhou had heavy rain storms that destroyed a large amount of wheat and caused serious losses to farmers. CPIC's local branch spent around a month on investigation and paid out cumulative claims of 43m RMB (c. 6.7m USD) covering more than 193k mu (32k acres) of affected land and more than 13k rural policyholders.

An Aon Benfield Crop Reinsurance Solution (ACReS) model has been developed specifically for the Chinese market. The main differentiator of this model to others in the market is the level of detail input into the calculations. This model calculates risks using yield data for each of China's 2,876 counties. Further, the ACReS model generates results based on the current policy terms and conditions, yield productivity levels, premium rates, underwriting methods, crop types insured and loss adjustment practices. Aon Benfield anticipates that the granularity of the input data will significantly improve the accuracy of results compared to other models currently in use. Appendix 3 contains a sample of ACReS China risk mapping for the Heilongjiang province.

Reinsurance

The CIRC do not publish reinsurance data specific to Agriculture business, however, it is estimated that total Agricultural reinsurance premiums were c. 2.5b RMB (370m USD) in 2009.

Compulsory cessions are still in place for China P&C Re for reinsurance of Agriculture business with central government financial support. While local government Agriculture farm support schemes are not restricted, the number of Agriculture programs placed in the international reinsurance market remains limited due to unfamiliarity with cedents, exposures and risks.

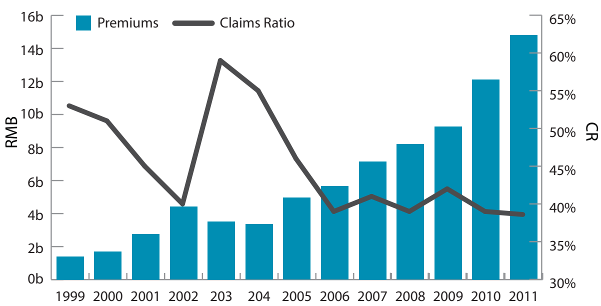
Some Agriculture risks are transferred to international reinsurance markets and some provincial governments provide Non-Proportional reinsurance covers.

Current capacity for Agriculture is in line with demand, with the exceptions of highly exposed provinces and specialty classes such as Aquaculture, Forestry and epidemic Livestock diseases.

Liability

In 2011, Liability premiums represented only 14.8b RMB (2.4b USD), or 3% of Chinese P&C insurance premiums. This included premiums for Employers' Liability, Third Party and Product Liability. Liability premiums almost doubled from 2005 to 2009 with consistent increases of around 1b RMB (0.1b USD) per year.

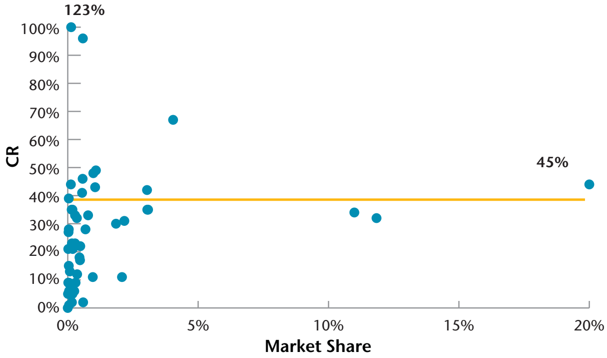
Figure 47: Liability Insurance: Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2012 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, claims ratios have held at around 40% since 2006, with a 2010 weighted average of 39.0%.

Figure 48: Liability Insurance: Company Performance (2010)



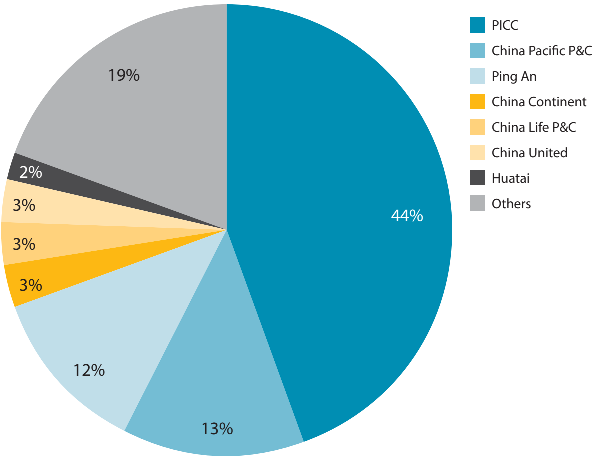
Weighted Average Claims Ratio: 39.0% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Historically, most disputes which would have incurred liability claims were settled outside a courtroom. This favorable claims environment, combined with insurers competing for market share, has fostered an environment of relatively low premium rates which are continuing to soften. However, recently there has been a shift towards the resolution of claims through more litigious means, particularly in relation to medical malpractice and product defects. The melamine-tainted milk incident in 2008 kick started this attention, coupled with a new Tort law, setting the precedent that a manufacturer or retailer can be sued for damages caused by defective products. As yet, no relative increase in claims has been realized.

Product Liability is seldom purchased in China except when required by overseas buyers. Given products made in China are typically price competitive with thin margins, manufacturers are reluctant to add any unnecessary costs. Similarly, the penetration of Professional Indemnity and Directors' & Officers' Liability coverage are extremely limited as the legal environment is evolving slowly. Further, local insurers have limited understanding of these classes and there is minimal effort to develop local underwriting capability.

As with all other lines of business in China, Liability lines are extremely concentrated among three insurers, PICC, Ping An and China Pacific, who accounted for a combined 71% of the market in 2009 and 68% in 2010. The market leader, PICC, saw a c. 7% drop in market share from 2009 to 2010. The bottom 36 companies shared only 9% between them in 2009.

Figure 49: Liability Insurance: Market Share (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

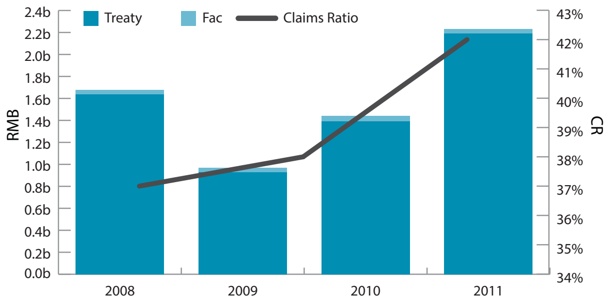
Environmental Liability insurance is also undeveloped in Asia and even more so in China. Cover is mainly purchased by large multinationals operating in the region. As Chinese regulators continue to tighten their Pollution Liability laws it is natural to expect demand for this line to grow over time.

Reinsurance

Due to the relatively small size of the Liability reinsurance market in China, it is difficult to identify trends in placements. Some insurers retain Liability exposure; others cede it as part of the Liability subsections of multiline Surplus and XoL Treaties. A small number of specialist Liability Treaties are arranged on a Quota Share or Surplus basis. Small Chinese insurers typically have capacity of 20m-50m RMB (3.1m-7.8m USD) while large insurers tend to provide capacity of 80m-100m RMB (12.5m-15.6m USD). Treaties typically cover Employers' Liability, Public Liability and Product Liability risks. Professional Indemnity can sometimes be included but Directors' & Officers' Liability is normally reinsured on a Facultative basis.

As a proxy for loss performance, we have aggregated Liability claims reported to the CIRC by Chinese reinsurers and shown these as a percentage of aggregated reported Liability reinsurance premiums over the last three years. Like the primary business, claims ratios have stayed flat since 2008.

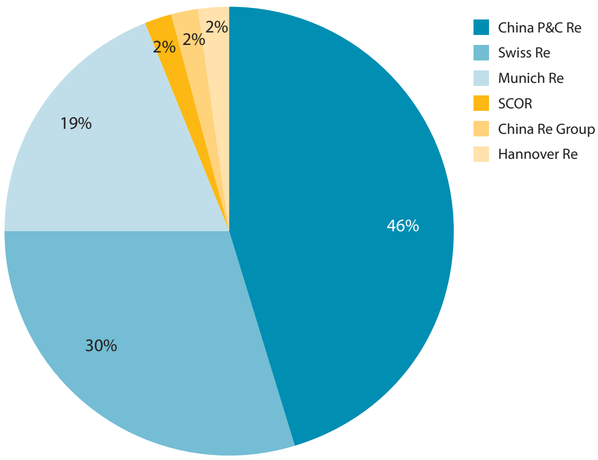
Figure 50: Onshore Liability Reinsurance Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2012 Yearbook of China's Insurance, Inpoint

Onshore Liability reinsurance is predominantly Treaty based. In 2010, 67% of Onshore Liability reinsurance was written by China Re (Group), followed by Swiss Re and Munich Re with 18% and 8% respectively.

Figure 51: Market Share of Onshore Liability Reinsurance (2011)



Sources: The 2012 Yearbook of China's Insurance, Inpoint

Marine, Aviation and Transport (MAT)

Most of the top tier Chinese companies have been actively operating in the international Marine market for many years, so they have a good level of experience and technical expertise.

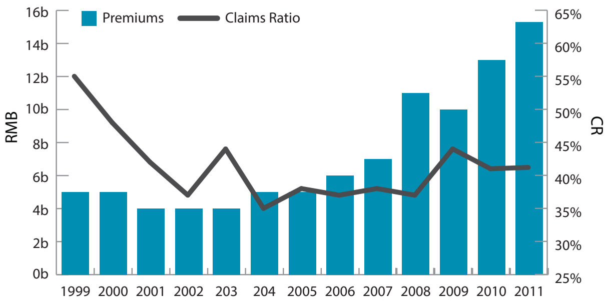
In its current state, the Chinese economy remains somewhat tied to the US economy via reliance on US spending to feed export growth. As such, it will be some time before trade figures stabilize, as the US economy works to recover and control its burgeoning debt.

China's Marine, Aviation and Transport (MAT) insurance business may face headwinds as a result. The effect will be felt by many companies based in China, including the China Ocean Shipping Co (COSCO), which is the Chinese national marine transport fleet, the largest in the world.

The government continues to promote Shanghai as a maritime center. Through the provision of tax incentives, as well as compulsory pollution insurance for vessels in Shanghai, it is rapidly developing as a major Marine insurance market and is already the second largest port in the world. Understandably, most Chinese Marine business is currently written in Shanghai.

According to the CIRC, the MAT market represented 13.4b RMB (2.0b USD), or only 3.3%, of 2010 Chinese P&C insurance premiums including PA & H. A surge in the number of vessels boosted premium growth in 2008; the economic crisis had a noticeable impact on 2009 results, as global capital investment tapered.

Figure 52: MAT Insurance: Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: AXCO, CIRC, The 2012 Yearbook of China's Insurance, Inpoint

When the CIRC's 12.5 plan was released in March 2011, it outlined specific targets which will directly impact the Marine market.

The seven priority industries in the Plan were:

- Energy – Nuclear, Solar, Wind;
- Energy Conservations and Environmental Protection;
- Biotechnology;
- Materials – new earth and high end semiconductors;
- IT – Broadband networks;
- High-end equipment Manufacturing – Aerospace and telecom equipment; and
- Clean Energy Vehicles.

This is anticipated to impact the Marine sector through:

- the move into more high quality manufacturing promoting high valued exports;
- project Cargo and Delay of Start Up covers as a result of the extensive development in manufacturing, the introduction of broadband networks, and the focus on relocating industry to the Western regions; and
- continued high volume of imported raw materials, especially iron ore, steel and crude oil.

These points of focus should ensure that China's MAT sector has the best chance of growth given the coming economic difficulties.

