Case Study of the Conglomerate Bankruptcy Scandal in Taiwan (The Rebar Group)

By

Tai-Hui Chiu

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Signature of Author: Signature redacted
MIT Sloan School of Management
May 8, 2015

Certified by: Signature redacted
Christopher Noe
Senior Lecturer, Accounting, MIT Sloan School of Management
Thesis Supervisor

Accepted by: Signature redacted
Michael A. Cusumano
SMR Distinguished Professor of Management
Program Director, M.S. in Management Studies Program
MIT Sloan School of Management

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ABSTRACT

In Taiwan, big companies are basically family-owned enterprises. They begin with a primary industry or a secondary manufacturing industry, and then reach out to a tertiary sector, providing services in various industries. Family businesses use cross-shareholding and affiliation to legally solidify their ownership of listed companies. In addition, they build close relationships with the government or a political party for years, which leads to some unspoken privilege or special benefits. However, diversification and strategic alliances can hide serious financial risks in companies. For example, the Rebar Group's bankruptcy case in 2007 caused severe financial turmoil in Taiwan and drew people's attention to affiliated companies.

My research will focus on the context of the Rebar Group's bankruptcy case and the lessons we can learn from the case to avoid any future financial crisis. With the use of only public information from 2001 to 2005, a deep dive fundamental analysis of two main affiliated companies in the group will be conducted. Before the analysis, the Beneish M-Score will be used to see the possibilities of earning manipulation. In addition, there are several financial formulas to evaluate corporate credit risks, including the Altman Z-Score and the Ohlson O-Score. In my research, these models will also be used to see whether the case could have been effectively detected earlier.

Thesis Supervisor: Christopher Noe
Title: Senior Lecturer, Accounting, MIT Sloan School of Management

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1. Introduction

In the beginning of 2007, some shocking news came suddenly to the Taiwan stock market, not giving investors much time to give thanks for the smooth previous year and to enjoy the celebration of New Year's Eve. China Rebar Co. and Chia Hsin Food and Synthetic Fiber Co., Ltd., two main public companies from the famous Taiwanese conglomerate, the Rebar Group, filed for insolvency protection[1] with the courts on December 29, 2006 and announced their bankruptcy to the public[2] on January 4, 2007. The chairman of the troubled conglomerate, Wang You-Theng, fled to China with his wife before the declaration of insolvency. The news provoked huge panic in Taiwan. People worried that Rebar-related stocks or assets on hand would become worthless; they sold out shares and withdrew savings from the affiliated bank. After a thorough investigation, prosecutors found that the group's money was gradually embezzled from 1998 and accused the management of misappropriating funds from companies. Amid a general atmosphere of national panic, the broader financial crisis began with the fall of one of the most prestigious group companies in Taiwan.

The Rebar Group was founded by Wang You-Theng in 1959. Ever since, people associated the Rebar Group with the Wang Family. The group was a family-owned conglomerate. The stock holding structure was well-designed and extremely complicated (See Exhibits 1 and 2 for its group structure and cross ownership). The ultimate owners were all Wang family members. There were five publicly traded companies and more than one hundred private companies in the Rebar Group. The Rebar Group engaged in diverse industries, including finance (bank, insurance, and bill issuing), service (real estate, retail chain, hotel, department stores), manufacturing (construction, textiles, cement, and food), and telecommunications (media and telephone). As one of the most successful businessmen in Taiwan for years[3], Wang You-Theng built up firm relationships with other leading Taiwanese companies and the Taiwan government. The Rebar Group became one of the biggest and most famous Taiwanese conglomerates. With explicit and implicit relationships with the government, a few of the family businesses controlled most parts of the economy in Taiwan. However, when the market became liberalized step by step and the relationship advantage became minimized, these family businesses faced fierce competition. Some of them lost their leading positions in the market. The Rebar Group was one of the best examples.

2. China Rebar Co.

Company history

China Rebar Co. ("China Rebar") was founded by Wang You-Theng in 1959. The headquarters was located in Taipei City, Taiwan. At first, the company was named "China Rebar Steel Company[3]." In order to diversify the company's businesses because of poor performance on sales of steel products, the company changed its name to "China Rebar Company" in 1970. The company then started manufacturing products in different industries, such as cement and textiles. Different from other companies in Taiwan, China Rebar was known for its multidimensional operations, including its construction business, department stores, and international hotels. The company went public[4] and was listed[5] on the Taiwan Stock Exchange with the stock code 9801[6] in October 1973 (see Exhibit 3 for its historical stock price from 1987 to 2007).

On December 27, 2006, China Rebar and its affiliated company Chia Hsin Food & Synthetic Fiber Co., Ltd., filed for bankruptcy protection and announced their intention to restructure on January 4, 2007 because of financial problems. On April 4, 2007, the company was delisted[7] by the Taiwan Stock Exchange.

Business

China Rebar started in the structured steel business in 1959. To forge ahead and expand to other business areas, the company diversified its operations step by step. In 2005, there were six business segments: cement, textiles, aluminum doors and windows, department stores, construction, and international hotels (See Exhibit 4 for sales segmentation from 2003 to 2005).

Cement:

Even though the company engaged in the cement industry as early as 1976, it had never been regarded as a leading cement manufacturer in Taiwan. The company's cement products were used for both domestic and overseas construction. In Taiwan, the annual demand for cement was stable for years[8], but there were many Taiwanese cement manufacturers that still expanded their production and also targeted foreign markets[9]. With the continuous growth of the economy and the stronger need for infrastructure and houses in China, Taiwanese cement manufacturers had the location and language advantage to do business there and export products to mainland China[9]. But the economic growth outlook in China was complicated. The cement industry was very capital-intensive and energy-dependent. Compared with other Taiwanese cement manufacturers, the company invested much less in the cement business to update manufacturing equipment and the power system. The company's poor efficiency and energy saving negatively impacted its pricing strategy as well as its market share[10]. The sales from Cement accounted for around 13% of total revenues in 2005.

Textiles:

In 1974, the company started engaging in the textiles business, applying new technology of textile materials and manufacturing rexalon fiber with up-to-date machines. China Rebar sold textiles products to not only the domestic market but also foreign markets. The fiber at that time was very welcome with some features, such as strength, colorfastness, and comfort. It could be used for weaving, industrial and home use. However, with the entry of competitors and the significant change of the textile industry, the company decided to shift its business focus to other businesses. In 2005, the revenue of textiles accounted for less than 5% of total revenues.

Aluminum doors and windows:

The company operated in aluminum products from 1973. Its products were globally recognized and famous for fine workmanship. In 1977, the company cooperated with Japanese companies, using their light-metal technology to produce new kinds of aluminum products. In the 1980s, to expand the business, the company purchased new equipment from Japan to manufacture stainless-steel products. At the same time, the company built a whole new factory and started mechanized production, leading China Rebar to be the top manufacturer in Taiwan of aluminum doors and windows[11]. Nevertheless, the company switched its focus to other more profitable industries in the 1990s. In 2005, the sales of aluminum products accounted for only around 5% of total sales.

Department stores:

Taking reference from successful European department stores, the company built its first department store in Taipei City, Taiwan called "Idee Taipei I" in 1995. This department store mainly focused on female clients, providing handsome doorman service and spacious shopping places and restrooms. It was very successful and became a new attraction in Taipei City. Building on its success, the company built a second department store in Chiayi City, Taiwan called " Idee Chiayi". This department store was designed for families, creating an inviting space for people of different ages to shop and relax. Proud of the quality service to crowds from all generations, Idee Chiayi was one of the most famous department stores in south Taiwan. In the same year, China Rebar opened another department store in Taipei City called "Idee –S". This department store targeted 15 to 30 year-old people. To satisfy the younger generation, it was planned for not only shopping but also amusement and relaxation. Popular for creativity and individuality, the store had unconventional coffee stores and basketball courts in the same building as the department store. China Rebar reached another two provinces in Taiwan, Taoyuan and Taichung, in 2002 and 2003, respectively. Idee Taoyuan and Idee Taichung were introduced and successfully integrated into Taiwanese people's lives. The company opened several department stores in the main cities of Taiwan in consecutive years. The sales from department stores accounted for more than 70% of total revenues in 2005.

Construction:

Beginning in 1988, the company provided construction services, which included construction of commercial buildings, residential buildings and houses. The company was very proactive about up-to-date construction technology. China Rebar cooperated with foreign companies and introduced new technologies related to the shape of high buildings, trying to turn a new page in the construction industry in Taiwan. China Rebar collaborated on technology with Japanese companies, reinforcing its building skills and enhancing the quality of buildings. However, the internal improvement could not overcome an external real estate recession in the Taiwan market. According to the Population and Housing Census from the Taiwan Statistics administration[12], the housing vacancy rate from 2000 to 2010 continued to grow. In addition, more and more competitive construction companies came to the Taiwanese real estate market in this time period. China Rebar gradually lost its interest in the construction business. In 2005, the revenue from construction was about 4% of total sales.

Hotel:

China Rebar founded its international hotel in Taipei City in 1986. There were well designed facilities in the hotel, providing every kind of luxury service. The hotel at the time was positioned as a five-star hotel and regarded as the best international hotel in Taipei City. In 2001, the company signed operational contracts[13] with Holiday Inn, Worldwide (Bass Hotel Resorts), applying a new computer system and other technologies to its hotel operation. China Rebar then changed the hotel name to "Rebar Crown Plaza". However, the hotel market for Rebar Crown Plaza was extremely competitive, because there were more and more luxury hotels built by foreign companies and other big Taiwanese conglomerates with better locations. The 2005 revenue derived from the hotel was around 2% of total revenues.

M-Score

Before the more detailed financial analysis, I attempted to ascertain whether the financial statements were misstated by using a summary measure of earnings manipulation. Using data from the company's financial statements, I applied the Beneish M-Score[30] to this case. China Rebar's Beneish M-Score calculated from 2002 to 2005 is shown in Table 1. From the model results, probabilities for earnings manipulation of China Rebar in the time period were very low. The highest rate during the time period appeared in 2005, and the figure was slightly higher than -2.22, a commonly used cutoff to signal potential manipulation. The greater score in 2005 mostly came from the change in days sales in receivables index. It revealed the potential risk in the inflation of revenue.

