

Evergrande Group's Bankruptcy: Rise and Fall

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Abstract. The primary goal of this study is to gain a comprehensive understanding of Evergrande's bankruptcy, exploring the circumstances leading up to it, the ensuing impacts, a comparative analysis with other organizations, and the application of game theory to unfolding events. This investigation will particularly focus on the insights that other financial sector organizations can derive from Evergrande's experience. One major cause of Evergrande Group's financial distress is the unchecked expansion of its diversification policy, which strained its capital chain. Additionally, government regulations have tightened around the real estate sector, reducing available investment sources. Moreover, increasing market competition has gradually eroded Evergrande's market share, leading to profitability and brand reputation declines. This article underscores that Evergrande's bankruptcy offers crucial lessons for other real estate companies, providing them with valuable practical guidance. This paper contributes to the field of financial studies by highlighting the critical importance of developing a robust understanding of risk management, implementing effective risk control mechanisms, mitigating bankruptcy risk, and ensuring that hazards remain within manageable limits.

Keywords: Diversification, Debt Crisis, Leverage, Lawsuit, Game Theory.

1. Introduction

The global public is increasingly acknowledging the Evergrande Group's bankruptcy as a significant issue. Numerous longitudinal studies have reported that the Evergrande Group filed for bankruptcy in the United States on August 17, 2023, and detailed the factors that led to this situation. Evergrande is a prominent Chinese firm operating in the construction and real estate industry. It is a globally recognized entity with extensive assets across several regions. The bond's default in September 2021 triggered warnings in financial markets [1]. Despite Evergrande's utmost endeavors, the loans stood at 2.437 trillion yuan (\$340 billion) by the conclusion of the previous year, equivalent to 2% of China's GDP [2]. Nevertheless, it experienced a consistent drop after 2021, and it finally went bankrupt because of too much leverage and expansion in 2023.

In this particular case, it is essential not only to examine the reasons behind Evergrande's bankruptcy but also to investigate its potential impacts on the financial system and its comparison with other corporations. This study is motivated by the goal of addressing the current knowledge gap by analyzing the bankruptcy of the Evergrande Group. It aims to conduct an in-depth analysis of

Evergrande Group's ascent and decline, recognizing the scarcity of comprehensive studies on the subject. The findings of this study are intended to provide insights for policymakers and professionals in financial institutions. This research utilizes a hybrid methodology integrating a quantitative assessment of cash flow and liability based on financial statement data with a qualitative analysis of open text and pictures. We have examined Evergrande's challenges, identified similarities and differences with other cases, and synthesized valuable insights.

In the following sections, we start with a macro-analysis that succinctly outlines the factors contributing to Evergrande Group's remarkable success, as well as the financing strategies employed, including a solvency ratio analysis. This is followed by a detailed literature review, which specifically examines the various factors leading to Evergrande Group's bankruptcy and its subsequent effects on the economy, society, and legislation. Additionally, comparisons are drawn between Evergrande Group and Lehman Brothers, the investment bank that faced a debt crisis, as well as Country Garden, another real estate development company that encountered debt issues. The bankruptcy of Evergrande Group has also spurred discussions on game theory, particularly the prisoner's dilemma, leading to a deeper understanding of the strategic interactions between the government and Evergrande Group.

2. Background

In February 1996, Xu Jiayin established Guangzhou Evergrande Industrial Group. Figure 1 demonstrates the history of Evergrande Group. Incremental advancements marked the company's progression between 1996 and 2008. It was only during the global financial crisis of 2008 that Evergrande capitalized on the market disarray to undertake a period of rapid expansion, securing a substantial land reserve and acquiring numerous real estate developments [3]. Evergrande Group has been implementing a diversified development strategy since it went public in 2009. However, this expansion of different business areas has yet to generate significant value for the company. The company's industry positioning has remained the same, compromising its ability to adapt to the industrial environment and survive in the market [4]. The company's diversification burdened its resources and diverted its attention from its primary focus on real estate [5]. While diversifying its strategic framework to include real estate and financial services, the Group evolved into a diverse conglomerate with real estate, finance, health, culture, tourism, and sports holdings.