In 2010, China Pacific received approval from the CIRC to set up the country's first Marine insurance business unit in the eastern metropolis, licensed to provide Hull, Transportation, Liability, Port Property and Liability, Guarantees and Protection and Indemnity insurance. In another domestic initiative for Marine insurance lines, the Shanghai and Ningbo Ports are working together to establish a Marine insurance company. In addition to the two majority owners, other companies in shipping, port operations, logistics and the marine industry have invested in the entity, ensuring a stable client base from initiation. The strategic plan involves targeting port shipping in the Yangtze River Delta and then branching out into other P&C and Life insurance products and services across the country in order to grow into a competitive insurer within five to 10 years.

Some foreign insurers have also attempted to enter the Chinese Marine insurance market. Zurich Financial Services Group, for example, has established an international shipping and finance research center in Shanghai. In addition, American International Underwriters (AIU) has launched a range of innovative insurance products, such as comprehensive Liability insurance for logistics operators, as well establishing an online Cargo insurance offering.

Marine Hull

China is now the second largest ship building nation (after South Korea) and is developing in the more sophisticated area of the market, such as drill ships, jack-up rigs and LNG Carriers. The quality of the yards do not always meet international standards, however they are rapidly improving with increased foreign investments from entities such as Samsung Heavy Industries. The two largest shipyards are China State Shipbuilding Corporation (CSSC) and Dalian New Shipyard, and

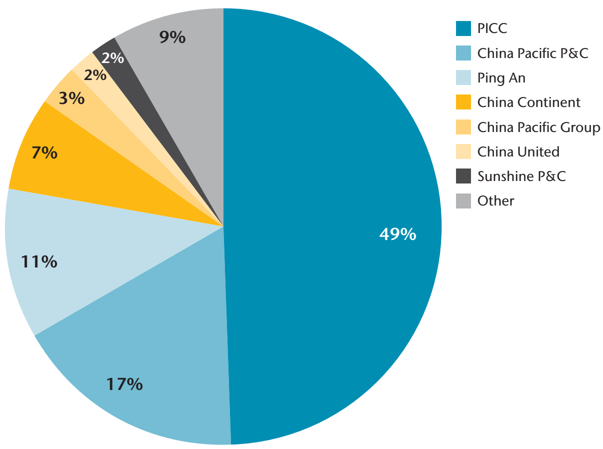
CSSC recently invested 23b RMB (3.6b USD) to create the world's largest shipyard near Shanghai.

China's ship-building industry is also slowing. For the first eight months of 2011, China's ship-building industry finished 43m DWTs, up 6.9% year on year, but new orders fell 37% to 28m DWTs. In addition, c. 40% of China's dockyards have had no new orders at all in 2011. As at the end of August 2011, China's ship-building industry had 176m DWTs of orders in hand, down 9.4% from the same period in 2010.

The Chinese Marine Hull market is divided between blue and brown water business, blue water being vessels travelling in international waters, brown water being domestic waters only. Vessels being chartered for international voyages have to comply with international standards and charterer's requirements. The 2008 financial crisis had a profound impact on the Chinese Hull market, especially the brown water fleet, where ship values dropped by up to 40%. As a result, the performance of this market has deteriorated significantly.

According to the Yearbook of China's Insurance, total 2010 Hull premiums amounted to 5.3b RMB (0.8bm USD). PICC and China Pacific (66% of market share) write most of the Chinese Hull business, albeit down 3% from 2009.

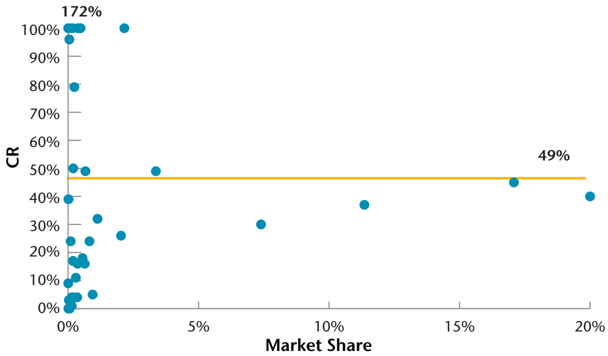
Figure 53: Hull Insurance: Market Share (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, claims ratios have appeared favorable with a weighted average under 50%.

Figure 54: Hull Insurance:
Company Performance (2010)



Weighted Average Claims Ratio: 47.5% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

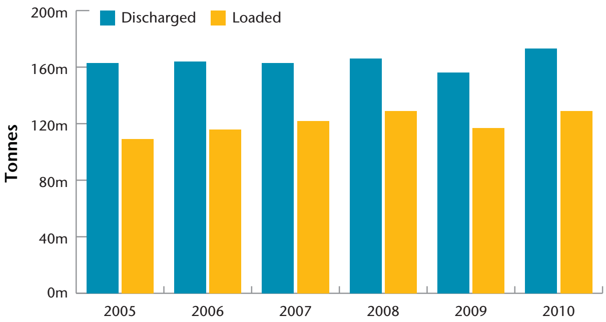
Marine Cargo

The industrial expansion of China has fuelled the Marine Cargo insurance market, particularly in bulk commodities such as crude oil, soybeans and iron ore. Around 60% of the Cargo business is inland transit, with the remaining 40% being export/import business. The Yangshan Deep Water Port on a reclaimed island off Shanghai will soon be one of the largest container ports in the world, handing 14 million containers via 29 berths, and connected to Shanghai by a 32km bridge.

International Marine Cargo is a less common class which may be written on a non-admitted basis. Non-admitted foreign insurers lead the market share tables despite the competitiveness of the domestic market. This is driven by foreign insurers' more competitive claims services teams. Non-admitted insurers will insure Cargos committed out of China on a FOB basis.

Cargo discharges in China were relatively consistent from 2005 to 2009. Volumes loaded increased c. 15% from 2005 to 2008; a decrease was realized in 2009 in response to the economic slowdown in 2008.

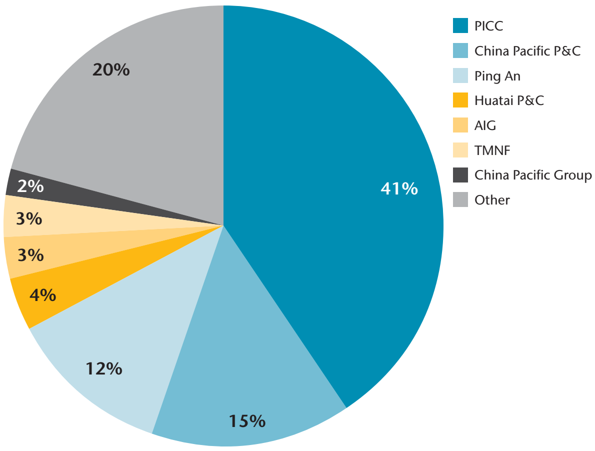
Figure 55: Chinese Cargo Movement



Sources: 2011 Chinese Statistical Yearbook, Inpoint

The total reported premium for Cargo insurance in 2010 was 8.1b RMB (1.2b USD). PICC, China Pacific and Ping An dominate with a combined 68% share of the insurance market in 2010.

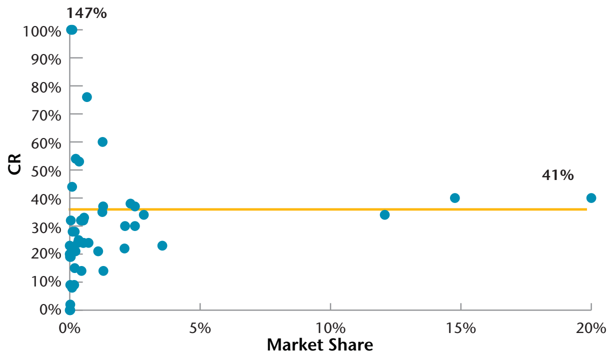
Figure 56: Cargo Insurance: Market Share (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, the weighted average claims ratio in 2010 was 37%.

Figure 57: Cargo Insurance:
Company Performance (2010)

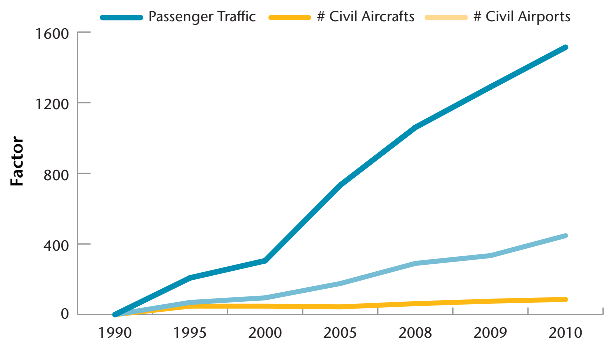


Weighted Average Claims Ratio: 36.8% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Aviation

The number of passengers and airports opening in China has been growing consistently over the last couple of decades. In the 20 years to 2010, passenger traffic expanded almost 15% per annum, representing the swelling funds of the domestic middle class, as well as the reduced barriers to entry for foreign investment and travel. Over the same period, 81 new airports became operational, an increase over 85%, whilst the number of aircraft in use enlarged from 503 to 2,750 between 1990 and 2010, up almost five and a half times.

Figure 58: Chinese Aviation Growth (base 0 in '90)



Sources: 2011 Chinese Statistical Yearbook, Inpoint

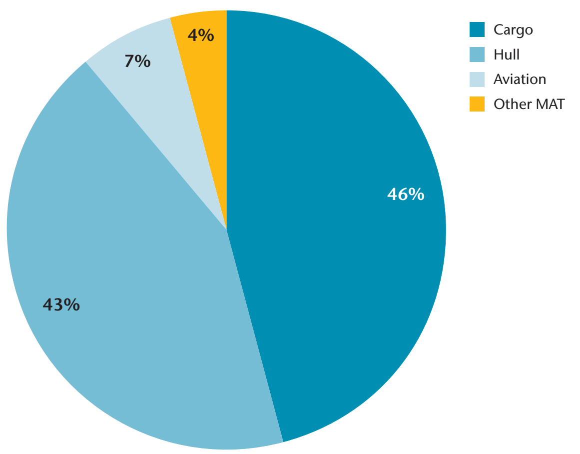
New aircraft are now being purchased from Airbus and Boeing, phasing out the old Russian fleets. This will ensure lower average asset ages, higher asset values,
as well as more reliable machines comprising the underlying asset base. As such, this should have a downward impact on inherent risks for insurers.

Despite the obvious growth in the sector, insurance rates have remained low, if not decreasing. As such, there has not been an uplift in total Chinese Aviation premiums, despite the larger number of carriers and their respective larger fleets. At this point, the CIRC do not publish data specifically for domestic Aviation insurance.

Reinsurance

While the domestic market provides capacity, leading international reinsurers and the Lloyds market hold a comparatively larger market share of aggregate Chinese MAT reinsurance business compared to other classes. Increasing competition has also seen selected second tier international reinsurers gain a foothold. Most business is placed via Treaties and the limited Facultative business is mainly placed in Asia. For Onshore business, Cargo and Hull represent c. 90% of premiums.

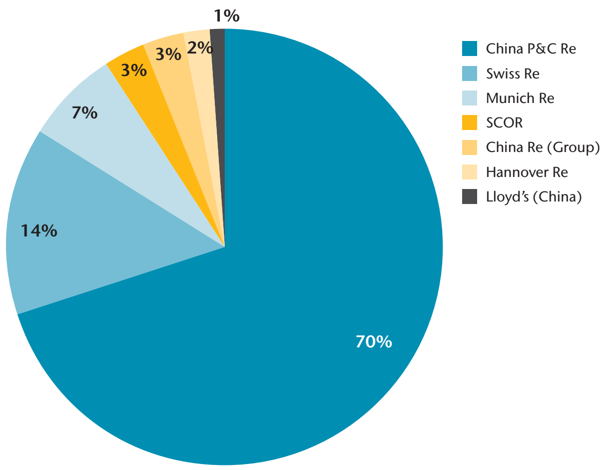
Figure 59: Onshore MAT Reinsurance: Sub-Class (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

Chinese Marine Cargo portfolios are protected on a Proportional and Non-Proportional basis, with limits typically up to 190m-320m RMB (30m-50m USD). Marine Cargo is typically placed via Treaty contracts, with the majority of business placed in China and Asia on a Pro-rata basis.