Table 1. China Rebar's M-Scores from 2002 to 2005

China Rebar M-Score		**2002**		**2003**		**2004**		**2005**	
	Coefficient	**Variable**	**Value**	**Variable**	**Value**	**Variable**	**Value**	**Variable**	**Value**
	-4.84		-4.84		-4.84		-4.84		-4.84
DSRI	0.92	0.55	0.51	0.44	0.41	0.47	0.43	2.07	1.90
GMI	0.53	1.13	0.60	1.05	0.56	0.99	0.53	0.88	0.47
AQI	0.40	1.08	0.44	1.02	0.41	1.06	0.43	1.10	0.44
SGI	0.89	1.13	1.01	1.13	1.00	1.21	1.08	1.05	0.93
DEPI	0.12	1.11	0.13	0.95	0.11	0.80	0.09	1.01	0.12
SAI	-0.17	0.89	-0.15	1.11	-0.19	0.88	-0.15	0.94	-0.16
LEVI	-0.33	1.03	-0.34	1.09	-0.36	1.06	-0.35	1.08	-0.35
TATA	4.68	-0.11	-0.52	-0.14	-0.68	-0.09	-0.40	-0.11	-0.52
M-Score			-3.17		-3.57		-3.18		-2.01
Manipulation Probability			0.08%		0.02%		0.07%		2.23%

Z-Score

I also attempted to predict the possibility that a company would go bankrupt using the Altman Z-Score[31]. According to China Rebar's Z-Score from 2001 to 2005, as presented in Table 2, there was a red flag regarding the company's insolvency. Normally, if the Z-Score is lower than 1.81, the figure indicates a high likelihood that a company would go bankrupt. China Rebar started this period with an extremely dangerous Z-Score number, and the situation became worse year by year, especially in 2003 and 2005. In 2005, the Z-Score was 0.02 and the probability of bankruptcy rose to 83.55%.

Table 2. China Rebar's Z-Scores from 2001 to 2005

China Rebar Z-Score		2001		2002		2003		2004		2005	
Variable	Coefficient	Variable	Value	Variable	Value	Variable	Value	Variable	Value	Variable	Value
Working capital/ Total assets	1.2	0.01	0.01	-0.11	-0.13	-0.16	-0.19	-0.15	-0.18	-0.19	-0.23
Retained Earnings/ Total Assets	1.4	-0.06	-0.08	-0.10	-0.14	-0.18	-0.25	-0.06	-0.09	-0.11	-0.16
EBIT/ Total Assets	3.3	-0.03	-0.09	-0.03	-0.10	-0.05	-0.16	-0.05	-0.16	-0.03	-0.11
Market Value/ Liabilities	0.6	0.48	0.29	0.40	0.24	0.40	0.24	0.30	0.18	0.15	0.09
Sales/ Total Assets	1	0.23	0.23	0.29	0.29	0.35	0.35	0.45	0.45	0.43	0.43
Z-Score			0.35		0.15		-0.01		0.20		0.02
Probability of bankruptcy			74.10%		80.29%		84.37%		78.83%		83.55%

O-Score

Another famous bankruptcy prediction model, the Ohlson O-Score[32], was also applied in this case. From the O-Score results from 2001 to 2005 in Table 3, the increasing scores are all extremely high, suggesting a 100% chance that China Rebar would go bankrupt. Generally speaking, once the O-Score is larger than 0.5, the number indicates that a company may default within two years. The O-Score results of the company ranged from 12 to almost 30. The O-Score model showed how serious the company's financial problems were.

Table 3. China Rebar's O-Scores from 2001 to 2005

China Rebar O-Score		2001		2002		2003		2004		2005	
Vavriable	Coefficient	Vavriable	Value	Vavriable	Value	Vavriable	Value	Vavriable	Value	Vavriable	Value
	-1.320		-1.320		-1.320		-1.320		-1.320		-1.320
AS	-0.407	8.594	-3.498	8.550	-3.480	8.519	-3.467	8.488	-3.455	8.523	-3.469
LM	6.030	0.639	3.854	0.667	4.021	0.730	4.403	0.769	4.637	0.807	4.869
WCM	-1.430	0.008	-0.011	-0.112	0.160	-0.157	0.225	-0.153	0.218	-0.189	0.271
ICR	0.757	0.977	0.740	1.405	1.064	1.666	1.261	1.715	1.298	2.037	1.542
ROA	-2.370	-5.533	13.114	-6.258	14.831	-8.110	19.221	-6.567	15.565	-11.595	27.480
FTDR	-1.830	-0.074	0.135	-0.078	0.142	-0.092	0.169	-0.060	0.110	-0.121	0.222
DCLM	-1.720	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DCRA	0.285	0.000	0.000	1.000	0.285	1.000	0.285	1.000	0.285	1.000	0.285
CINI	-0.521	0.685	-0.357	0.022	-0.011	0.085	-0.044	-0.139	0.072	0.284	-0.148
O-Score			12.658		15.693		20.732		17.410		29.732
Probability of Failure			100.00%		100.00%		100.00%		100.00%		100.00%

Financial Analysis

According to the results of bankruptcy models, the company appeared to be troubled. Now I will conduct more detailed financial analysis. I will start from the DuPont analysis. The time period for analysis covers 2001 to 2005. Exhibits 5, 6 and 7 are the balance sheets, income statements and cash flow statements of this time period.

DuPont Analysis

Return on assets (ROA) and return on equity (ROE) demonstrates the same results. ROA worsened from -5.53% in 2001 to -11.60% in 2005, with ROE falling from -14.75% in 2001 to –64.72% in 2005.

Table 4. China Rebar's ROA and ROE from 2001 to 2005

	2001	2002	2003	2004	2005
Return on Assets	-5.53	-6.26	-8.11	-6.57	-11.60
Return on Equity	-14.75	-18.00	-26.80	-26.16	-64.72

The DuPont calculation from Table 5 shows that China Rebar improved its asset turnover during this time period. Even though the improvement was derived partially from the annual rise in sales revenue, shrinking total assets also contributed to the change. Pretax margin in the 5-year period stayed at about -25%, except for the number in 2004, because of the huge decline in interest expense (more than 50%, compared with the number in 2001). ROA should have been better from 2004. But in 2005, the number became even worse than numbers before 2004, due to the recognition of impairment losses. After 2001, the company started diminishing debts and reached its lowest point of leverage at the end of 2003. However, annual net losses reduced the total assets at the same time, even more severely. The equity multiplier kept growing and negatively amplified the problem of ROA regarding ROE. China Rebar from 2004 could not endure the huge losses and was desperate for the capital. The company knew that it was almost impossible to finance via stock, so another debt financing strategy began. The equity multiplier was 5.58 in 2005, and ROE was down to -64.72%.

Table 5. China Rebar's DuPont calculations from 2001 to 2005

	2001	2002	2003	2004	2005
Asset Turnover	0.22	0.27	0.33	0.43	0.45
x Pretax Margin (%)	-27.55	-23.80	-25.05	-15.47	-27.48
x Tax Rate Complement (1-Tax Rate)	--	--	--	--	--
= Return on Assets (%)	-5.53	-6.26	-8.11	-6.57	-11.60
x Equity Multiplier (Assets/Equity)	2.67	2.88	3.30	3.98	5.58
= Return on Equity (%)	-14.75	-18.00	-26.80	-26.16	-64.72

Profitability

With its diverse businesses, China Rebar generally had approximately 13% gross margin, as shown in Table 6. From 2001 to 2005, the total sales grew over 60%, as did the cost of goods sold. Net margin during the period ranged from -23% to -26%, except for the year 2004. In 2004, since the company had fewer debts and lower interest expenses, nonoperating expenses and net loss were both lower. The company collateralized most of its assets, such as inventory and fixed assets, and utilized its powerful networking to obtain lower interest rates. After 2004, the company should have felt slight relief from interest. But in 2005, to abide by newly issued accounting standards regarding impairment of assets, the company recognized 1.71 billion New Taiwan Dollars for impairment losses[15], more than 10% of revenues in that year. Most of the impairment losses were from long-term equity investments.

Table 6. China Rebar's Profitability Ratios from 2001 to 2005

	2001	2002	2003	2004	2005
Gross Margin	14.42	12.71	12.09	12.17	13.74
Operating Margin	-12.08	-10.88	-14.00	-10.92	-7.94
Net Margin	-24.98	-23.12	-24.33	-15.15	-25.95

Activity

According to receivables turnover figures from 2001 to 2005 in Table 7, China Rebar improved its efficiency of collecting receivables from customers. A reason behind the improvement was that the company changed its operating focus to the department store industry, which normally uses cash payments. Accounts receivable from related parties were also gradually refunded. With sales growing and accounts receivable declining, receivables turnover rose to more than 10 after 2004.

China Rebar's inventories in this time period were mainly housing estates and lands. Without new construction plans and the sales of completed house projects, inventories decreased nearly 50% in 2005, compared with 2001. One of the features of department store industry was the lower requirement of inventory in stock and fewer days of inventory on hand. Inventory turnover increased from 1.07 in 2001 to 2.98 in 2005. China Rebar's payables turnover was mostly around 5 to 7 as shown in Table 7, with no considerable variation.

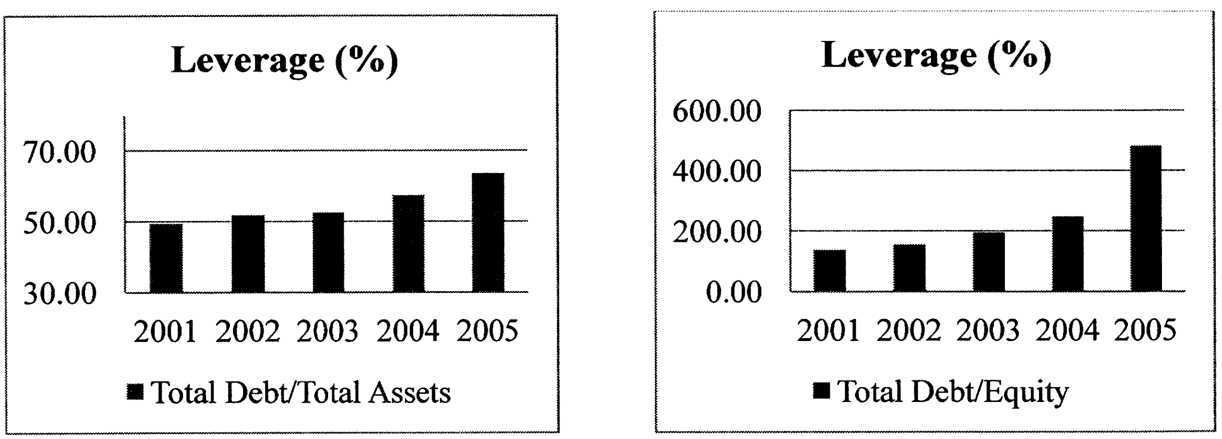
Table 7. China Rebar's Working Capital Ratios from 2001 to 2005

	2001	2002	2003	2004	2005
Receivables Turnover	1.73	2.53	4.94	11.51	10.49
Inventory Turnover	1.07	1.35	1.77	2.40	2.98
Payables Turnover	5.47	5.72	6.29	7.38	6.08

Leverage

During the time period from 2001 to 2005, China Rebar's leverage ratios continued to increase as shown in Figure 1. Especially in 2005, total debt-to-assets reached 63.71% and total debt-to-equity reached 483.61%. From 2001 to 2003, the company attempted to pay back its obligations and lessen its debts. Total debt actually decreased. However, net losses every year led to a decrease in assets and equity and an increase in leverage ratios. The company claimed that it would change its concentration to more lucrative businesses and recover soon, persuading banks to lend more for operations with the company's assets as collateral.

