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台灣銀行業偵測中國財務舞弊之研究—公開資訊之運用

Research on Taiwan commercial banks' detection of financial fraud in China: The use of public information

Student: Keng-han Lin

Advisor: Professor Jack Wu

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研究生：林耿涵 Student: Keng-han Lin

指導教授：吳文傑 Advisor: Jack Wu

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Keng-han (Kran) Lin, CFA, FRM

Abstract

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By

Keng-han Lin

International loan is a very important business for Taiwan commercial banks, and China is the largest credit market for Taiwan banks. However, when doing due diligence or credit risk research for Chinese companies, Taiwan commercial banks are facing difficulties and risks such as difficulty to monitor the company, a decelerating Chinese economy growth and other risk factors. Because of these difficulties, the common method used for international loan due diligence in Taiwan is not adequate to cope with the current credit risk situation.

There were two famous Chinese default cases in Taiwan during 2014, in which the thesis picks the Ultrasonic AG financial fraud case as an example. The Ultrasonic AG case shows that it is possible to use public information to detect and prevent financial frauds. Based on the case study, the thesis suggests Taiwan commercial banks could use a more comprehensive method of due diligence, to increase the accuracy of credit research. In the end, the thesis also suggests a KL credit scoring system, based on past financial frauds, to assist in credit research. By utilizing a more comprehensive method of due diligence and KL score system with traditional models, Taiwan commercial banks could better detect and prevent international financial frauds, especially financial frauds in China.

Keywords: Financial Fraud, Accounting, China, Credit Risk, Banking

TABLE OF CONTENTS

List of Figures and Tables

1. Introduction: The Growth of International Loan from Taiwan Commercial Banks, and the Importance of Chinese Market

International loan is an important business for Taiwan commercial banks, and as Table 1 shows, China is the largest international credit market for Taiwan commercial banks. From 2013/12 to 2015/6, China is the largest credit market, in this period the exposure has grown from 64.9 to 82.8 billion U.S. dollars. In 2015/6, the second largest market is the U.S., with exposure of 52.5 billion U.S. dollars. Thus, loans to Chinese companies are very important for Taiwanese commercial banks, and the credit risk analysis for these companies is an important task. As table 2 shows, China credit exposure is significant to some banks, with the highest China credit exposure/equity ratio being 0.81 at 3Q15. Although some banks decreased exposure to China due to perceived potential risks, overall China will still be a very important market for Taiwan commercial banks.

However, since the companies are not located in Taiwan, the credit risk research will be harder than for local companies. This thesis is going to discuss the risks involved in Chinese company loans and the common method for international loan due diligence, and using the Ultrasonic Ag case to demonstrate how Taishin Financial Holdings (subsequently referred to as "Taishin") utilized public information to detect and avoid the Ultrasonic AG financial fraud. This thesis focuses on the use of public information, which is because in practice most stakeholders in the financial market could only get public information, therefore a case study using public information should have more merit. This thesis will show that it is possible to detect this fraud using public information and business school skills. And in the end, this thesis will introduce a more comprehensive method of international loan due diligence to prevent Chinese financial frauds, and a KL credit scoring system to assist in credit risk research. For banks are using common method and traditional models, using comprehensive method, traditional models and non-traditional models such as KL credit scoring system together could have better results.

Table 1: International Credit Exposure of Taiwan Commercial Banks

	2013/12	2014/12	2015/6
China credit exposure	64,921,609	84,162,181	82,866,067
Ranking of China	No.1	No.1	No.1
Total international credit exposure	269,127,687	322,894,001	335,276,764

Unit: thousand U.S. dollars

Source: Central Bank of the Republic of China (Taiwan)

Table 2: China Credit Exposure/Equity Ranking of Taiwan banks (3Q15)

Bank Name	China credit exposure (A)	Equity (B)	A/B
Yuanta Commercial Bank	39,964	49,073	0.81
Taipei Fubon Commercial Bank	117,627	147,792	0.8
KGI Bank	44,102	55,076	0.8
CTBC Bank	150,712	196,613	0.77
Mega International Commercial Bank	162,952	216,222	0.75
Entie Commercial Bank	20,196	26,969	0.75
Bank of Kaohsiung	8,367	11,341	0.74
Industrial Bank of Taiwan	20,289	27,726	0.73
Bank SinoPac	73,217	99,663	0.73
Taiwan Business Bank	45,127	62,738	0.72

Unit: million NTD

Source: Banking Bureau, Financial Supervisory Commission, R.O.C.

2. The Difficulties and Potential Risks during International Loan due Diligence, and Risks Involved in Chinese Company Loans

This section is going to discuss the difficulties and potential risks during international loan due diligence, and risks involved in Chinese company loans. Compared with loans to local Taiwan companies, international loans to Chinese companies at least has these additional risk factors:

2.1. Difficulty to Monitor the International Companies

If both the banks and the company are in Taiwan, the banks could easily visit the company, and monitor the company, including watching if the company is operating normally, and determining if the scale showed in financial statements is plausible. For example, if the company is having trouble and the factory is not operating, the banks could easily find out.

However, for a Chinese company loan, the banks usually just visit once per loan because of the cost involved, in which it is very easy for the company to make everything looks normal (since it's just one visit in a while). In practice, if the loan duration is three years, banks might just physically visit once in every three years. However, without continuous monitoring, it is hard to make sure if this company is really operating in a normal way, and it will be difficult to detect any abnormal signals.

2.2. Difficult to Conduct Accurate Market Research

Besides monitoring the borrower company, it is very important for banks to conduct market research, including comparing the competitors' performance, and check the trend in markets and market share of important companies, because these information are crucial for understanding the competence or outlook of the company. In order to understand the market situation, the banks need to understand the trends in the market, like the technology trend, bestselling products and else. Other important methods include visiting all the main channels, and check if the company's products are selling well with good location. However, if the company is located in other countries, it would be difficult to conduct accurate market research. And without accurate market research, it's not easy to evaluate the company's outlook, or to verify the information provided by the company.

2.3. Lacking of Access to First-hand Local Financial Statements

The utilization of holding company structure is very common now, for example a Bermuda company A might be controlling two Chinese companies B and C. The borrower is A, but the main operating companies are actually B and C which are located in China. In this case, banks are sometimes only shown the financial statements of company A, which usually looks normal and lack of complete details.

However, in order to conduct proper due diligence, it is very important to see the first-hand local financial statement of company B and C. Without access to financial statement of company B and C, it would make detecting financial frauds significantly more difficult. In the past, there were multiple cases in which company A's numbers are very different than local companies' numbers, and this kind of companies are usually involved with credit events or frauds. In some cases, the revenue of company A could be close to ten times higher than all the local companies combined, which is clearly a significant red flag. Thus, for banks which are risking millions of funds, acquiring local financial statements is an important step, however this step is not always performed.

2.4. Chinese Companies Could Conduct Financial Frauds in Foreign Financial Markets Without Consequences to the Controller

As the Ultrasonic AG case shown in this thesis shows, even if a Chinese company conducted a financial fraud and damaged foreign investors and banks, it is very possible that the controller of the company would not need to face any consequences. This situation provides a very convincing motivation for Chinese business owners to conduct financial frauds, and make money without significant risk. In other words, the moral hazard risk is very high in this situation. Generally, it's very hard for a Taiwanese bank to apply legal actions to Chinese business owners, thus loan without collateral is a very risky business.