However, this expansion proved sustainable only for a short period. The downturn in the Chinese economy that began in 2018 coupled with the subsequent impact of the epidemic, severely affected Evergrande Group's operations in sectors such as automobiles, culture, tourism, and health, leading to a substantial decline in its performance. Additionally, increasing real estate regulations and government initiatives to correct industry malpractices have hurt Evergrande Group's property segment, depleting its main source of cash and causing large losses. In 2021, Evergrande Group faced a severe crisis. Evergrande's Hong Kong stock exchange shares fell almost 20% on Monday. Trading ceased when a Hong Kong court ordered the business, the world's most indebted real estate developer, to dissolve. A court-issued liquidation order indicates that the company's assets will be seized and auctioned off to settle its outstanding debts [6]. After the three-year epidemic, 2023 was China's first year of economic recovery, with a GDP of 1,265.82 billion yuan, an increase of 5.2% over the previous year [7].

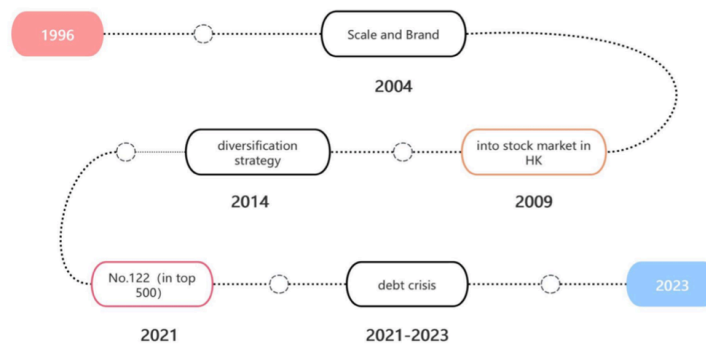


Figure 1. History of Evergrande

After the three-year epidemic, 2023 was China's first year of economic recovery, with a GDP of 1,265.82 billion yuan, an increase of 5.2% over the previous year [7]. The 2023 real estate development investment fell 9.6% from the year before. This reduction is 0.5% smaller than the first three quarters. The growth rate improved by 0.4% from the previous year, culminating in RMB 11.1 trillion invested. The decrease in residential investment was 9.3% year over year, which was 0.9% worse than the decline observed from January to September. Two years of lower real estate investment signal a drop in funding. Given the current circumstances of industry modifications and poor sales returns, the short-term revival of the real estate sector will remain a challenging task [8].

3. Evergrande Group's funding strategy

The data shows that Evergrande utilizes a variety of financing methods, categorized into six main types: The first category includes conventional bank loans, with Evergrande accessing 15 different schemes, such as working capital loans, development fund loans, corporate account overdrafts, syndicated loans, and comprehensive credit facilities. Second, domestic trade finance approaches include factoring, factoring-based lease financing, commodity financing, order financing, domestic invoice financing, and commercial credit financing. Foreign currency subsidies, delivery guarantee finance, payment extension letters of credit, and letters of credit comprise the third type of international trade financing. Fixed asset-backed, pre-loan, operational, and merger and acquisition loans are project loan financing options in the fourth category.

Evergrande Group has issued commercial acceptance bills totaling more than 800 billion yuan. The fifth category involves financing through investment banking channels such as Initial Public Offerings (IPOs), targeted financing, perpetual bond issuance, asset securitization, and asset-backed securities. The sixth category is bond financing, in which a corporation can secure significant funds by issuing corporate or convertible bonds. According to the inquiry, key Evergrande creditors China Minsheng Banking, China Citic Bank, Industrial & Commercial Bank of China, China Construction Bank, China Zheshang Bank, and Bank of China had yet to respond. In March, Evergrande announced plans to reduce its debt by approximately 50% over the next two years and aims to meet at least one of China's regulatory borrowing restrictions for developers, known as the "three red lines," by the end of the month [9].

4. Financial indicators of Evergrande Group's financial statement

4.1. Liquidity analysis

According to Figure 2, Evergrande Group's asset-liability ratio consistently falls between 0.8 and 0.9, as shown in the figure below. Hence, Evergrande Group's managers prioritize the appropriateness of the asset-liability ratio due to the elevated risk associated with a high liability ratio and a property rights proportion above 1. The prevailing consensus is that the asset-liability ratio typically exceeds 0.5. The asset-liability ratio index and property rights ratio index indicate a low long-term solvency for Evergrande Group [10].

