

Underestimated industry with great potentials

Report Series three with a focus on the "Thirteenth Five-Year" new material

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This report systematically analyzes industry and firm. From perspectives of investment, we Overweight Oriental Yuhong (002271).

Summary

- We believe that waterproof material industry is of great potentials. The industry can not be analyzed only through periodic changes of industrial chains, but also company's ability to emerge, entrepreneurial spirits to expand, the layout of the ecological chains, and changes in the profit models. **We have faith in Oriental Yuhong (002271), a leading company that will take further advantages of its current status.**
- The construction cost of waterproof materials is around 1.0%-1.5%. In 2017, the industry revenue was about RMB 106 billion, with a compound annual growth rate of nearly 20% in 5 years. The market capacity is about RMB 200 billion and private enterprises account for more than 90%. We estimate a total number of more than 3,000 waterproofing companies conservatively. The most used product at present, waterproof coatings and SBS/APP modified bitumen membranes, each has a market proportion of 27%. Until now, less than 50% of production capacity has been approved by the Ministry of Industry and Information Technology.
- Due to the asset-light characteristic, waterproofing industry enjoys an average asset turnover of 0.6 and a relatively lower financial leverage in all sub-industries (40% in average in 2017). The company (which is the highest among the sub-sections of construction material industry. Profits are mostly in leading companies, and the ROE of the leading firms are almost twice of that in SMEs.
- **s representatives in changes of the industry:** Yuhong has experienced 4 phases, Key Project Specialized Households, Network Expansion, Alliance with property gaints and Expansion of categories. At goodwills and category extensions will win eventually
- **The recovering valuation of Yuhong** been relatively high and now the valuation moves downwards to 20-30 times. PE ratios of other 4 companies listed in New OTC Market fluctuates between 20- (, -20 after 2008,

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1. Waterproofing Materials: Industry of Potentials

- **Decentralized industry with low valuations:** The cost of waterproofing materials is generally 1.0-1.5% and the revenue of the industry is approximately 106 billion yuan in 2017, with a compound annual growth rate around 20% in five years. The current market capacity is about 200 billion yuan per year and private enterprises account for more than 90% of the group. Until December 2017, 598 companies were recognized by the Bureau of Statistics, and 1500 possess the production licenses. We conservatively estimated that there were more than 3,000 waterproof companies with a concentration ratio of CR50 of only 23%. The market share of leading company, Oriental Yuhong is less than 10%, and the industrial capacity utilization rate is only 60%.
- **Rapid product upgrades versus lack of regulations:** The proportion of traditional paper based linoleum waterproof material has dropped from 65.1% in 2000 to 7%, and the most used product at present, waterproof coatings and SBS/APP modified bitumen membranes, each has a market proportion of 27%. Departments such as the Ministry of Industry and Information Technology and the National Development and Reform Commission have released a series of policies and regulations, but the implementation is far from enough. Until now, less than 50% of production capacity has been approved by the Ministry of Industry and Information Technology, under the standard that a single line should have the capacity of over 10 million square meters per year.
- **More companies landed on the capital market:** Oriental Yuhong, Keshun, and Canlon have listed in the A-share market and other four companies, including Lantu New Material, Psylic, Renzhong Industry, Uoboc are listed in New OTC Market. Private enterprises such as Weifang Hongyuan, Shenzhen Zhuo Bao are of large scales. We also see other companies in this area, including some old state-owned enterprises such as Shanghai building waterproof materials, Panjin Yu Wang, and foreign brands such as Swiss Sika, France Parex, Germany Vedag.
- **Promising industry worth investing in:** We believe that waterproof material
ting in. Due to the asset-light characteristic,
waterproofing industry enjoys an average asset turnover of 0.6 and a relatively
lower financial leverage in all sub-industries (40% in average in 2017). The
industry has competitive advantages in the control power over the channels
and brand premiums, %
ROE is around 10% in the past two years, which is the highest among the
sub-sections of construction material industry. Profits are mostly in leading
companies, and the ROE of the leading firms are almost twice of that in
SMEs.
- **Oriental Yuhong s representatives in changes of the industry:** The
development of Oriental Yuhong has experienced four phases: Key Project

Specialized Households Network Expansion Alliance with major property developers Expansion of categories. Compared to Switzerland's Sika and some other leading companies, we believe that companies with light assets, brand goodwills and category extensions will win eventually.

- **The recovering valuation of Oriental Yuhong:** We believe that Oriental Yuhong's valuation ratio has been relatively high. As the business expands, the valuation moves downwards to 20 to 30 times. PE ratios of other four companies listed in New OTC Market fluctuates between 20-40 times, Switzerland's Sika valuation stays around 15-20 times after 2008, and PE ratios of US companies PPG, SHW, VAL are stable at 20-30 times.

2. Double-digit growth with structural upgrades

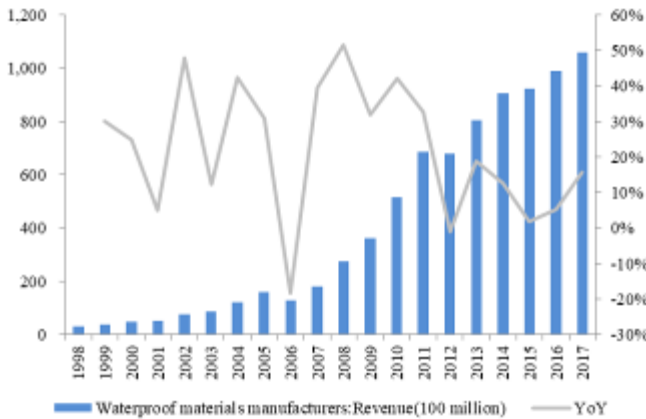
2.1 Dispersed Industry, Private Ownership, and Low Capacity utilization

The construction cost of waterproof materials is generally 1.0%-1.5%. In 2017, the revenue collected by the Bureau of Statistics (companies with main business income above RMB 20 million) is approximately 106 billion yuan, with the annual compounded growth rate of 20% in 5 years. With a large number of SMEs excluded from the statistical pool according to the estimates given by the association, the current market capacity of the industry is about RMB 200 billion per year (constructions excluded).

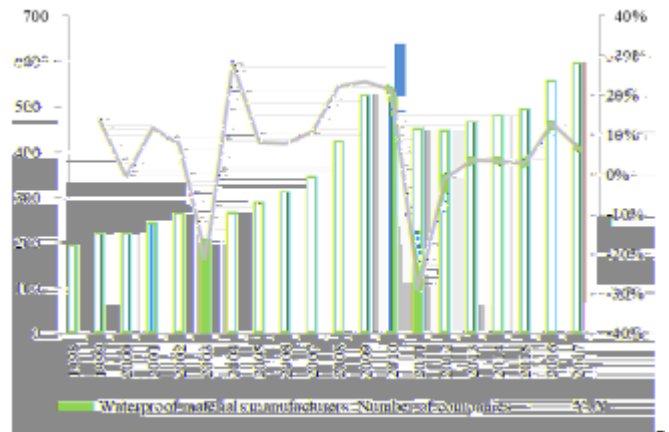
Until December 2017, 598 companies were recognized by the Bureau of Statistics, and private enterprises accounted for more than 90% of the group. It was conservatively estimated that there were more than 3,000 waterproof companies in the current market, with half of firms that possess production licenses and another half of small workshop factories. The industry CR 50 is as low as 23% (only 12% for CR5). Even for Oriental Yuhong, the largest enterprise in the industry, its market share is only 10%. A large number of small businesses and weak production capacity led to industry capacity utilization around 60%.