Figure 1. China Rebar's Leverage Ratios from 2001 to 2005



Liquidity

According to Table 8, China Rebar's liquidity ratios from 2001 to 2005 revealed the poor financial health of the company. Current assets were lower than current liabilities from 2002. In 2005, the current ratio fell below 0.50. The quick ratio and the cash ratio worsened as well during this time period. The figures in 2005 were slightly higher because newly issued debts brought cash in to the company.

Table 8. China Rebar's Liquidity Ratios from 2001 to 2005

	2001	2002	2003	2004	2005
Current Ratio	1.02	0.71	0.60	0.58	0.49
Quick Ratio	0.47	0.28	0.19	0.16	0.21
Cash Ratio	0.02	0.01	0.01	0.01	0.02

3. Chia Hsin Food and Synthetic Fiber Co., Ltd.

Company History

Chia Hsin Food and Synthetic Fiber Co., Ltd. ("Chia Hsin") was founded in 1967. The headquarters was located in Taipei City, Taiwan. The company was mainly engaged in the business of manufacturing and selling synthetic fibers and food products. It also invested in real estate development, selling and renting office buildings. At the very beginning, the company managed a commodity business, especially food products. When the food product market became over-saturated, Chia Hsin gradually changed its focus toward the synthetic fiber business. However, the company never performed as a leading company in any industry and suffered from high capital costs because of the continuous investment in new businesses.

Chia Hsin was first listed on the Taiwan Stock Exchange with the stock code 1207 in 1974[17] (see Exhibit 8 for its historical stock price from 1987 to 2007). With more and more companies coming to the market, the company encountered fierce competition and decided to pursue other businesses to lower operating risks. For more than 30 years, Chia Hsin never paid cash dividends but instead stock dividends, keeping more cash on hand for new investment plans. However, from 1999, the company started suffering net losses and stopped paying stock dividends. There was no sign of recovery, and then the bankruptcy occurred. On April 4, 2007, the Taiwan Stock Exchange made its determination to delist Chia Hsin[4].

Business

The main businesses of the company included food products, feeds, cooking oil, chicken, synthetic fibers, and real estate. (see Exhibit 9 for sales segmentation from 2003 to 2005).

Food (flour):

According to the research from the Council of Agriculture in Taiwan[18], people in Taiwan gradually changed their diets, not merely relying on rice and mung bean powder as staple foods. The demand for flour increased year by year and businesses selling flour-related products flourished. But the changing need also negatively influenced other food products of Chia Hsin. To better meet consumers' needs in the future, the company cooperated with high-tech Japanese companies to research new kinds of food and flour products. The company also engaged in biological high-tech food products[19]. However, Chia Hsin did not purchase up-to-date equipment or spend enough on research of food products to reach the stricter requirements from consumers, unlike other food manufacturers. The company tried but failed to expand its market share to gain economies of scale to lower the cost of sales, which was the critical advantage for flour manufacturers. In addition, the Chia Hsin's group procurement policies with other manufacturers to purchase raw materials was outdated. Other leading manufacturers already had the ability to make individual orders with suppliers. In 2005, the revenue from the food business accounted for roughly 25% of total sales.

Feeds:

The company was proud of having powerful and adequate storage equipment for feeds. In the beginning, these assets reinforced the company's warehousing and enabled the company to buy more raw materials when they were at rock bottom prices. Nevertheless, the technology on storage equipment continuously improved, with the storage advantage of Chia Hsin disappearing. In addition, Taiwan became a member state of the World Trade Organization in 2002. Under market researchers' expectations[20], the supply of feeds had a high possibility of surpassing the demand.

To be more competent, feeds manufacturers applied vertical integration for years[21], combining the feed business as well as the animal husbandry business. However, Chia Hsin started approaching related businesses later than key competitors. In 2005, the revenue from feeds was approximately 1% of total sales.

Cooking Oil:

With Taiwan's entry into the World Trade Organization, the company was proactive to sell oil products in other countries, especially in Eastern Europe. However, the food oil market was extremely competitive, and the company had not built up strong popularity and close relationships to retain buyers. In addition, there were more and more substitutes for oil products of the company, such as olive oil and corn oil. The revenue of cooking oil in 2005 accounted for 9% of total sales.

Chicken:

Chia Hsin had several long-term contracts, providing chicks directly to main consumer companies in Taiwan. The company had low pressure on sales and enjoyed stable prices. To expand to the individual market, the company provided online order and delivery service to differentiate itself from others. However, outdated hennery facilities led the company to suffer from poor production and ineffectiveness. Compared with other large stock-farming companies, the company did not play a big role in the market. In 2005, the revenue derived from the chicken business was around 6% of total sales.

Synthetic fibers:

Synthetic fibers were widely used in every country, both in industrial products and consumer products. Taiwan manufacturers, however, confronted difficulties because of the pricing war brought from South Korea, China, and other Asian countries. In addition, instability of the New Taiwan Dollar led to currency risks for local exporting companies. Most of the main domestic manufacturers retired old machines, improving their efficiency and competency. However, Chia Hsin did not reinvest in a timely way and suffered from quality issues. In addition, because of poor performance of sales in synthetic fibers, the new construction plans for factories were postponed several times. The revenue from synthetic fiber business accounted for nearly 55% of total sales in 2005.

Real estate:

The increase in the population in Taiwan led to higher demand for housing. With limited land in the country, more and more buildings or rebuilding plans were expected. However, construction costs and wages kept rising. At the same time, people and companies struggled during the recent economic crisis and were reluctant to buy a house or an office during the downturn in Taiwan's economy. It was inevitable for construction companies' profit to decline. Moreover, real estate was never a main target market for Chia Hsin. In 2005, the revenue from real estate was only 1% of total sales.

M-Score

According to the Chia Hsin's M-Scores from 2002 to 2005, as presented in Table 9, there was a small possibility that the company manipulated its earnings, except for 2005. In 2005, the figure was -0.53, greater than -2.22, and indicated a strong likelihood of the firm being a manipulator. The probability of manipulation reached almost 30% largely due to the unusual increase in accounts receivable, indicating that there might be an inflation of revenue. The creditability of the financial reports in the year 2005 may be questionable.

Table 9. Chia Hsin's M-Scores from 2002 to 2005

Chia Hsin M-Score		2002		2003		2004		2005	
	Coefficient	**Variable**	**Value**	**Variable**	**Value**	**Variable**	**Value**	**Variable**	**Value**
	-4.84		-4.84		-4.84		-4.84		-4.84
DSRI	0.92	0.66	0.61	0.61	0.56	0.45	0.41	3.98	3.67
GMI	0.53	0.32	0.17	-8.15	-4.30	0.21	0.11	0.49	0.26
AQI	0.40	1.02	0.41	1.03	0.42	0.93	0.38	1.10	0.44
SGI	0.89	1.07	0.96	0.99	0.89	1.01	0.90	0.82	0.73
DEPI	0.12	0.96	0.11	0.71	0.08	0.90	0.10	0.93	0.11
SAI	-0.17	0.96	-0.16	1.03	-0.18	0.90	-0.15	1.22	-0.21
LEVI	-0.33	1.06	-0.35	1.08	-0.35	0.99	-0.33	1.12	-0.37
TATA	4.68	-0.07	-0.35	-0.09	-0.42	0.00	-0.01	-0.07	-0.32
M-Score			-3.44		-8.15		-3.42		-0.53
Manipulation Probability			0.03%		0.00%		0.03%		29.85%

Z-Score

I also used the Altman Z-Score[31] to predict the possibility that a company would go bankrupt. The Z-Scores of Chia Hsin from 2001 to 2005, as shown in Table 10, revealed the strong likelihood of financial distress. The numbers in the time period all showed serious bankruptcy risk for the company. In addition, Chia Hsin's financial situation became worse year by year. In 2005, the Z-Score turned negative, and the probability of bankruptcy achieved nearly 90%.

Table 10. Chia Hsin's Z-Scores from 2001 to 2005

Chia Hsin Z-Score		2001		2002		2003		2004		2005	
Variable	Coefficient	Variable	Value	Variable	Value	Variable	Value	Variable	Value	Variable	Value
Working capital/ Total assets	1.2	-0.11	-0.13	-0.13	-0.15	-0.26	-0.32	-0.27	-0.32	-0.27	-0.32
Retained Earnings/ Total Assets	1.4	-0.06	-0.08	-0.10	-0.14	-0.18	-0.26	0.00	0.00	-0.09	-0.13
EBIT/ Total Assets	3.3	-0.01	-0.05	-0.01	-0.02	-0.02	-0.08	-0.04	-0.12	-0.04	-0.13
Market Value/ Liabilities	0.6	0.97	0.58	0.83	0.50	0.79	0.47	0.72	0.43	0.30	0.18
Sales/ Total Assets	1	0.25	0.25	0.29	0.29	0.31	0.31	0.36	0.36	0.27	0.27
Z-Score			0.58		0.47		0.13		0.35		-0.13
Probability of bankruptcy			66.29%		70.02%		80.89%		74.09%		87.12%

O-Score

According to the O-Scores of Chia Hsin in 2001-2005, as shown in Table 11, the company was at high risk of going bankrupt. The O-Scores ranged from 5.069 to 25.291, much higher than the general upper limit of 0.5. The score declined once in 2004 to 5.069, but the number was still larger than the standard and showed the significant financial risks of the company.