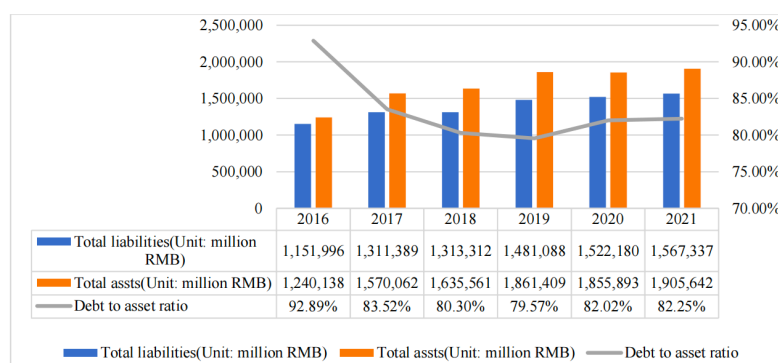


Figure 2. Debt to asset ratio of Evergrande Group. (source: financial engineering and risk management (2022))

As shown in Table 1, Evergrande Group's current ratio decreased to 0.69 from 1.4 in June 2019, and the quick ratio decreased to 0.17 from 0.46 in June 2019. A company's liquidity decline is evident when we exclude assets that are relatively challenging to liquidate, like inventory. The decline of the current ratio and quick ratio for many consecutive years, as well as the negative year-on-year growth rate, indicates that the company is facing greater challenges in short-term debt repayment and liquidity management.

Table 1. Current ratio and quick ratio of Evergrande Group from 2019 to 2023

	2023-6-30	2022-6-30	2021-6-30	2020-6-30	2019-6-30
Solvency	--	--	--	--	--
Current Ratio	0.69	0.71	1.24	1.31	1.40
Quick Ratio	0.17	0.18	0.34	0.36	0.46

4.2. Profitability analysis

Upon analyzing Evergrande's profitability statement, Figure 3 reveals a decline in both its gross profit rate and net interest rate over the last five years. Since 2018, there has been a significant reduction in Evergrande's return on equity and net interest rate of total assets. By 2020, these figures had dropped to 5.69% and 0.37%, respectively. Furthermore, Evergrande Group's return on equity in 2020 fell below the average. This partly illustrates the issues faced by Evergrande Group in recent years, including a progressive decrease in input-output level, inefficient asset operation, and a noticeable fall in profitability. Evergrande Group, due to the financing restriction policy, is unable to acquire new loans and, therefore, needs more funds to pay for projects, worker wages, and supplier

invoices. Higher bank interest rates and policies aimed at stabilizing housing prices have effectively mitigated the drop in property prices, thus constraining Evergrande's promotional impact [11].

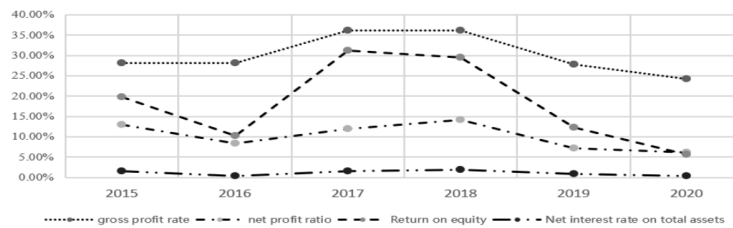


Figure 3. Trend of gross profit rate, net profit rate, return on equity, and return on total assets of Evergrande Group from 2016-2020. (source: MSEA 2023)

4.3. Stock price comparison

As illustrated in Figure 4, Evergrande's stock price has exhibited modest growth since its Hong Kong listing in 2009. Following the start of the real estate program, the stock experienced a slight increase but remained relatively stable until three years after the implementation of the diversification strategy in 2014. A significant rise occurred in 2017, with the stock reaching its peak at \$27.397 per share in December of that year. Subsequently, the price entered a fluctuating decline, culminating in a sharp drop in 2023 due to bankruptcy. Evergrande faced debt challenges starting in 2019, and disappointing financial report data eroded investor confidence. While diversification initially drove success for Evergrande, it also contributed to its financial struggles. The company grappled with capital turnover issues in its later stages, affecting operations across various sectors.