2.5. Chinese Economy Growth Decelerating While the NPL Ratio Raises

As the following table shows, the GDP growth rate of China is decreasing from about 7.7% to 6.8%, while the NPL (Non-Performing Loan) ratio is raising from 1.04% to 1.59%. Although the GDP is still growing, the growth rate is definitely decreasing, and companies without special advantages or niches should find it harder to profit in the future.

NPL ratio is a very important credit risk indicator, and this trend is very worrying. Another important factor to consider is that China's official numbers are questioned by some parties, for example in 8I Holdings Limited's (an Asian financial company which is listed in Australian Stock Exchange) interim report FY2016, we could see this company wrote that "According to CLSA estimates, Chinese banks' bad debts ratio could be as high as 8.1%, a whopping 6 times higher than the official 1.5% NPL level reported by China's banking regulator" and assuming loans are about half of the 30 trillion U.S. dollar Chinese bank assets with 8% NPL ratio, "the capital shortfall is a staggering US$1 trillion". If CLSA (Credit Lyonnais Securities Asia)'s 8.1% estimate is correct, the credit risk in China market would be very high. And the fact that 8I Holdings quoted these numbers in their own interim report showed these numbers are treated very seriously by some financial institutions. And if the official NPL numbers are not accurate, then the Chinese GDP numbers might be questionable as well. These are all very serious risk signals. Overall, the GDP growth rate and NPL ratio trends are very worrying signs, which makes due diligence even more important.

And in 2014, Shanghai Chaori Solar Energy Science & Technology Co. became the first onshore bond default case, this company later bankrupted and restructured, this showed the credit market situation in China is indeed worsening. Later in 2015, Baoding Tianwei Group Co. became the first state-owned company default case in China onshore market. Since state-owned companies are regarded as very safe in the past, this is a very significant event in China. All these developments means overall the credit risk of Chinese companies should be on the raise, and even state-owned companies could have trouble. If state-owned companies could be in trouble as well, then the risk involved with most private companies should indeed be higher than appeared.

Table 3: China GDP Growth Rate and NPL Ratio, 2012-4Q15

	2012	2013	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	3Q15	4Q15
GDP growth rate	7.7%	7.7%	7.3%	7.4%	7.2%	7.2%	7.0%	7.0%	6.9%	6.8%
NPL ratio (official)			1.04%	1.08%	1.16%	1.25%	1.39%	1.50%	1.59%	
NPL ratio (CLSA estimate)								8.10%		

Source: National Bureau of Statistics of the People's Republic of China, China Bank Regulatory Commission

The first three factors mentioned above apply to international loans in general, and the fourth and fifth factors are related specifically to Chinese company loans. These factors show that

Chinese company loans are becoming riskier, and the credit risk is higher than appeared, and it's harder to detect problems compared to local loans. Especially the NPL ratio trend mentioned in this section is a very worrying signal for Taiwan commercial banks. If the actual NPL ratio is closer to 8.1%, and the Chinese government did not implement sufficient remedies, there could be multiple credit events in the next few years.

2.6. Even Big Four Auditing Firms Could not Prevent All Frauds

In general, the big four auditing firms (Deloitte, KPMG, PWC and EY) are believed to be the best in the industry, and therefore the companies audited by these firms should have less problems. However, in the past there are still frauds conducted under their watch. Thus, even big four auditing firms could not guarantee the companies won't conduct frauds. One of the most important reason is, like the information provided to the bank, the information provided to the auditing firms are mostly prepared by the companies themselves, and if the companies are good at faking information, it's still possible to fool even the big four firms. As the data in section 5.3 will show, even big four auditing firms had involved with Chinese financial frauds.

Therefore, even companies audited by big four firms are not guaranteed to be safe (however, if a company changes from big four to other firms without proper reason, it will be an alarming signal). And since CPAs who involved in high-profile fraud cases will be punished seriously and having trouble getting new business, a CPA blacklist would have limited benefit.

3. The Common Method of International Loan due Diligence in Taiwan, and the Shortfalls

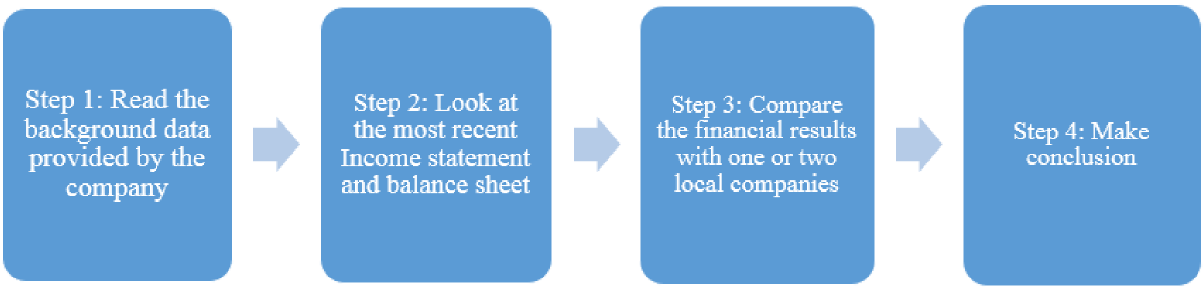
Usually when Taiwan commercial banks are doing due diligence of Chinese companies, besides making one company visit, the banks will use a due diligence method that is very similar with that is used for local companies, and since the method is not significantly different from the method used for local cases, it could not cope well with all the international cases in which additional scrutiny is needed. The thesis calls this the common method, which is illustrated in figure 1.

This common method, combine with the difficulties and potential risks mentioned before, make it difficult for Taiwan commercial banks to detect international financial frauds, especially in China. The main shortfalls of the common method include:

1. Data provided by company are sometimes biased, thus the company data should be independently confirmed instead. For example, companies often claim to be an important brand with significant market share in their own country, however the banks would need to independently verify the market share. If the company is lying about the market share, this would be a red flag.
2. When looking at financial statements, the statement of cash flows and the footnotes should be included as well, and not just the most recent ones.
3. When doing peer comparison, sometimes international companies should be included as well, unless the industry environment in China and other markets are too different.

Because of the shortfalls mentioned above, if banks only rely on this common method, it will be difficult to detect Chinese financial frauds. In past Chinese fraud cases, the most recent financial statements usually looks very impressive, and renders the common method ineffective. For example, by methods like intentionally pushing expenses into later accounting periods, it is possible to temporarily show impressive financial numbers such as profit margins or revenue growths that are higher than usual, however eventually the numbers will deteriorate.

Figure 1: The Common Method of International Loan Due Diligence



So far this thesis discussed the importance, risks, difficulties and common method of due diligence for Chinese company loans. Now the thesis will introduce a Chinese financial fraud case study, using one of the two famous Chinese defaults which happened in Taiwan during 2014, Ultrasonic AG, based on first-hand experience. The investors of Ultrasonic AG and several banks were damaged seriously, but Taishin used public information to detect and prevent from involved in this fraud. After the case study, the thesis will suggest improved methods for better due diligence.