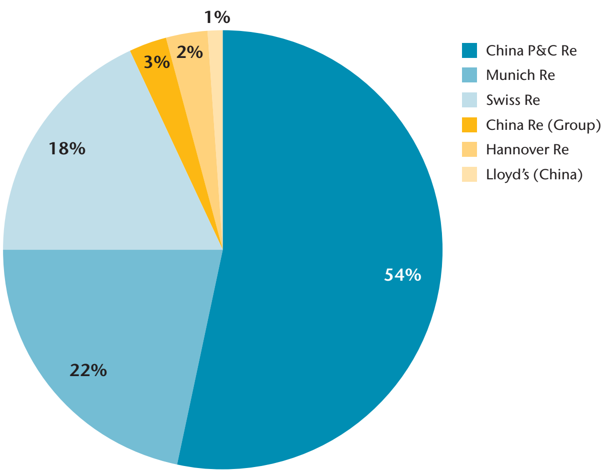
Figure 60: Market Share of Onshore Cargo Reinsurance (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

Marine Hull Treaty business is normally written on a Pro-rata basis. Hull is considered to be a more challenging class, with international markets including London participating. Underlying risk quality is mixed, particularly with regards to shipbuilders, reflected in loss experience. In terms of Facultative business for Chinese Marine Hull, volatile loss history presents challenges. As with Treaty business, these risks are also typically placed in international markets including London.

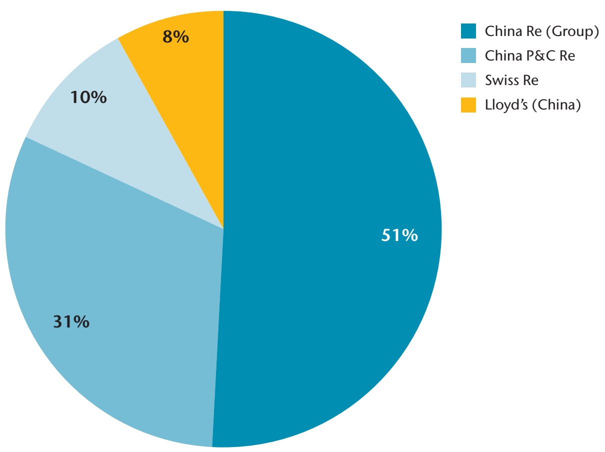
Figure 61: Market Share of Onshore Hull Reinsurance (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

With regards to Aviation, some insurers have general Aviation Treaties, but all airline business is reinsured in a single Facultative placement with the CAAC. It is estimated that Onshore business represents c. 30% of total Chinese Aviation reinsurance premiums.

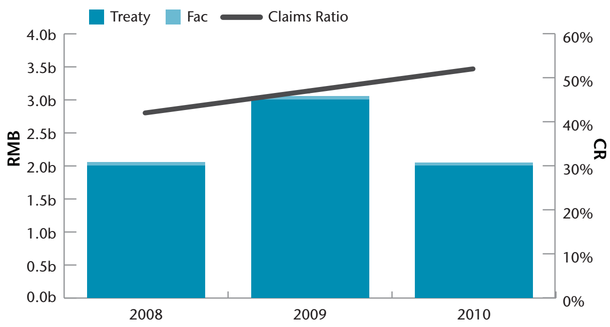
Figure 62: Market Share of Onshore Aviation Reinsurance (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

As a proxy for loss performance, we have aggregated MAT claims reported to the CIRC by Chinese reinsurers and shown these as a percentage of aggregated reported MAT reinsurance premiums over the last three years.

Figure 63: Onshore MAT Reins. Prems & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2011 Yearbook of China's Insurance, Inpoint

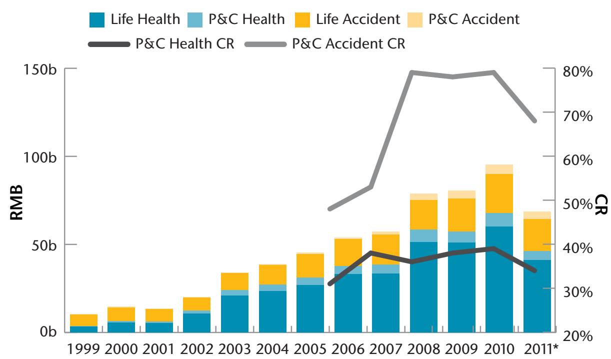
Personal Accident and Health (PA & H)

The Personal Accident and Health (PA & H) market in China is unsophisticated, and the Health segment in particular presents opportunities for growth. The inherent risks, however, explain the low penetration rate. Unlike Motor insurance, the duration of the policies and the limited available historical data makes pricing challenging. PA & H lines have a history of mis-selling and this is one of the targets of the CIRC's 12.5 plan.

As the government aims to promote social security in coming years, personal insurance lines should see solid growth. The growing asset base, student population, expatriate population, as well as the burgeoning young middle class, suggests that there is real potential for premium growth in the short to medium term. Population and wealth growth in the major cities suggest these regions will remain of high interest
to insurers. However, enhanced modeling is required to quantify correlation to natural perils and manage aggregation risk.

Before 2003, only Life insurers could write PA & H insurance lines. Since then, P&C insurers have rapidly increased their market share. The push for business by P&C companies underpinned a surge in PA & H market growth in 2003 of 70%. Since then, growth has been staggered. Regardless of the efforts of P&C insurers to gain market share, Life insurers still wrote c. 89% of Health and c. 81% of PA in 2010.

Figure 64: PA & H Premiums



*Jan-Aug 2011. Health and Accident Totals Only
Note: CR's compare gross premiums and paid claims
Sources: CIRC, The 2011 Yearbook of China's Insurance, Inpoint

Foreign insurers have targeted the PA & H market in the last few years. Furthermore, with the subdued growth of the Life market, there is an expectation that some domestic Life insurers will also turn more resources towards the PA & H arms of their business.

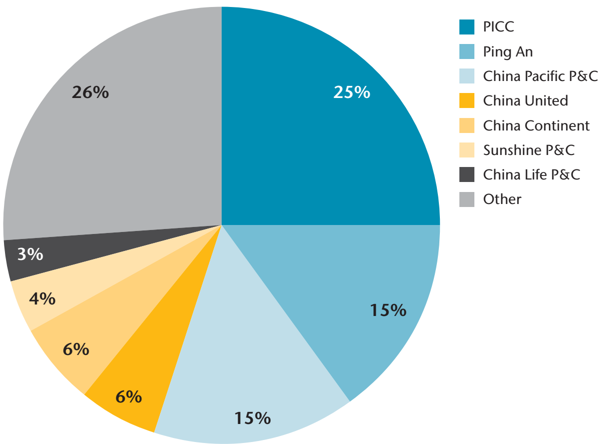
Personal Accident (PA)

Of the nearly 60 P&C Insurers in China, roughly half provide some form of PA Cover, albeit collectively accounting for less than 20% of the 2010 market. Products typically offered by P&C insurers are:

- Group PA (mainly Construction)
- Individual PA
- Aviation PA (mostly sold at airports)
- Credit Card PA (travel cover for cardholders)
- Debtors' PA
- Passengers Liability PA

PICC, Ping An and China Pacific are the three largest providers of PA cover out of the P&C providers.

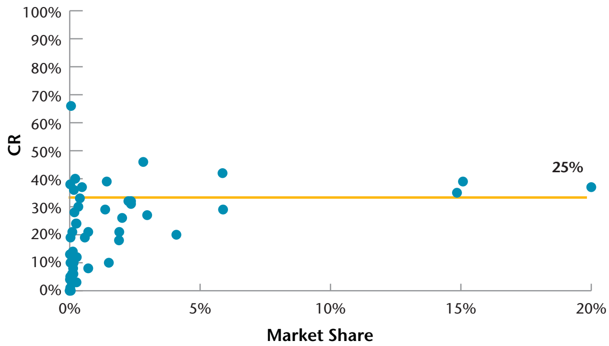
Figure 65: PA Insurance: Market Share (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

As a proxy for loss experience, we have compared paid claims reported to the CIRC by Chinese insurers to gross premiums. On this basis, the weighted average claims ratios in 2010 was 33.5%

Figure 66: PA Insurance: Company Performance (2010)

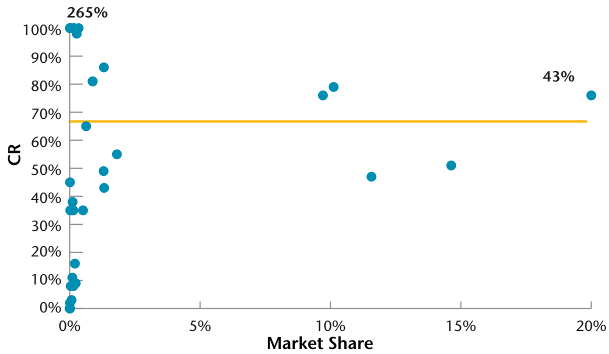


Weighted Average Claims Ratio: 33.5% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Health

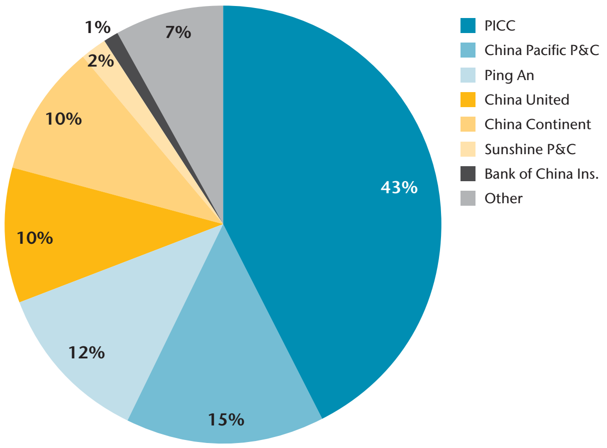
Claims ratios in Health lines are on average less profitable than PA, with claims ratios averaging 68% in 2010 for P&C providers. In the same year, PICC held 43% of the market share in terms of P&C providers with China Pacific, Ping An, China United and China Continent all underwriting 10%-15% of that market.

Figure 67: Health Insurance: Company Performance (2010)



Weighted Average Claims Ratio: 68.1% (2010)
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Figure 68: Health Insurance: Market Share (2010)



Note: P&C Insurers only
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Reinsurance

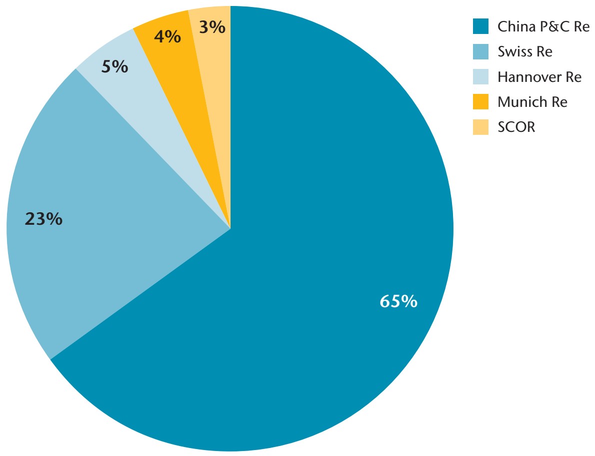
The majority of the Chinese PA & H market is written by Life insurers. While there is demand from Life insurers for Proportional Treaties, this demand is dominated by China Life Re. Foreign reinsurers with Chinese operations also participate but represent smaller market shares. Proportional Treaties are typically transacted on a direct basis, particularly in the case of China Life Re. For CAT XoL Treaties, overseas markets such as Lloyd's have been more competitive than domestic carriers. Overseas placements are usually intermediated.