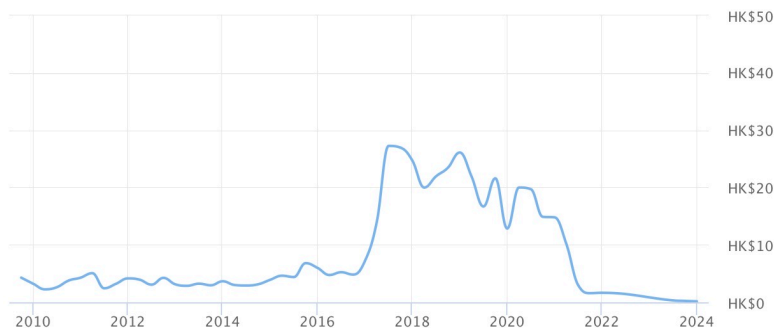


Figure 4. Stock price of Evergrande Group from 2010 to 2024. (source: BARRON'S market data)

5. Literature review

This chapter reviews the literature on investigating the factors causing bankruptcy and its consequences. It is divided into two main sections, the first focusing on the factors that present situations and reasons for bankruptcy. The second part describes in greater detail the consequences after bankruptcy.

5.1. Main factors of bankruptcy

5.1.1. Blind diversification and high leverage

As for the diversification strategy, Evergrande's inefficient synergies and lack of economies of scale, arising from its diverse development path and limited industry relevance, exacerbated its already

substantial debt burden. According to Evergrande Group's financial statements, the firm's core real estate development business recorded a loss of approximately 4 billion yuan in the first half of 2021. The annual financial losses of Evergrande Football Club are over 1 billion yuan. The recently launched Evergrande vehicle industry reported significant losses of 4.8 billion yuan and has yet to achieve mass production. The Evergrande Health and Culture sectors are also facing significant financial losses. To address the debt crisis, the Group had to raise funds through measures such as selling properties at discounted prices and divesting assets. However, these measures must be revised to resolve its liquidity issues fully [12]. According to the blind diversification, Evergrande Group supports itself with bank loans and bonds. Loan fees have exacerbated Evergrande Group's debt. In real estate, the economic cycle has caused major changes. Evergrande Group expanded aggressively during an economic downturn, acquiring a substantial asset portfolio—a strategy fraught with risks. Risk-taking increases during economic expansion, leading to more aggressive investing tactics. The world's most indebted real estate developer rose quickly due to aggressive borrowing and unusual fundraising. By 2022, the company's total liabilities had surpassed \$335 billion, more than ten times its annual revenue and representing over 1.8% of China's GDP for that year [13].

5.1.2. The financial crisis of capital chain break

The following analysis synthesizes and evaluates the financial crisis Evergrande Group faces due to its significant bank loans and debt obligations. Stopping real estate projects and delaying supplier and contractor payments constrain Evergrande's cash flow. Between 2015 and 2020, Evergrande's cash flows from operating activities were positive only in 2018 and 2020, indicating inefficiencies in receivables collection and a reliance on external financing for regular operations [10]. The company currently needs to improve its position with several loans maturing, necessitating immediate interest payments, which it struggles to meet due to inadequate cash reserves. In its long-overdue financial filings, huge obligations and declining cash reserves have raised creditor and analyst concerns about its restructuring efforts and future operations. Notably, Evergrande's auditors have withheld their opinion on the financial statements, citing substantial doubts about the company's ability to continue as a going concern.

5.1.3. Large rigid expenses and reduced cash flow

The financial instability of Evergrande Group has been marked by a notable decrease in cash inflow, primarily due to diminished public confidence. A drop in real estate demand, aggressive market discount deals, and customer reticence to buy. Thus, Evergrande's operating sales cash flow plummeted. The company also has significant fixed expenses related to supplier payments and staff salaries. The 2021 semi-annual report reveals that Evergrande has experienced three consecutive periods of negative cash flow and must promptly settle a substantial volume of current liabilities. The Group attempts to manage its debts by converting assets into cash or equivalents. However, the negative net cash flow increases liquidity risk, affecting debt payment. This financial strain hinders the company's operations and investments, causing repeated loan defaults.