Figure 1 Revenues of large companies in industry

Figure 2 Number of large companies in industry

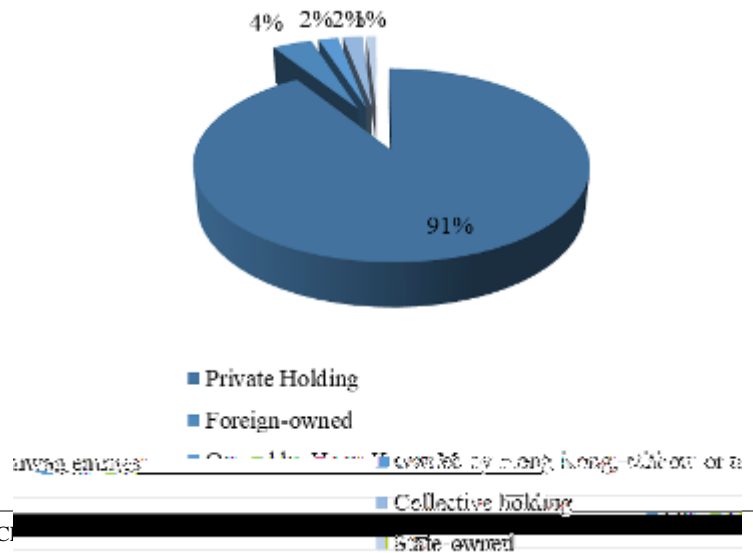


Sources Wind Guotai Junan Research Department



Sources Wind Guotai Junan Research Department

Figure 3 Ownership structures of large companies in industry



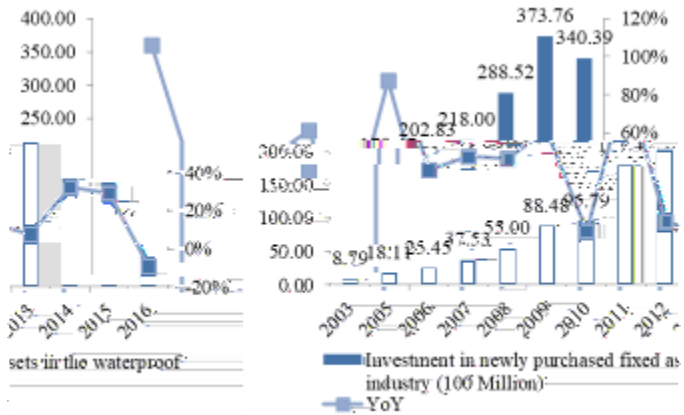
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2.1.1. Huge fluctuations in fixed assets investments

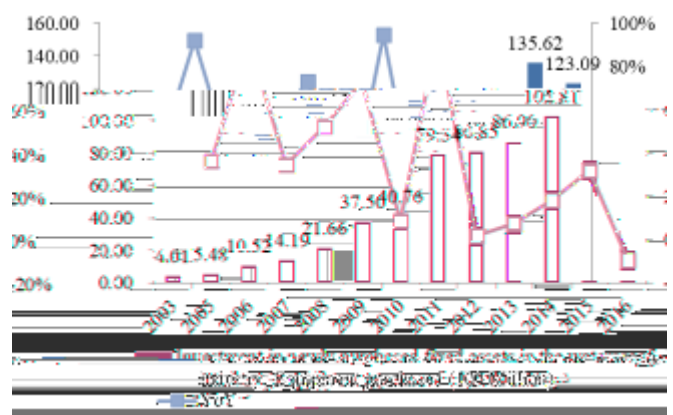
In 2016, the investment in newly purchased fixed assets in the waterproof industry cost around 34.04 billion yuan, with a decreased rate of 9% compared with last year. Of all fixed assets purchased, 12.31 billion yuan (36.1%) accounted for the equipment. In the past decade, the fixed assets investment in the waterproof industry has witnessed a compound annual growth rate of 30%. As waterproof material industry is typical for its light-asset characteristic, when the investments increase slightly, the amount of fixed investment in waterproof materials turns out to rise significantly.

Figure 4 Investments in newly purchased fixed assets in the waterproof industry (100 Million)

Figure 5: Investments in newly purchased fixed assets in the waterproof industry: Equipment purchased (100 Million)



Sources: Wind, Guotai Junan Research Department



Sources: Wind, Guotai Junan Research Department

2.2 Structure upgrade, waterproof paints and modified bitumen membrane occupying half of the waterproofing market

In 2000, China's newly produced waterproof materials was only 143 million square meters, accounting for 34.9% of the total building waterproof materials. By 2014, this proportion had reached about 93.38%, and the average annual growth rate for the past four years was 15%; correspondingly, the ratio of traditional paper based linoleum waterproof material fell from 65.1% in 2000 to 7%.

In the past decade, self-adhesive waterproofing membranes, waterproof coatings, SBS/APP modified bituminous membranes, and polymer coatings are the fastest-growing products. The compound annual growth rates of those were 39.4%, 20.4%, 14.6%, and 13.2%, respectively. Up to now, the products with the largest amounts are waterproof coatings and SBS/APP modified bitumen membranes, each has a market proportion of about 27%.

Chart 1 Waterproof materials production (2005-2015 Estimated)

Product Name	Unit	2005	2010	2011	2012	2013	2014 (E)	2015 (E)					
		Amount	Amount	Amount	YoY	Amount	YoY	Amount	YoY				
In total	10k m²	62,000	103,130	120,315	17%	135,590	13%	154,205	14%	167,255	8%	183,147	10%
i. New generation products	10k m ²	33,700	89,710	106,812	19%	122,678	15%	142,302	16%	156,179	10%	172,633	11%
SBS/APP modified bitumen membranes	10k m ²	13,000	27,100	31,731	17%	37,252	17%	42,244	13%	44,398	5%	47,062	6%
High	10k	7,500	15,600	18,742	20%	19,698	5%	21,490	9%	22,930	7%	24,535	7%

polymer modified bituminous waterproof sheet	m ²												
Waterproof Coating	10k m ²	8,300	23,840	27,392	15%	32,432	18%	38,659	19%	44,149	14%	50,330	14%
Self-Adhesive Polymer Modified Bituminous Waterproof Sheet	10k m ²	1,600	12,820	16,871	32%	20,330	21%	26,571	31%	31,832	20%	37,562	18%
Fiberglass asphalt shingles	10k m ²	1,700	3,750	3,975	6%	4,055	2%	3,446	-15%	2,464	-28%	2,218	-10%
Other new generation products	10k m ²	1,600	6,600	8,101	23%	8,911	10%	9,891	11%	10,406	5%	10,926	5%
ii. Asphalt felt waterproof products	10k m ²	28,300	13,420	13,502	1%	12,912	-4%	11,903	-8%	11,077	-7%	10,514	-5%
Petroleum asphalt felt linoleum	10k m ²	4,300	1,800	1,701	-6%	1,701	0%	1,701	0%	1,701	0%	1,701	0%
Asphalt composite tire flexible waterproof membrane	10k m ²	24,000	11,620	11,801	2%	11,211	-5%	10,202	-9%	9,376	-8%	8,813	-6%

Sources CNWB Guotai Junan Research Department

Figures of 2014 are estimated on the basis of data of first 11 months in 2014; Figure of year 2015 is estimated by the CNWB

Figure 6: Asphalt felt waterproof products were dominant in 2015 46%

Figure 7 SBS/APP modified bitumen membranes was dominant in 2014

Sources CNWB Guotai Junan Research Department

Sources CNWB Guotai Junan Research Department

2.3 Entrance barrier keeps growing, small businesses forced to quit

Relevant departments such as the Ministry of Industry and Information Technology and the National Development and Reform Commission have successively promulgated a series of policies and regulations.