A lack of historical medical records and underwriting data makes pricing challenging. Common tactics implemented to mitigate these uncertainties include the use of tightly controlled limits as well as targeting the micro insurance segment, which will inherently have lower risk exposures. For P&C companies writing PA & H, the lower limits offered to insureds result in a bias towards PA XoL Treaties, typically featuring Risk & CAT cover for bottom layers. These placements are usually intermediated.

Facultative markets are developing for higher risk industries in China for Chinese expatriates working in other countries (e.g. mining and construction), and for risks associated with large public events, however they remain extremely small.

Focusing on Onshore PA reinsurance business ceded by P&C insurers, China Re (Group)'s domestic focused reinsurance subsidiary held 65% of the market in 2010. For Onshore Health reinsurance, the CIRC suggest 100% of this is ceded to China Re's parent company.

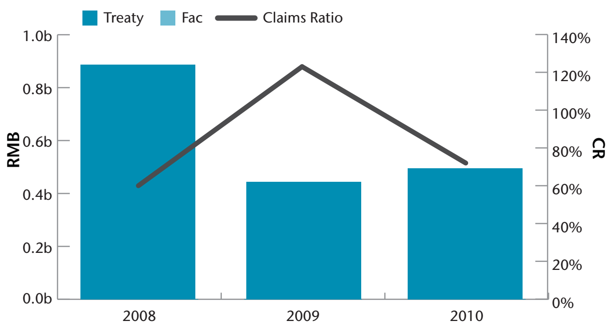
Figure 69: Market Share of Onshore PA Reinsurance (2010)



Sources: The 2011 Yearbook of China's Insurance, Inpoint

As a proxy for loss performance, we have aggregated PA & H claims reported to the CIRC by Chinese reinsurers and shown these as a percentage of aggregated reported PA & H reinsurance premiums over the last three years.

Figure 70: Onshore PA & Health Reinsurance Premiums & Claims Ratio



Note: CR's compare gross premiums and paid claims
Sources: The 2011 Yearbook of China's Insurance, Inpoint

Regulation and Capitalisation

Regulation

The CIRC is regularly reviewing sections of insurance regulations with the rules governing the insurance industry becoming increasingly consistent with global standards. An industry survey of Chinese P&C insurers in 2010 identified that there had been 700 new regulations in 2009, some requiring large investments in IT. The same survey revealed further regulations were strongly anticipated for foreign P&C insurance companies in relation to consumer protection, branch approvals, profitability and restrictions upon intermediaries.

Since the Chinese market is still in an embryonic state compared with most developed countries, different pressures are being placed on the respective regulatory bodies. Monitoring market behavior is not the focus of European supervisory bodies; in China this remains at the top of the CIRC's agenda. While it is anticipated that the CIRC will implement a Risk Based Capital (RBC) type framework such as Solvency II, it is unlikely to occur before mid-2012, in our view.

The CIRC's 12th five year plan (12.5) announced the regulator's intention to monitor insurers' financial stability more closely. As the EU phases in Solvency II, discussions around the differences with China's current regulatory environment, and whether these should be further aligned, have continued. The three key pillars of Solvency II identify a few of the notable differences with Chinese regulations.

i. Solvency Margin / RBC Calculations (Quantitative)

This is one of the key differences between the Chinese and EU (Solvency II) regulatory systems. To comply with Solvency II's solvency capital ratios, an insurer must hold capital to cover a 1/200 year event to the 99.5% confidence level for the next 12 months. Insurers may calculate this using the formula within the regulations, or the more popular approach is for the insurer to demonstrate that their internally developed model meets the Solvency II requirements.

The Chinese requirements are far less complicated. The solvency margin for Non-Life insurers is calculated by looking at premium income and claims reserves. According to Article 89 of the Insurance Company Solvency Requirements, minimum capital is based on the greater amount computed using the two methods below:

- 18% of the last year's premium up to 100m RMB (15.6m USD) plus 16% of the last year's premium in excess of 100m RMB (15.6m USD), net of ceded reinsurance and business tax; or
- 26% of the average of the last three years' incurred claims up to 70m RMB (10.9m USD) plus 23% of the average of the last three years' incurred claims in excess of 70m RMB (10.9m USD), net of ceded reinsurance and business tax.

Life insurers have their own calculation, and insurers that have been in business for fewer than three years must use method one. Understandably, Solvency II requires a higher level of expertise and record keeping.

ii. Risk Governance Process (Disclosure)

Under Solvency II, insurers attract a capital charge if their governance processes are deemed inadequate. Insurers are required to establish risk management, actuarial, compliance and internal audit functions and also demonstrate that they have an adequate and transparent organizational structure, an effective information transmission system and documented roles and responsibilities.

In China, the CIRC issued a risk management circular in 2007 which provided guidance to insurers on issues with respect to the principles of a sound risk management framework, the risk categories to be assessed and the composition of effective risk controls. In 2008 it released an update that required the establishment of a risk-based solvency monitoring framework. Further, the Basic Standard for Enterprise Internal Control requires all Chinese listed companies to establish and evaluate the effectiveness of their internal control. As with pillar one, the Chinese requirements are much less involved and appear to be more guidelines than directives.

iii. Regulatory Intervention (Qualitative)

In the EU, regulatory intervention occurs when minimum capital requirements are breached. Possible sanctions include closure of a company's line of business or even the revocation of a business license. On the other hand, the Chinese regime assesses the need for regulatory action on a clear three-tier system:

- "Adequate II" (solvency ratio greater than 150%). These insurers draw the lightest regulatory attention;
- "Adequate I" (solvency ratio between 100%–150%). The CIRC can request an insolvency prevention plan which may include capital injections; and

- "Inadequate" (solvency ratio less than 100%). Delinquent insurers attracting the harshest sanctions.

With China's recent changes to solvency requirements, there are renewed concerns regarding the solvency of some Chinese insurers. Currently, of the 56 companies recognized by A.M. Best as being domiciled in China and offering P&C insurance and reinsurance, only four are rated. China P&C Reinsurance Company Ltd ("A"), Lloyd's Insurance Company (China) Ltd ("A"), Aioi Nissay Dowa Insurance (China) Co Ltd ("A-") and Hyundai Insurance (China) Co., Ltd ("B++"). Currently, none of the five exchange listed companies carry an A.M. Best rating, however Moody's have an A1 rating for PICC and China Pacific, and Standard & Poor's have an A rating for Ping An. This adds additional complexity for commentators attempting to compose an accurate picture of the financial position of individual insurers.

There have been other regulatory changes to the Chinese insurance market than those to the solvency requirements mentioned above. In 2011, changes were made to auditing requirements for Chinese insurers, including the strengthening of actuarial functions for larger companies, the independence of actuarial functions and the requirements of internal controls.

Reinsurance in China has not been spared from ongoing regulatory updates. The Provisions on the Administration of Reinsurance Business 2010 had the goal of opening up the reinsurance market in China. The most basic of the additions from this legislation were to introduce three further classes of reinsurance; Retrocession, Proportional and Non-Proportional. Previously reinsurance had only been recognized as Treaty or Facultative, and this had only been the case since 2005. This new addition will enable ongoing analysis and increase the transparency of the reinsurance market.

The 2010 provisions also sought to ensure reinsurers adopted methods and assumptions that were consistent with the respective insurers when assessing and setting reserves, with the goal of preventing different reserves for the same risk. Additionally, it was noted the insurers should never accept 100% of an original contract.

Mandatory cession rules have also been relaxed. Previously, insurers were required to offer over 50% of a risk to at least two domestic reinsurers before ceding the risk to overseas reinsurers. This requirement has been abolished. Further, an insurer could not previously cede more than 80% of the original insured sum or overall limit of liability to a single reinsurer, except for Aerospace, Nuclear, Oil or Credit insurance. The 2010 Provisions limit this restriction to Proportional reinsurance only.

The evolution of Chinese Insurance regulation is bringing practices closer to international markets. In our view, this will support increasing transparency and improved profitability, most likely going hand in hand with the entrance of more foreign insurers.

Equity Listings and Debt Issuances

Chinese insurer and reinsurer interest in capital raisings has continued throughout 2010 and 2011.
In early 2011 it was anticipated that China Re, PICC Group, New China Life and Taikang Life could all potentially raise capital via the creation of additional stock within the year. Not all of these have progressed as planned. China Life was also expected to raise additional funds via debenture issuances. This year, as at August 2011, the Chinese insurance industry has raised more than 100b RMB (15.3b USD) through debt issues and other financing tools, but the global economic environment has put a dampener on this activity for the immediate future.

IPO

Volatile global equities performance is disrupting the Chinese IPO pipeline. Of those that proceed with stock listings, it is expected that the price of offerings will be conservative to ensure strong subscriptions. Following the anticipation of numerous listings in 2011, only one is still in the pipeline at the time of writing.

New China Life (NCL), the Chinese joint venture of Zurich Financial Services, filed its A1 listing documents with the Hong Kong stock exchange on 11 August 2011. NCL plans to raise up to 4b USD through a dual listing in Hong Kong and Shanghai, although it still requires approval from the China Securities Regulatory Commission for the Shanghai offering. The company has hired BNP Paribas, Bank of America Merrill Lynch, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan, UBS AG and CICC to handle the dual listing.

China Re has previously expressed plans to list on the Shanghai exchange but has not confirmed exact timing for this strategy. In the 12.5 plan, the CIRC have encouraged China Re and the PICC Group to move towards listing.

Also in August 2011, Taikang Life Insurance announced that it hoped to make a Shanghai and Hong Kong dual listing

within three years, contingent on the target of achieving a top four domestic Life insurance industry market share (currently fifth). In May 2011, Goldman Sachs acquired a 12% minority stake in the company from AXA for c. 925m USD (5.9b RMB), successfully competing against several private equity firms.

CNinsure have also had a change of plans recently. The NASDAQ-listed independent insurance intermediary operating in China announced in September 2011 that it had decided to withdraw their non-binding proposal to go private due to market volatility. Given its strong cash position, market share and well-proven growth model, the business felt it still had the potential to take advantage of opportunities and maximize shareholder value.

Some smaller Chinese cedents are also looking to go public. However requirements include at least three years of profitability and adherence to strict financial requirements. AllTrust has recently discussed the option of listing; they have suffered very high combined ratios and as such may not be able to float in the short term. Tian Ping, on the other hand, is a small cedent which has recently been given permission by the Securities Commission to float.

Appendix 4 provides stock charts and performance details for all the Chinese Non-Life insurance companies who have listed on the Hong Kong or Shanghai stock exchanges.

Figure 71: Chinese Insurers Currently Listed

Hong Kong Stock Exchange	Shanghai Stock Exchange
China Life Insurance	China Life Insurance
China Pacific Insurance	China Pacific Insurance
China Taiping Insurance	Ping An Insurance
PICC Property & Casualty	
Ping An Insurance	

Sources: Aon Benfield, Inpoint

Debt Issuances

In addition to movement in the IPO space, Chinese insurers have also been scoping fund raising via other avenues. In August 2011 China Life, the world's largest Life insurer by market value, announced it was planning a 30b RMB (4.6b USD) subordinated debt issue.

