中証鵬元國際 CSPI Ratings

Industry Credit Guidelines

Chinese Homebuilders and Property Developers

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Summary

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These rating criteria describe CSPI Ratings' analytical approach to assess the Chinese homebuilders and property developers. However, these criteria do not apply to following companies that we believe have very different risk characteristics and rating structures, which require different methodologies or substantial modifications of these criteria: homebuilders and property developers that derive most of their revenue outside China or from property rental business and building materials and construction companies.

These criteria are developed within the framework of CSPI Ratings' General Corporate Rating Criteria and are supplementary to our General Corporate Rating Criteria. In addition to the credit ratios that are used in the Corporate Rating Criteria, CSPI Ratings takes into account specific credit factors that captures the risks from Chinese homebuilder and property developer industry.

In this criteria report, we explained how we derive the indicative credit score (ICS) for the Chinese homebuilders and property developers, which then will be combined with three additional adjustment factors to achieve an issuer's stand-alone credit profile (SACP). A corporate issuer's credit rating is the result of combining this company's SACP and the possible external supports from either a supporting parent or a government which this company is important to and has close ties with. The detailed discussion of additional adjustments and external supports can be found in our General Corporate Rating Criteria.

In line with our criteria to assess all the corporates, we assess Chinese homebuilders and property developers' ICS from two perspectives: business profile that assesses a corporate issuer's macro environment risk exposure, industry risk sensitivity, and its operational strength; financial profile that assesses a corporate issuer's profitability, financial leverage, debt structure, financial policy and financial volatility.

For Chinese homebuilders and property developers, its Business Profile is primarily driven by its Operating Profile, which includes concentration risk, entry barrier, growth perspective, profitability level and trend, substitution risk, and cyclicality risk.

When assessing the Financial Profile, we review the leverage profile and profitability assessment. In addition to the conventional credit ratios such as EBITDA coverage and Gross Debt to Capitalization, we look at Net Debt to Adjusted Inventory and Gross debt to Contracted Sales as we believe the inventory and contracted sales are better reflection of debt-servicing capability in this industry.

Industry Definition

These criteria apply to the homebuilders and property developers with above 50% revenue derived from China. Property developers are the companies that have above 50% of revenue derived from preparing land and selling the constructed properties which include residential, commercial and industrial properties. Homebuilders are the companies that have above 50% of revenue generated from selling the constructed properties.

These criteria do not cover the companies that derive majority revenue from property rental or have majority of its business derived outside China. Building materials and constructions are not covered by these criteria.

CSPI Ratings has homebuilders and property developers' criteria specifically for China, as property is a local business. Many factors influence local markets might have little or no impact on other regions and vice versa.

Indicative Credit Score (ICS)

These criteria use a matrix to combine the business profile and financial profile, and then derive an indicative credit score (ICS) for a corporate issuer. A detailed discussion and explanation on the matrix and our considerations to combine the business profile and financial profile are addressed in CSPI Ratings' General Corporate Rating Criteria.

Business Profile Analysis

Based on CSPI Ratings' General Corporate Rating Criteria, a corporate's Business Profile is assessed by two factors, Macro Environment and Industry & Operation Risk Profile which then will be analyzed by the Operation Profile and Industry Risk Profile.

The industry risk profile is assessed with a five-point scale system, with '5' as the highest score and lowest industry risk, and '1' as the lowest score and highest industry risk. We assess the Chinese homebuilder and property developer industry risk profile as '(3) Medium', in regarding to our General Corporate Rating Criteria. The business profile of the individual Chinese homebuilder and property developer is primarily determined by its Operation Risk Profile.

Macroenvironment

Macroenvironment assessment is addressed in our General Corporate Rating Criteria.

Industry Risk Profile

Within the framework of CSPI Ratings' General Corporate Rating Criteria, we review concentration risk, entry barrier, growth perspective, profitability level & trend, substitution risk, and cyclicality risk to assess the risk for specific industry.

We assess Chinese homebuilder and property developer industry risk score as '(3) Medium', which is derived from the score of each of the six credit factors discussed above.