4. Chinese Financial Fraud Case Study: Ultrasonic AG Syndicated Loan Default and Bankruptcy

4.1. Case Introduction

4.1.1. Company Introduction of Ultrasonic AG

There were two famous Chinese default cases in Taiwan during 2014, Ultrasonic AG and China Lumena New Materials Corp., in which the thesis picks the Ultrasonic AG financial fraud case as an example, in which first-hand experience is available. Ultrasonic AG is a shoe manufacturer and supplier company from China (but its top holding company is in Germany, and its stocks was listed in Frankfurt Stock Exchange), which tried to borrow funds from international banks via a syndicated loan during 2013 and 2014. Although its company and factories are located in China, Ultrasonic AG listed its stocks in Frankfurt Stock Exchange, and started to claim to be a German brand and group. Ultrasonic AG has three main categories of products: shoe soles, sandals and slippers, and urban footwear.

Chinese shoe manufacturing and selling industry is very competitive with many competitors, since the barrier to entry is not high, in which thousands of companies are competing with each other. Famous local companies include Belle and Aokang, and the Chinese companies must also face the competition from famous international brands. Thus, unless the company has great brand power or special advantages, it would be hard to operate profitably in the long term or attain higher than average profit margin, and the profit margin should not be very high.

According to the 1H13 financial report, the group structure of Ultrasonic AG is: "Ultrasonic

AG has its registered office in Cologne, Germany. Together with its direct and indirect subsidiaries it forms the ULTRASONIC Group (subsequently referred to as "ULTRASONIC" or "the Group"). ULTRASONIC's offices and production facilities are located in Shanqian Industrial Area, Yonghe Town, Jinjiang City, Fujian Province, in Xingtai Industrial Zone, Changtai, Fujian Province and in Xiamen, Fujian Province, People's Republic of China (PRC). The company holds all shares in China Ultrasonic Outdoorwear Holdings Co. Limited, a company established on 3 December 2007 under Hong Kong law. China Ultrasonic Outdoorwear Holdings Co. Limited is, in turn, the sole direct or indirect owner of Shenghui (Fujian) Footwear Co., Ltd., Fujian Suoli Shoes Co., Ltd., Suoli (Xiamen) Industrial Co., Ltd. and Fujian Junhui Sports Co., Ltd., all of which are limited liability companies established under the law of the People's Republic of China (PRC)."

Since all but the top holding company (Ultrasonic AG) are located in China, and the operating activities are almost all based in China, and its English website also said Ultrasonic is a Chinese company, it's clear that the Ultrasonic group is based in China, and in Germany there is only a holding company. Thus, Ultrasonic AG is in fact a Chinese company, but by setting up a holding company in Germany and listing its stocks in the Frankfurt Stock Exchange and claiming to be a German company, Ultrasonic AG would seem to be more trustworthy than an unlisted local Chinese company, and could more easily to call itself as a foreign brand in the China market. Pretending to be international brand is a method sometimes used by Chinese companies, and this could make it easier for Taiwan commercial banks to believe in Ultrasonic AG.

4.1.2. Overview of the Ultrasonic AG Syndicated Loan

Ultrasonic AG tried to borrow funds from international banks via a syndicated loan during 2013 and 2014. According to Ultrasonic AG, they are borrowing funds to pay for future capital expenditures, so the company could keep growing the business. As the following table shows, the loan amount was 60 million U.S. dollars, and the interest rate was 3-month LIBOR plus 4.15%, the loan duration was 36 months, and the purpose was to pay for future capital expenditures. There was no collateral for this loan, which means this is a credit loan in which the banks are relying on Ultrasonic AG being honest and trustworthy, since it's hard for Taiwanese banks to apply legal actions in China. This no collateral structure will turn out to be a significant mistake.

Table 4: Main Terms of Ultrasonic AG Syndicated Loan

Main terms	
Amount	60 million U.S. dollars
Duration	36 months
Interest rate	3-month LIBOR + 4.15%

Source: Ultrasonic AG

4.2. Red Flags Taishin Financial Holdings Found in the Ultrasonic AG Case

Before participating in a syndicated loan, banks must do due diligence or credit risk research, to find out if the company is trustworthy and if the risk is acceptable. During the credit risk research, Taishin Financial Holdings found at least five red flags. These red flags made Taishin determine that there is huge credit risk involved in this case and Ultrasonic AG is not trustworthy. Based on these red flags, Taishin did not participate in this Ultrasonic AG syndicated loan.

4.2.1. Red Flag 1: Contradicting Brand Stories Which Lack Credibility

Ultrasonic AG's brand story on their Chinese retail website (at Tmall.com, one of the largest online retail platform in China created by the Alibaba group) calls itself a German brand since 1969 (figure 2), which is strange because it's clear that this company is actually based in China, as mentioned in the case introduction. However, on its English website designed for European stockholders (figure 3), Ultrasonic calls itself "China's Urban Footwear Company" in a very clear way, and says Ultrasonic AG is just a German Holding company for the Chinese business, which contradicts their own Chinese website and is closer to the true situation. This means Ultrasonic AG is telling different brand stories to Chinese consumers and European investors, and the Chinese version is very suspicious.

Figure 2: Ultrasonic AG's Brand Story as Shown to Chinese Consumers

Source: Tmall.com

Figure 3: Ultrasonic AG's Brand Story as Shown to European Investors

Source: Ultrasonic AG

Furthermore, Taishin couldn't find non-Chinese source that could prove there was a Germany brand Ultrasonic existed since 1969, which make this story very hard to believe. Besides, it's usual for a company to put the photo of their founder or CEO in the company website, but the photo in figure 2 is actually the scientist Ernest Rutherford, who is not related to the shoe manufacturing and selling industry at all and not even from Germany. Putting a photo of someone not related with the company or industry in brand history webpage is also a suspicious behavior, which makes Taishin doubts if this story is fabricated.

And if looking closely at the English translation of brand story, the text used a literal translation of company name "cable force" instead of the official English name "Ultrasonic" or "Suoli", which shows the English translation of brand story is carelessly written by someone who is not familiar with English, since the company name should be an important matter which could not be mistaken. If this is really a German brand with long history and reputation, this kind of careless written brand story should be unacceptable. This strengthens the doubt of fabrication.

Therefore, during the company background research process, by comparing the websites designed for Chinese consumers and European investors and closely examine the English version materials, Taishin found Ultrasonic has contradicting brand stories, one for Chinese consumers and one for non-Chinese stakeholders. And the brand story itself also has several issues, showing Ultrasonic might be telling untruthful brand stories to stakeholders.

If a company could lie in its brand story, how could the banks trust that the company will behave in an honest way when providing information and borrowing funds? This kind of behavior shows Ultrasonic might not be honest or have corporate governance issues, which is a serious red flag. If a company has corporate governance issues or the management is dishonest, the credit risk will be very high (because these companies are more prone to conduct frauds), which means a bank should not lend funds to that company. Base on the research performed, Ultrasonic is a Chinese brand which pretends that it's a German brand since 1969, with suspicious brand story. Therefore, before going into financial research, Taishin already found the first red flag in this case, that is contradicting brand stories which lack credibility, which might be legal but is a still very alarming signal.

4.2.2. Red Flag 2: Same Gross Margin for Vastly Different Products

When Taishin first know of the Ultrasonic syndicated loan, the latest financial report was 1H13 financial report. Therefore, the following financial analysis will be focused on 1H13 financial report. As of 1H13, Ultrasonic had three main segments of products:

(1) Shoe soles, which is produced by Ultrasonic and sold to other shoe-manufacturing companies in China (OEM). The pricing method is cost-plus, and the revenue growth rate for this segment is the lowest of the three segments.