In June 2011 one of Ping An's subsidiaries completed the issuance of 2b RMB (0.3b USD) in 3 year bonds. In September 2011, it was announced that Ping An Life had raised a further 4b RMB (0.6b USD) via a private offering of 10-year subordinated bonds in the domestic market. Ping An raised the capital to support premium growth and capital adequacy to bolster compliance with the CIRC's solvency requirements.

As part of the CIRC's goal to manage risks, it plans to cut the debt ratio threshold and require those entities eligible to issue debt to define how funds would be used. The CIRC also prescribes that funds raised by insurance companies through debt can only be used as supplementary capital and not to cover operating losses or investments in the real estate and infrastructure sectors.

Market Dynamics

The CIRC's 12th Five Year Plan

China adopted the creation of the strategic five year plans for the development of the nation in 1950. This year marks the first year of the 12th five year plan. The plan incorporates targets for the insurance industry to be pursued under the leadership of the CIRC.

China's acceptance into the World Trade Organization in 2001 was the catalyst for consistently strong annual growth over the last decade, with momentum in the general economy unmatched by any developed country in the world. Household and corporate wealth continues to swell, unlocking new opportunities for foreign insurers to access their slice of an ever growing premium pool.

Buoyed by economic growth, the targets of the CIRC's 11th five year plan (11.5) were consistently exceeded. During the 2006 to 2010 period, the Chinese insurance industry witnessed the expiry of compulsory cessions, the official recognition of reinsurance, and the rapid expansion of premiums across every line of business. This has left the market in a strong position for implementation of the 12th five year plan (12.5).

The most specific goal in the 12.5 plan was the target of national insurance premiums (Life and P&C) of 3t RMB (467b USD) with 5% insurance penetration by 2015. For the year ended December 2010, Life was 1.048t RMB (163b USD) and P&C 402b RMB (63b USD), totaling 1.45t RMB (226b USD), with total insurance penetration of 3.8% according to the CIRC. A year earlier, Swiss Re estimated that insurance penetration was closer to 3.4%, 1.1% from P&C business and 2.3% from Life insurance business.

To achieve these 2015 targets, the CIRC have an implied annual growth rate for the total Chinese insurance industry (Life and P&C) of c. 15.6% for the five years from 2011 to 2015. For perspective, over the five years from 2006 to 2010, the Chinese insurance industry (Life and P&C) grew at over 24% per annum, and the country's GDP at over 21%.

The annual growth rate for insurance of 24% achieved during the term of 11.5 highlights the level of sustained success derived from the focused efforts within the plan. 11.5 noted the intention to improve technology innovation, the advancement of farm machinery and the development of grain production capacity to ensure national food security and each of these were achieved.

Continuing on from 11.5, 12.5 also noted a specific effort to promote Agricultural insurance. To achieve the increased penetration, the CIRC are aiming to implement national Agricultural insurance premium subsidies and enhance geographical coverage. The 12.5 plan again identified the intention to expand farm equipment cover, which remains virtually non-existent. Currently only Crop and Livestock are insured. Liability lines are also targeted for development and Motor business is set to be revamped with a concerted effort to make it more profitable.

12.5 raised the alignment of international insurance regulations as a goal. The tightening of solvency regulations in Europe has further increased this gap. China's current solvency requirements are already identifying domestic insurers potentially taking on too much risk. Stepping current regulations further towards alignment with Solvency II would be expected to further highlight any deficiencies. This will be a delicate area for the CIRC to address but it is fundamentally linked to the other goals of improving risk prevention, strengthening IT and data systems, improving disclosure from non-listed companies and deepening international exchanges.

12.5 also sets out the CIRC's intention to encourage domestic insurers to expand their geographic coverage. It identified the Central and Western provinces as opportunities for domestic growth, as well as international markets, in the attempt to diversify the nature of risks held. Micro-insurance, mutual insurance and captives were also earmarked as growth opportunities.

Looking forward for the 12.5 plan timeframe, the Chinese government has general economy wide growth targets between 8-9% p.a., down on the acheivements of previous years. As such, economic analysts feel that the Chinese government has changed their direction, for at least the immediate future, looking to control inflation rather than spurring unsustainable rates of growth. While this points to moderating demand for construction and resource related business, it also presents growth opportunities in other sectors such as Agriculture. Accordingly, it would not be unreasonable to see some changes in the current class of business split of China's overall insurance market in the coming years, as well as slower growth for the overall insurance market. However, given the overachievements of the 11.5 plan and the inherent drive within the Chinese culture, the goals outlined in the 12.5 plan remain within reach.

Catastrophe Risk and Modeling

China has an extremely broad exposure to CAT events, including Typhoons, Tornados, Floods, Drought, Hailstorms, Dust storms, Blizzards and Fog.
In recent history, these events have affected over 70% of China's land area and over half the population. However, insured losses have been low in comparison to the economic damage due to the low insurance penetration.

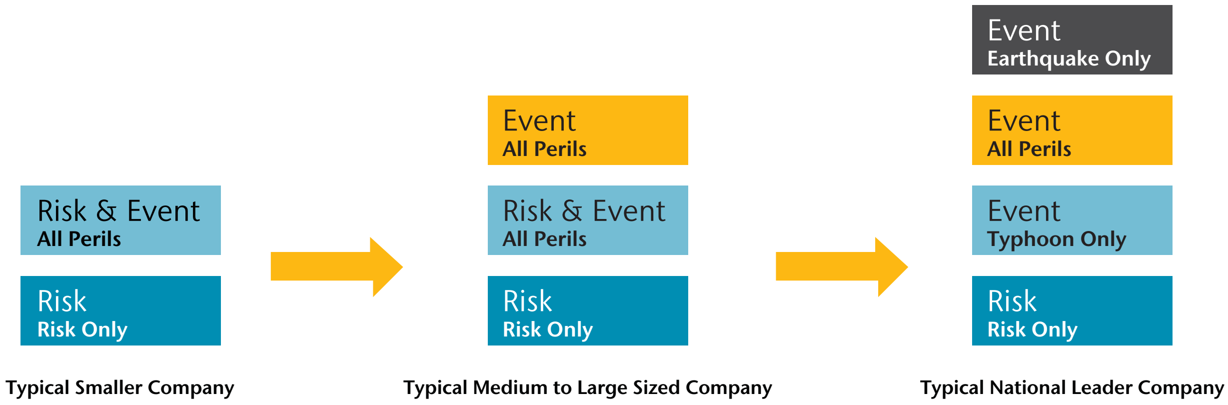
To put China's CAT exposure into a global perspective, Maplecroft's 2011 Natural Hazards Risk Atlas identified China as one of only four countries deemed at extreme risk to economic exposure arising from Earthquake, Tsunami, Volcano, Landslide, Flood, Storm and Wildfire (US, Japan and Taiwan were the other three). On a ranking of the social and economic ability to cope with such events, China was again deemed to be high risk along with India, Philippines and Indonesia. The US and Japan were low risk. The following statistics appear supportive of these risk ratings, with China the subject of:

- Five of the top 10 deadliest natural disasters in history;
- Three of the top five deadliest Earthquakes in history;
- The top five deadliest Floods in history;
- More Typhoons than any other country, (an average of approximately 11 per annum).

From an insurance perspective, it is important to recognize that the Chinese government is very active with post-event payments in recognition of the low insurance penetration. Furthermore, the government is renowned for efficiently mobilizing the national army to assist with cleanups and restore damage (e.g. 2008 Snowstorms and Wenchuan Earthquake). It is our understanding that the government did not seek to recover the costs from the 2008 incidents from insurers, the net result being lower insurance claims and lower exposure for the insurance industry.

Companies with market shares under 1% tend to purchase very little or no Non-Proportional CAT reinsurance protection, relying primarily on protection from Proportional Treaties. The companies that do purchase CAT protection via Non-Proportional means tend to purchase risk and event layers which are not peril specific.

Figure 72: Cover Sought by Company Size



Sources: Aon Benfield, Inpoint

Companies with market shares between 1%–5% typically purchase a combination of risk & CAT layers and "event only" layers, with a small number of companies purchasing additional Earthquake only layers. Companies with over 5% market share purchase peril specific layers. As such, risk and event protection are purchased separately and Earthquake protection is more common than Typhoon protection. Some layers include cover for losses exceeding event limits on Proportional Treaties.

Looking forward, the CIRC's 12.5 plan has noted the intention to construct a national natural disaster risk transfer program as well as to improve loss models and data for the country. Loss models are vital for the insurance industry to price risks. However, given China's history of restricted foreign investment, insurance technology lags the developed markets, despite the size and frequency of events. Whilst there are a few model providers for specific CAT risks in mainland China, only one Chinese insurer and limited reinsurers license a vendor model. While loss models are available from AIR, EQECAT and RMS specifically for the Chinese market, Earthquake models are more prevalent and these are 5 to 14 years old.

Figure 73: Chinese Exposures Modelled

Model Providers	EQ	Typhoon*	Inf. Disease	Flood	Wildfire	Windstorm
AIR	X	X				
EQECAT	X	X	X	X		
RMS	X	X				

*Includes Typhoon precipitation induced Flood
Sources: Model providers, Aon Benfield, Inpoint

Current models for Chinese risks estimate Earthquake events with magnitudes greater than 7.0 have an annual frequency of 1.13. An event with a magnitude of 7.5 or greater carries a frequency of one every 50 years. The main provinces used to drive Earthquake models are Beijing, Hebei and Tianjin.

When comparing the long term average frequency distribution of storms to China's experience between 2005 and 2009, results indicate that the average number of storms per year has been 8% lower over the past five years than the long-term average. Furthermore, there have been over 50% less Super Typhoons during this period than the long term average.

In recognition of the lack of up to date CAT models for the Chinese market, Aon Benfield recently released the 2010 Impact Forecasting Asia Typhoon Model. This is the first model to be released covering the entire Asian continent. Appendix 5 identifies the Chinese provinces specifically exposed to Typhoon risks per this model.

The industry loss curve from Aon Benfield's Impact Forecasting Asia Typhoon Model reinforces that an industry-defining event has not been experienced in the Chinese market in recent memory. All events during the last 15 years fall below the one in 10 year loss frequency. The top provinces for Typhoon aggregates are commonly Guangdong, Jiangsu, Shanghai and Zhejiang.

Although the pace of model development in China is improving, Aon Benfield feel all models require further calibration to reflect local construction practices and loss experience. Compiling accurate and relevant data for these models is also a key issue for implementing robust risk management systems and developing innovative and sophisticated insurance and reinsurance products. In the coming years, further improvements in modeling capabilities and a more in-depth understanding of risks will bolster the ability of global insurance markets to offer a wider range of insurance products in China.

New regulations now require a separate rate for Earthquake and some Insurers charge an average 10% premium loading nationally, even in areas with no Earthquake exposure. Others charge a composite natural perils rate. Some companies allocate 10% of their total Property premium to Earthquake.

Due to low levels of insured losses, there was no increase in Earthquake rates or deductibles in response to the Sichuan Earthquake in 2008. Earthquake and Tsunami rates vary between 0.29 to 8.86 per 10k RMB sum insured depending on the structure and condition of building.

Earthquake deductibles may be expressed as a percentage of the loss or a fixed monetary amount. Average percentage deductibles are 10%, though they can vary between 5%-20%. Monetary deductibles can be 1m-3m RMB (156k-467k USD) for Property risks in Beijing and 500k RMB (78k USD) for Construction risks.

Motor Hulls are excluded from CAT programs. Larger companies are said to have a good understanding of their Earthquake exposures and many base their CAT limits on the Probable Maximum Loss for a 250-year return period. There is far less understanding of Windstorm and Flood.