Exhibit 1: Chinese Homebuilder and Property Developer Industry Score

Sub-factors	Score
Concentration Risk	High Risk
Entry Barrier	High Risk
Growth Perspective	Low Risk
Profitability Level & Trend	Medium Risk
Substitution Risk	Low Risk
Cyclicality Risk	Medium Risk

Concentration Risk

In our view, a very high or very low concentration level can both be harmful to the market players. A highly concentrated industry, such as monopoly, duopoly or triopoly, would hold back competition from smaller companies and the large market

players might be lack of motivation to compete. A highly fragmented industry could have irrational or even destructive competition and each market participant has low bargaining power and pricing power with customers or partners.

By our observation, Chinese homebuilder and property developer industry's concentration level is on the lower range of different industries. We view the concentration risk for this industry as high. Though the market concentration has improved through years, the market is still fragmented with top market players each owning 2-5% market share measured by the contracted sales value. The property pricing has been market driven with limited impacts from any homebuilder or property developer. The market fragmentation has led to the high competitiveness of the industry. Each individual player has been chasing to gain market share.

Entry Barrier

We believe the entry barrier to Chinese homebuilder and property developer industry is low and the risk is high. Much of the industry consists of local small players. Our key considerations for entry barriers include technology challenges, government regulation and patents, start-up costs, ownership of the resources, and licensing requirements. Despite a significant investment is a prerequisite to Chinese homebuilder and property developer industry, we have seen good access to financing as the land is a collateral-eligible asset. For a company that is able to secure financing, it is not difficult to acquire a piece of land and become a homebuilder or property developer in China. As a result, many companies from upstream or downstream industries, such as construction, come into Chinese homebuilder and property developer industry without prior experience.

Growth Perspective

We evaluate the growth perspective for Chinese homebuilder and property developer industry as low risk. Homebuilder and property developer industry has been a key engine of China's economic growth in the past. Driven by the investment, urbanization and population growth, Chinese homebuilder and property developer industry has experienced fast growth in the past 20 years. The ten-year industry growth rate has outpaced China's GDP growth. From 2007 to 2017 the compound annual growth rate (CAGR) for both property contracted sales and investment were 16%. Despite the restrictive policies in the recent years from the government to cool down the property investment in China, the industry growth has sustained a robust growth.

Profitability Level & Trend

We believe the risk for profitability level and trend is medium. Chinese homebuilder and property developer has a mid-range profitability. Industry average EBITDA margin for Chinese property developers and homebuilders over the past 10 years were 15%. Large market players tend to have an EBITDA margin of above 20% while the smaller regional players have an EBITDA margin of around 10%.

In China, the property presale permits are granted after the construction starts. Therefore, the company can get a reasonable estimate of the construction costs and pass the cost inflation to customers. Despite of the variance in profitability for different players, possibility of a sharp drop in industry profitability is low.

Substitution Risk

The substitution risk for property is low. Housing is a basic human need and unlikely be substituted by the non-housing goods. It is hard to find a substitute product from the other industry that offers similar benefits to the consumers as housing. In addition, as no two properties are identical, no property is fully substitutable for another.

Within the homebuilder and property developer industry, industrial property and commercial property have higher substitution risk than residential. As the demand for those two types of property could be influenced by the production or business activities, and the location can be easily changed.

Cyclicality Risk

We believe Chinese homebuilder and property developer industry has medium cyclicality. The sector is exposed to the economic growth, interest rate changes, supply and demand dynamics, and capital market liquidity. China government influences the Chinese homebuilder and property developer industry by imposing industry policies and macroeconomic measures such as control over purchase eligibility, land supply, bank lending to property developers and home mortgages, and taxations.

On the other hand, homebuilder and property developer industry has a long cycle which usually last 15-20 years compared to below 10 years cycle in many industrial sectors. The volatility of cash flow, net profit and asset value for property is at a medium level compared to the other cyclical sectors such as airline, commodity, and manufacture.

Apart from the industry cycle, the property sales in China is subject to a seasonality. Property contracted sales and construction activity are stronger in the second half of the year due to the Chinese New Year holidays and poor weather condition in the rainy season in some regions in the second quarter of the year.

Operation Profile

In assessing the Operation Profile for Chinese homebuilders and property developers, we review each company's: Operating Scale; Product, Service & Technology (PST); Brand Image & Market Shares (BIMS); Operating Efficiency; and Business Diversity, as shown in Exhibit 2.