Table 11. Chia Hsin's O-Scores from 2001 to 2005

Chia Hsin O-Score		2001		2002		2003		2004		2005	
Vavriable	Coefficient	Vavriable	Value	Vavriable	Value	Vavriable	Value	Vavriable	Value	Vavriable	Value
	-1.320		-1.320		-1.320		-1.320		-1.320		-1.320
AS	-0.407	8.572	-3.489	8.548	-3.479	8.513	-3.465	8.447	-3.438	8.491	-3.456
LM	6.030	0.668	4.027	0.710	4.284	0.771	4.647	0.739	4.455	0.818	4.935
WCM	-1.430	-0.106	0.151	-0.128	0.183	-0.263	0.376	-0.268	0.384	-0.267	0.382
ICR	0.757	1.578	1.194	1.782	1.349	3.077	2.329	3.257	2.465	2.705	2.047
ROA	-2.370	-5.390	12.774	-5.720	13.556	-7.860	18.628	-0.780	1.849	-9.580	22.705
FTDR	-1.830	-0.043	0.078	-0.039	0.071	-0.079	0.144	0.025	-0.046	-0.085	0.155
DCLM	-1.720	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DCRA	0.285	0.000	0.000	1.000	0.285	1.000	0.285	1.000	0.285	1.000	0.285
CINI	-0.521	0.435	-0.226	0.006	-0.003	0.123	-0.064	-0.838	0.436	0.848	-0.442
O-Score			13.189		14.926		21.560		5.069		25.291
Probability of Failure			100.00%		100.00%		100.00%		99.38%		100.00%

Financial Analysis

The time period for analysis ranged from 2001 to 2005. Exhibits 10, 11 and 12 are the balance sheets, income statements and cash flow statements during this time period.

DuPont Analysis

Return on assets (ROA) and return on equity (ROE) remained negative and declined in these five years (see Table 12). The ratios in 2004 were slightly improved, compared with other years.

Table 12. Chia Hsin's ROA and ROE from 2001 to 2005

(%)	2001	2002	2003	2004	2005
ROA	-5.39	-5.72	-7.86	-0.78	-9.58
ROE	-15.38	-18.36	-30.13	-3.18	-47.54

According to the DuPont calculation shown in Table 13, the decline in ROA during the five years derived from falling pretax margin. Apart from rising interest expense, cost of goods sold also grew and even surpassed sales revenues. Although Chia Hsin successfully halted the growth of its operating expenses, the company still could not earn any profit on its sales. Chia Hsin's net losses also lessened its asset size year by year from 35.03 billion in 2001 to 26.42 billion in 2004 New Taiwan Dollars. The asset turnover numbers demonstrated that there was only a slight positive change in how effectively the company used its assets.

ROE became much worse because of the amplification of financial leverage. In the time period from 2001 to 2004, the increasing equity multiplier was mainly caused by decreasing assets and equity because of severe net losses. In 2005, the company borrowed more and made the multiplier even larger.

Table 13. Chia Hsin's DuPont calculations from 2001 to 2005

	2001	2002	2003	2004	2005
Asset Turnover	0.25	0.28	0.30	0.34	0.28
x Pretax Margin (%)	-17.19	-15.15	-27.39	-3.04	-35.99
x Tax Rate Complement (1-Tax Rate)	--	--	--	--	--
= Return on Assets (%)	-5.39	-5.72	-7.86	-0.78	-9.58
x Equity Multiplier (Assets/Equity)	2.85	3.21	3.83	4.10	4.96
= Return on Equity (%)	-15.38	-18.36	-30.13	-3.18	-47.54

Profitability

During the time period from 2001 to 2005, Chia Hsin had difficulty generating earnings. It was difficult for revenues to offset even the costs of sales. From Table 14, the gross margin fluctuated and decreased from 1.72% in 2001 to -6.56% in 2005. With the SG&A expenses to sales steady, the operating margin moved in the same direction as the gross margin from -5.73% in 2001 to -14.64% in 2005. The big gap between the operating margin and the net margin came mainly from interest expense and equity investment losses. In 2004, the net margin was higher than the operating margin because of the gain on disposal of fixed assets[22], which was around 2 billion New Taiwan Dollars.

Table 14. Chia Hsin's Profitability Ratios from 2001 to 2005

	2001	2002	2003	2004	2005
Gross Margin	1.72	5.36	-0.65	-3.19	-6.56
Operating Margin	-5.73	-1.79	-8.03	-9.83	-14.64
Net Margin	-21.78	-20.52	-26.47	-2.31	-34.11

Activity

The company's receivables turnover gradually improved from 2001 to 2005 (see Table 15). Chia Hsin had growing sales numbers from 2001 to 2004 and had greater ability to collect its sales payments. However, another reason behind the numbers was the company recognized more bad debt expense in 2004 and 2005, which decreased the accounts receivable numbers.

There was a steady improvement in Chia Hsin's inventory turnover during the time 2001-2005. The inventory turnover numbers revealed that the company realized its operational difficulties and attempted to manage its inventory wisely. Inventory on hand decreased year over year. Especially in 2005, the inventory number decreased more than 25% compared with the number in 2004. But the decrease still could not cover the fall in sales and costs of goods sold, so inventory turnover was slightly lower than the previous year.

Chia Hsin generally had decreasing payables turnover figures for the time period 2001-2005. The company negotiated with its suppliers and slowed down paying bills. Either the Wang family with good reputations and relationships was able to convince suppliers, especially small vendors, to extend payoff deadlines, or these suppliers knew the company's operating situation, so they had no way to collect their receivables on time.

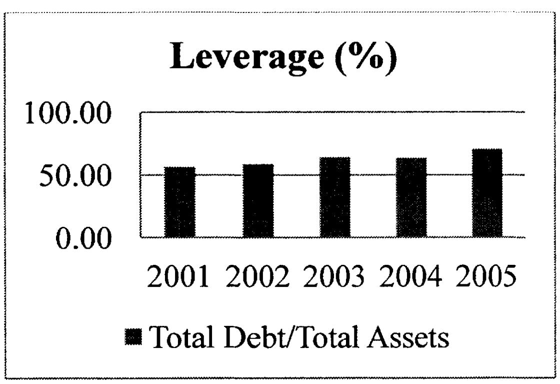
Table 15. Chia Hsin's Working Capital Ratios from 2001 to 2005

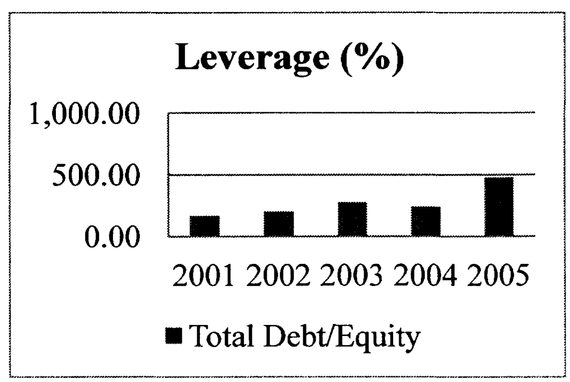
	2001	2002	2003	2004	2005
Receivables Turnover	2.60	3.53	5.27	9.77	6.00
Inventory Turnover	3.35	3.73	4.27	4.98	4.92
Payables Turnover	14.15	10.45	9.54	11.98	7.06

Leverage

From 2001 to 2005, the company had a serious risk issue according to its rising leverage ratios. In 2001, the debt-to-equity ratio and the debt-to-asset ratio were 171% and 57% respectively, which were high enough to attract administration and investor attention. However, the company still had its power to finance from banks because of relationships and reputation. Since the company suffered net losses for years, Chia Hsin always tried to negotiate with banks to extend its debts, and the banks had no choice but to approve the request. The leverage ratio reached its highest and the financial health became the worst at the end of 2005, with the debt-to-equity ratio near 500% and the debt-to-asset more than 70%. New issued debts in 2005 led the ratios to reach the highest points in the company's history. Huge debts incurred huge interest expenses at the same time. It was difficult for Chia Hsin to meet its interest obligations.

Figure 2. Chia Hsin's Leverage Ratios from 2001 to 2005





Liquidity

Based on liquidity ratios from 2001 to 2005, as shown in Table 16, Chia Hsin's ability to deal with short-term obligations was poor and weakened. According to the current ratio, current assets were always lower than current liabilities, not to mention other more stringent liquidity ratios. However, the company survived and few people questioned the sustainability of the company because it played a main role in the Rebar Group.

Table 16. Chia Hsin's Liquidity Ratios from 2001 to 2005

	2001	2002	2003	2004	2005
Current Ratio	0.63	0.56	0.33	0.31	0.37
Quick Ratio	0.40	0.31	0.16	0.12	0.25
Cash Ratio	0.02	0.02	0.01	0.00	0.04

4. Criminal Mechanisms for the Rebar Group Scandal

Cross Ownership[23]

The Wang family used cross ownership to consolidate its controlling power over the Rebar Group. The family utilized private subsidiaries to achieve vertical cross ownership. With its absolute decision-making power, the family was able to avoid investigation and supervision from the market and to even change internal controls as long as the family wanted. There was no sense of corporate governance in the Rebar Group. In addition, the government had no relevant rules to curb the cross ownership, or ways to discover the problem beforehand. Other shareholders suffered from information asymmetry and potential moral hazard because there was no duty for these subsidiaries to have transparent disclosure regarding corporate governance and financial performance.

Sales and Earnings Manipulation [23]

From 1977, the Wang family continued founding subsidiaries for the operational needs of China Rebar Co. and Chia Hsin Food & Synthetic Fiber Co.. Particularly during the time period in 1999 and 2000, the family created another 39 companies to cope with its worsening economic situation. In fact, these small companies existed but did not do any business. The companies did not hire anyone but used China Rebar Co.'s internal treasury employees as the companies' accountants. Getting paid from 1,000 to 3,000 New Taiwan Dollars per month, these employees followed orders to issue fake vouchers and receipts, to write checks for payments, and to report earnings. The capital was then gradually transferred into the two main companies' accounts and the Wang family's personal accounts.

Investment[23]

As the Wang family fully controlled the two main companies and their boards, the family held meaningless board meetings and permitted several investment projects to found more small companies. Firstly, the two main companies raised the needed capital within the group. They then remitted the amount of investments to the affiliated bank for capital verification from regulators. Once the verification was done, the money was transferred back immediately, rather than kept for the subsidiaries' operating use.