5.1.4. Lawsuit

Despite the newfound knowledge about its financial situation, Evergrande filed several lawsuits. According to Chinese regulators, Evergrande and its founder engaged in the fraudulent practice of

inflating sales by \$78 billion, making them the central figures in the largest financial fraud case in the country's history. The China Securities Regulatory Commission (CSRC) has penalized Xu Jiayin, who established and currently holds the position of chairman at the Evergrande Group, with a fine of 47 million yuan (\$6.5 million) for exaggerating financial figures and engaging in other suspected regulatory breaches. He was once the wealthiest individual in China, but the CSRC permanently prohibited him from participating in the stock markets. The CSRC conducted an extensive eight-month inquiry before unveiling the results. In January 2024, a court in Hong Kong issued a directive for Evergrande to undergo liquidation [14]. The liquidators of China Evergrande have sued PwC, one of the major auditing firms, for negligence and misrepresentation. The lawsuit states that the claim pertains to a PwC auditor's report on Evergrande from March 2018, which covered the period from January to December 2017. Additionally, PwC is potentially subject to a penalty from Chinese authorities for examining Evergrande's enterprises in mainland China. PwC partners are concerned about potentially receiving some of the most severe penalties ever levied on a Big Four accounting company in China [15].

5.2. Influence caused by bankruptcy

5.2.1. Impact on the economy

However, this situation has a number of influences after the bankruptcy. The bankruptcy of Evergrande Group has the potential to cause financial difficulties in a number of interconnected businesses, setting off a chain reaction and amplifying systemic financial dangers. The property industry's significant role in the Chinese economy may cause the growth rate to decelerate. Consequently, this deceleration has the potential to have a domino impact. Evergrande Group's bankruptcy will impact the job market, potentially leading to significant job losses for its employees. Furthermore, the bankruptcy may pose operational challenges for businesses in Evergrande Group's supply chain. Construction and design firms, as well as materials suppliers, face the possibility of significant financial losses that may lead to bankruptcy. If Evergrande collapses, financial institutions and other lenders may have to curtail their lending activities. This could result in a credit crisis, in which businesses have difficulty obtaining loans at reasonable interest rates. A credit crisis would hurt the world's second-largest economy because it slows the expansion of businesses that cannot get loans and sometimes shuts them down [16].

5.2.2. Impact on the society

The bankruptcy of Evergrande Group will have a significant impact on the job market. The situation could result in certain employees being terminated, potentially affecting societal stability. A significant portion of the workforce is being terminated, a substantial amount of underperforming assets is proving challenging to liquidate, and a considerable number of investors are seeing a complete loss of their funds. Evergrande Group employs a maximum of 123,000 individuals [17]. In the event of employment loss, they will be in danger of experiencing a shortage of housing, which will negatively impact the market and perhaps result in significant financial losses for banks, thus leading to the emergence of a major financial crisis. Evergrande Group's insolvency might also hurt other real estate enterprises, hurting industrial chains and job market strain. The bankruptcy of Evergrande Real Estate primarily affects ordinary people through increased uncertainty in housing demand, higher potential for home price volatility, heightened instability in the financial sector, and amplified strain in the job market.

5.2.3. Impact on the regulations

In addition, it is important to understand the consequences of the regulations. Evergrande Group's bankruptcy sheds light not only on its operational issues but also on the broader risks and challenges within the real estate market. This occurrence raises policy and legal problems about market fairness and law enforcement. Evergrande's rapid growth plan raised risks and regulatory violations, leading to bankruptcy. This case underscores the need for maintaining market equity and upholding the law. Any actions that compromise legal or economic fairness must be rigorously scrutinized and addressed legally. Following the Evergrande incident, state agencies have unveiled 25 measures to bolster the private economy, enhancing conceptual, institutional, and implementation supports. Moreover, judicial bodies, regulatory authorities, and the market are increasingly adopting stringent measures against entities and individuals who compromise market integrity, breach laws, or engage in criminal conduct [18]. This enhances the environment for the private sector's growth and sustainability.

6. Comparison with other enterprises

6.1. Case study—Lehman Brothers

Lehman Brothers initiated the process of declaring bankruptcy on September 15, 2008. It served as a solemn reminder that nothing is permanent, even in the vastness of the financial and investment realms. When it collapsed, Lehman Brothers was the fourth-largest investment bank in the United States, with 25,000 workers globally. The company possessed \$639 billion in assets and \$613 billion in liabilities. The bank became an emblem of the extravagances of the 2007-08 financial crisis, overwhelmed by the subprime collapse that rapidly spread throughout financial markets.