Exhibit 2: Sub-factors for Operations Profile

Weight	Score Range	Sub-Factors
20%	1-7	Operating Scale
20%	1-7	Product, Service & Technology
15%	1-7	Brand Image & Market Shares
25%	1-7	Operating Efficiency
20%	1-7	Business Diversity

Each of the five factors receives an assessment from '7' (the highest score) to '1' (the lowest score) and a weighted average assessment score is calculated and grouped into seven categories: 'excellent', 'very strong', 'strong', 'moderate', 'weak', 'fairly weak', and 'vulnerable' as shown in the Exhibit 3.

Exhibit 3: Translation Table for Weighted Average Assessment Scores to Operations Profile

Weighted average assessment score	Operations Profile
>6.5 - 7	Excellent
>5.5 - 6.5	Very Strong
>4.5 - 5.5	Strong
>3.5 - 4.5	Moderate
>2.5 - 3.5	Weak
>1.5 - 2.5	Fairly Weak
1.0-1.5	Vulnerable

Operating Scale

We measure the Chinese homebuilders and property developers operating scales primarily by revenue. The companies with larger scale enjoy the benefits of stronger competitiveness, easier financing and better recognition. In addition to the revenue, we also use the contracted sales as an adjustment factor. Companies rely on contracted sales proceeds to repay the upfront borrowings raised for the property development prior to sales. Delayed or weak contracted sales could have a significantly adverse impact on liquidity.

Compared to the contracted sales, revenue shows the company's execution capability. However, revenue doesn't include the contribution from the joint ventures like contracted sales does. On the other hand, contracted sales is not audited. Depends on the company's cash collection and execution, the company with same contracted sales might realize different revenue depends on its accounting rule and efficiency.

The contracted sales and revenue might lead to different conclusion on the company's scale. For those cases, CSPI Ratings would take a holistic view by looking at each individual company's profile. Exhibit 4 shows how rating committee evaluates the Operating Scale.

Exhibit 4: Operating Scale

	Revenue	Contracted Sales (Attributable)
7	Above CNY 800bn	Above CNY 1000bn
6	CNY 400-800bn	CNY 500-1000bn
5	CNY 100-400bn	CNY 200-500bn
4	CNY 50-100bn	CNY 100-200bn
3	CNY 20-50bn	CNY 50-100bn
2	CNY 10-20bn	CNY 20-50bn
1	Below CNY 10bn	Below CNY 20bn

Product, Service & Technology (PST)

Our key consideration for Product, Service & Technology is land bank quality which determines the strength and stability of the company's operating cash flow and its asset values. A company with high-quality land bank tends to have stable cash flows, higher profitability, and better asset liquidity. To assess the land bank quality, CSPI Ratings look at the land bank reserve duration, project location, and land bank profitability.

Land bank reserve duration indicates the homebuilder or property developer's capability of land procurement and sustainability of the business. By our observation, three to four years land bank life is optimal in China. A short land bank reserve life may raise our concern that the company might has to replenish its land in the recent which might expose itself to the risk of higher leverage by acquiring overpriced land. Though a longer land bank reserve life might offer more flexibility and financial stability to the homebuilders and property developers, a land bank reserve life that is too long (i.e., over five years) might leave the company exposed to the uncertainties and instabilities of market and policy changes.

Land bank location is our second consideration for the land bank quality. A detailed description of our definition to different level of land bank location is shown in the Exhibit 5. We also examine the diversification of the location which is elaborated in the Business Diversity section.

Exhibit 5: Definition of Land Bank Location

Location	Definition
Supreme Prime	• Locate in cities of international or national importance. • In the downtown business centre. • Well commuted with the public transportation. • In the neighbourhood of facilities such as educational institutions, hospitals, shopping malls, etc.
Prime	• Locate in cities of international or national importance. • Outside the downtown business center. • Public transportation is accessible. • Educational institutions and hospitals can be reached within a reasonable period of time.
Premium Secondary	• Locate in cities of international or national importance, but far away from the downtown business centre, and the communities is under development. • Locate in cities of regional significance cities or national large cities, and close to the downtown business center, well commuted with the public transport.
Secondary	• Locate in cities of regional significance cities or national large cities. • Outside the downtown business center. • Public transportation is accessible. • Educational institutions and hospitals can be reached within a reasonable period of time.
Premium tertiary	• Locate in cities of regional significance cities or national large cities. • Far away from the downtown business centre. • Communities is under development.
Tertiary	• Locate in cities that are lack of regional significance.