According to Healy and Wahlen (1999)[24], "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." China Rebar Co. utilized long-term investments in shell subsidiaries as window dressing for its financial reports, and as a source of embezzled funds. They built up subsidiaries first and secondly sold them to another subsidiary with the sales of investments recognized as accounts receivable. The company continued recording gain on disposal of investments, but these receivables were rarely refunded. At the bankruptcy announcement, China Rebar Co. had more than one billion New Taiwan Dollars on its books as receivables[25].

Misuse of corporate money[26]

The leader of the Wang family, Wang You-Theng, embezzled money from China Rebar Co. via short-term borrowings – owners account. Asking the department store Idee Taipei S to give cash from daily sales, he claimed that the money was for temporary operating use. However, he did not return the borrowings. His wife also asked for money for paying the decoration bills of department stores and compensating employees for their annual performance. But she did not do so. The Wang family used the same mechanism to empty subsidiaries for their personal use, such as repaying personal debts and paying taxes and medical expenses.

Endorsement[23]

Knowing that its subsidiaries did not practically operate and that it was difficult for them to borrow money from financial institutions, Wang You-Theng violated China Rebar's internal controls and asked China Rebar Co. to stand behind these companies' debts. In addition, since there was another internal control that the company could not endorse more than the company's net value, Wang You-Theng asked the board to change the rule and raise the endorsement limit to double the company's net value in February 2006. These companies then gained credit extension loans and guaranteed commercial paper from the affiliated financing company.

Credit limits[26]

The Wang family understood the difficulty for some small companies to finance themselves. Therefore, the affiliated financial institution permitted these companies to issue unguaranteed commercial paper with one condition, purchasing corporate debt of China Rebar Co. and Chia Hsin Food & Synthetic Fiber Co.. The institution lawlessly raised these companies' credit limits, in part for their capital needs and the other part for buying the corporate debt. In addition, according to the Taiwan Bank Law, it is illegal for a financial institution to give more credit than its net value to companies in the same group. Unguaranteed total credit could also not be over thirty-five percent of net value. However, the Wang family's affiliated financial institution flagrantly violated both rules mentioned above.

Insider trading[27]

When Wang You-Theng failed to extend the debts' deadlines and to reduce their interest rates, he decided to file for bankruptcy corporate reorganization. The Wang family realized that once the negative news of the two main companies was announced, the affiliated public companies' stock prices were sure to be strongly impacted. Before the declaration, the family asked employees to use subsidiaries' accounts to trade affiliated public companies' shares from November 2006 to January 2007.

Audit fraud[28]

After a thorough investigation, the prosecutors found probable material misstatements in annual financial reports of China Rebar Co. and Chia Hsin Food & Synthetic Fiber Co., according to the report from the Taiwan Special Investigation Division. The independence of the Chartered Public Accountant was challenged.

The prosecutors found an unusual relationship between the Chartered Public Accountant, Shan Ssu-Ta, and Wang You-Theng. Because Shan Ssu-Ta's father had worked for the Rebar Group before, Shan Ssu-Ta was introduced by his father to Wang You-Theng. Looking for new audit cases in competitive markets, Shan Ssu-Ta reached an agreement with Wang You-Theng to work in one of the big accounting firms and provided audit services beginning in 2002. Since then, most of the companies in the group were audited by Shan Ssu-Ta. Most of the financial reports after 2002 were dubious.

Shan Ssu-Ta and another accountant, Hao Li-Li, understood the frequent related-party transactions, but they did not disclose or even hide the fact on the companies' financial reports and related documents from 2003 to 2005. For example, Shan Ssu-Ta knew that most of the subsidiaries did not operate any businesses. As a Chartered Public Accountant for these paper companies, Shan Ssu-Ta signed fraudulent financial reports for these companies that had no assets or operations. Hao Li-Li also noticed that there was a huge soy bean transaction between two companies in the Rebar Group in 2005. According to the audit procedures, this internal transaction should have been verified. However, the audit procedures were not implemented. Thus, the sale and the purchase were misleadingly recognized.

In addition, both accountants understood the subsidiaries' situations, but they commented that there was no significant difference between book values and market values of these companies according to their statements on financial reports. They still chose to record these investments using the cost method and did not let parent companies acknowledge proper investment losses to reflect real market values. Even worse, for some subsidiaries, the accountants failed to disclose the relationship with the parent companies.

Since many subsidiaries suffered from net losses, the two main companies would have had to recognize large investment losses if the two companies followed relevant accounting rules. Therefore, Wang You-Theng ordered selling out subsidiaries' shares to other subsidiaries with higher prices. This technique not only avoided huge investment losses on reports, but also provided false earnings from investments. However, because most of the investment receivables could not be paid back, the two main companies then recorded larger amounts for allowance of bad debts. But if the two companies were to acknowledge such a huge amount of bad debt expenses, the net values per share of these two companies would be lower than five New Taiwan Dollars and the shares would become full-cash delivery stocks. To prevent this, Wang You-

Theng asked the two Chartered Public Accountants to lessen the allowance by adjusting the bad debt ratios from 10% to 2%.

In addition to inappropriate audit procedures, the two accountants excluded some affiliated companies on related party lists. The most unbelievable part was that in 2006, they recorded banks' permission to extend the loans' deadlines and to lower the interest rates on financial reports-while the truth was completely the opposite. Therefore, it was obvious that the Wang family not only fully controlled the group, but also totally controlled the "independent" accountants.

After the scandal could not be hidden any more, the accountants tried to destroy China Rebar and Chia Hsin documents. Even after the prosecutors issued the accountants a subpoena, the destruction of the documents did not stop. The two Chartered Public Accountants responsible for financial reports of China Rebar and Chia Hsin were sentenced to prison and forbidden to provide any audit service for the rest of their lives, according to the Taiwan Securities and Exchange Law.

Both Shan Ssu-Ta and Hao Li-Li had worked for the Taiwanese accounting firm, Kwang-I Earnest & Co, CPAs. The accounting scandal also nearly caused the dissolution of that accounting firm, which is a member firm of the global network of RSM International.

Asia Pacific Telecom[27]

Asia Pacific Telecom, as one of the largest subsidiaries, operated smoothly and its capital increased to more than sixty-five billion New Taiwan Dollars in 2004. The shareholders and the board members other than the Wang family strongly urged the company to go public and reached the decision to do so in 2004. As the Wang family was afraid that a thorough investigation by regulators would reveal the earlier embezzlement in the group, the family stood against the decision. Wang You-Theng asked Hao Li-Li to write qualified opinions on the company's annual financial report. Therefore, the company could not meet the requirement to apply for listing according to the Taiwan Securities and Exchange Act. Hence, it remained free from regulatory inspection.

Political power

The government and political parties in Taiwan built up too close relationships with big companies, especially family-owned conglomerates, because of these firms' business influence on the Taiwan economy and donations to political parties in Taiwan. Corruptions and conspiracies happened frequently in Taiwan, especially during the startup stage of the Rebar Group. These companies implicitly controlled the market and the country. Unafraid of political and judicial power, the Wang family counted on long-term connections and looked forward to special protection and authorization from the government, either in the stock market or in the banking market. Meanwhile, the government failed in its duty to monitor the Rebar Group.

5. Conclusion

Before the Rebar Group bankruptcy event exploded, there were so many signs to warn investors or creditors through financial analysis. For example, the Altman Z-Score and the Ohlson O-Score continuously delivered warning signs on the Rebar Group during this time. Even though investors already reflected their worries on stock prices for years, they had never imagined that such a group company having a close relationship with the government might go out of business someday. In Taiwan, political power overrides legislative and judicial systems. People in Taiwan had strong belief that the government would not let the conglomerate go bankrupt. On the other hand, the government was also afraid that the failure of group companies might cause financial domino effects. This event is a case of "too big to fail" in Taiwan.

Depending on long-term kinship with the government and other companies, the Wang family was able to ask the government to provide exclusive financial resources and request banks to provide lower interest rates and to extend loan deadlines. Investors thought that the government and commercial banks would lend a helping hand and offer special assistance or a grace period whenever the group companies needed. Some people were willing to trust and invest because the Rebar Group was such an important family-owned conglomerate with strong networks.

After the explosion of the bankruptcy, the government reacted immediately to correct the seriously defective supervision system, announcing ninety seven measures[29] (sixty one immediate measures and thirty six medium-term measures). The goals of the measures were summarized in four parts: improvement of early warning system and crisis management, enhancement of supervision on financial institutions, amelioration of corporate governance, and a reconstruction system. To improve the early warning system and crisis management, the government modified procedures of filing for insolvency protection and mechanisms of cross-department notification. In addition, the government founded a research department, tracing the information of industries and companies in Taiwan and evaluating systematic and unsystematic risks. For enhancement of supervision on financial institutions, the Financial Supervisory Commission R.O.C (Taiwan) limited the scope and the number of banks for which a person could be responsible. The regulator of financial institutions also required higher standards for disclosure of stock holding. At the same time, banks were requested to publicize the list of debtors with huge debts. The criteria regarding the capital adequacy ratio and leverage ratio for banks also became stricter. As for corporate governance, the Taiwan Security Stock Exchange (TWSE) set up a database of conglomerates in Taiwan, applying risk indicators and integrating conglomerate data together, including public, market and industry information, and stock transaction records. Also, TWSE drafted new supervisory procedures exclusive for group companies, reviewed its organization structure and established specific departments supervising public companies. In addition, the government enacted new regulations regarding compulsory public listing of qualified companies, stockholder proxy voting, election of the board of directors, accountant self-regulation and private funding. As for the reconstruction system, the Ministry of Economic Affairs, R.O.C. established systems for urgent situations to takeover problematic companies and to support involved enterprises. Labor problems, such as unpaid salaries and skills training, were also considered under the new founded systems.