In March 2013, the Ministry of Industry and Information Technology stipulated that the newly-added modified asphalt (including self-adhesive) waterproofing membranes shall have a single-line capacity of no less than 10 million square meters per year (investment scale of 70-80 million per line); newly built polymer waterproofing membranes (PVC, TPO) should have the capacity of no less than 3 million square meters for a single line per year. If a project that 56 Tf1 0 0 1 219.05 372.77 88. doe(st)8(r88. no-33(w)6(1)13(hnoe)-1-3 0 0

membranes and coatings listed in New OTC Market, including, Lantu New Material, Psylic, Renzhong Industrial, and Uoboc. Private enterprises such as Weifang Hongyuan, Shenzhen Zhuo Bao are of large scales. We also see other companies in this area, including some old state-owned enterprises such as Shanghai building waterproof materials, Panjin Yu Wang, and foreign brands such as Swiss Sika, France Parex, Germany Vedag.

Chart 2 Horizontal comparisons among leading companies in the waterproof industry

No.	Company name	2017revenue (100 million)	2016revenue (100 million)	Areas	Products	Production capacity
1	Oriental Yuhong	102.93	70	Beijing, Shanghai, Guangdong, Hunan, Jiangsu, Shandong, Liaoning Sichuan Yunnan	SBS/APP modified bitumen membranes, Waterproof Coating, TPO membranes	220 million meter squares waterproof sheet, 700 thousand ton Waterproof Coating 30 thousand ton non-woven fabrics per annum
2	Hongyuan Waterproof	18.17	15.78	Jiangsu,Sichuan, Jilin,Shanghai, Shandong	SBS modified bitumen membranes, Fiberglass asphalt shingles, Waterproof Coating	41 production lines 150 million meter squares waterproof sheet 80 thousand ton Waterproof Coating per annum
3	Keshun Waterproof	20.39	14.73	Guangdong, Beijing, Jiangsu	Self-Adhesive Polymer Modified Bituminous Waterproof Sheet	100 million meter squares waterproof sheet 100 thousand ton Waterproof Coating 10 million high polymer modified bituminous waterproof sheet 200 thousand ton dry mortar per annum
4	Joabor Tech	12.01	10.52	Guangdong, Beijing, Jiangsu, Sichuan Hubei	Single product has functions including decoration, heat preservation and waterproof Self-Adhesive Polymer Modified Bituminous	7 thousand modified bitumen membranes 5 million meter squares TPO&PVC high polymer modified bituminous waterproof sheet, 30 thousand ton Waterproof Coating, 13

					Waterproof Sheet	thousand ton Waterborne coating per annum
5	Beijing Ligao Waterproof			Hebei, Tianjin, Xinjiang	Waterproof materials and coating	
6	Desheng Waterproof	5.27	5.06	Hebei	Waterproof materials and coating	100 million waterproof materials, 50 thousand waterproof coating, 6 million fiberglass asphalt shingles per annum
7	Canlon	3.94	2.69	Jiangsu	SBS/APP Waterproof materials and coating	44 million meter squares waterproof materials 27.20 thousand ton coatings per annum
8	Lantu New Material	0.12	0.56	Guizhou	High polymer modified bituminous waterproof sheet	
9	Psylic	0.71	0.55	Guangdong	Waterproof materials and coating	20 million meter squares waterproof materials, 20 thousand ton coating per annum
10	Renzhong Industrial		0.35	Shanghai, Tianjin, Sichuan	Bentonite waterproof blanket	
11	UOBOC	0.1	0.13	Henan	Ceramic insulation, High polymer waterproof coating	20 thousand ton per annum

Sources Company Announcement Guotai Junan Research Department

Revenues of unlisted Hongyuan Waterproof and JOABOR TECH were based on estimations, so deviations can be involved.

Chart 3: Information regarding waterproof companies in foreign capitals

	Revenue 2015 (100 million RMB)	Brief introduction of the firm
JCDecaux	10.00	This company entered China market in 1998; %CDecaux is the earliest domestic cement-based waterproof material manufacturer; Filler products, TTB ile adhesive 8 self-owned factories and 3 OEM factories.
Swiss Sarnafil	351.00	This company entered China market in 1998; Sarnafil is Silka Infiltration waterproof system (Shanghai) High-end brand of PVC including two sub brands: Sarnafil & Sikaplan.
German Vedag		ICOPAL g ; entered China in 2007 ; set up Lideweida (Shanghai) Trading.

Sources wind company official website Guotai Junan Research Department

The figure of Swiss Sarnafil revenue is the total revenue from onsolidated statements in 2015, the revenue from Silka Asia too up

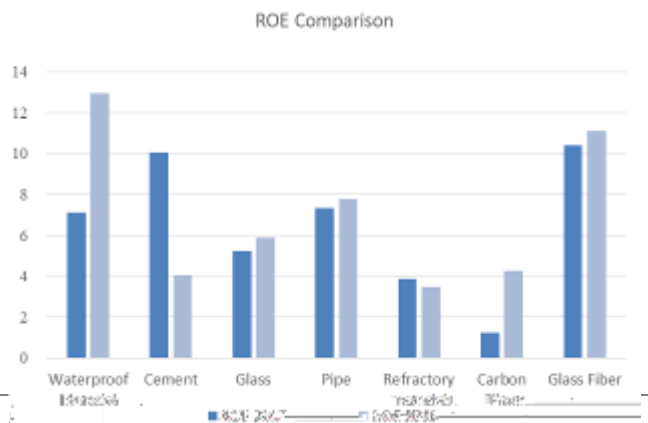
about 18.5%.

3.2. Higher ROE than Other Building Materials Sub-Industry, Profits Concentrate towards Leading Enterprises

The waterproof material industry witnesses an average ROE of 17%, which is the highest among the building material sub-industries. Waterproofing industry witnesses an average ROE of 17%, which is significantly higher than those of sub-sectors of other materials. From DuPont's analysis, we discover that the relatively high ROE of the waterproof industry is mainly attributed to its relatively lighter assets (with the asset turnover rate around 0.8), higher profit margins (net margin of 10% in average in nearly two years), and relatively low financial leverage compared with other sub-sector (the average debt ratio is about 40% in 2017)

Compared with other traditional industries, the waterproof industry has fast growth and high profitability. Compared with other new material industries, such as carbon materials, superconductors, the profiting model of the waterproof industry is clear and straightforward, while the latter is still in the money inputting phase.

Figure 8 Waterproof material has the highest ROE in material sub-sectors



Figures from listed companies Industry ROE is conducted through arithmetic average mean calculation

Figure 10 Total asset turnover comparisons among material sub-sectors

Figure 9: Material Sub-industry Equity Multiplier comparison among material sub-sectors