To date, the majority of CAT models in the Chinese insurance market have been used to inform reinsurance decisions as opposed to driving ratings. These models have been based on long term peril frequency and severity distributions, which can vary considerably from year to year. It is possible that China's recent favorable CAT experience has distorted the market's view of CAT risks, however this lack of interest will continue only until the next market defining event.

Foreign Investment and International Expansion

Foreign Direct Investment and Significant Market Entries

The World Bank has stated that almost 20% of all Foreign Direct Investment (FDI) made to developing countries in the past 10 years went to China. In 2008 alone the nation received over 100b USD (694b RMB) in FDI and over the last five years China received amounts equal to 2.5% of the country's average GDP via FDI.
For the first seven months in 2011, FDI in China surged 18.6% year on year to over 69b USD (452b RMB), although investment from the US fell by 19% to c. 2b USD (13.1b RMB).

Despite the rapidly rising inwards FDI, China is very selective about what and how much FDI is allowed to enter the country. Every three to five years, the Ministry of Commerce (MOC) and the National Development and Reform Commission publish the Foreign Investment Industrial Guidance Catalogue. This document defines how the country feels about investment in each industry; be it "encouraged," "restricted" or "prohibited." Those not listed are "permitted."

According to the most recent edition (October 2007), the insurance industry is regarded as a "restricted" industry for FDI. Whilst this does not prohibit investment, it does mean that additional scrutiny is imposed during the examination, the CIRC pre-approval and the licensing processes.

Foreign Ownership

In June 2010, the CIRC implemented the Administrative Measures on Equities in Insurance Companies, which has gone a long way to dissipate many of the old barriers. The new equity rules state that domestic insurance companies with over 25% foreign ownership in total are to be regulated as foreign invested companies. Whilst this appears to be simply semantics, there are a few important ramifications.

For example, companies deemed to be foreign entities are regulated by the Regulations on the Administration of Foreign-Invested Insurance Companies as opposed to the Regulations for the Administration of Insurance Companies which govern domestic insurers. Foreign investors have different restrictions on how they can operate their representative offices. Representative offices can no longer apply for tax-free status and the rate of deemed profit tax which they must pay has increased from 10% to between 15%–30%.

Although it is not explicitly stated in regulation, domestic insurance companies are allowed to branch out at a much faster rate than foreign companies. Domestic insurers are also the only companies which are allowed to write co mpulsory classes such as Motor Third Party Liability. There is therefore a balance to be considered by foreign insurers as to whether it is more advantageous to have a 20% shareholding in a fast-expanding domestic insurer or a 100% owned foreign subsidiary that may struggle to attract business.

Single Shareholders Limits

The limit for a single foreign investor has also been relaxed. Before the implementation of the new equity rules, there was a 20% limit on ownership of a domestic insurance company's total registered capital by a single foreign investor. The new rules approach the limit on a case by case basis. Also, the new cap for Life companies is 50%, yet it is unrestricted for P&C entities.

Foreign shareholder rules demand investors:

- be profitable for at least the last three consecutive years;
- have assets greater than 2b USD (13b RMB) as at the end of the preceding year;
- have had an A credit rating for at least the last three consecutive years;
- not make the investment with borrowed funds; and
- hold the investment for a minimum of three years.

For a major domestic shareholder, the CIRC may now exempt an investor if it:

- has greater than 15% shareholding or controlling interest;
- was profitable for at least the last three consecutive years; and
- has a Net Asset Value greater than 200m RMB (31.2m USD).

A successful investment in the Chinese insurance industry was made by The Carlyle Group in 2005, investing in China Pacific Life Insurance Co, the country's third largest Life insurer. An initial investment of 3.3b RMB (514m USD), the largest private equity transaction in China at the time, saw the global private equity firm acquire a 25% stake in the CPIC subsidiary.

In addition to enhancing the Life insurers' capital position,

In addition to enhancing the Life insurers' capital position, Carlyle was also able to provide strategic, operational and industry expertise to strengthen the company's performance and competitive position.

In 2007, Carlyle's investment was converted into a stake in the parent company, and in 2009 Carlyle successfully guided the insurer through an IPO on the Hong Kong stock exchange. Since then, Carlyle has sold down portions of its shareholdings (Dec 2009, Dec 2010 and announced another in July 2011) after successfully improving the company in their intended five year timeframe.

Restrictions on multiple investments in insurance companies were also relaxed as part of the new equity rules. Previously, the CIRC prohibited investment in more than one domestic insurance company operating in the same type of insurance business (i.e. Life or P&C). Now, provided the companies involved are not in a competitive relationship or do not face a conflict of interest, the new equity rules extinguish this restriction.

Business Structures

There are three business structures open to investors in the Chinese insurance market; branch, joint venture (JV) and wholly foreign-owned enterprise (WFOE). Regardless of the business structure chosen, a single insurance company can't provide both Life and P&C insurance products. The typical response is to establish two separate entities to write the different types of business, with an overarching holding company to report consolidated figures. These structures are not uncommon, major examples being China Re and CPIC.

As opposed to the rules surrounding the investment in a Chinese entity, different rules apply for the establishment of a JV or WFOE in China. In these situations, a foreign insurance company is required to have:

- been in the insurance business for more than 30 years;
- operated a representative office in China for over two years; and
- had assets greater than 5b USD (33b RMB) as at the end of the previous year.

The structure of minimum capital requirements are also different in China compared to Europe. Each company or branch must be separately capitalized and minimum capital must be fully paid up in cash.

Current minimum capital limits are:

- 200m RMB (31m USD) for a nationwide license;
- 20m RMB (3.1m USD) per branch; and
- 500m RMB (78m USD) maximum capital for a nationwide license plus more than 15 branch licenses.

Life and P&C businesses are treated in the same way, the only variation occurs by province. There are a couple of key differences between foreign investments in insurance and reinsurance businesses.

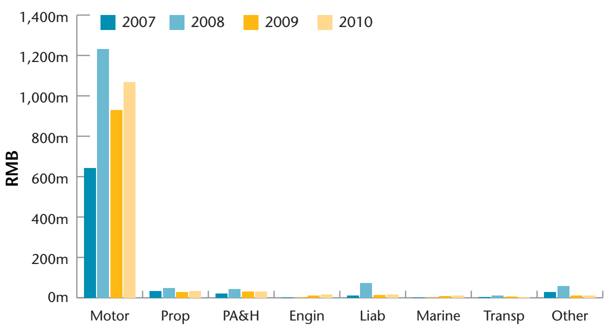
For reinsurance:

- There is no requirement to separate Life & P&C business;
- The CIRC imposes that lead reinsurers are either state-owned or have at least an A- (A3) rating;
- Branch licenses are currently only granted for Beijing and Shanghai;
- Without a license the only way to operate in China is through a representative office; and
- Foreign reinsurers can underwrite Chinese risks offshore without the need for a CIRC license.

Case Studies

Foreign insurers are showing increasing interest in entering the Chinese insurance market. In August 2011, Insurance Australia Group Ltd (IAG) announced it had agreed to acquire a 20% stake in Bohai Property Insurance for 688m RMB (107m USD), which included positions on Bohai's board and in its management. IAG expect completion of the arrangement in early 2012, subject to regulatory approval. Bohai (based in Tianjin in Northeast China), focuses on the Chinese Motor insurance market through its c. 265 provincial and city based branches and a network of agents, and was ranked 26th in China P&C in May 2011 with a market share of 0.3%. IAG sees this as a way to kick start its plans to have an Asian division contributing 10% of the group's Gross Written Premiums by 2016.

Figure 74: Bohai P&C Insurance GWP



Sources: A.M. Best, Inpoint

In December 2010, XL Group was granted a license by the CIRC to operate as a P&C insurance company in Shanghai. Offering Property, Casualty, Specialty and Professional lines, XL's intention is to strengthen its presence in emerging markets.

In July 2011, Starr International announced it had received approval from the CIRC to acquire a 20% strategic equity stake in Dazhong Insurance and become its single largest shareholder. The government backed Shanghai based insurer writes P&C business, and with the aid of Starr, who write specialty lines for Aviation, Marine, Energy, Property and excess Casualty insurance, are looking to become a key player in the growing international shipping market in Shanghai. Dazhong Insurance operates primarily in the Yangtze River Delta and has eight branches. The partnership will bring Starr back to its roots in China nearly a century after its creation.

Alternatively, some reinsurers have gained market access and experience by partnering with Chinese insurers to develop emerging areas of the market. For example, in 2011, Munich Re joined with Ping An P&C to develop and offer insurance solutions for the renewable Energy market. This follows investment from the Chinese government in 2010 to the tune of 50b USD (327b RMB) to progress green energy projects and technology research. Additionally, China plans to provide 500 gigawatts of power from renewable energy sources by 2020. This is expected to be largely derived from wind and solar power.

International Growth and Diversification

In 2010, China ranked 5th among all economies in terms of outwards Foreign Direct Investment (FDI) flows and 17th in terms of stock balances. By the end of 2010, more than 13,000 domestic entities had established c. 16,000 foreign enterprises across 178 countries. Further, in 2008, China domiciled entities had established 12 financial institutions in overseas insurance markets. However, in terms of the insurance sector, premiums derived from Chinese interests overseas are small. As Chinese companies across all sectors continue to expand overseas, motivations and opportunities for Chinese insurers and reinsurers to invest in international businesses are likely to develop further.

China's 2010 FDI net outflows were 69b USD (470b RMB), up from 6b USD (48b RMB) in 2004, with a CAGR of 41% for the five years to 2010. This is equivalent to 1.2% of China's national GDP. Of this, 21b USD (143b RMB) was derived from equity investment, 24b USD (163b RMB) from reinvested earnings and 24b USD (163b RMB) via other means. In 2010, outward FDI net stock volume was 317b USD (2.2t RMB) of which 60b USD (409b RMB) was from equity investment, 121b USD (824b RMB) from reinvested earnings and 137b USD (933b RMB) from other investments.

Figure 75: Structure of China's Outward FDI Flows and Stock (USD b)

	Flows				Stock			
	2008		2010		2008		2010	
Financial	14.05	25.1%	8.63	12.5%	36.69	19.9%	55.25	17.4%
Non-financial	41.86	74.9%	60.18	87.5%	147.28	80.1%	261.96	82.6%
Total	55.91		68.81		183.97		317.21	

Sources: Ministry of Commere PRC, Inpoint

The outflows derived from financial FDI in 2010 were 8.6b USD (59b RMB), of which 6.7b USD (46b RMB) or 78% came from the banking sector. In terms of stock balances from financial FDI as at December 2010, the total 55b USD (375b RMB) included only 0.8b USD (5b RMB) relating to the insurance sector. In 2006, the insurance sector had a similar value.

In terms of the main regions in which Chinese entities typically invest, the majority of flow continues to go locally throughout Asia, attracting almost 72% in 2010, down from c. 75% in 2004. In terms of growth, flows to North America have risen almost 21 times between 2004 and 2010 while investment by Chinese entities in Europe has tripled over the same period.

Chinese entities have historically focused their foreign investment on the Financial Services and Mining sectors with 17% and 14% of total stock respectively. In the last three years, Power and Water and Wholesale and Retail Trade sectors have grown the fastest. The Transport and Manufacturing sectors have also been consistently large sectors for Chinese investment outflows in terms of stock and flow volumes.

Foreign investment from China is mainly sourced from four provinces in China; Guangdong, Shanghai, Zhejiang and Beijing. The Guangdong province is where many multinational and Chinese corporations have their production facilities and offices, making the size of its economy equivalent to that of Turkey or Indonesia. It is also worth noting that foreign investment from China's provincial regions accounted for only 23% of China's total non-financial outward FDI stock in 2010. The rest comes from the Central region, which includes the Henan, Hubei and Hunan provinces whose economic strengths include agriculture, power generation, high tech commodities and heavy industry such as automobiles.