Table 2. The top 10 largest US public company bankruptcies, 1980 to 2008. (source: New Generation Research, Boston)

No	Company	Industry	Bankruptcy date	Assets (\$ millions)
1	Lehman Brothers	Investment bank	09/15/2008	639,432
2	Washington Mutual	Savings & loans	09/26/2008	327,913
3	WorldCom	Telecommunications	07/21/2002	103,914
4	Enron	Energy trading	12/02/2001	65,503
5	Conseco	Financial services holding	12/17/2002	61,392
6	Pacific Gas and Electric	Electricity & gas	04/06/2001	36,152
7	Texaco	Petroleum & petrochemicals	04/12/1987	34,940
8	Financial Corp. of America	Financial services and savings & loans	09/09/1988	33,864
9	Refco	Brokerage services	10/17/2005	33,333
10	IndyMac Bancorp	Bank holding company	07/31/2008	32,734

Table 2 presents the ten largest bankruptcies of US public companies from 1980 to 2008. Lehman Brothers was the most significant investment bank to declare bankruptcy in 2008, with liabilities totaling \$639,432 million. Simultaneously, Washington Mutual, which advanced in the savings and loans sector, went bankrupt, incurring losses of approximately \$327,914 million. Moreover, prominent in the financial services and brokerage sectors, Conseco, Financial Corp. of America, and

Refco ultimately declared bankruptcy, incurring debts of 61,392 billion dollars, 33,864 billion dollars, and 33,333 billion dollars, respectively.

Lehman Brothers was highly leveraged, primarily due to its aggressive expansion strategy, excessive borrowing, and a risky business model with limited capital at its disposal. The firm's strategic focus on growth led it to take on substantial debt, enhancing its earnings but constraining its capital base. As part of this strategy, Lehman Brothers expanded its investment portfolio to include higher-risk financial products, including substantial holdings in subprime mortgages. This approach resulted in a marked increase in borrowing, which initially boosted profits but ultimately limited the availability of capital [19].

Table 3. Lehman's long-term solvency ratios, 2003 to 2008. (source: S&P Capital IQ)

Long-term solvency	2003	2004	2005	2006	2007	2008Q2
Total debt/capital	93.3%	93.3%	93.3%	93.9%	95.1%	93.8%
Long-term debt/capital	19%	25.5%	21.6%	25.7%	26.6%	n/a
Total liabilities/total assets	95.8%	95.8%	95.9%	96.2%	96.7%	n/a

Table 3 displays Lehman's long-term solvency ratios from 2003 to 2008. The total debt was relatively stable over these six years, maintaining 93.3% from 2003 to 2005, increasing to 95.1% in 2007, and subsequently dropping to 93.8% in 2008. Long-term debt was at its lowest in 2003, comprising 19%, and peaked in 2007 at 26.6%. In 2007, the overall liabilities reached an exceedingly high level of 96.7%.

Both enterprises collapsed under the weight of excessive leverage and liquidity risks. Although both experienced bankruptcy due to a debt crisis, their impacts and characteristics differ significantly. Evergrande, unlike Lehman Brothers, is primarily a real estate development company, not an investment bank. Evergrande buys property, pre-sells units with mortgage financing, and leverages money to fund new developments. This resulted in an imbalance of revenue and expenditures, making short-term commercial loans and bond coupons unpayable and preventing supplier payments. Unlike Lehman Brothers, the potential collapse of Evergrande is unlikely to significantly affect the banking and financial systems in the Western world. However, it may nonetheless cause significant harm to highly exposed funds like Ashmore (with \$500 million at risk), Blackrock (with \$400 million at risk), and UBS (with \$300 million at risk) [20]. Furthermore, comparing two financial crises in different economic contexts is improper. The Chinese government's interference in economic activities distinguishes it from the American market economy. The state assumes the roles of entrepreneur, regulator, and controller of economic processes, with the objective of creating "shared prosperity."

Failure to execute their risk management obligations partially caused Lehman Brothers' collapse. Financial institutions should thoroughly comprehend risk management, implement efficient risk control mechanisms, mitigate the risk of bankruptcy, and prevent risks from escalating beyond their capacity. Lehman Brothers' failure prior to bankruptcy also highlighted the importance of financial regulation. Financial authorities must improve governance and thoroughly examine and supervise financial institutions' operations and risk management. In order to prevent excessive indebtedness during periods of market volatility, financial institutions should exercise greater caution in providing financing and reduce their leverage ratio. The Lehman Brothers' bankruptcy serves as a reminder that financial institutions must adhere to financial reporting regulations, guarantee the veracity and dependability of financial statements, and properly evaluate a company's financial well-being for investors [21]. Before its failure, Lehman Brothers' unrelenting pursuit of excessive profits

accumulated significant dangers. This suggests that financial institutions should balance risk and reward rather than pursue rapid gains.