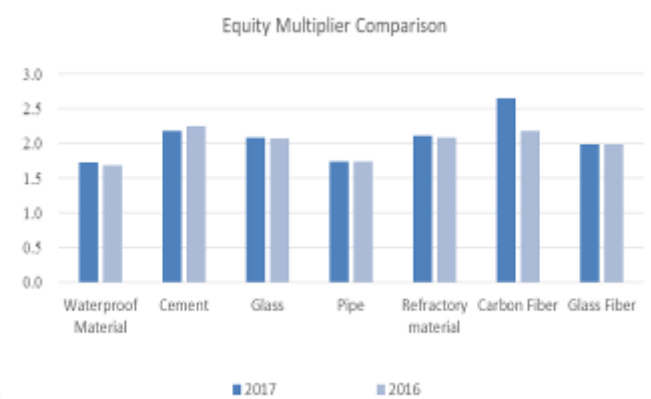


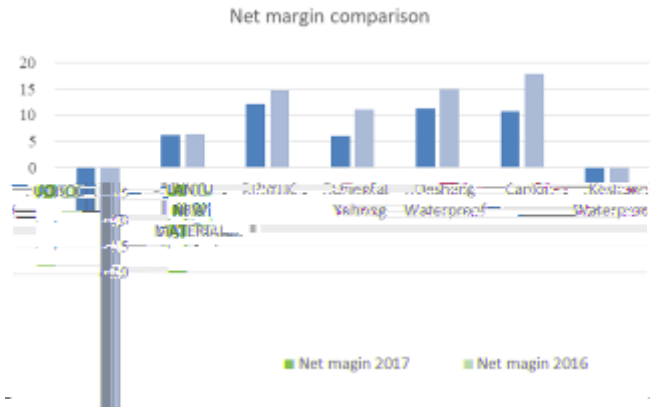
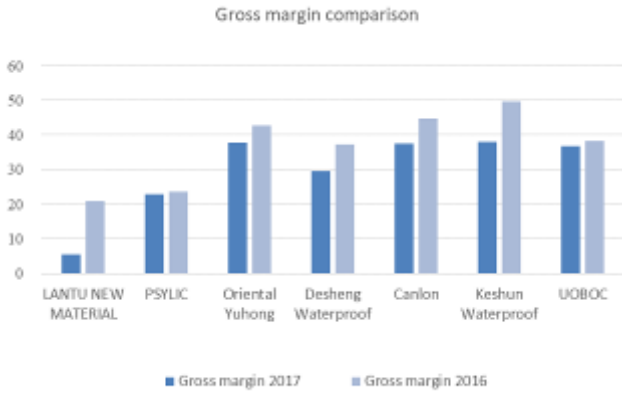
Figure 11 Net margin comparisons among material sub-sectors

Sources wind, Guotai Junan Research Department

Sources wind, Guotai Junan Research Department

ROE is almost twice those of SMEs. The ROEs of leading Oriental Yuhong and Keshun are over 20%, and those of some other relatively small listed companies are only around 10%. Leading companies' net interest rate and turnover rate are significantly higher than the average of the industry;

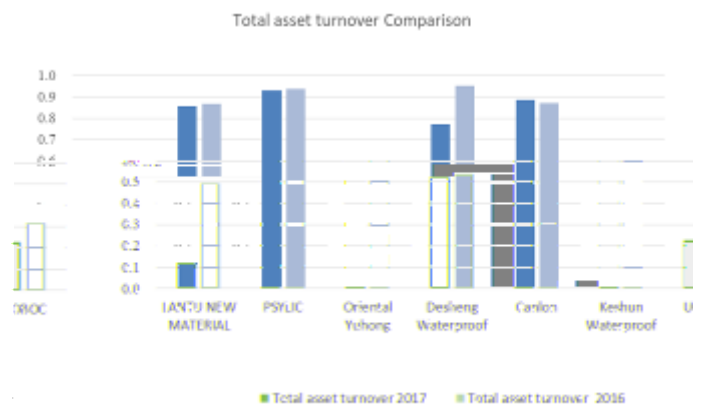
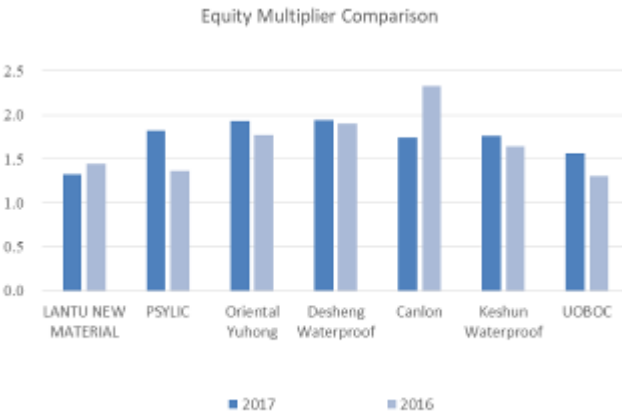
We believe that brand premiums and control power over channels are contributing to the differentiation, and the scale of production is reflected in the scale of effect. Keshun and Kailun have a higher leverage ratio as ROEs of these two firms are also higher the industry average. After the IPO, the



Sources: Wind, Guotai Junan Research Department

Figure 15 Equity Multiplier comparisons among firms

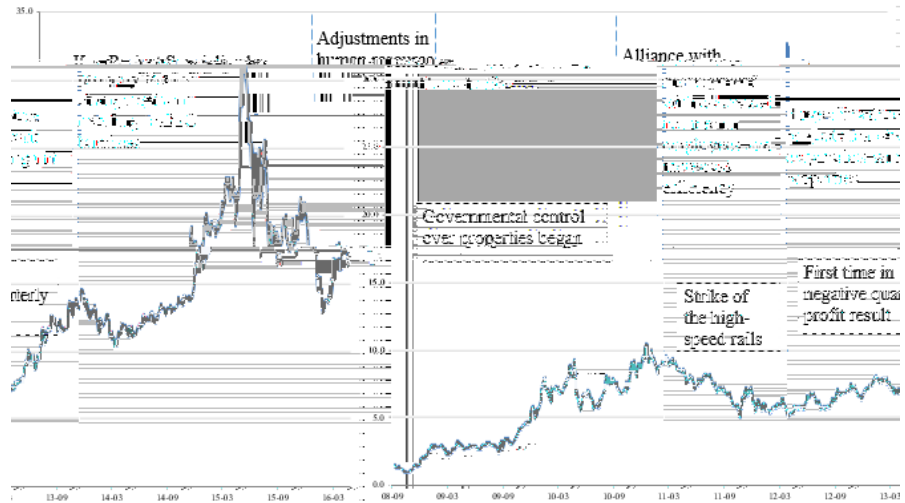
Figure 16: Total asset turnover comparisons among firms



4. Changes in Profit Models - Taking Oriental Yuhong and Foreign Giants Sika as Examples

Looking back at the history of Oriental Yuhong, we witness the changes in $\%$ $\%$ ining with the development of the foreign giant Swiss Sika, we discover the changes in the business model of China's waterproof material industry and its future direction:

Figure 17 Yuhong has undergone three major changes in management, reflecting company strong power of execution



Sources: wind, Guotai Junan Research Department

4.1. Four stages of Oriental Yuhong

□ Stage 1: From 1995 to 2005, rapid growth driven by key projects

Yuhong was founded by the chairman Mr. Li Weiguo in Changsha in 1995 and was firstly named as Hunan Changhong Waterproofing Engineering Co. Ltd. In 1997, Mr. Li went to Beijing to repair the Memorial Hall for the Chairman Mao. One year later, he took the initiative and won the bid for the construction of the 18 central reserve grain bank waterproofing projects, and started to stand out in the crowd. In 2004, he was responsible for 23 venues for the Beijing Olympics (27 in total) and had the contracted deals of materials for the Capital Airport waterproof project. Since 2004, Yuhong has surpassed its peers and has become the leading company in the construction waterproofing industry.

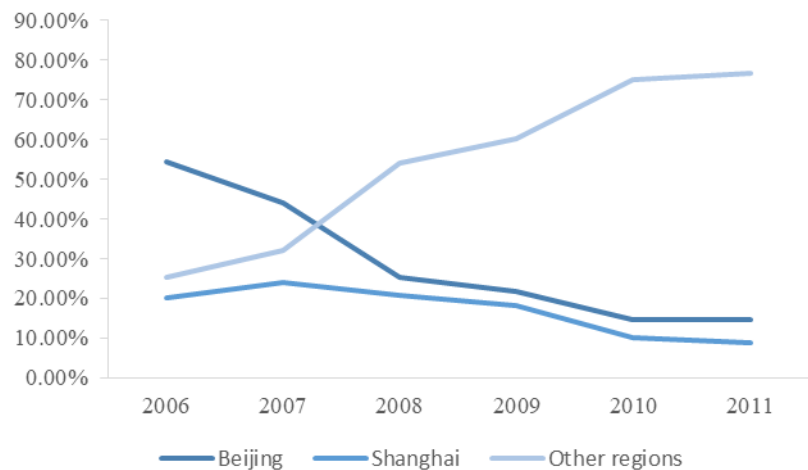
targeting direct sales for large-scale infrastructure projects in an effort to make rapid growth.