(2) Sandals and slippers, which are produced by Ultrasonic and then sold to various companies in the world (OEM). The pricing method is via negotiation.

(3) Urban footwear and accessories, which is produced by outsourcing and sold to China customers under the Ultrasonic brand. The pricing is determined by Ultrasonic itself, and this is supposed to be the highlight segment of Ultrasonic, with highest revenue growth rate of the three. However, building a brand from scratch is no easy task which requires investing a lot of resources and could take several years to accomplish.

As shown in table 4, these three segments are vastly different in their product nature, customers, producing and pricing methods, but the gross margins are at almost the same level. This is a very unusual sign, because these products are supposed to be very different in many ways, therefore the gross margins should not be this close to each other. For example, as the highlight segment in which Ultrasonic AG controls the price, the urban footwear should have different margin than the shoe soles which are priced with cost-plus in an OEM relationship. And if the pricing methods are so different with other companies involved, Ultrasonic should have no complete control over these margins. This again makes Taishin having doubts with Ultrasonic AG, and suggest the financial statements of Ultrasonic AG show be examined carefully.

Table 5: Gross Margins of Ultrasonic AG Products

	Producing method	Pricing method	Gross Margin
Shoe soles	Self produced	Cost-plus	31.0%
Sandals and slippers	Self produced	Negotiation	30.6%
Urban footwear and accessories	Outsourced	Determined by Ultrasonic	31.0%

Source: Ultrasonic AG financial report

4.2.3. Red Flag 3: Unusually Stable Gross, Operating and Profit Margins Across Multiple Accounting Periods

Besides aforementioned red flag 2, there are other red flag in the income statements of Ultrasonic AG. Ultrasonic AG seems to have great revenue growth and stable profit margin, but if looking closely into the key margins across multiple accounting periods (table 5), we could see the margin numbers are unusually stable.

Table 6: Key Margins and Revenue Growth Rate of Ultrasonic AG, 2011-1H13

	2011	2012	1H12	1H13
Revenue growth rate	16.9%	24.8%	20.3%	12.9%
Gross margin	**30.9%**	**30.9%**	**30.9%**	**30.9%**
Operating margin	**27.9%**	**28.0%**	**28.0%**	**28.0%**
Profit margin	**20.9%**	**20.7%**	**21.0%**	**20.8%**

Source: Ultrasonic AG financial report

The gross margins from 2011 to 1H13 are virtually the same while revenue is growing rapidly, which in itself should be very rare. As mentioned in red flag 2, Ultrasonic AG has products that are very different in nature and they have many customers located in various countries, and the product mix was changing. And in China the industry and economic situation in different periods should not be the same, as the country was experience rapid economic growth in these years. All these factors make this kind of stable margins very unlikely to happen. This is window dressing at best, and might even be resulted from financial fraud.

And it’s not just gross margin that is unusually stable, the operating margin of Ultrasonic AG from 2011 to 1H13 is virtually the same as well. This is even more unlikely to happen if the company is not committing any window dressing or fraud, because this involves operating expenses which should be even harder for a company to control, and the expense/revenue ratio should change in rapid growing periods, because it should be very hard for a company to growth revenue and completely control the expense ratio at the same time.

Finally, the profit margins are also almost the same, again this is even more unlikely to see compared with the stable gross margin, since more factors are involved in the calculation. This kind of unusually stable gross, operating and profit margins are very hard to believe. If Ultrasonic AG is not committing any window dressing or fraud, the probability that the company really achieved this kind of financial result is very low. Combined with aforementioned company background and gross margin red flags, at this point Taishin already determined that Ultrasonic AG might have very high credit risk, and this syndicated loan is a very risky case which should be avoided.

One possible way for an honest company to achieve this kind of financial performance is to have great market power or brand power in a stable market, but there are thousands of company which can manufacture or sell shoes including famous international firms, and the Ultrasonic brand is not very powerful in China (the brand was young, and the revenue of urban shoes that is sold under the Ultrasonic brand is not high compared with famous brands in China, which showed the brand has limited power), and the market situation was changing rapidly in China, so it's nearly impossible to see a company like Ultrasonic AG to have this kind of financial performance. Under normal circumstances, even the top company in this industry would not be able to achieve this in China.

4.2.4. Red Flag 4: The Unusually Stable Margins Trend of Ultrasonic AG Is Vastly Different from Industry Trend

In order to further determine if the aforementioned situation is plausible, one way is to conduct peer company comparison. In this case, we choose other famous Chinese shoe companies, and compare their financial results with that of Ultrasonic AG. As table 7 shows, Ultrasonic not only achieved relatively high profit margin, but the profit margin is also relatively extremely stable.

The profit margin of Ultrasonic AG only changes by 0.3% or less, and the standard deviation is only 0.1%. On the other hand, we could see all other companies has much higher volatility, for example the profit margin of Foshan Saturday Shoes was 7.4% in 2011, but decreased to 3.5% in 1H13, which is a huge decrease but normal in a competitive environment, and shows the market in China is indeed very competitive. If we compare the standard deviation of these profit margins which are ranging from 0.7% to 2.3%, it is very clear that the unusually stable margins trend of Ultrasonic AG is vastly different from industry trend. Although the size of data points used is not large, this kind of huge difference in standard deviation again makes the results from Ultrasonic AG very suspicious. Like aforementioned, even top companies like Belle or Aokang could not produce extremely stable margins like Ultrasonic AG.

For a company to control profit margin like Ultrasonic AG, it has to at least (1) control gross margin, which needs very good pricing or negotiation power, however, since the shoes business in China is very competitive, and Ultrasonic AG is a small player with rapidly growing revenue and three product segments which are very different in nature, this should be hard to do; (2) control operating expenses, since Ultrasonic AG was rapidly growing and the wage in China is also growing, it's not easy for a company to control operating expenses or margins; (3) the company needs to make its tax or extraordinary items stable, which is also not easy to do; (4) operate in a very stable market, which China is not. Therefore, it should be very hard to control profit margins like Ultrasonic did in 2011 to 1H13, if the company is operating in an honest way. Once again, this raises the doubt of window-dressing or financial fraud. This 0.1% standard deviation is an alarming signal, and a significant red flag.

Table 7: Profit Margins of Ultrasonic AG and Peer Companies, 2011-1H13

	2011	2012	1H12	1H13	Standard deviation
Belle International	14.6%	13.2%	13.9%	12.0%	1.1%
Zhejiang Aokang Shoes	15.4%	14.9%	15.9%	14.3%	0.7%
Foshan Saturday Shoes	7.4%	3.6%	6.4%	3.5%	2.0%
Baofeng Modern International	14.4%	11.4%	10.9%	15.5%	2.3%
Ultrasonic AG	**20.9%**	**20.7%**	**21.0%**	**20.8%**	**0.1%**

Source: Ultrasonic AG financial report, Bloomberg

4.2.5. Red Flag 5: Balance Sheet and Statement of Cash Flow Suggests No Need for Borrowing Funds

This red flag is related to the balance sheet and statement of cash flow. Ultrasonic AG not only has impressive income statements, and from their balance sheet and cash flows they seem to have great liquidity (Table 8), with current ratio higher than 400%, almost no non-current liabilities, and sufficient cash and operating cash flow (during 2011 to 1H13, Ultrasonic retained positive operating cash flow, during 1H13 it's around 27 million Eurodollars). And the total liabilities was only around 15% of the total asset in 1H13. All these numbers seem to suggest the company is very healthy financially, with more than enough liquidity.