The China Investment Corporation (CIC) deserves a notable mention in terms of China's foreign investment. The wholly state-owned investment business made new investments of almost 36b USD (245b RMB) in 2010 following 58b USD (396b RMB) in 2009. At the end of 2010, its global investment portfolio was valued at over 135b USD (919b RMB). Looking at CIC's 2010 annual report, almost half of its assets at the end of 2010 were in equities. Interestingly, cash balances fell from 26% to 4% between 2009 and 2010, raising questions as to the size of further flows in the short term. Of this, North America attracted over 40% of the funds and Financials and Energy drew 17% and 13% of the portfolio respectively.

In terms of the largest non-government Chinese companies investing abroad, China National Petroleum Corporation and China Petrochemical Corporation have consistently been at the forefront of China's drift offshore. Also noticeable is the consistency of the Oil and Resource companies in the top ten non-government Chinese enterprises by outward FDI stock. Marine companies have also been leaders in terms of foreign outward investment from China.

In August 2011, Chinatrust Financial Holding, China's third largest financial holding company by assets, had its application to acquire MetLife's Taiwan unit approved by Taiwan's Financial Supervisory Commission. Chinatrust's intention is to expand its financial presence and strengthen competitiveness. This successfully achieved Chinatrust's longstanding goal of purchasing a foreign insurance company and underlines the fact that Chinese firms are looking to invest not only offshore but in foreign insurance markets.

The CIRC's 12.5 plan mentioned the importance of international growth by domestic companies. It stated that by supporting domestic enterprises to expand exports and venture into international markets, domestic companies will only get stronger. Insurers following these trends will be able to identify areas of future opportunity and growth.

Appendices

Appendix 1: Region Specific Crop and Risks

Crops and CAT Exposure Per Region

Region	Province	Nat CAT Exposures	Major Crops
South China	Hainan	Flood, Typhoon, Rainstorm	Rice
East China	Shandong	Flood, Typhoon, Rainstorm	Corn, Wheat, Cotton
East China	Jiangsu	Flood, Typhoon, Rainstorm	Cotton, Rice, Wheat, Rapeseed, Corn
East China	Shanghai	Flood, Typhoon, Rainstorm	Rice, Vegetable, Forest, Water Melon, Rapeseed
East China	Zhejiang	Flood, Typhoon, Rainstorm	Rice, Vegetable, Forest, Water Melon, Rapeseed
East China	Fujian	Flood, Typhoon, Rainstorm	Rice, Forest Fire
Southwest China	Sichuan	Flood, Drought	Rice, Corn
Central China	Henan	Flood, Drought, Hail	Rice, Cotton
Central China	Hubei	Flood, Drought	Rice
Central China	Hunan	Flood, Drought, Rainstorm	Rice, Rapeseed, Cotton
Central China	Anhui	Flood, Drought, Rainstorm	Rice, Wheat, Corn, Cotton, Rapeseed
Central China	Jiangxi	N/A	Forest
North China	Hebei	Drought, Hail	Corn, Cotton, Wheat
North China	Beijing	Drought, Hail	Wheat, Corn, Vegetables, Fruit
Northwest China	Xinjiang	Drought	Cotton
Northeast China	Inner Mongolia	Drought	Corn, Wheat, Soybean, Rapeseed, Sunflower
Northeast China	Heilongjiang	Drought	Soybean, Rice, Corn, Wheat
Northeast China	Jilin	Drought	Corn, Rice, Soybean, Peanuts, Sunflower
Northeast China	Liaoning	Drought	Rice, Corn, Peanuts, Soybean

Sources: Aon Benfield, Inpoint

Principal Coverages Available Per Crop

Crop	Coverage
Rice	Rainstorm, Flood, Waterlog, Windstorm, Hail, Frost, Drought, Diseases and Insect Pests
Corn	Rainstorm, Flood, Waterlog, Windstorm, Hail, Frost, Drought
Rapeseed	Rainstorm, Flood, Waterlog, Windstorm, Hail, Frost, Drought
Soybean	Rainstorm, Flood, Waterlog, Windstorm, Hail, Drought, Frost, Diseases and Insect Pests
Wheat	Rainstorm, Flood, Waterlog, Windstorm, Hail, Drought, Frost, Diseases and Insect Pests
Forestry	Pure Fire
Peanut	Rainstorm, Flood, Waterlog, Windstorm, Hail, Frost, Drought, Diseases and Insect Pests, Rat Damage
Cotton	Rainstorm, Flood, Waterlog, Windstorm, Hail, Frost, Drought, Diseases and Insect Pests, Weed damage, Rat damage
Dairy Cattle	Most Non-infectious diseases and some epidemic diseases
Breeding Sow	Most Non-infectious diseases and some epidemic diseases

Channel: All direct sales or via Government
Sources: Aon Benfield, Inpoint

Appendix 2: CPI in China by Category and Selected Regions

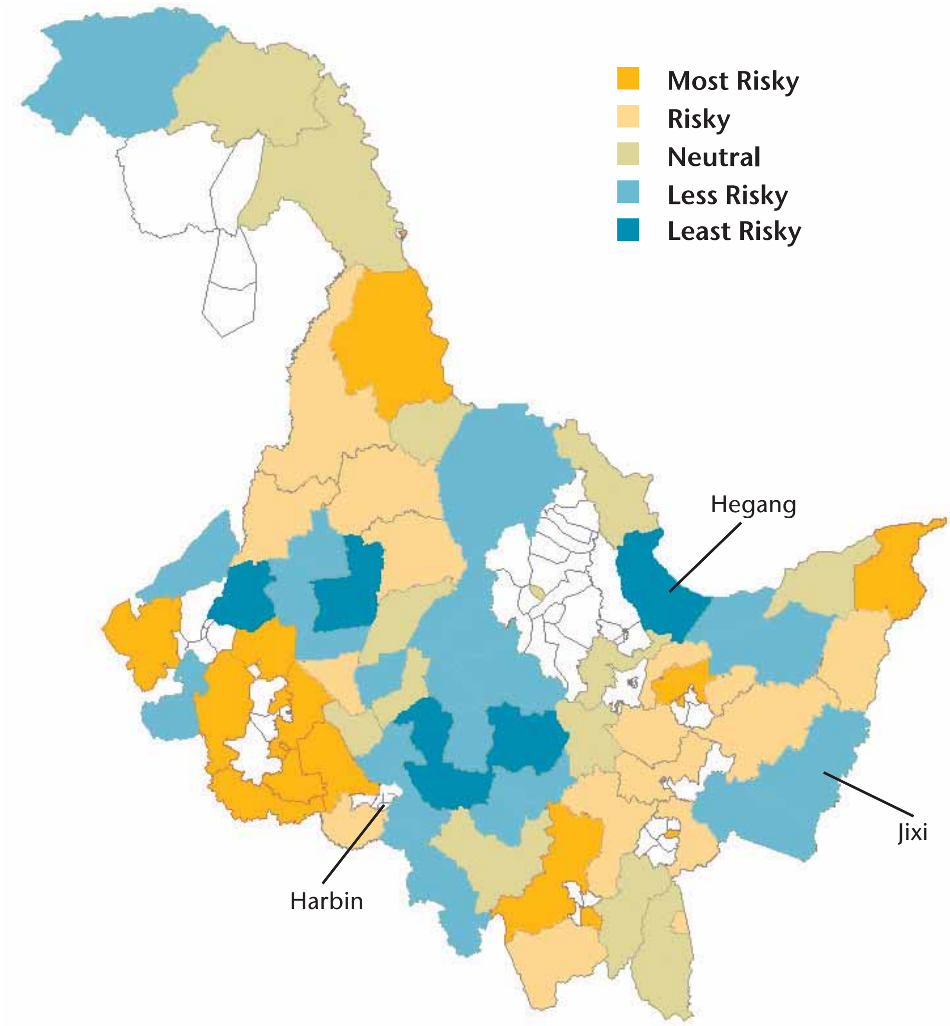
Consumer Price Indices by Category and Region (Preceding Year=100)

Year / Region	General Index	Food / Agriculture						Other			
		Total	Grain	Oils & Fats	Meat & Poultry	Aquatic	Vegetables	Clothing	Health Care	Education	Residence e.g. Rent
2001	100.7	100.0	99.3	91.7	101.6	97.1	100.9	98.1	100.3	113.6	101.2
2002	99.2	99.4	98.3	98.7	99.5	96.7	98.2	97.6	98.5	103.7	99.9
2003	101.2	103.4	102.3	112.6	103.3	100.3	117.7	97.8	101.2	104.3	102.1
2004	103.9	109.9	126.4	118.2	117.6	112.7	95.1	98.5	99.1	103.4	104.9
2005	101.8	102.9	101.4	94.3	102.5	105.9	109.1	98.3	99.5	105.1	105.4
2006	101.5	102.3	102.7	98.6	97.1	101.2	108.2	99.4	100.2	100.0	104.6
2007	104.8	112.3	106.3	126.7	131.7	105.1	107.9	99.4	102.1	99.6	104.5
2008	105.9	114.3	107.0	125.4	121.7	114.2	111.0	98.5	102.2	100.5	105.5
2009	99.3	100.7	105.6	81.7	91.3	102.5	113.6	98.0	101.4	101.6	96.4
2010	103.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beijing	98.5	105.6	105.6	83.9	95.2	104.5	110.2	98.4	100.4	101.3	89.8
Shanghai	996	103.7	103.7	80.3	95.5	105.4	116.5	99.3	101.0	102.1	96.6
Guangdong	97.7	104.3	104.3	83.2	92.1	101.0	99.9	97.3	100.7	100.6	93.5

Sources: 2011 Chinese Statistical Yearbook, National Bureau of Statistics China, Inpoint

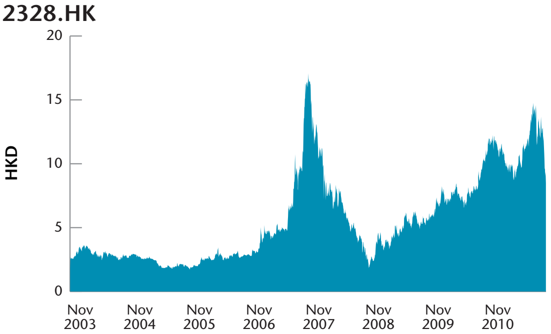
Appendix 3: Sample of ACReS China Risk Mapping — Heilongjiang Province

Crop Model Simulation Results



Appendix 4: Performance of Listed Chinese Insurance Companies

PICC Property and Casualty Co., Ltd.