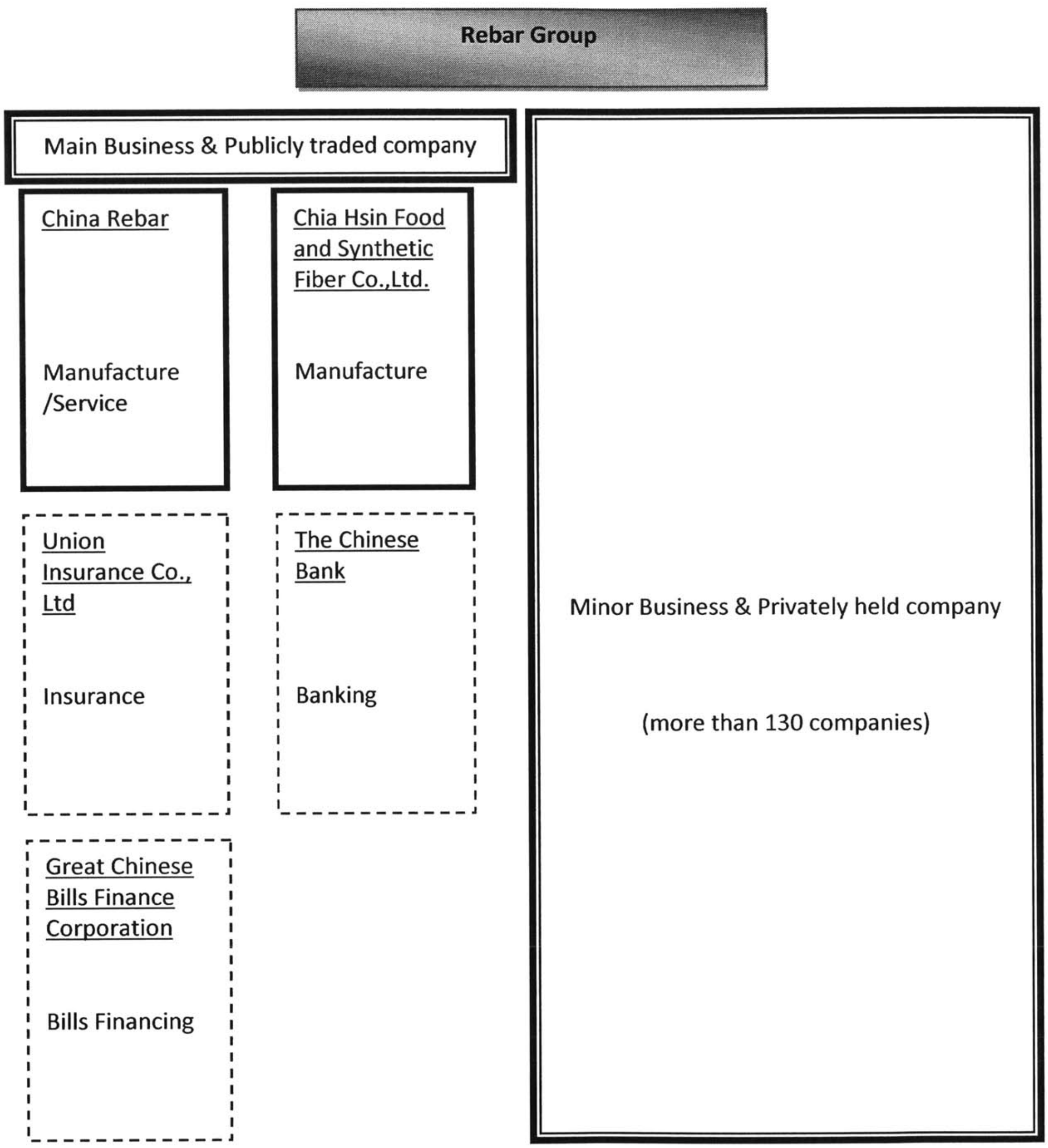
Apparently, there were four main problems that needed to be addressed by the government because of its lack of proper oversight of the Rebar Group. In the wake of the scandal, the government should start paying more attention to these four areas when regulating publicly traded companies and drafting new laws. The first one is the responsibility of public accountants. As an important independent role in the financial markets, accountants were supposed to reasonably assure the quality of corporate financial statements to be free of any fraud or misstatement. The administration should put more effort into introducing to Chartered Public Accountants the tools to identify earnings manipulation. The second one is the effectiveness of internal controls. When it came to corporate governance, the Wang family totally ignored internal controls and made decisions at will. What kind of procedures can be implemented to reinforce the supervision of internal controls from both Chartered Public Accountants and regulators? The third one is cross ownership. The Wang family utilized this mechanism to control companies and freely embezzle assets. How should the government regulate this in the future? Lastly, the government and the political parties probably had too close connections with the Wang family, which eventually compromised their independence. Obviously, the government failed to monitor the family group companies and sacrificed the minority interests of outside shareholders. The government should not only regulate others but also concentrate more on self-discipline. At the same, the government should rarely intervene into the market and encourage more competition to increase social welfare for everyone.

After the Rebar Group case, accounting scandals still happen in Taiwan, even though most of them are from medium or small size companies and the amount of money cannot be compared with the Rebar Group case. Have the government, shareholders, bankers, and analysts learned and changed after the Rebar Group? Is there any evidence of any positive change after the government's new measures? Although there have been no sign of accounting scandals of conglomerates these years, there is no clear answer yet. This paper introduced a picture of the most notorious and serious bankruptcy scandal in Taiwan history. Nowadays, many companies and investors still suffer from the pain. The investigation and the lawsuits continue, but the criminals are still free. Apparently, as this thesis has shown, there are many hints appearing before bankruptcy via bankruptcy models and fundamental financial analysis. These models and analysis effectively detect potential risks in advance in this case. With the appropriate use of these techniques, the government would have been able to notice and avert the debacle, sending warning messages of these companies' financial difficulties to investors and creditors. People should have had time to react and minimize losses.

Appendix

Exhibit 1

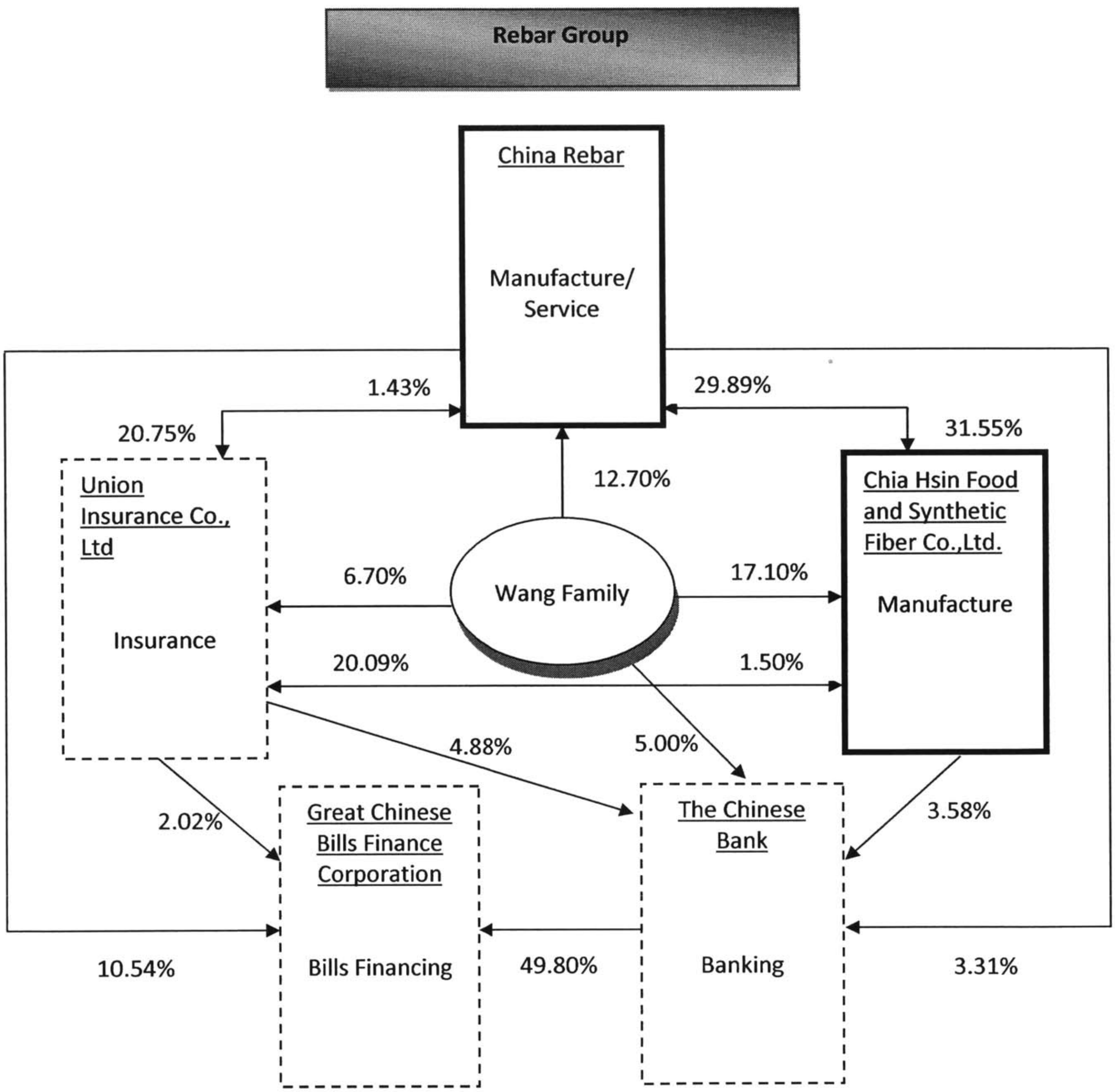
The structure of the Rebar Group



Source: Te-Kai Hung (2010), *The Influence of Cross Ownership on Corporate Governance Mechanisms –The Rebar Group Event*