If the banks are using the common method alone, Ultrasonic AG's income statement, balance sheet and statement of cash flow would paint a very impressive picture, and the banks would think this is a good case.

Table 8: Ultrasonic AG Balance Sheet, 2011-1H13

	2011	2012	1H12	1H3	2011	2012	1H12	1H3
Cash and bank balances	77,520	74,525	93,441	105,134	65.5%	49.8%	67.9%	60.4%
Trade and other receivables	33,088	56,330	34,560	49,162	28.0%	37.7%	25.1%	28.3%
Inventories	614	748	1,291	1,092	0.5%	0.5%	0.9%	0.6%
Total current assets	111,222	131,603	129,292	155,388	94.0%	88.0%	94.0%	89.3%
PP&E	6,359	15,489	7,465	15,523	5.4%	10.4%	5.4%	8.9%
Intangible assets	13	8	11	577	0.0%	0.0%	0.0%	0.3%
Land use rights	159	2,111	162	2,157	0.1%	1.4%	0.1%	1.2%
Other non-current assets	562	356	610	336	0.5%	0.2%	0.4%	0.2%
Total assets	118,315	149,567	137,540	173,981	100.0%	100.0%	100.0%	100.0%
Borrowings	4,999	5,410	4,447	3,409	4.2%	3.6%	3.2%	2.0%
Trade and other payables	17,248	18,762	18,533	19,521	14.6%	12.5%	13.5%	11.2%
Income tax payable	2,500	2,948	2,767	2,952	2.1%	2.0%	2.0%	1.7%
Other current liabilities	6	126		130	0.0%	0.1%	0.0%	0.1%
Total current liabilities	24,753	27,246	25,747	26,012	20.9%	18.2%	18.7%	15.0%
Total non-current liabilities					0.0%	0.0%	0.0%	0.0%
Total liabilities	24,753	27,246	25,747	26,012	20.9%	18.2%	18.7%	15.0%
Share capital	10,600	11,475	10,655	12,093	9.0%	7.7%	7.7%	7.0%
Retained earnings , capital reserve and statutory reserve	71,545	101,807	85,758	122,499	60.5%	68.1%	62.4%	70.4%
Other reserves	11,417	9,039	15,380	13,377	9.6%	6.0%	11.2%	7.7%
Total equity	93,562	122,321	111,793	147,969	79.1%	81.8%	81.3%	85.0%
Total liabilities and equity	118,315	149,567	137,540	173,981	100.0%	100.0%	100.0%	100.0%

Unit: thousand Eurodollars, %

Source: Ultrasonic AG financial report

In this syndicated loan, Ultrasonic AG was supposed to be borrowing funds to pay for future capital expenditures. However, according to Ultrasonic AG, their estimated total capital expenditures from 2014 to 2017 was only 43 million Eurodollars, but at the same time Ultrasonic AG was supposed to have 105 million Eurodollars of cash at the end of 1H13, which was more than enough to pay for all the capital expenditures all the way to 2017, without even considering future operating cash flows. If the balance sheet is authentic, the company indeed has no need for borrowing funds at all, because it's possible to pay all these capital expenditures by company cash without much effort, either with cash on hand or future operating cash flows.

The all-in interest rate (which considers all the related fees) of Ultrasonic syndicated loan is more than 4.15%. Why would a company that is supposed to have more than enough and growing cash balance want to borrow funds with more than 4% interest rate, to pay for capital expenditures which are not significant to the company? The reason used by Ultrasonic AG does not make sense to Taishin. It's possible the company is just making an excuse, and the real reason is not revealed by the company.

Another factor to consider is that: almost no non-current liabilities can be a good thing, but could also mean that so far, no bank trust Ultrasonic AG enough to lend them meaningful long-term funds. The fact that no China bank lent long-term funds to a company could be an alarming sign as well.

These five financial red flags are all very worrying signs. If the company is not conducting any wrongdoings with their accounting or financial frauds, there is very little chance we could see this kind of financial results. This is window-dressing at best, or even outright fraud. However, there are still seven banks that believed in Ultrasonic AG and participated in this syndicated loan, thus Ultrasonic AG successfully borrowed 60 million U.S. dollars. As aforementioned, if a bank uses only common method, it's possible to recognize Ultrasonic AG as a great company, but this is not true.

4.3. The Ultrasonic AG Default and Aftermath

In August 2014, seven banks participated in the Ultrasonic syndicated loan. According to Ultrasonic AG, this will help the company to grow further. However, as soon as in September 2014 the CEO and COO of Ultrasonic AG disappeared with most of company cash (as shown in table 9). Not only the banks could not recover the funds (table 10), but also the shareholders suffered significant damage as well (figure 4), in one year the price dropped from over 8 Eurodollars per share to around 0.229 Eurodollars per share, which represents a loss more than 95%. As of January 4 2016, the stock price is 0.06 Eurodollars per share.

Although the CEO later showed up, he didn't show any intension to repay the missing cash, and it's still not clear how many cash is left in Ultrasonic AG, and their webpage at Tmall.com no longer has any product listing as of 2015. The Chinese legal system is not even accepting the Ultrasonic group legal case (this proves international loan to Chinese companies is very risky) brought by Taiwanese commercial banks. As of 2015, the CEO and COO didn't receive any kind of punishment at all, which proves the moral hazard risk involved is very real.

The Ultrasonic AG default in turn becomes one of the most famous Chinese default case in Taiwan, and gained much media exposure. However, even if the Ultrasonic AG case becomes famous, the Taiwan government or banks could not do much to companies like Ultrasonic AG, which is listed in Frankfurt Stock Exchange and operating in China. If a Chinese company defaulted and there is no collateral, it's very hard for a Taiwanese bank to recover the funds at all. And there is no collateral for this loan, which means the banks do not really control any physical asset of Ultrasonic group (this fact shows that the leading banks for this loan significantly underestimated the credit risk).

During March 2015, Ultrasonic AG filed for insolvency. According to the company: "After negotiations with the financing banks have failed for the time being, Ultrasonic AG had filed for insolvency on Wednesday 11 March 2015". Since the company filed for insolvency and there's no updated financial reports, it is unclear how much does the company stock worth or how much cash is left, and it is possible that the stocks are in fact worthless, and the banks could not retrieve any meaningful funds.

The way Ultrasonic AG defaulted and filed for insolvency in such a rapid fashion proved this is indeed a financial fraud, possibly planned before the syndicated loan. This case is now a very famous case in Taiwan. Also in March 2015, Financial Supervisory Commission published additional rules related to Chinese company loans, which was nicknamed "Ultrasonic rules", this again shows the importance of the Ultrasonic AG case in Taiwan, and the credit risk involved in Chinese company loans. But "Ultrasonic rules" alone won't be able to prevent Chinese financial fraud, instead the banks need to constantly improve and update the due diligence and credit risk research methods.

As this thesis shows, it is possible to detect this fraud beforehand with public information. If there is only one red flag, it's possible there might be no problem. But with all those five red flags show up at the same time, Taishin was very confident about the risk assessment. Ultrasonic AG had very outstanding financial numbers, but by doing detailed background and financial research, it's possible to see the numbers are very suspicious indeed, and determine there is great credit risk involved with this loan.