6.2. Case study---Country Garden

Country Garden is a real estate development firm located in Guangdong, China, which is owned by the family of Yang Guoqiang. It was ranked as the 206th company on the Fortune Global 500 list for the year 2023. As of 2018, Country Garden has a market valuation of over US\$29.84 billion. It has 187 high-end township developments in China, Malaysia, and Australia as part of its extensive worldwide project portfolio. In October 2023, the company declared its inability to meet its offshore debt commitments, leading to a default on nearly US\$11 billion of bonds. This was yet another casualty of the Chinese property sector crisis that occurred between 2020 and 2023 [21].

Table 4. Contracted sales attributed to shareholders. (source: CRIC)

Rank	Company Name	2021 (RMB Bil)	2020 9RMB Bil)	2020 Rank
1	Country Garden	557.2	570.2	2
2	Evergrande	418.5	669.0	1
3	Vanke	403.2	455.7	3
4	Poly Real Estate	371.6	362.0	5
5	Sunac	361.1	388.6	4
6	COLI	346.7	339.6	6
7	Greenland Group	261.3	321.0	7
8	China Resources Land	217.4	181.9	12
9	China Merchants Shekou Ind Zone	204.3	158.7	13
10	Longfor	202.9	190.5	11

Table 4 illustrates the contracted sales attributable to shareholders. In 2021, Country Garden ranked top with 557.2 billion yuan, while Evergrande ranked second with 418.5 billion yuan. Although Evergrande secured first place in 2020 with 669 billion yuan, Country Garden showed development in the same year, reaching 557.2 billion yuan.

Distressed enterprises may exchange their notes for payment-in-kind bonds, a common practice to conserve cash. Country Garden is particularly vulnerable due to its significant investment in smaller cities, suffering from an excess of available homes and a population decline. Furthermore, the builder needs to benefit from the government's easing strategy's focus on larger, more robust cities. Country Garden, formerly the largest property developer in China, is currently facing a staggering debt of over \$194 billion. A creditor served the company with a liquidation petition in Hong Kong in February due to its failure to repay a loan amounting to 1.6 billion Hong Kong dollars (\$204 million) [22]. Undoubtedly, Country Garden is currently experiencing a cash issue.

Country Garden and Evergrande, prominent participants in China's real estate industry, have distinct differences in their company scope, development strategy, and market success. Although both Evergrande and Country Garden are engaged in developing property, Country Garden's business scope is more extensive. It includes residential development, commercial real estate, tourism real estate, and other related industries. In its development strategy, Country Garden should prioritize balancing efficiency and scope. This entails prioritizing cost-efficient management and achieving rapid turnaround times. Evergrande may adopt a more assertive growth strategy, such as

leveraging and taking on significant debt, to expedite expansion during specific periods. Both companies have faced real estate market volatility. Recent real estate market and regulation developments have hampered both companies. Country Garden has exhibited greater resilience and stability during the market correction; however, Evergrande has garnered more attention as a consequence of specific financial issues. Country Garden and Evergrande are significant players in China's real estate sector. Over various timeframes and market conditions, each entity demonstrates varying levels of efficacy and possesses unique attributes.

7. Game theory between Evergrande and government

Game theory is an academic discipline that examines the reasoning behind the choices made by individuals and entities, known as players, in various scenarios. Numerous fields implement game theory to simulate various scenarios and predict their likely outcomes. Businesses can use it for various purposes, such as pricing, evaluating potential acquisitions, and strategizing legal proceedings [23]. The prisoner's dilemma indicates that self-interest in both parties is worse than collaboration. Evergrande's debt issue is a classic prisoner's dilemma. Resolving Evergrande's debt crisis depends on government support. In this scenario, cooperation is defined as the resolve of both parties to work together to sustain Evergrande's current financial growth. By fostering collaboration between the two parties to ensure the seamless operation of the economy, it is possible to mitigate Evergrande's financial issue to some degree.