Exhibit 2

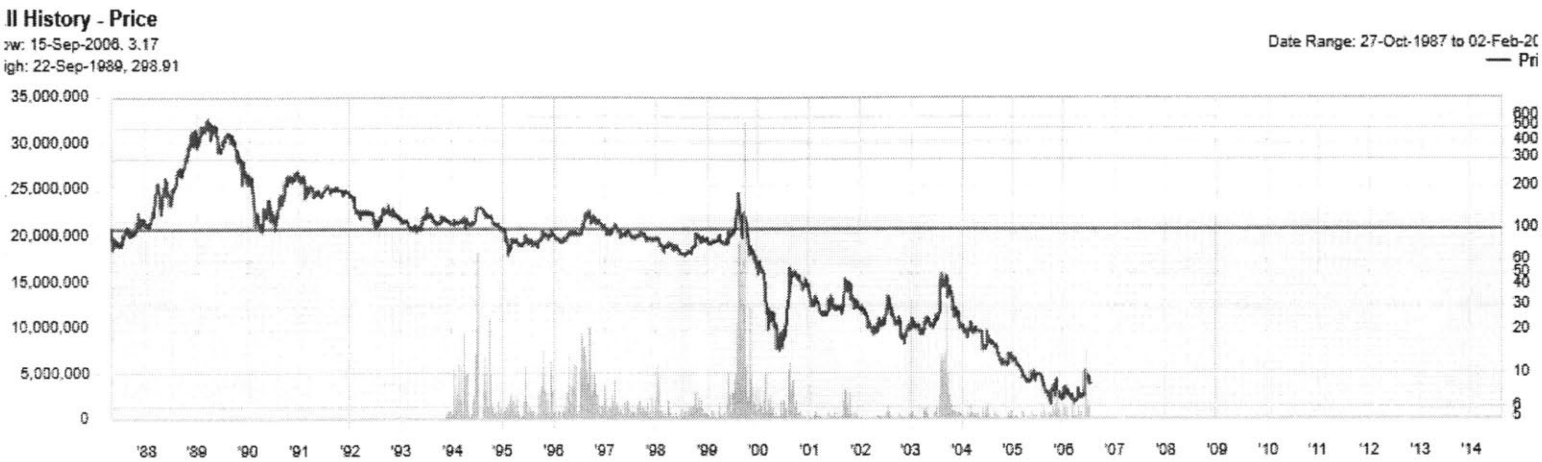
Cross holding between the Wang family and affiliated public companies in the Rebar Group



Source : Te-Kai Hung (2010), *The Influence of Cross Ownership on Corporate Governance Mechanisms –The Rebar Group Event*

Exhibit 3

China Rebar Co.'s historical stock price



Corporate actions:

Date	Action Type	Description
1994/10/06	Split	1.1 : 1
1997/08/20	Split	1.05 : 1
1998/08/14	Split	1.055 : 1
1999/08/12	Split	1.04 : 1
2004/10/28	Reverse Split	0.634 : 1
2005/12/22	Reverse Split	1 : 1.218
2006/11/13	Reverse Split	1 : 1.8868

Source: *China Rebar's Price History & Corporate Actions*, FactSet (9801-TW, accessed February 2015).

Exhibit 4

China Rebar Co. Segment Sales from 2003 to 2005

(All figures in millions of Taiwan Dollar)

China Rebar Co.	2005		2004		2003	
Cement	1,704.25	12%	1,404.16	11%	1,249.50	12%
Textiles	447.99	3%	443.12	3%	406.24	4%
Al. doors & Windows	720.66	5%	681.74	5%	594.88	6%
Department stores	9,884.07	73%	8,767.13	68%	7,249.58	68%
Construction	503.71	4%	878.11	7%	409.96	4%
Hotel	326.50	2%	345.81	3%	357.28	3%
Others	70.00	1%	518.09	4%	503.38	5%
Sales Return & Allowance	(80.41)	-1%	(63.20)	0%	(87.71)	-1%
Total Net Sale	13,576.77	100%	12,974.97	100%	10,683.12	100%

Source: China Rebar Co. 2005 Annual Report page 124, and 2004 Annual Report page 109, and 2003 Annual Report page 108.

Exhibit 5

China Rebar Co.'s balance sheets from 2001 to 2005

(All figures in millions of Taiwan Dollar)

Balance Sheet	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Assets					
Cash & Short-Term Investments	198.24	144.29	70.67	69.23	233.98
Short-Term Receivables	1,769.88	817.66	1,436.93	2,886.70	4,626.52
Inventories	3,352.98	4,511.76	4,987.21	5,607.39	6,615.66
Other Current Assets	482.58	719.16	791.18	619.63	852.61
Total Current Assets	5,803.68	6,192.87	7,285.99	9,182.95	12,328.77
Net Property, Plant & Equipment	5,141.99	5,528.63	6,234.99	5,841.78	5,758.92
Total Investments and Advances	16,431.71	13,142.44	13,449.03	14,480.16	15,334.32
Deferred Tax Assets	708.07	658.34	691.00	613.92	433.65
Other Assets	3,375.29	3,481.95	3,182.06	3,143.97	2,963.00
Total Assets	31,775.84	29,004.22	30,843.07	33,262.78	36,818.66
Liabilities & Shareholders' Equity					
ST Debt & Curr. Portion LT Debt	8,179.87	7,126.34	8,040.20	10,128.78	8,742.74
Accounts Payable	1,988.80	1,482.16	1,476.84	1,310.00	1,232.19
Other Current Liabilities	1,651.56	2,012.22	2,618.51	1,467.75	2,075.84
Total Current Liabilities	11,820.23	10,620.72	12,135.55	12,906.53	12,050.77
Long-Term Debt	12,064.29	9,520.53	8,160.82	7,120.19	9,482.13
Provision for Risks & Charges	901.87	1,570.34	1,548.52	1,562.49	1,465.24
Deferred Tax Liabilities	--	--	75.16	75.16	--
Other Liabilities	869.83	589.99	600.15	519.04	536.41
Total Liabilities	25,656.22	22,301.57	22,520.20	22,183.41	23,534.55
Common Stock	7,468.80	9,097.20	14,348.89	14,348.89	14,348.89
Retained Earnings	-3,530.04	-1,785.51	-5,403.64	-3,353.22	-2,181.49
Others	2,180.86	-609.04	-622.38	83.70	1,116.71
Total Equity	6,119.62	6,702.65	8,322.87	11,079.37	13,284.11
Total Liabilities & Shareholders' Equity	31,775.84	29,004.22	30,843.07	33,262.78	36,818.66

Source: *China Rebar's Financials-Balance Sheet*, FactSet (9801-TW, accessed February 2015).

Exhibit 6

China Rebar Co.'s income statements from 2001 to 2005

(All figures in millions of Taiwan Dollar)

Income Statement	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Sales	13,576.77	12,974.97	10,683.12	9,485.58	8,403.08
COGS excluding D&A	11,093.13	10,724.33	8,796.03	7,750.12	6,607.28
Depreciation & Amortization Expense	617.56	672.22	595.10	529.98	584.35
Gross Income	1,866.08	1,578.42	1,291.99	1,205.48	1,211.45
SG&A Expense	2,943.98	2,994.80	2,787.81	2,237.47	2,226.17
EBIT (Operating Income)	-1,077.90	-1,416.38	-1,495.82	-1,031.99	-1,014.72
Nonoperating Income - Net	-218.72	77.89	-161.57	5.65	49.06
Interest Expense	763.63	669.21	1,019.26	1,230.83	1,349.45
Unusual Expense - Net	1,671.07	--	--	--	--
Pretax Income	-3,731.32	-2,007.70	-2,676.65	-2,257.17	-2,315.11
Income Taxes	-47.10	-42.50	-77.08	-64.39	-216.17
Consolidated Net Income	-3,684.22	-1,965.20	-2,599.57	-2,192.76	-2,098.94
Minority Interest	-160.49	--	--	--	--
Net Income	-3,523.73	-1,965.20	-2,599.57	-2,192.76	-2,098.94
EPS (basic)	-9.30	-4.96	-6.56	-5.55	-5.29
Basic Shares Outstanding	395.72	395.85	395.85	395.85	395.85
Total Shares Outstanding	395.72	395.85	395.85	395.85	395.85

Source: *China Rebar's Financials-Income Statement*, FactSet (9801-TW, accessed February 2015).

Exhibit 7

China Rebar Co.'s cash flow statements from 2001 to 2005

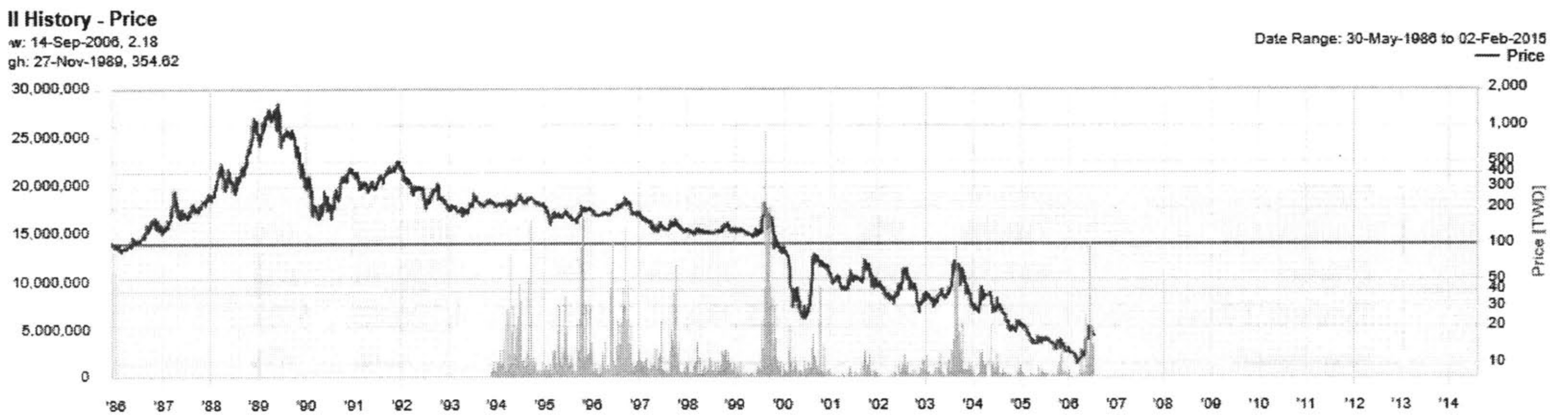
(All figures in millions of Taiwan Dollar)

Cash Flow Statement	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Operating Activities					
Net Income / Starting Line	-3,523.73	-1,965.20	-2,599.57	-2,192.76	-2,098.94
Depreciation, Depletion & Amortization	617.56	672.22	595.10	494.62	584.35
Deferred Taxes & Investment Tax Credit	-49.73	-42.50	-77.08	-64.41	-152.00
Impairment Loss	1,712.11	--	--	--	--
Other Funds	661.28	358.28	850.02	695.60	537.22
Changes in Working Capital	570.80	1,510.09	3,088.68	2,554.72	710.36
Net Operating Cash Flow	-11.71	532.89	1,857.15	1,487.77	-418.99
Investing Activities					
Capital Expenditures	-217.02	-524.28	-773.05	-653.46	-252.46
Sale of Fixed Assets & Businesses	27.96	4.47	3.57	19.61	48.80
Purchase/Sale of Investments	338.30	258.15	-80.76	246.59	555.45
Other Funds	-3,945.77	25.28	-38.22	-223.02	-47.44
Net Investing Cash Flow	-3,796.53	-236.38	-888.46	-610.28	304.35
Financing Activities					
Issuance/Reduction of Debt, Net	3,582.09	-213.15	-1,047.94	-1,017.06	-104.94
Other Funds	280.10	-9.74	80.69	-25.18	296.76
Net Financing Cash Flow	3,862.19	-222.89	-967.25	-1,042.24	191.82
Net Change in Cash	53.95	73.62	1.44	-164.75	77.18

Source: *China Rebar's Financials-Cash Flow Statement*, FactSet (9801-TW, accessed March 2015).