Table 9: Timeline of the Ultrasonic AG Syndicated Loan

Time	Event
2013/10	Taishin know of the Ultrasonic AG syndication loan.
2013/11	Taishin found various red flags, and determined Ultrasonic AG has very high credit risk.
2014/8	Seven banks (excluding Taishin) participated in the Ultrasonic AG syndication loan.
2014/9	The CEO and COO of Ultrasonic AG disappeared with cash.
2015/3	Ultrasonic AG declared insolvency.

Source: Compiled by Taishin

Table 10: Banks Involved in Ultrasonic AG Syndicated Loan

Bank	Amount
Cathay United Bank	10 million U.S. dollars
Chang Hwa Bank	10 million U.S. dollars
Taiwan Cooperative Bank	10 million U.S. dollars
Taiwan Business Bank	10 million U.S. dollars
Nomura International (Hong Kong)	9 million U.S. dollars
Cosmos Bank	6 million U.S. dollars
Hwatai Bank	5 million U.S. dollars
Total: 60 million U.S. dollars	

Source: Estimated by Taishin

Figure 4: Stock Price of Ultrasonic AG (US5:GR), 2014/7/1~2015/7/1

Source: http://www.boerse-frankfurt.de/

4.4. Summary of the Ultrasonic AG Financial Fraud Case

Ultrasonic is a Chinese shoe manufacturer and supplier (but its top holding company is in Germany, and its stocks is listed in Frankfurt Stock Exchange), which tried to borrow funds from banks via a syndicated loan. After doing background and financial research, Taishin found these five main red flags of the Ultrasonic AG case:

Red flag 1: Contradicting brand stories which lack credibility

Red flag 2: Same gross margin for vastly different products

Red flag 3: Unusually stable gross, operating and profit margins across different accounting periods

Red flag 4: The unusually stable margins trend of Ultrasonic AG is vastly different from industry trend

Red flag 5: Balance sheet and statement of cash flow suggests no need for borrowing funds

Red flag 1 suggests company might have corporate governance issues or the management is dishonest, which in itself is a serious red flag. Red flag 2 to 5 suggests the company might be conducting window-dressing in financial statements or financial fraud. Of these red flags, red flag 4 would be the most alarming one. If a company is operating and reporting honestly in a competitive market like China, it would be almost impossible to see this kind of unusually stable margins, which even top firms could not achieve. Therefore, Taishin determined the Ultrasonic syndicated loan has very high credit risk and didn't participate. But still there are seven banks participated in the syndicated loan (six of them are Taiwan banks) and lent 60 million U.S. dollars in total to Ultrasonic AG.

Just one month after the syndicated loan, the CEO and COO disappeared with most of the company's cash in September 2014. Although the CEO later showed up, it's still not clear how many cash is left in Ultrasonic AG. Until now, the banks participated in the syndicated loan still didn't receive any repayment, and the publication of 1H14 financial report of Ultrasonic AG is deferred indefinitely. One of the banks said they will sue Ultrasonic AG, but the chance of success is very low. The Chinese legal system is not even accepting the Ultrasonic legal case, and until now the CEO and COO didn't receive any kind of punishment. Eventually Ultrasonic syndicated loan became one of the most famous Chinese financial fraud cases in Taiwan. However, being aware of the red flags and potentially high credit risk, Taishin avoided this China fraud and prevented financial or reputational damage.

During March 2015, Ultrasonic AG filed for insolvency. This case is now a very famous default case in Taiwan. Banks participated in this loan suffered 60 million U.S. dollars loss, and the shareholders of Ultrasonic AG also suffered a more than 95% stock price drop in one year, thus this Chinese default and financial fraud case indeed caused serious damages to many stakeholders. However as this thesis shows, it is possible to detect this fraud beforehand with public information by doing detailed independent research, especially from carefully examining the financial statements, which could be described as seemingly too good to be true.

5. Suggestion: A Comprehensive Method for International Loan due Diligence to Prevent Chinese Financial Frauds, and a New Credit Scoring System

5.1. Comprehensive Method for International Loan due Diligence

Based on the findings so far, this thesis will now suggest a more comprehensive method of international loan due diligence as the following figure shows:

Step 1: When the company provides background data, it might omit or decorate negative events, like legal trouble, operating problems or other issues. Thus, independent background check is very important. For example, in the Ultrasonic AG case, independent check could find out the brand story lacks credibility.

Step 2: The history and reputation of the company's controller/management is very important. If a controller or key management of the company in the past involved with fraudulent or insolvent companies, this would be a very important signal, unless it could be proven that the controller or key management has nothing to do with these problems. Generally, if a business owner didn't get punishment from previous frauds, he has motivation to conduct frauds again.

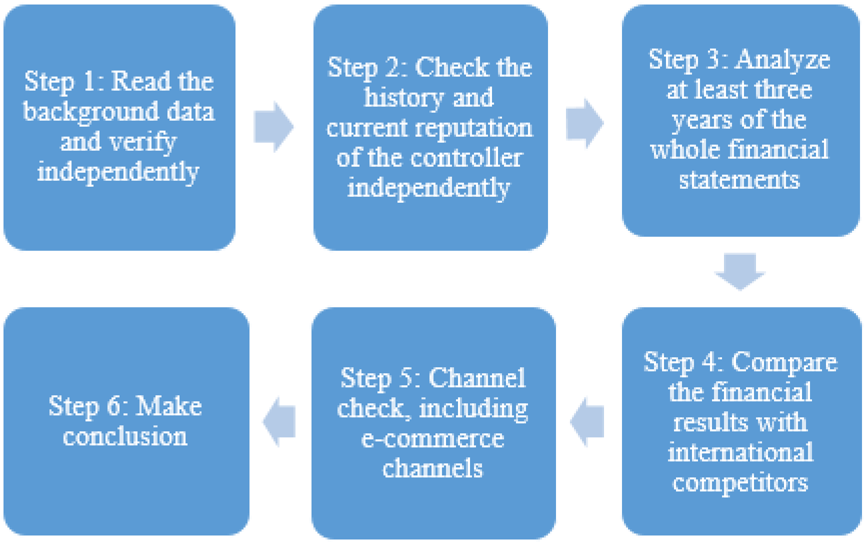
Another factor is that since China's political situation changes very fast, getting into legal trouble overnight is also possible. Therefore a back ground check about political connections is also critical.

Step 3: In order to get the whole picture, it is very important to analyze at least three years of financial statements, including statement of cash flows and footnotes. For example, if a company reports great net income, but has years of negative operating cash flow, then this company might need more scrutiny. In addition, local documents like financial statements of subsidiaries and power bills will also be a good reference. And in some cases, local financial statements proved to be more reliable than the consolidated statements of the top holding company.

Step 4: To make sure the comparison is expansive enough, all the suitable companies should be included, and not limited to certain countries. If companies in certain country has unusually high margins, there should be adequate reason to explain the difference. This check was proved useful in some Chinese fraud cases, in which the companies showed margins higher than most of the global competitors, but could not provide convincing evidence to support the numbers.

Step 5: It is very important to conduct channel check. For example, if a company claims to be a big and famous brand, the bank should be able to see lots of exposure in various channels. And in e-commerce channels, the bank should also see lots of discussion and trading occurring. Many companies would claim to be an important brand with high market share, in order to get loans from banks, however if there are no evidence to support these claims, then the company might be lying.