□ Stage 2: From 2005 to 2011, the expansion of channel network at the expense of increased profits

district was put into production. The production capacity in the south region was soon deployed; In March 2009, the Yueyang production base laid the foundation for further constructions, in the same year, subsidiaries in Sichuan and Guangdong were also established; In 2010, Jinzhou and Huizhou production bases were also put into practice, and in 2011, the acquisition of Kunming popular waterproof and Xuzhou Wuniu Mountain

waterproof further expand the layout of the company expanding strategy. By the end of 2011, Yuhong's national networking layout has been mostly completed, consisting of eight production bases in Beijing Shunyi, Shanghai Jinshan, Hunan Yueyang, Liaoning Jinzhou, Guangdong Huizhou, Yunnan Kunming, Jiangsu Xuzhou, and Shandong Dezhou.

Figure 18: Proportion of revenues in different regions 2005-2011



Sources wind, Guotai Junan Research Department

□ Episode trillion

''0 '(

-scale

infrastructure projects have once again become the main driving force for Yu about 30% of the company's revenue in 2010 came from high-speed rail projects. It is estimated that 60% of company revenue in 2009-2011 is still contributed by large-scale infrastructure

the key projects through direct sales (similar to the first phase described above), and channel networking was lagged behind during this period.

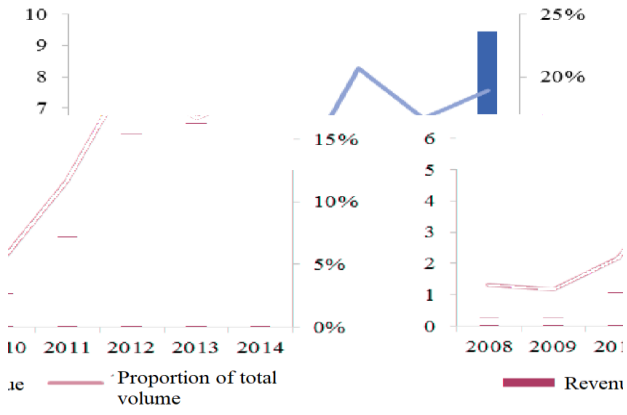
□ Stage3 Starting from 2012, form alliances with big real estate developers through channels for profit gaining

refocused on the channel networking, which has completed after 5-6 years of layout constructions, with eight major production bases ready to be put in work. In 2015, the company earned twice as much as it did in 2012.

Figure 19 Large real estate companies contribute

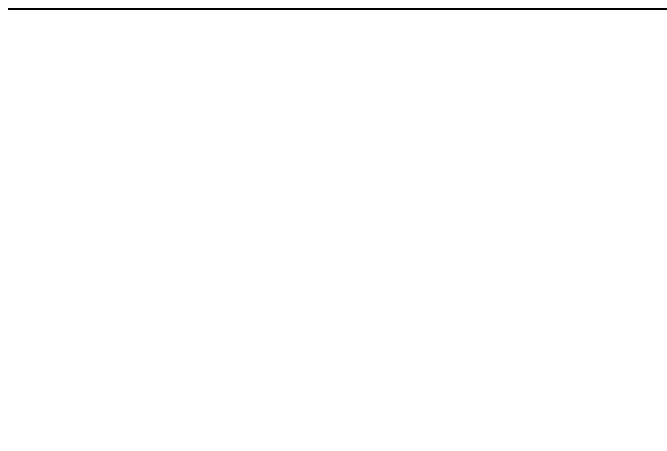
greatly

100 million RMB



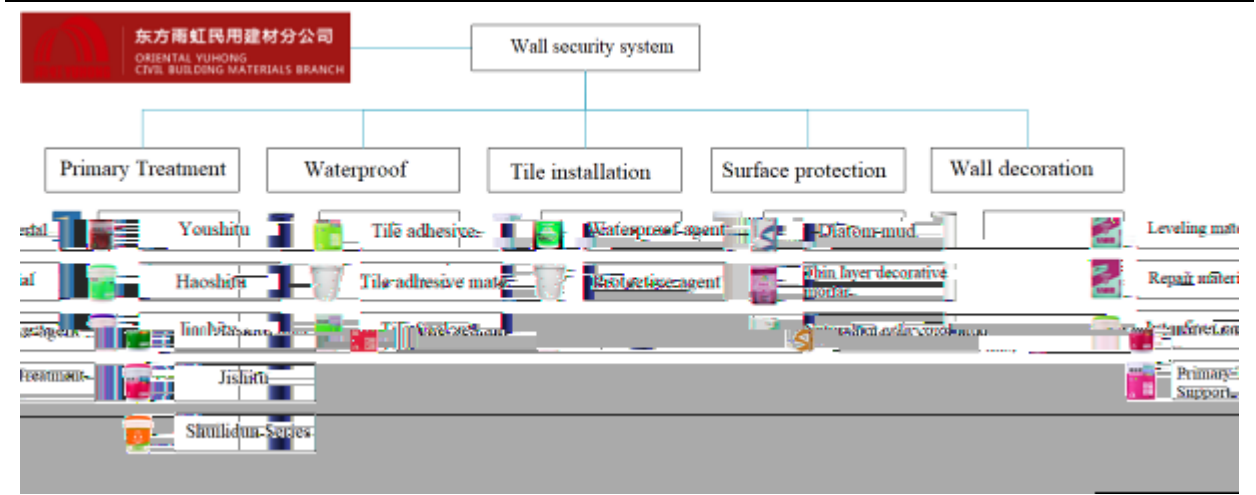
Sources

Figure 20: Alliances with Property firms



Sources: wind, Guotai Junan Research Department

Figure 22 Extension in product lines and upgrades in categories



Sources: wind, Guotai Junan Research Department

Figure 23: YUHONG BROTHERHOOD



Sources: wind, Guotai Junan Research Department

4.2. Steady increase in profitability

s ROE after 2011. Since the end of 2011, the company's ROE has gradually rebounded from the bottom at 10% to around 20%, mostly driven by the increase in net profit margin (ROS), while the equity multiplier and turnover rate have been relatively stable over the same period. In the early period of its development (2005-2011), Yuhong expanded its channels at the expense of increase in profits. After the layout was completed, the company began to ally with large real estate developers in 2012. The development of waterproof materials bring along a positive impact on the quality of commercial houses and some property developers have started tendering waterproof materials by themselves. At this stage, Yuhong entered its the harvest period, pushing up ROE.