Exhibit 8

Chia Hsin Food & Synthetic Fiber Co., Ltd.'s historical stock price



Corporate actions:

Date	Action Type	Description
1994/12/12	Split	1.146 : 1
1995/09/19	Split	1.061 : 1
1997/08/23	Split	1.045 : 1
1998/08/03	Split	1.05 : 1
2004/10/11	Reverse Split	0.57 : 1
2006/11/21	Reverse Split	1 : 1.5773

Source: *Chia Hsin's Price History & Corporate Actions,* FactSet (1207-TW, accessed February 2015).

Exhibit 9

Chia Hsin Food & Synthetic Fiber Co., Ltd. Segment Sales from 2003 to 2005

(All figures in millions of Taiwan Dollar)

Chia Hsin	2005		2004		2003	
Food	1,991.28	25%	2,322.00	24%	3,030.11	32%
Feeds	44.28	1%	429.38	4%	568.21	6%
Cooking Oil	710.98	9%	678.99	7%	550.25	6%
Chicken	487.58	6%	704.38	7%	550.30	6%
Synthetic Fibers	4,289.25	55%	5,382.82	56%	4,720.85	50%
Real Estate	78.15	1%	(24.66)	0%	9.18	0%
Others	263.39	3%	69.55	1%	3.47	0%
Total Net Sale	7,864.91	100%	9,562.46	100%	9,432.38	100%

Source: Chia Hsin Food & Sythetic Fiber Co., Ltd. 2005 Annual Report page 105, and 2004 Annual Report page 97, and 2003 Annual Report page 89.

Exhibit 10

Chia Hsin Food & Synthetic Fiber Co., Ltd.'s balance sheet from 2001 to 2005

(All figures in millions of Taiwan Dollar)

Balance Sheet	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Assets					
Cash & Short-Term Investments	481.09	27.02	83.11	162.97	184.57
Short-Term Receivables	2,008.50	612.56	1,345.10	2,237.19	3,137.02
Inventories	1,444.83	1,963.72	2,002.36	2,446.71	2,377.58
Other Current Assets	693.93	538.28	425.80	580.28	698.62
Total Current Assets	4,628.35	3,141.58	3,856.37	5,427.15	6,397.79
Net Property, Plant & Equipment	11,021.22	11,940.34	12,536.51	12,898.07	13,253.00
Total Investments and Advances	13,311.84	10,776.78	11,492.85	12,325.10	12,979.13
Deferred Tax Assets	471.09	418.39	520.21	476.22	415.95
Other Assets	137.40	142.20	2,037.65	1,999.26	1,979.50
Total Assets	29,569.90	26,419.29	30,443.59	33,125.80	35,025.37
Liabilities & Shareholders' Equity					
ST Debt & Curr. Portion LT Debt	9,689.43	8,109.49	9,452.43	7,175.03	7,970.30
Accounts Payable	1,485.19	743.44	896.96	999.67	734.65
Other Current Liabilities	1,342.64	1,378.94	1,515.42	1,495.23	1,390.40
Total Current Liabilities	12,517.26	10,231.87	11,864.81	9,669.93	10,095.35
Long-Term Debt	11,238.44	8,686.32	10,069.04	12,337.34	11,887.15
Provision for Risks & Charges	405.23	559.07	1,255.27	1,255.27	1,255.27
Other Liabilities	40.05	39.93	270.99	269.80	149.98
Total Liabilities	24,200.98	19,517.19	23,460.11	23,532.34	23,387.75
Common Stock	7,320.10	7,320.10	12,842.28	12,842.28	12,842.28
Retained Earnings	-2,682.92	-15.67	-5,599.78	-3,276.14	-1,986.74
Others	731.74	-402.33	-259.02	27.32	781.98
Total Equity	5,368.92	6,902.10	6,983.48	9,593.46	11,637.62
Total Liabilities & Shareholders' Equity	29,569.90	26,419.29	30,443.59	33,125.80	35,025.37

Source: *Chia Hsin's Financial-Balance Sheet,* FactSet (1207-TW, accessed February 2015).

Exhibit 11

Chia Hsin Food & Synthetic Fiber Co., Ltd.'s income statement from 2001 to 2005

(All figures in millions of Taiwan Dollar)

Income Statement	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Sales	7,864.91	9,562.46	9,432.38	9,497.97	8,848.06
COGS excluding D&A	7,599.47	9,083.93	8,754.46	8,459.02	8,173.74
Depreciation & Amortization Expense	781.37	784.03	739.69	529.54	521.95
Gross Income	-515.93	-305.50	-61.77	509.41	152.37
SG&A Expense	635.23	634.40	695.45	679.20	659.67
EBIT (Operating Income)	-1,151.16	-939.90	-757.22	-169.79	-507.30
Nonoperating Income - Net	-550.09	1,385.69	-652.05	154.25	253.20
Interest Expense	797.10	736.43	1,174.04	1,423.79	1,267.10
Unusual Expense - Net	332.47	--	--	--	--
Pretax Income	-2,830.82	-290.64	-2,583.31	-1,439.33	-1,521.20
Income Taxes	-19.94	-69.86	-86.21	-81.11	-151.67
Equity in Earnings of Affiliates	--	--	--	-590.91	-557.23
Consolidated Net Income	-2,810.88	-220.78	-2,497.10	-1,949.13	-1,926.76
Minority Interest	-127.96	--	--	--	--
Net Income	-2,682.92	-220.78	-2,497.10	-1,949.13	-1,926.76
Net Income available to Common	-2,682.92	-220.78	-2,497.10	-1,949.13	-1,926.76
EPS (basic)	-5.77	-0.47	-5.37	-4.21	-4.15
Basic Shares Outstanding	464.09	464.09	464.09	464.09	464.09
Total Shares Outstanding	461.71	464.09	464.09	464.09	464.09

Source: *Chia Hsin's Financial-Income Statement,* FactSet (1207-TW, accessed February 2015).

Exhibit 12

Chia Hsin Food & Synthetic Fiber Co., Ltd.'s cash flow statement from 2001 to 2005

(All figures in millions of Taiwan Dollar)

Cash Flow Statement	**Dec '05**	**Dec '04**	**Dec '03**	**Dec '02**	**Dec '01**
Operating Activities					
Net Income / Starting Line	-2,682.92	-220.78	-2,497.10	-1,949.13	-1,926.76
Depreciation, Depletion & Amortization	781.37	784.03	739.69	529.54	521.95
Deferred Taxes & Investment Tax Credit	-52.70	101.83	-86.22	-81.11	-151.67
Other Funds	880.62	-1,213.17	942.12	637.05	572.55
Changes in Working Capital	411.52	363.10	1,129.82	1,361.54	1,104.83
Net Operating Cash Flow	-662.11	-184.99	228.31	497.89	120.90
Investing Activities					
Capital Expenditures	-31.10	-97.70	-401.96	-187.20	-303.06
Sale of Fixed Assets & Businesses	17.28	0.13	0.36	0.85	3.20
Purchase/Sale of Investments	-120.70	13.54	86.24	0.31	-134.54
Other Funds	-54.42	-20.64	-1.94	-25.48	-73.98
Net Investing Cash Flow	-188.94	-104.67	-317.30	-211.52	-508.38
Financing Activities					
Issuance/Reduction of Debt, Net	564.91	233.35	9.10	-345.09	465.91
Other Funds	348.59	0.22	0.02	37.13	-0.93
Net Financing Cash Flow	913.50	233.57	9.12	-307.96	464.98
Net Change in Cash	62.45	-56.09	-79.87	-21.59	77.50

Source: *Chia Hsin's Financial-Cash Flow Statement,* FactSet (1207-TW, accessed March 2015).

Notes

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[16] Chia Hsin Food and Synthetic Fiber Co., Ltd. "2005 Annual Report", page 10.

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[26] Taiwan Supreme Court (14 August, 2013) "No.102-Criminal law 015 Judgment Report", page 3

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[30] Beneish M-Score can predict earnings manipulation with eight variables. Higher scores mean a higher probability of manipulation. The equation is M= -4.84 + 0.92*DSRI (Days Sales in Receivables Index) + 0.528*GMI (Gross Margin Index) + 0.404*AQI (Asset Quality Index) + 0.892*SGI (Sales Growth Index) + 0.115*DEPI (Depreciation Index) – 0.172*SGAI (Sales, General and Administrative expenses Index) – 0.327*LVGI (Leverage Index) + 4.679*TATA (Total Accruals to Total Assets). A score higher than -2.22 reveals a strong likelihood of a firm manipulating its earnings.

[31]The Altman Z-Score is a commonly used model to predict the possibility that a company will go bankrupt within two years. The lower the score is, the higher chance the company goes into bankruptcy. The Z-Score model uses five ratios to estimate corporate bankruptcy. The formula is Z-Score = 1.2* (Working Capital ÷ Total assets) + 1.4* (Retained Earnings/Total Assets) + 3.3* (Earnings Before Interest & Tax/Total Assets) + 0.6* (Market Value of Equity/Total Liabilities)

+ 1.0* (Sales/Total Assets).

[32]The Ohlson O-Score is also a famous bankruptcy prediction model. Similar to the Z-Score, the O-Score is also based on data from financial reports, but it utilizes more ratios. The higher the O-Score is, the higher probability a company would go bankrupt. The O-Score is the result of nine financial ratios. The formula of O-Score is O-Score = -1.32 – 0.407*AS (Adjusted Size[14]) + 6.03*LM (Leverage Measure) – 1.43*WCM (Working Capital Measure) + 0.757*ICR (Inverse Current Ratio) – 2.37*ROA (Return on Assets) – 1.83*FTDR (Funds to Debt Ratio) – 1.72*DCLM (Discontinuity Correction for Leverage Measure) + 0.285*DCRA (Discontinuity Correction for Return on Assets) – 0.521*CINI (Change in Net Income).