Figure 5: A Comprehensive Method for International Loan due Diligence



5.2. KL Credit Scoring System

Besides the aforementioned method, the thesis will also suggests a credit scoring system which could be used to assist in detecting and preventing financial frauds. Traditionally, banks used credit models which is based on financial numbers, and calculate scores or ratings. For example, the TCRI (Taiwan Corporate Credit Index) is a credit rating system used in Taiwan. The system first use computer to calculate a basic rating, and then adjust with human judgement, and come up with a final rating from 1-9, with 9 being the worst. When doing the calculation, the computer follows a traditional model that includes ten factors: three profit ratios, three liquidity ratios, two turnover ratios, revenue and total assets. From this example we could see the traditional models are mostly based on numbers from the financial statements. The traditional models could analyze companies in a very rapid way, but as the Chinese cases showed, relying on traditional models alone could not prevent all the fraud.

Based on past financial fraud cases in recent years, this KL credit scoring system uses factors that are usually left out from models, but in the past related to financial frauds (especially Chinese cases), as the following table shows:

Table 11: KL Credit Scoring System

No.	Factors	Score
1	Management participated in financial frauds, or could be involved with legal investigations.	10
2	Management used company funds or transactions for personal gain.	10
3	The claimed market share couldn't be independently verified.	10
4	The numbers in the financial statements of holding company could not match with local companies'.	20
5	Contradicing or suspicious brand or company story/history.	5
6	Income statement related margins higher than industry average, without convincing reasons.	10
7	The volatility of income statement related margins are lower than all the main competitors.	5
8	The company relies on other income or investment income to make a profit.	5
9	The tax expense couldn't match with local tax ranking/report.	10
10	Balance sheet or cash flow suggests there's no need to borrow money.	5
11	The growth of accounts receivable is significantly higher than revenue.	5
12	The growth of inventory is significantly higher than revenue, and mostly are finished goods.	5
13	The address or financial information of main operating companies, stores, customers or suppliers could not be verified.	20
14	Main customers, suppliers or partners has big scale, but with limited scope, information and reputation.	5
15	There are reasons to believe main customers or transaction counterparties are related to the company, while the company denies.	10
16	Having years of positive net income, but without comparable operating cash flows.	5
17	There are reasons to believe the company's main operation is fake or about to be suspended, but the company does not communicates clearly.	10
18	Conduct acquisitions which lack value or resulted in irregular profit to the company or controller.	5
19	Changing CEO, CFO or auditing firms frequently without proper reason. Or change for big four to other firms.	10
	Total*	165

*When total score >=20: The company requires more scrutiny; When total score >=50: The company might has siginificant credit risk

Following are the explanations for each factor:

Factor 1: If the management in the past participated in financial frauds, and didn't receive significant punishment, they have motivation and skill to conduct frauds again. This factor is related with moral hazard. In the past there are cases in which the management repeatedly created a company just to sell stocks and take funds, then abandon the company and move to other companies.

Factor 2: The company funds should belong to the company and stakeholders, and is not the management's personal asset. If the management can use the funds for personal uses like houses or jets, this shows the company governance is not well, and the funds borrowed from banks might be used for personal gains. This kind of transactions will not show up in the main financial statements, but in the footnote or other documents.

Factor 3: Many companies will claim to be a big and important brand in their country. However if the market share couldn't be independently verified, then the company is possibly faking the claim, which is a risk signal. And if a company is lying in its market share, it's possible that other sales related numbers are fabricated.

Factor 4: As mentioned before, the bank usually receive the top holding company's financial statements, which usually looks fine. However, if the numbers in holding company's financial statements couldn't match local main operating companies' numbers, this is a very significant red flag. In the past, there are China fraud cases in which the numbers of holding company is around 10 times higher than local companies combined, and this should be a very significant red flag.

Factor 5: If the company could lie at brand history or story, the honesty of the company is questionable. Although this might be legal in some cases, if the company could lie in such a fundamental matter, how could the banks trust the company? The company might be lying in other documents or financial statements.

Factor 6: If all the companies are doing similar operations but one of them has unusually high margins, there must be convincing reasons. If not, then the numbers are questionable. In this case, the company should provide sufficient evidence to clarify the reason for such margins.

Factor 7: This is one of the main findings from the Ultrasonic AG case. If a company is operating in an honest way, it would be very hard to see highly stable margins, unless the company and the whole market is in a very stable stage, with almost no risk factors, which is very hard to find in this world or in China. In the Ultrasonic AG case, even the top firms in industry could not have achieved the stable margins with a 0.1% standard deviation reported by Ultrasonic AG.

Factor 8: For companies in most industries, in the long term, it's hard to rely on other income or investment to sustain a company. And investment in equities are usually unstable, therefore if a company relies on other income or investment to make a profit, it is risky because investment mistakes might be able to hurt the company's financial health, depends on the scale of investment.

Factor 9: This is a red flag found from past Chinese financial frauds. If the company's reported tax expense is significantly different from local official tax ranking or report, since the local government usually has no reason to fake the official tax ranking or report, in this case the company is possibly faking the numbers. For example, when faking high revenue or profit, the company will also needs to fake high tax expense, but this will create conflict with local official tax ranking or report, which is why this red flag is important.

Factor 10: This is another main finding from the Ultrasonic AG case. If a company has more than enough reported cash and operating cash flow, there's no reason to pay interest expense to borrow extra funds. The company is possibly lying about the reason, which is a risk signal. And if the company had never received any long-term loans from local banks, this would be a even more serious red flag.

Factor 11: When higher revenue couldn't translate into cash, the result is usually higher accounts receivable. If the growth of accounts receivable is significantly higher than revenue, the company requires more scrutiny, because the high accounts receivable might be used to cover other financial problems or misbehaviors.

Factor 12: This factor is similar to factor 11. When the growth of inventory is significantly higher than revenue, the company requires more scrutiny. And if most inventories are finished goods, the situation is more worrying. Because if the company is doing well, there should not be many finished goods sitting on the balance sheet.

Factor 13: This is another red flag found from past Chinese financial frauds. If the address of main operating companies/customers/suppliers could not be verified, the risk is very high, since the companies might be actually non-existent and financial numbers are possibly manipulated. In the past there are cases that the address listed would turn out to be fabricated, or belong to a place that is already abandoned.

Factor 14: This is related to factor 13. Even if the address could be verified, if the customers/suppliers seems to have big scale, but without much information, reputation, and focus on dealing with very few companies, then the company be non-existent and requires more scrutiny.

Factor 15: If the company claims certain companies are unrelated, but for example there are signals show that those companies are indeed controlled by the family of management or other methods, then the company is being dishonest, and the financial numbers must be more carefully reviewed. After all, business between related companies are a lot easier to manipulate. In the past there were cases in which the company created companies controlled by the management to manipulate earnings, while denying the relationship.

Factor 16: Compared to net income, cash flows are harder to manipulate, because auditors will verify the cash balance with banks (however, this is not a 100% guaranteed safe check, since it's possible to bribe the local bank branch). If a company is having years of positive net income, but the operating cash flows are mostly negative, this is also a risk signal (unless there is legit reason). If combined with factor 11 and 12, then the potential risk is even higher.