Another assessment of the land bank quality is to review its profitability by comparing the unit acquisition costs of land bank to the current average selling price (ASP) for the contracted sales. The difference shows how well the company can maintain its expansion with a proper unit land costs and gives us a rough overlook of how the company profitability looks like under the current market condition. If the land bank unit costs are well below the current contracted sales ASP, especially the difference is much higher than the company's current gross margin, the homebuilder or property developer is likely to at least maintain its current profitability in future. For the regional players with changing strategies, the land acquisition costs might not be comparable to its current contract sales ASP. Therefore, CSPI Ratings will take a case by case consideration for the land bank profitability for each individual company.

Exhibit 6: Product, Service & Technology (PST)

7	Land bank duration of around three to five years. The potential profitability for the land bank is much higher than its current level. Majority of the company's land bank has supreme prime location.
6	Land bank duration of around three to five years. The land bank profitability is higher than its current profitability level. Majority of the company's land bank has prime location.
5	Land bank duration of two to three years. The land bank profitability is at the similar level to the company's current profitability, which means the company can sustain its current profitability level. Most of its land bank has premium secondary location.
4	Land bank duration of two to three years. The company's land bank profitability can hardly match its current profitability level. Most of its land bank has secondary location.
3	Land bank duration of one to two years or above five years. The company's land bank profitability is lower than its current profitability level. Most of its land bank has premium tertiary location.
2	Land bank duration of one to two years or above five years. The company's land bank profitability is substantial lower than its current profitability level. Decline of profitability is foreseeable. Land bank mostly located in premium tertiary or tertiary cities.
1	Land bank duration of less than one year. The company's land bank profitability is marginal. The company needs to spend years to sort out the land ownership and get ready for sale. Land bank mostly located in tertiary cities.

Brand Image and Market Share (BIMS)

CSPI Ratings believes the Brand Image and Market Share are important rating factors to evaluate for a company's competitiveness and its market position. The brand image is supported by the product quality and the company's execution capability. A homebuilder or property developer with better brand image and higher market share is likely to have stronger pricing power, more resilient sales and better recognized by the trade partners, local governments and banks. A reputable homebuilder or property developer would be easier to enter into a new market and expand national wide and easier to source funding and secure land banks. The Exhibit 7 provides a general guidance on how rating committees will assign the BIMS scores.

Exhibit 7: Brand Image & Market Share (BIMS)

7	Company has a distinguished brand value with extremely high customer recognition. Leading market share which is expanding on a sustained level. Lead the market competition by a very large margin.
6	Very high brand value with very high customer recognition. Leading market share and sustainable in the foreseeable future, lead competition by a solid margin but some competitors are following closely behind.
5	High brand value with high customer recognition. One of the leaders in terms of market share but need to strive to protect its competitiveness as it might lose its market position if the technology progress, market condition or customer preference turns against the company.
4	Moderate brand value with somewhat customer recognition. The company is not in a leading position in terms of market share but is a close follower and not showing any signs of being left behind. The company is able to keep up with the market development and maintain its market share.
3	Lower brand value and not much customer recognition is attached to the brand. Competitors can replace the company with some effort. The company owns small market share which may not be sustainable if the company can't keep up with the market development and competition intensify.
2	Limited brand value and no customer recognition Competition is almost everywhere. Limited market share and not sustainable if the competition steps into its market and product category. The company cannot create much meaningful barriers to deter its rivals.
1	No brand value and no customer recognition. Competition is everywhere. Ignorable market share and not sustainable if the competition steps into its market and product category. The company cannot create any meaningful barriers to deter its rivals.

Operating Efficiency

Profitability and cash flow efficiency are our two considerations for a homebuilder or property developer's operating efficiency. In our view, the profitability of a homebuilder or property developer depends on its capability to manage the production costs, run the development efficiently, finance the development economically, and sell the property effectively.