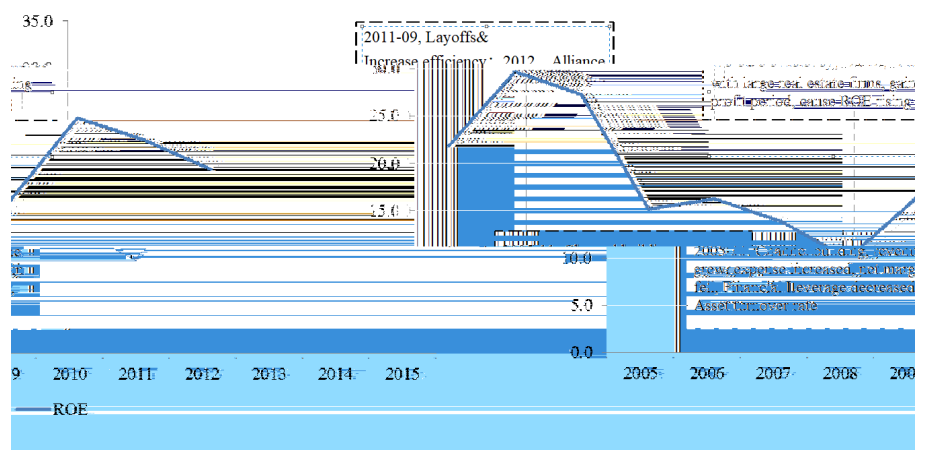
Similar development trend of ROE compared with that of Swiss Sika.

increase in ROS (the scale effect might lead to an increase in sales per capita), and asset turnover and financial leverage remained stable over the same period. Sika has maintained a ROE ratio of and stable financial leverage ratios since 2012. As the leading company in the industry, Yuhong has the potential to remain as healthy as Sika financially, with the three indicators structurally stable, gross profit and net margin steady and company's products updated all the time.

-real estate

in the building materials industry: Sub-industry leaders with light assets, brand goodwills consumption and category extensions will win eventually.

Figure 24 The main stages of the development of Oriental Yuhong



Sources wind, Guotai Junan Research Department

Figure 25 Changes in Equity Multiplier & Total asset turnover in last decade

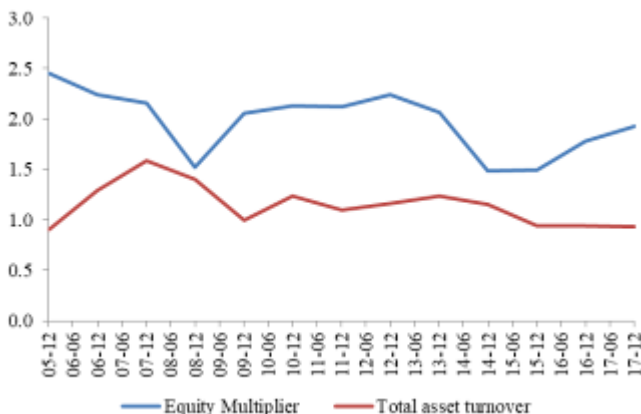


Figure 26 Changes Gross Margin & Net Margin in last decade

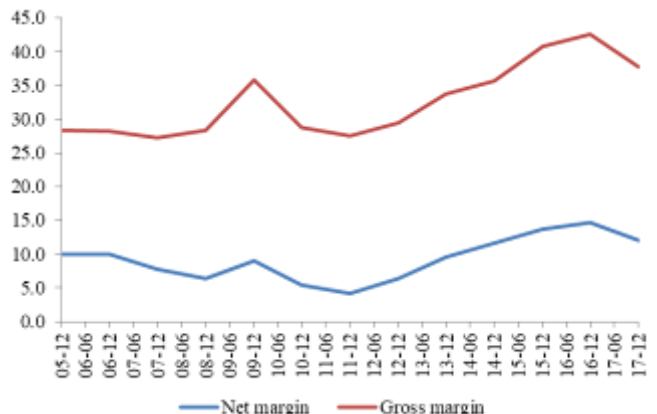
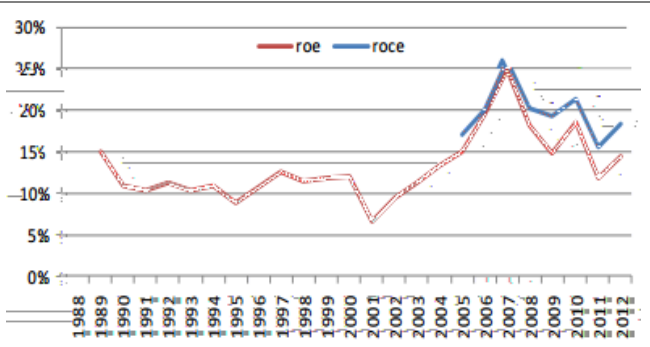
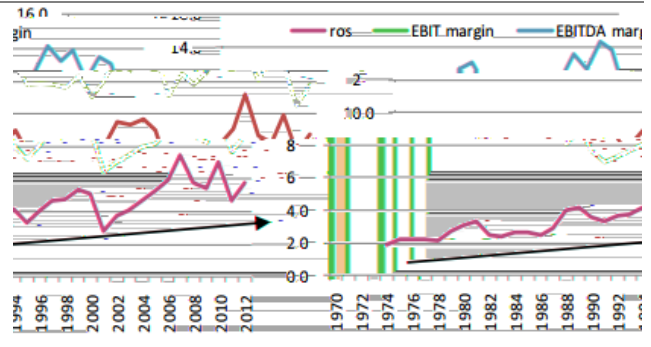


Figure 27: S ROE & ROCE increased significantly after 2010



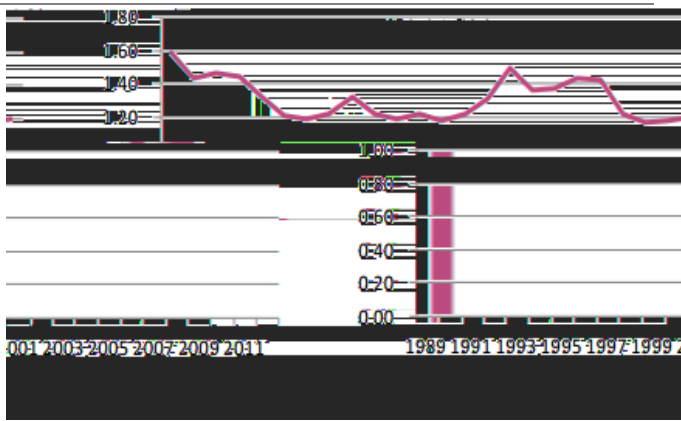
Sources wind, Guotai Junan Research Department

Figure 28 Upward trend in S ROS



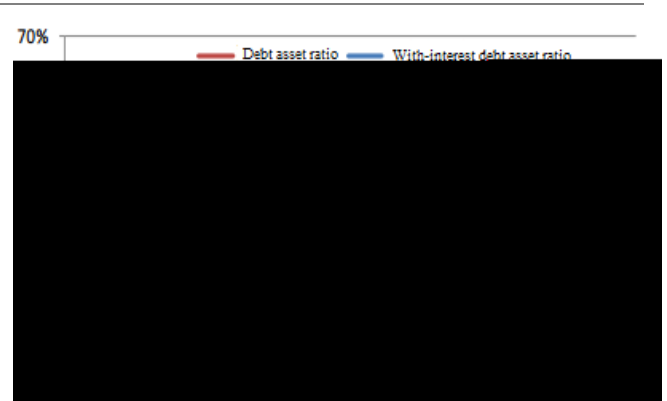
Sources wind, Guotai Junan Research Department