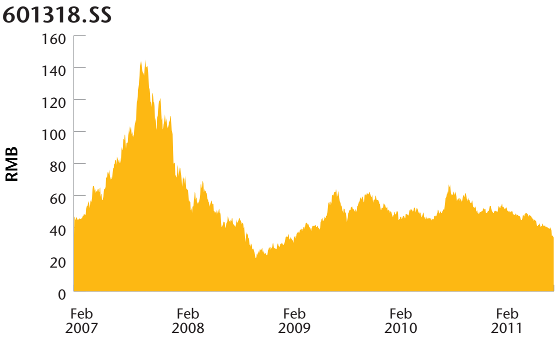


Sources: Bloomberg, Inpoint

2328.HK	
Listed	5/11/2003
Opening Price	1.80
30 Sept 2011 Close	8.48
High	17.08 in Oct 2007
Low	1.73 in Oct 2005

Sources: Bloomberg, Inpoint

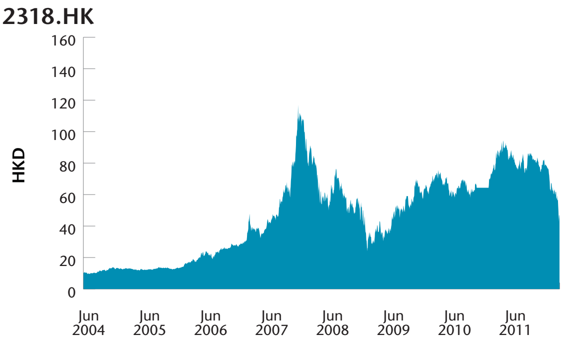
Ping An Insurance Group



Sources: Bloomberg, Inpoint

601318.SS	
Listed	28/02/2007
Opening Price	33.80
30 Sept 2011 Close	33.57
High	144.99 in Oct 2007
Low	20.78 in Oct 2008

Sources: Bloomberg, Inpoint

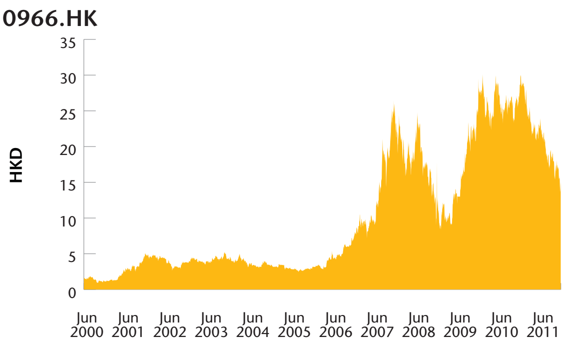


Sources: Bloomberg, Inpoint

2318.HK	
Listed	23/06/2004
Opening Price	10.33
30 Sept 2011 Close	44.20
High	117.00 in Oct 2007
Low	9.50 in Jul 2004

Sources: Bloomberg, Inpoint

China Insurance International Holdings Co., Ltd (China Taiping)



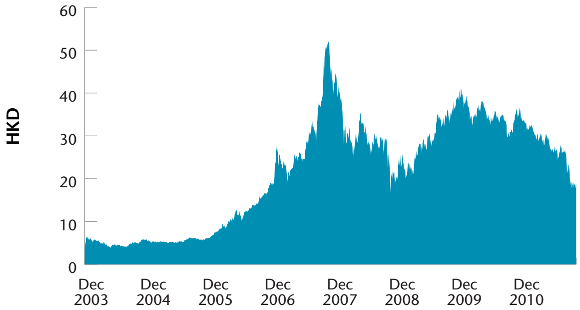
Sources: Bloomberg, Inpoint

0966.HK	
Listed	28/06/2000
Opening Price	1.44
30 Sept 2011 Close	15.00
High	30.15 in Nov 2009
Low	0.91 in Oct 2000

Sources: Bloomberg, Inpoint

China Life Insurance Co., Ltd

2628.HK

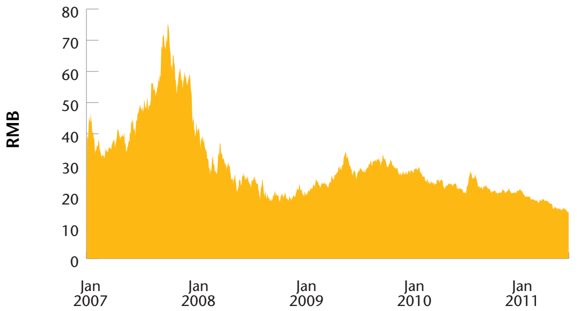


Sources: Bloomberg, Inpoint

2628.HK	
Listed	17/12/2003
Opening Price	3.63
30 Sept 2011 Close	18.80
High	52.00 in Oct 2007
Low	3.63 in Dec 2003

Sources: Bloomberg, Inpoint

601628.SS



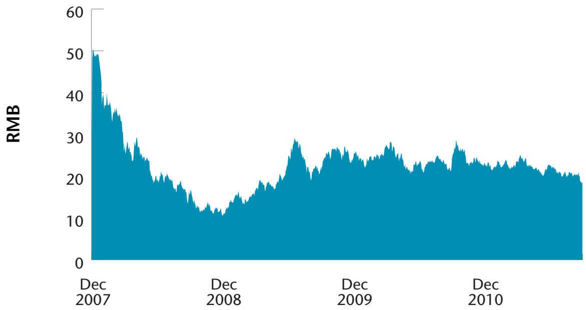
Sources: Bloomberg, Inpoint

601628.SS	
Listed	8/01/2007
Opening Price	18.88
30 Sept 2011 Close	14.74
High	75.08 in Oct 2007
Low	14.74 in Sep 2011

Sources: Bloomberg, Inpoint

China Pacific Insurance Group

601601.SS

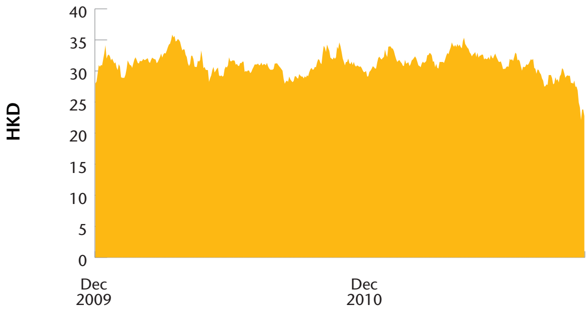


Sources: Bloomberg, Inpoint

601601.SS	
Listed	24/12/2007
Opening Price	30.00
30 Sept 2011 Close	18.49
High	50.31 in Dec 2007
Low	10.48 in Dec 2008

Sources: Bloomberg, Inpoint

2601.HK



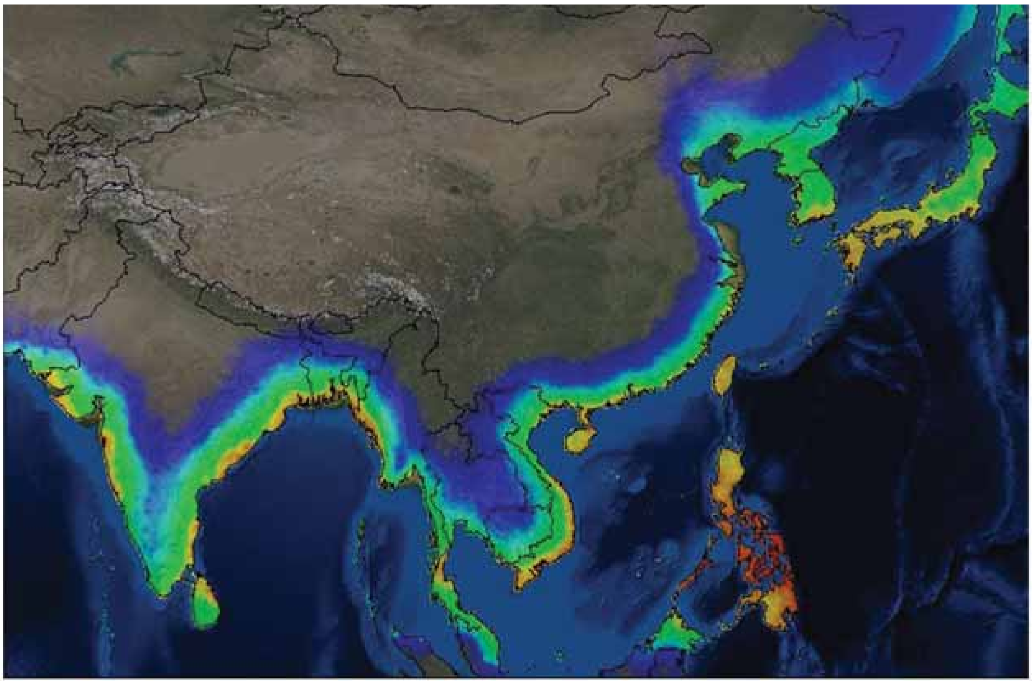
Sources: Bloomberg, Inpoint

2601.HK	
Listed	22/12/2009
Opening Price	28.00
30 Sept 2011 Close	22.75
High	35.85 in Apr 2010
Low	22.10 in Sep 2011

Sources: Bloomberg, Inpoint

Appendix 5: Ranking of Degree of Hazard by Province — Typhoon

Ranking	Province
1	Hainan
2	Guangdong
3	Zhejiang
4	Fujian
5	Shanghai
6	Tienjin
7	Jilin
8	Jiangsu
9	Shandong
10	Guangxi
11	Beijing
12	Heilongjiang
13	Hebei
14	Jiangxi
15	Inner Mongolia
16	Anhui
17	Yunnan
18	Hunan
19	Shanxi
20	Henan
21	Hubei
22	Chongqing
23	Sichuan
24	Guizhou
25	Xizang
26	Shaanxi
27	Gansu
28	Qinghai
29	Ningxia
30	Xinjiang



Note: Provinces ranked by peril risk only, no weighting made for exposure.
Sources: IF Typhoon Model, Aon Benfield, Inpoint

Glossary

A shares	Companies incorporated and traded in mainland China. Prices are quoted in RMB. Currently only mainlanders and selected foreign institutional investors are allowed to trade A shares
B shares	Companies incorporated in mainland China and traded in the mainland B-share markets (Shanghai and Shenzhen). Quoted in foreign currencies
CAGR	Compound Annual Growth Rate.
Capacity	The amount of cover that a reinsurance company (or the market) can provide
CAT	Catastrophe
Cedant	Client of a reinsurance company. An entity that writes and original risk and then contractually transfers (cedes) a portion of that risk to a reinsurer
CIRC	China Insurance Regulatory Commission
Combined Ratio	Percentage ratio of the sum of net claims expenses plus net operating expenses to net earned premiums, i.e. the sum of the loss ratio and the expense ratio
Domicile	The country regarded as the permanent home. A corporations' domicile is the state where it was incorporated
Expense ratio	Percentage ratio of operating expenses to earned premiums
GWP	Gross Written Premium. The total premium written and assumed by an insurer before deductions for reinsurance and ceding commissions
H shares	Companies incorporated in mainland China and listed on foreign stock exchanges (e.g. the Hong Kong Stock Exchange)
Incurred loss ratio	Percentage of losses paid and reserved to premiums earned
Loss ratio	Percentage ratio of claims expenses to earned premiums
Non-Proportional	Aka XoL. Reinsurance in which the reinsurer's response to a loss depends on the size of the loss. Premiums are 'not proportional' to limits of coverage
NWP	GWP less deductions for ceded reinsurance and commissions

P&C	Property & Casualty aka Non-Life insurance
PA&H	Personal Accident & Health
Paid loss ratio	Percentage of losses paid to premiums earned
Penetration	The ratio of total insurance premiums to gross domestic product
Premiums	The amount to be paid for the insurance cover provided by an insurer
Premiums Earned	All premium income that has been paid in the financial year
Premiums Written	All premium income that has become payable in the financial year
Proportional	Reinsurance in which the sum insured written by the primary insurer is divided proportionally between the primary insurer and the reinsurer, and the reinsurer is allocated a corresponding share of the premiums and claims.
Retained	The amount of liability an insurer assumes for its own account
RMB	Renminbi (aka CNY). The currency of the People's Republic of China
XoL	See Non-Proportional

Foreign Exchange Assumptions (per www.oanda.com)

Average 1999	RMB:USD : 0.1208
Average 2000	RMB:USD : 0.1208
Average 2006	RMB:USD : 0.1256
Average 2007	RMB:USD : 0.1317
Average 2008	RMB:USD : 0.1441
Average 2009	RMB:USD : 0.1466
Nine months to September 2010	RMB:USD : 0.1502
Average 2010	RMB:USD : 0.1469
Six months to June 2011	RMB:USD : 0.1527
Eight months to August 2011	RMB:USD : 0.1534
Nine months to September 2011	RMB:USD : 0.1558

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