In assessing cash flow efficiency, we review how efficient the company can manage its working capital. Chinese homebuilders and property developers have high working capital intensity, with land acquisition as major working capital outflow and contracted sales as major working capital inflow. Land acquisition is influenced by management strategy which is reflected by the land bank quality discussed in Product, Service & Technology. For the working capital inflow, we measure how efficient the company is when converting its inventory to contracted sales (sell-through rate) and converting contracted sales to cash (cash collection). The Exhibit 8 demonstrates CSPI Ratings' guidelines to assess the operating efficiency.

- **Sell-through rate.** Sell-through rate calculated by contracted sales to adjusted inventory is a metric that measures how fast the homebuilder or property developer can sell its product. The factors that affect sell-through rate include: 1) Asset liquidity. A residential property tends to have better liquidity than commercial and industrial property. 2) For the companies that have same types of properties, company's different strategy might affect its sell-through rate.

  For the companies that have high sell-through rate tend to have lower profitability, as land price and property price are correlated and it is hard to have a significant price increase in the short term. Nevertheless, high sell-through rate improves the company's capital efficiency, reduces the risks of holding inventory and offers flexibility to the company in face of the property market fluctuations. Low sell-through rate companies tend to have higher profitability, and lower risk from land replenishment requirements in short term. But these companies are exposed to asset price changes and tend to have longer cash cycle. Though high(low) asset turnover might be mitigated by low(high) margin and result in a similar return on equity, the high sell-through strategy will bring a higher growth and enable the company expand and gain market share quickly. The high sell-through strategy has been favored by many Chinese homebuilders and property developers.

  A higher or lower sell-through is not necessarily be credit strength or weakness but might lead to our different emphasis on the analysis when looking at the company's credit profile. For the high sell-through companies, capability to replenish land with a reasonable leverage is the key. While for the low turnover companies, sales execution and land bank profitability are the key factors to review. No matter which strategy that company is adopting, the most important is that if the company is able to manage the investments and project lifecycle to proper align the cash inflow with outflow.

- **Cash collection.** Cash collection ratio is the percentage of cash collected from the property contracted sales. A lower cash collection could be caused by a non-solid contracted sales due to 1) lower down payment due to offering zero-interest down payment loans, 2) high contract cancellation caused by lose control over the buyer qualifications or irregulated sales process, 3) slower mortgage approval by the bank because of the policy changes.

Exhibit 8: Operating Efficiency

7	6	5	4	3	2	1
Company's cost structure is the lowest in the industry, which has consistently led to highest profitability than its peers. Best working capital management capability, evidenced by a consistent best sell-through rate and cash collection.	Company's cost structure is at top end of spectrum in the industry, which has consistently led to much higher profitability than its peers. Strong working capital management capability, evidenced by consistent high sell-through rate and cash collection	Company's cost structure is better than the industry average, which has consistently led to higher than average profitability. Good working capital management capability, evidenced by a consistent above average sell-through rate and cash collection.	Company's cost structure is the average in the industry, which also led to average profitability. Average working capital management capability, evidenced by an average sell-through rate and cash collection.	Company's cost structure is worse than the industry average, which has consistently led to below average profitability. Average working capital management capability, evidenced by a consistent below average sell-through rate and cash collection.	Company's cost structure is worse than most peers in the industry, which has consistently led to the low profitability. Weak working capital management capability, evidenced by a consistent poor performance on sell-through rate and cash collection.	Company's cost structure is the worst in the industry, which has consistently led to the lowest profitability. Worst working capital management capability, evidenced by a consistent worst sell-through rate and cash collection. .

Business Diversity

A homebuilder or property developer's geographical, product, client and supplier diversification show its ability to offset cash flow volatility arising from economic cycles, industry dynamics, and regulatory changes.

We define the property type as different properties that are categorized according to the usage purpose, such as industrial, commercial and residential. Demand for different property types are driven by different economic factors. For example, commercial property demand is driven by the employment while industrial property demand is driven by the production output. The Chinese homebuilder and property developer market could perform differently across regions within each property type.