Figure 29: S stable



Sources wind, Guotai Junan Research Department

Figure 30: S remained stable



Sources wind, Guotai Junan Research Department

Figure 31: S s sale revenue per employee

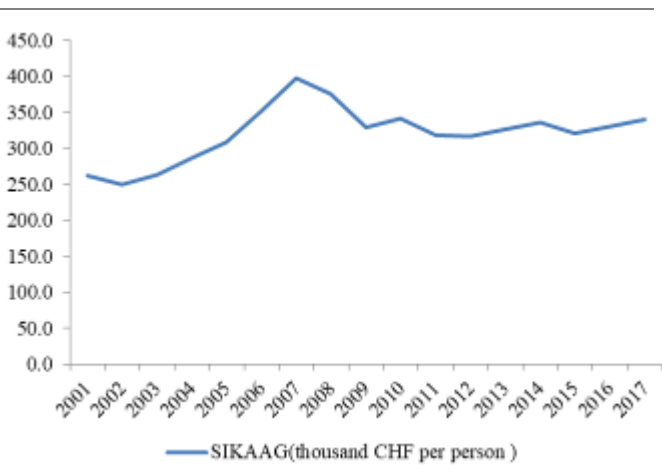
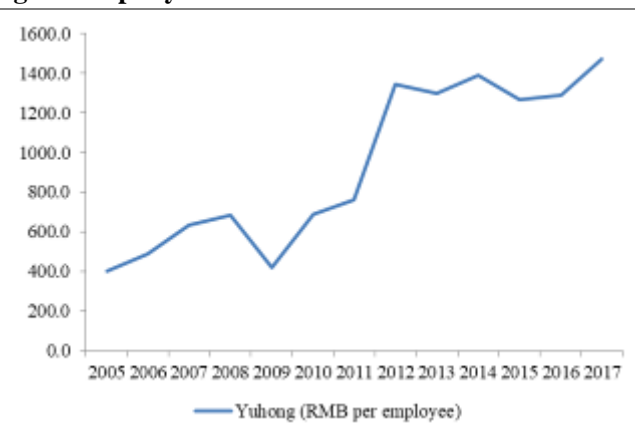


Figure 32 grows rapidly



Sources wind, Guotai Junan Research Department

5. Valuation: Horizontal Comparisons

Few waterproof materials companies has gone through IPO stage, and among those listed companies, Oriental Yuhong (which went public in 2008 till now) is the largest company listed in A share market in this industry. In recent two years, there are seven waterproof technology companies listed in the New Third Board. In the mean time, we also compare Oriental Yuhong with similar foreign waterproof companies and coatings companies which went public in American stock market.

⌒ **Listed companies in the A market (such as Oriental Waterproof) have undergone the depreciation.**

Compared with PE value of glass, glass fiber, pipe and fireproof material companies the PE value of Oriental Waterproof from 2009 to 2011 has been overestimated. In the meantime, as the size of the enterprise increases, the valuation of central of Oriental Waterproof has decreased since 2012. Currently the valuation lies in the interval of 13-18times (dynamical estimation).

⌒ **Valuation of the newly listed companies varies.**

Companies differentiated between each other, with PE vary from 20 to 40 times. As most of the companies were new listed, valuation was not representative for further comparisons.

⌒ **The valuation of international giant (Sika) falls between in 15-20 times.**

Sika's PE valuation lies in the interval of 15-20 times after 2008. In addition to the waterproof materials, the company also handles adhesive, concrete and dry-mixed mortar business. With steady profits, stable ROE and operations all around the world, the valuation of Sika stays relatively stable afterwards.

⌒ **The valuation of three US painting leading listed companies lies in the interval of 20-30 times.**

The valuation of US-based leading companies such as PPG, SHW is relatively stable. As the company with a smaller size, VAL has a quite stable in the most of the years except in 2012. The average PE ratio of these three companies lies in the between 20 to 30 times.

Figure 33 Valuation change of leading listed companies in the A-market of Sub-industry of building materials

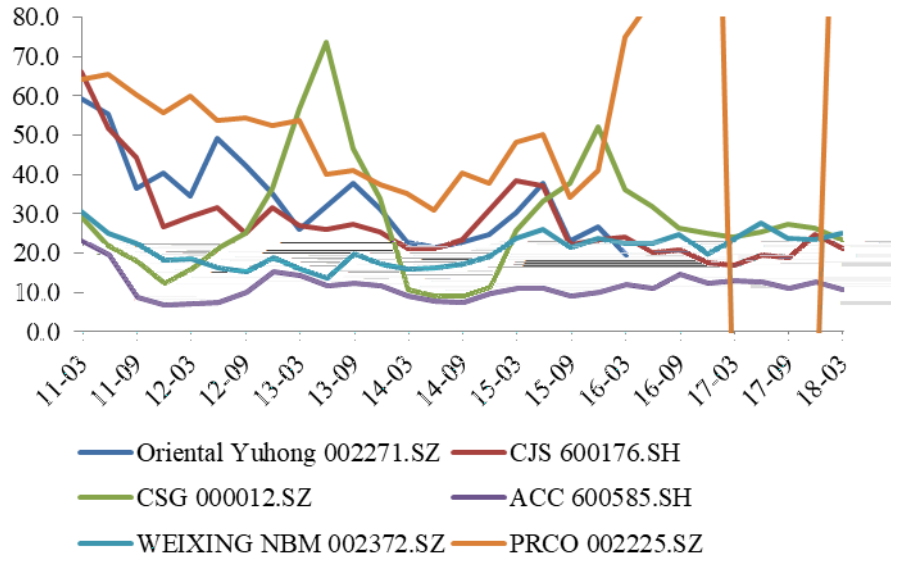


Figure 34: PE ratio of Oriental Waterproof after IPO

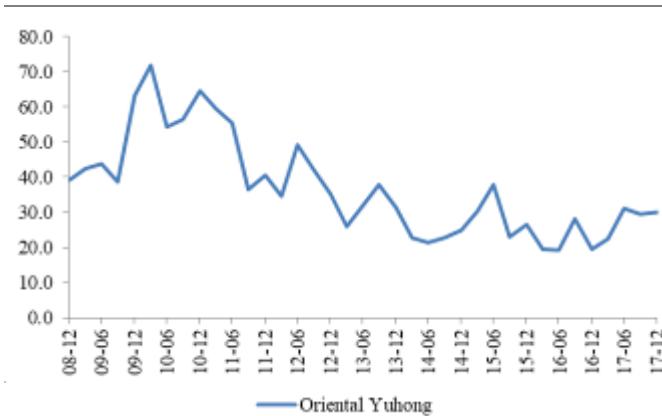


Figure 36: Change of PE valuation of Sika since 2007

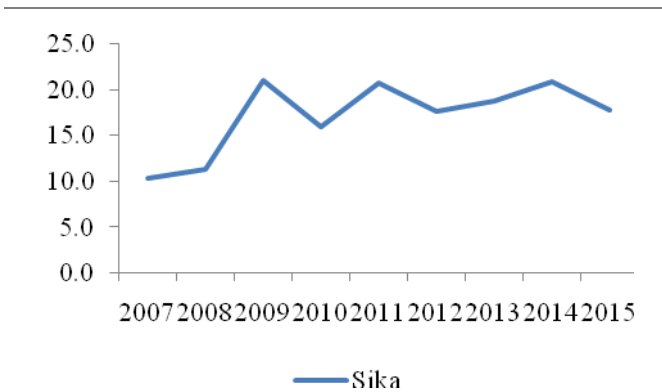


Figure 35: PE ratios of other listed companies TTM

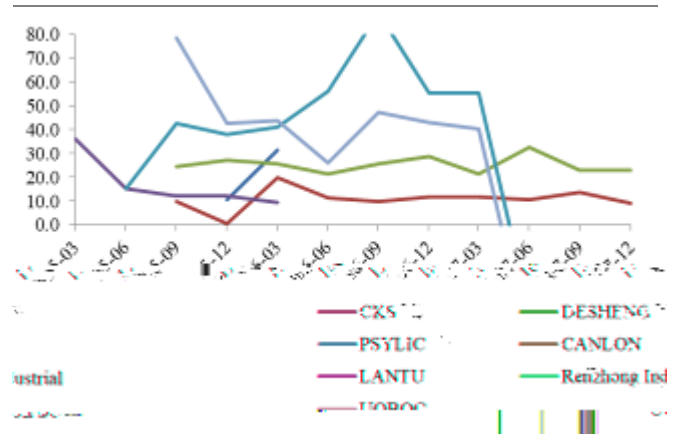
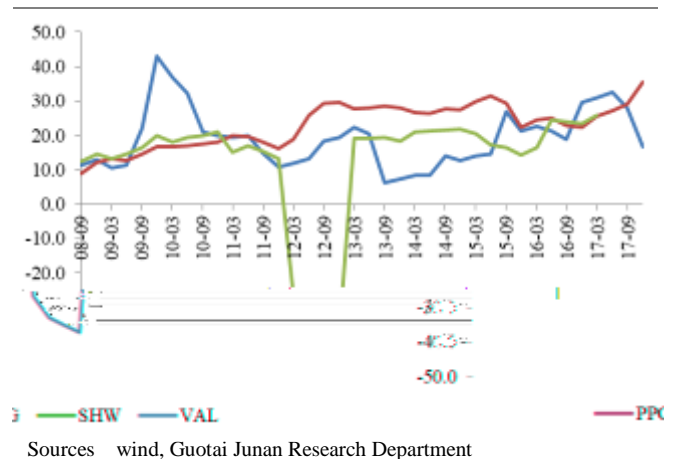