Factor 17: Sometimes legal issues will make companies having to suspend the main operation, and this will soon impact the profit of the company. Therefore, this will be very important information to all stakeholders. However, if the company does communicates in a clear way, this would be an alarming signal.

Factor 18: Merger and acquisitions are very common, but if a company conducts acquisitions which didn't create value or profit for the company, or the profit is irregular, for example a one dollar trade with millions of profit (which actually happened before), then the motives and logic of these transaction needs to be examined carefully.

Factor 19: When CEO, CFO or auditing firms change without proper reason, usually the company is in trouble, therefore these parties quit from the company to avoid troubles. For example, CEO usually could notice trouble before most people, and if the problem is unsolvable, then CEO has the motivation to resign abruptly. This logic applies to CFO and auditors as well. When the auditor abruptly resigns, the company is usually in a very deep trouble.

These factors are hard to capture using traditional models, but are good indicators for credit risk research or due diligence. Each factor in the system has certain scores, and the total score range is from 0 to 165. Higher score means higher risk, as 10 points equals to having one significant red flag. When a company has multiple significant red flags, the company is potentially risky and requires more careful review. Based on past experience, most fraud cases would have two or more red flags at the same time, thus a score equals to or higher than 20 (which equals to around two significant red flags) means the company requires more scrutiny, and a score equals to or higher than 50 means the company has significant risk. If we applies this system to Ultrasonic AG, since this company meets the description of factor 3, 5, 6, 7 and 10, the score is 10+5+10+5+5=35, which is in the range that requires more scrutiny.

As the table shows, this system contains both quantitative and qualitative factors, and requires information other than financial statements. The reason is that traditional model focus on quantitative factors from financial statements, thus the scores or ratings are mostly only based on numbers provided by the financial statements. However if the company is good at financial fraud, it is hard to use traditional models to detect. When auditing, the original materials are mostly provided by the company, and if the company is very skilled and careful, even experienced auditors might not be able to detect financial statement frauds, and this is why credit scoring systems need to constantly improve, to adapt to the trend.

As mentioned before in the thesis, cases of Chinese financial frauds which involved Taiwan banks are still low in quantity (so far high-profile cases include only Ultrasonic AG and China Lumena), therefore this system still lacks big sample to do more intensive research. In the future as more financial frauds or credit event happens, big sample test could be done, and then this system could be modified and improved in the future by adding factors and changing the scoring method, to increase the effectiveness and accuracy.

5.3. Testing of KL Credit Scoring System on Chinese Fraud/Credit Event Cases

At this section the thesis will test the KL credit scoring system with the most notable Chinese cases, in which fraud or credit events occurred. Most of these companies are audited by small firms, but still there are some involved with the big four firms. As the following table shows, the KL credit score of these cases ranges from 25 to 70, and factor 3, 4, 6 are very useful indicators.

Using the common method and traditional models alone, most of these companies would seem to be fine companies. This is because most of these companies have higher than average revenue growth or profit margins, judged from financial numbers along these companies would seem to be good companies. But as the following table shows, all these companies had trouble eventually, and some might be planner frauds. However, if the controllers or management flee to certain countries beforehand, it is possible that they can escape from all punishments.

However, using KL credit scoring system could help stakeholders to find out these companies indeed have high potential risks, as all the companies have scores higher than 20, and some of the companies have scores higher than 50. By checking additional factors not included in traditional models, the accuracy of credit risk research or due diligence could be improved.

Table 12: Testing of KL Credit Scoring System on Notable Chinese Cases

Company Name	Credit event date	Event decription	KL credit score	Auditor
Ultrasonic AG	2014/9	CEO and COO disappeared with company cash in 2014/9, later declared insolvency in 2015/3.	35 (Factor 3, 5, 6, 7, 10)	Warth & Klein Grant Thornton AG
China Lumena New Materials Corp.	2014/5	Was reported that company could not repay the loan in 2014/5, and applied for liquidation in 2015/1.	70 (Factor 3, 4, 6, 9, 13)	BDO Limited
L&L Energy, Inc.	2014/3	CEO was arrested and charged by SEC with fraud in 2014/3. CEO was sentenced to 5 years in 2015/2.	40 (Factor 1, 4, 6)	Kabani & Company, Inc.
Universal Travel Group Inc.	2013/9	SEC announced fraud charge in 2013/9.	30 (Factor 3, 10, 18, 19)	Windes & McClaughry Accountancy Corporation
RINO International Corp.	2013/5	Charged with scheme to overstate revenue and divert money for personla use by SEC in 2013/5.	40 (Factor 2, 3, 4)	Frazer Frost, LLP.
China Medical Technologies, Inc.	2012/1	Defaulted in 2012/1, and bankrupted in 2012/9.	30 (Factor 11, 15, 16, 17)	PWC ZhongTian CPAs Limited Company
Longtop Financial Technologies	2011/8	Company stock delisted in 2011/8, and lawsuits followed, including deficient filings charge by SEC.	25 (Factor 1, 6, 14)	Deloitte Touche Tohmatsu
Sino-Forest Corporation	2011/8	Ontario Securities Commision accuses the company of fraud in 2011/8, lawsuits followed.	65 (Factor 1, 3, 4, 13, 14)	Ernst & Young
China-Biotics, Inc.	2011/6	Company stock delisted in 2011/6, and lawsuits from investors followed.	40 (Factor 4, 13)	BDO Limited
China Media Express Holdings	2011/5	Was accused of fraud and its stock delisted in 2011/5. Charged with fraud by SEC in 2013/6.	40 (Factor 3, 4, 17)	Deloitte Touche Tohmatsu

6. Conclusion

International loan is a very important business for Taiwan commercial banks, and China is the largest credit market for Taiwan banks. Even if China's economic growth decelerates, China will still be an important market. However, when doing due diligence or credit risk research for Chinese companies, Taiwan commercial banks are facing difficulties and risks like difficulty to monitor the company, a decelerating Chinese economy growth and other factors. And the common method used for international loan due diligence is not adequate to cope with the current credit risk situation.

There were two famous Chinese default cases in Taiwan during 2014, in which the thesis picks the Ultrasonic AG financial fraud case as an example. By using public information, Taishin found five red flags, and successfully detected and prevented this fraud. However, there are still seven banks and many investors suffered losses because of the default and bankruptcy of Ultrasonic AG. Ultrasonic AG defaulted and declared insolvency in a very rapid fashion, which shows this might be a fraud planned before the loan. This case is now very famous in Taiwan, and proves Chinese company loans should be carefully reviewed. Although the Financial Supervisory Commission published additional rules related to Chinese company loans, which was nicknamed "Ultrasonic rules", this kind of rules alone could not prevent Chinese financial fraud, instead the banks need to constantly improve and update their own due diligence or credit risk research method.

The Ultrasonic AG case shows that it is possible to use public information to detect and prevent financial frauds. Based on the case study, the thesis suggests Taiwan commercial banks could use a more comprehensive method of due diligence, to increase the accuracy of credit research. In the end, the thesis also suggests a KL credit scoring system, based on past financial frauds, to assist in credit risk research.

If the banks rely on only the common method and traditional models, fraud cases like the Ultrasonic AG case could not be prevented. But by utilizing a more comprehensive method of due diligence and KL score system with traditional models, Taiwan commercial banks could better detect and prevent international financial frauds, especially financial frauds in China. In the future as more cases developed, the method and model mentioned in this thesis could be further improved.

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