CSPI Ratings divides Chinese homebuilder and property developer market into seven geographical regions, which are shown in the Exhibit 9. The degree of geographical diversification is measured by the balance of land banks across tier-1, tier-2 and lower tier cities and the degree of concentration or diversification of land banks in different geographical zones across China.

Exhibit 9: Business Diversity

7	The company has outstanding diversification in product type, contracted sales and land bank, both of which are well diversified into different geographical region and different classes of cities. The company has very diversified and uncorrelated product types.
6	The company has extensive diversification in product type, contracted sales and land bank, both of which are well diversified into different geographical region and different classes of cities.
5	The company has good diversification in product type, contracted sales and land bank, with balanced regional development.
4	The company has above average diversification in product type, contracted sales and land bank, with business operation in two to three geographic regions.
3	The company has average diversification in product types, contracted sales and land bank, with business operation in two geographic regions but focus in one class of cities.
2	The company has below average diversification in product type, contracted sales and land bank, with business operation only in two to three cities located in one geographic region. The company has only one product type.
1	The company has poor diversification in product type, contracted sales and land bank, with most of its business concentrate in one geographic region or one city class.

Tier-1 cities: Beijing, Shanghai, Guangzhou, and Shenzhen by our definition.

Tier-2 cities: Cities with GDP per capita above CNY 80,000 and population above 5 million and are not considered as tier-1.

Tier-3 cities are the cities that not considered as tier-1 or tier-2.

Exhibit 10: Geographical Regions

North China	Beijing, Tianjin, Hebei, Shandong
Northeast China	Liaoning, Jilin, Heilongjiang
East China	Shanghai, Jiangsu, Zhejiang
Central China	Henan, Shanxi, Hubei, Hunan, Jiangxi, Anhui
South China	Guangdong, Fujian, Hainan
Southwest China	Chongqing, Sichuan, Guizhou, Yunnan, Guangxi, Tibet
Northwest China	Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Inner Mongolia

Note: We have not included Hong Kong and Macau as these two markets have exposed to different market condition and have different economic drivers for their property market.

Financial Profile Analysis

Financial profile analysis includes an assessment of leverage profile and profitability profile. Leverage profile is assessed as eighteen-point scale with both letter and number. 'aaa' is the highest profitability and lowest financial leverage, and 'ccc/ccc' is the lowest profitability and highest financial leverage. Profitability is assessed by five-point scale, 'very strong', 'strong', 'moderate', 'weak', 'very weak'.

The companies' financials are assessed on a five-year weighted average basis with the time weights of 10%, 15%, 25%, 25% 25% for year t-2, t-1, t, t+1, t+2 respectively, where t represents the current year. However, when a company goes through a drastic transformational phase or corporate structure change such as mergers and acquisitions, one-time large capital investment or dividend payout, etc., the historical financial data may not properly represent what a company will be in the future. In these cases, CSPI Ratings applies the weights of 40%, 30%, 30% for the current year and subsequent two years.

If a company is in a particularly volatile industry or expects to experience very high cash flow uncertainty in the coming years, or the company's financial performance is irrelevant for certain reasons in some years, the criteria allow rating committees to adopt a weight schedule that is considered properly reflective to the company's true financial strength and credit profile.

Exhibit 11: Sub-Factors for Financial Profile

Sub-Factors	Weight	Score Range	Ratios
Leverage Profile	30%	1-18	Net Debt to Adjusted Inventory
	30%	1-18	Contracted Sales to Gross Debt
	20%	1-18	EBITDA Interest Coverage
	20%	1-18	Gross Debt/Total Capitalization
Profitability Assessment	–	1-18	EBITDA Margin
	–	1-18	Return on Invested Capital

CSPI Ratings adopts a notching approach to adjust a company's leverage profile to arrive the financial profile which is addressed in the General Corporate Rating Criteria.

Leverage Profile

We assess Chinese homebuilder and property developer's leverage by using Contracted Sales to Gross Debt, Net debt to Adjusted Inventory, EBITDA to Interest, Gross Debt to Total Capitalization. The final score of leverage profile will be determined by the weighted average of the four ratios mentioned above.