Figure 37: Change of PE (TTM) valuation of Painting companies listed in the American stock market.



Sources wind, Guotai Junan Research Department

Sources wind, Guotai Junan Research Department

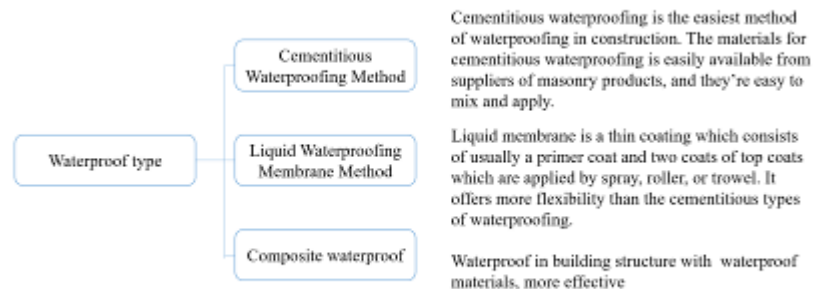
6. Appendix History and Prospect of changes in

building waterproof industry

6.1. Development history of foreign waterproof industry

From the view of the development of the world building waterproof industry, foreign industry has gone through the developing process of rigid waterproof, flexible waterproof and mixed-waterproof.

Figure 38: Waterproof Methods



Sources Zhuobao prospectus, Guotai Junan Research Department

From the view of architecture form, the inclined self-drainage technique has been mainly adopted for the waterproof function before 1930s. Waterproof materials were mainly solid materials such as asbestos cement plates, cement tiles, iron plates, and wood plates.

Since 1970s, waterproof materials have gone through fundamental changes and improvements world widely: modified asphalt waterproof material became the mainstream product. Along with the improvement of chemical industry and the diversity of architectural style, the new modified asphalt waterproof material and TPO high polymer waterproof material have replaced the traditional waterproof material and become the new trend in the building industry. In the building waterproof material market of foreign developed countries, modified asphalt waterproof material and TPO high polymer waterproof material have occupied more than 90% of the market share.

1 **Size:** The building waterproof materials business in developed countries has gradually expanded from manufacturing factories to large multinational corporation, with a high concentration ratio in the industry. For example, the gross volume of U.S. waterproof material market is approximately 15 billion meter squares, produced by 40 companies and 100 factories only.

2 **Product Structure:** The use in modified asphalt roll in the European and

American developed countries had been deeply decreased. On the contrary, the modified asphalt sheet such as SBS APP have been adopted instead; As for the polymer membranes, TPO, ethylene ternary, polyvinyl chloride are top three most popular materials. In addition, TPO has been growing rapidly in recent years due to its excellent waterproof functions, anti-aging characteristics, and its environmental friendliness.

3 **Waterproof performance:** Performances vary greatly in countries. In the U.S. waterproof material market, asphalt shingle holds 30% of the market share; while in the market of plane roof waterproof material, ethylene ternary, TPO and PVC is the most important material. In the French market of plane HEMpl rewag0 G[(pr)3(oof)3()-10(m)17(at)6 G[SBS]the mketmasphalt

6.2.1. Development history of roll material

1 Since the beginning of 1980s, the technique of oxidized asphalt has been widely used. The variety and production of asphalt felt product have been greatly developed: the production variety has developed from a single variety (asphalt paper) in the past to multi-varieties such as glass fiber tire, polyester tire, glass fiber cloth tire, linen tire, metal foil tire now. **Shortcomings:** Low temperature flexibility, high temperature sensitivity; weak anti-aging characteristics; short duration; secondary energy consumption and environmental pollution are serious during the constructions. As a matter of fact, some provinces and cities currently have banned the use of low-quality asphalt waterproof products such as paper tire felt.

2 During the eleventh Five-Year, SBS and SPP modified asphalt roll are popularly adopted.

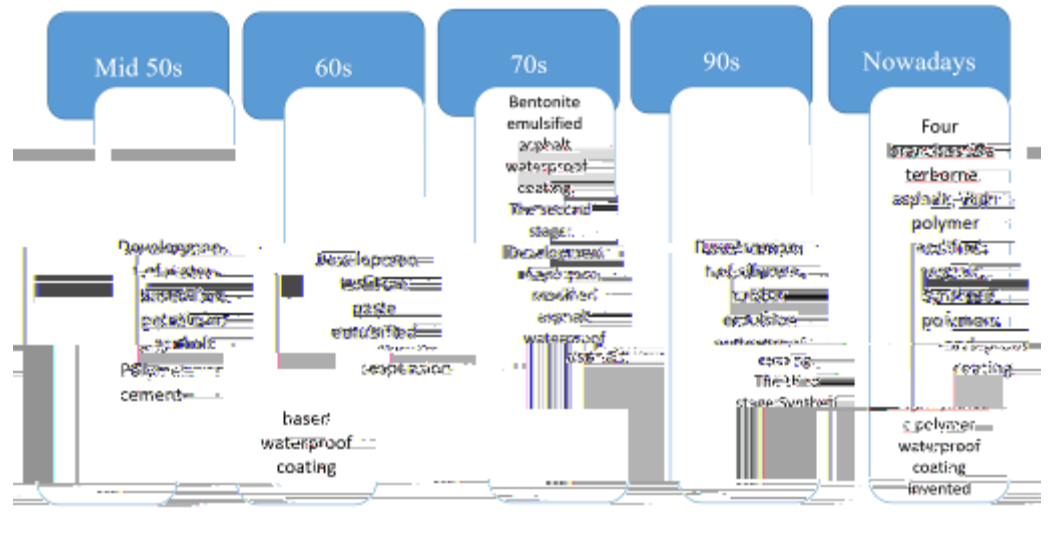
Polymer modified asphalt waterproof membranes are flexible materials coated with synthetic polymer asphalt materials, using fiber fabric or fiber felt as tire body, employing powder, granular, sheet or file material as

growing varieties of thermoplastic elastomers. TPO is considered as a new generation of single-layer waterproof rolling material.

6.2.2. The development history of paint

Three phases (50s,60s,70s) are shown as below

Figure 40: History of waterproof coating development



Source: Zhuobao prospectus, Guotai Junan Research Department

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Rating Definition

	Rating	Definition
1. Benchmark Index CS 300 Index	Overweight	Relative Performance > 15%
	Conservatively Overweight	Relative Performance > 5%~15%
	Neutral	Relative Performance = -5%~5%
	Underweight	Relative Performance < -5%
2. Time Horizon 12 months after the release of this Report	Overweight	Much Better than Benchmark
	Neutral	Almost Same as Benchmark
	Underweight	Much Weaker than Benchmark

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