7.1. Government's measures to deal with the insolvency

The government has implemented several measures to address Evergrande's insolvency. To protect the legitimate rights and interests of homebuyers, the government has established a strong legal and regulatory framework. To ensure fairness and retribution, the government will prosecute criminals and companies. The government reduced Evergrande's financial and social impacts by increasing supervision. This necessitated Evergrande depositing all pre-sale proceeds into a supervision account and implementing measures such as asset cleaning.

Additionally, the government has also tightened real estate monitoring to avoid financial instability and market price inflation. Due to implementing the "guarantee" policy, the Evergrande inquiry, the arrest of Xu Jiayin, and the central bank's involvement, China's real estate scenario is becoming increasingly transparent [24]. Ultimately, the government's response to the Evergrande crisis emphasizes the importance of maintaining the rule of law and lays a strong foundation for future legal consequences, all in the pursuit of a prompt resolution to the Evergrande situation. In conclusion, the government implemented a variety of measures to mitigate the repercussions of Evergrande's bankruptcy, including the enhancement of legal and regulatory frameworks, the reinforcement of market supervision, and the enforcement of legal penalties for unlawful activities.

7.2. Analysis of Evergrande's debt and restructuring

In 2021, Evergrande failed to fulfill its obligation of repaying a debt of \$305 billion (equivalent to 2% of China's GDP) to both domestic and international creditors. In January 2024, a Hong Kong court issued a directive for Evergrande to sell off assets related to its Hong Kong division. The collapse of a restructuring agreement between Chinese banks and international lenders led to this decision. The court verdict in Hong Kong does not have jurisdiction over the company's subsidiaries in the People's Republic of China (PRC), which comprise 90% of its business. Starting in 2021, the

company has primarily reallocated its assets in the People's Republic of China (PRC) to domestic creditors, specifically local governments. In 2021, the authorities in Hong Kong and the People's Republic of China (PRC) reached an agreement to acknowledge and accept liquidation orders from each other. In March 2024, the securities regulators of the People's Republic of China imposed a penalty of over \$500 million on the firm and banned its founder from participating in financial markets due to fraudulent accounting and reporting. According to Bloomberg, as of 2024, the company had a total debt of \$300 billion, including \$20 billion in offshore debt. American companies possess around \$348.4 million, which accounts for 1.5% of the total foreign corporate debt of \$23.2 billion held by the firm [13].

7.3. Policy changes because of Evergrande's bankruptcy

Policy changes followed Evergrande's collapse. A policy or housing market decline provides a negative signal to potential homebuyers, reducing demand and property prices. Consequently, a circular process amplifies the compounding effect of negative expectations and rapidly declining property values. Lenders tighten their lending policies after seeing the borrower's financial situation [25]. During the Evergrande crisis, the Chinese government developed the "guarantee and transfer of buildings" policy to ensure real estate project completion, prevent unfinished buildings, stabilize the market, and protect buyer rights. The China Securities Regulatory Administration initiated a case inquiry against Evergrande Group to delve deeper into the company's financial condition and any irregularities. Due to alleged criminal activities, the law has arrested Xu Jiayin, the executive director and chairman of Evergrande Group, and subjected him to mandatory measures [26]. Evergrande withdrew its US bankruptcy suit after its debt restructuring strategy failed. Following government directives, China Evergrande entered liquidation. In addition to mitigating the potential repercussions of the Evergrande crisis on China's real estate sector and market, the Chinese government is demonstrating its commitment to supervise and modify the real estate business through these policy measures.

8. Conclusion

Evergrande's insolvency offers valuable lessons for other real estate firms, serving as practical guidance on risk management. One approach is diversifying dependencies on customers and projects, which minimizes exposure to the effects of any single client or project. Another crucial component is to monitor policies affecting the real estate industry closely. Enterprises must adjust to policy changes flexibly, tailoring their business plans to align with the market environment. Additionally, implementing prudent capital management practices is essential to ensuring effective cash flow and capital chain monitoring. This will safeguard adequate liquidity and facilitate the prudent management of transactions with riskier counterparties. The sustainability of a company's operations necessitates frequent risk assessments, a robust risk management process, and the prompt identification and mitigation of potential threats. In conclusion, meticulous deliberation and thorough analysis are necessary for the effective execution of a diversification strategy.

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