There is typically a time gap of 1-2 years between receiving pre-payment from customers and recognizing revenue. Chinese homebuilders and property developers adopt the pre-sales model. Prior to the completion of construction, the homebuilders and property developers are allowed to pre-sell the incomplete properties and enter into pre-sale contracts with purchasers by obtaining the presale permit. Revenues are recognized when the properties are delivered (after construction is completed)

and the ownership of the properties is transferred to the customers. Homebuilders and property developers typically have to categorize customer pre-payments as liabilities for up to one or two years and recognize them as revenue until homebuilders and property developers complete the construction and close the transaction.

Therefore, instead of using the conventional income statements-based ratios, CSPI Ratings compares the company's debt to the inventory which reflects the company's land reserve value and the contracted sales which is the key cash inflow for the Chinese homebuilders and property developers.

- **Net Debt to Adjusted Inventory:** Net debt to Adjusted Inventory measures the company's debt against its property related assets, which are mostly land bank. Property inventory, which consists of unsold property or land, can be used as collateral to borrow and is also a reflection of the homebuilders and property developers' future cash flow generation capability.

- **Contracted Sales to Gross Debt:** Contracted sales proceeds can be used by the companies to repay debt. To compare the gross debt to contracted sales is to look at with the same level of leverage, how much contracted sales can be generated. A higher Contracted Sales to Gross Debt indicates a better asset efficiency and debt-servicing capability.

- **EBITDA to Interest:** Though the delayed revenue recognition, EBITDA is still a good represent of the company's profitability realized. As EBITDA is not the key operating cash inflow for homebuilders and property developers, the EBITDA coverage to a greater extend shows the company's financial durability, instead of its short-term debt-servicing capability.

- **Gross Debt to Total Capitalization:** Gross Debt to Total Capitalization is a ratio that we use to assess all the corporate leverage. The ratio not only measures the company's leverage but also its financial structure. A high gross debt to total capitalization ratio shows weak financial strength because the cost of these debts may weigh on the company and increase its default risk.

Both the total capitalization and adjusted inventory are book value based which reflects historical value of the assets. For some cases where we believe that there is a big deviation between the book value and fair value, we might consider to mark the company's assets to market to generate a more reasonable estimates of the company's asset value.

Exhibit 12: Leverage Profile Analysis Ratios

		Net Debt/ Adj. Inventory (%)		Attributable Contracted Sales/Gross Debt(x)		Gross Debt/Cap (%)		EBITDA Int. Cov. (x)	
Letter	Numeric	Low	High	Low	High	Low	High	Low	High
aaa	18	Net cash		4.3	---	0	15	20	---
aa+	17	Net cash	0	4.0	4.3	15	20	18	20
aa	16	0	5	3.7	4.0	20	23	16	18
aa-	15	5	10	3.4	3.7	23	27	14	16
a+	14	10	15	3.1	3.4	27	30	12	14
a	13	15	20	2.8	3.1	30	33	10	12
a-	12	20	25	2.5	2.8	33	37	9	10
bbb+	11	25	30	2.2	2.5	37	40	8	9
bbb	10	30	35	1.9	2.2	40	43	7	8
bbb-	9	35	40	1.6	1.9	43	47	6	7
bb+	8	40	45	1.3	1.6	47	50	5	6
bb	7	45	50	1.0	1.3	50	53	4	5
bb-	6	50	55	0.8	1.0	53	57	3	4
b+	5	55	60	0.6	0.8	57	60	2	3
b	4	60	65	0.4	0.6	60	63	1.5	2
b-	3	65	70	0.2	0.4	63	67	1	1.5
ccc+	2	70	75	0.1	0.2	67	70	0.5	1
ccc/ccc-	1	75	---	---	0.1	70	---	---	0.5

Toning Factors for Leverage Profile

To arrive the final leverage profile assessment, CSPI Ratings fine tunes the preliminary Leverage Profile on the toning factors that mostly are aligned with CSPI Ratings' General Corporate Rating Criteria.

Profitability Assessment

CSPI Ratings looks at EBITDA margin and return on invested capital (ROIC) to evaluating the homebuilders and property developers' profitability. For Chinese homebuilders and property developers, the resultant profit margin can be affected by accounting recognition of the land bank used and the fluctuation of land price and selling price. EBITDA margin is a reflection of the company execution capability, including costs management, securing contracted sales, and access to land. ROIC is a way to assess a company's efficiency of allocating and utilizing its capital. For the absolute level of profitability, we compare the company's profitability with its peers in the same industry group, with a five-point score system: '5,4,3,2,1'. Highest profitability level within the industry will be assigned a score of '5', and vice versa.

CSPI Ratings not only assesses the company's absolute profitability level, but also takes into account the long-term trend and volatility of the profitability, as these measures determine the stability of the homebuilder or property developer's internal financing capabilities. The Trend and Volatility is assessed on the three-point scale ('outperform', 'average' and 'underperform'), which may be analyzed on the EBITDA or other profit indicators.

We combine the absolute profitability level and trend and volatility of profitability to arrive our profitability assessment, which is expressed with a five-point scale system: 'very strong (VS)', 'strong (S)', 'medium (M)', 'weak (W)', 'very weak (VW)'.

Exhibit 13: Determining the Profitability Assessment

	Level of Profitability				
Trend & Volatility	5	4	3	2	1
Outperform	VS	VS	S	M	W
Average	VS	S	M	W	VW
Underperform	S	M	W	VW	VW

CSPI Ratings considers Chinese homebuilder and property developer industry as medium profitability, therefore we use the profitability guidelines for medium level from our General Corporate Criteria as shown in Exhibit 14.

Exhibit 14: Profitability Assessment

Numeric Score	EBITDA Margin		ROIC	
	Low	High	Low	High
5	35	---	20	---
4	25	35	15	20
3	12	25	10	15
2	8	12	5	10
1	---	8	---	5

Adjustment Factors

In addition to the rating factors that addressed in the criteria above, CSPI Ratings also assess the adjustment factors that discussed in the General Corporate Rating Criteria to achieve a SACP for Chinese homebuilders or property developers.

Stand-Alone Credit Profile (SACP)

The definition and application of stand-alone credit profile for Chinese homebuilders and property developers are in line with General Corporate Rating Criteria.

External Support Analysis (ESA)

CSPI Ratings assess the external supports for Chinese homebuilders and property developers in line with General Corporate Rating Criteria.

Related Criteria and Research

- Rating Symbols and Definitions, 07 May 2018
- General Principles of Credit Ratings, 21 November 2017
- General Corporate Rating Criteria, 15 March 2018

Glossary

The Glossary below explains CSPI Ratings'definition to the terminologies used in this article.

Land Bank: Landbank is the land reserve that is available for sell, which is the land that has not being sold and owned by the homebuilders and property developers.

Land Bank Duration: how long the land bank can be sold assuming the current year's contracted sales can be sustained. Land bank GFA divide by contracted sales GFA.

Contracted Sales: Contracted sales is the total contracted value of properties sold in the certain period. Contracted sales is not audited, therefore we might adjust the contracted sales that provided by the company based on our judgement on the data quality. Attributable contracted sales is contracted sales that attributable to shareholders, which proportionable consolidates the contracted sales from the joint ventures.

Cash Collection Ratio: Cash collected from the contracted sales divide by the contracted sales.

Sell Through Rate: Contracted sales divide by the adjusted inventory.

Adjusted Inventory: Adjusted inventory is all the land related resources that for future development minus liabilities associated. It is the historical value of the company's land bank after netting prepayments collected from the clients. Adjusted inventory includes: 1) Project under construction. 2) Investment property at the historical value, 3) Completed properties held for sale 4) Equity value of property related joint ventures and associates. 5) Prepayments from the clients are deducted from the land inventory to come at the final adjusted inventory.

We do not include land use right in our adjustments but may give credit to it depends on the company's definition and accounting rule. We might include other property or land related assets that fits our definition of inventory depends on the company's definition.

Joint Ventures and Associates: More and more homebuilders and property developers are using joint ventures and acquisitions as a land acquisition method. We might consider to adjust the credit ratios to reflect joint ventures' indebtedness depends on our judgement on the significance of the joint ventures. To adjust the joint ventures' financials, we would proportional consolidate the joint ventures s that are treated as equity investments in the company's financial statements. Such adjustment and could lead to a potential positive or negative credit adjustment given the indebtedness of joint ventures.

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