Financial Management Final Project

Financial Ratio Analysis of

The 3 biggest telecom companies in Taiwan

Presented by 106304027 許智超、106405190 巫昱昕

Contents

I. Summary

In this paper, we are going to use the financial ratios learned in the classroom to analyze the financial statements of the three major leaders in the telecommunications industry, Chunghaw Telecom (CHT), Taiwan Mobile Co., Ltd. (TWM), and Far Eas Tone (FET). Furthermore, the comparison of capital structure, solvency, operating ability, and profitability will be done to analyze the advantages and disadvantages of each company.

II. Brief Introduction of Industrial Development

In response to the globalization and liberalization of global telecommunications, Taiwan's telecommunications industry was opened to the public in 1997. The Ministry of Transportation and Communications, R.O.C issued eight private licenses, two of which were obtained by Taiwan Mobile Co., Ltd. (TWM) and Far Eas Tone (FET). However, due to the active acquisition of mobile communication markets by various players, the competition in the communications industry is quite fierce.

In order to expand the number of users, operators make every effort to advertise their services and upgrade equipment, which is the so-called "price war". In addition to the huge amount of advertising investment, Chunghaw Telecom (CHT) dominates the price flotations across the market. So far, CHT's telecon charge rate has been reduce by nearly 50% compared to the opening period. In the recent years, operators need to do more than just communication services. The continuous development of network technology, video streaming platforms ant the content industry has allowed telecommunications, cable televisions and info streaming to begin to combine.

Not only that, in the past two years, 5G is the hottest issue in the telecom industry. With the characteristics of large bandwidth (eMBB), low latency (URLLC), and large connection (mMTC), which is a major change for the telecom industry, it's going to create a new rule for obtaining business value. According to Research and Markets, as 5G will begin to spread in 2020 and will drive digital social transformation, it is estimated that the global social transformation, it is estimated that the global 5G market has the possibility to reach US $ 251 billion in 2025, with a compound growth rate of 97% in 2020-2025.

III. Telecom Company Profile

Here is a quick look at the profile of three main telecom companies in Taiwan, Chunghaw Telecom (CHT), Taiwan Mobile Co., Ltd. (TWM), and Far Eas Tone (FET), which are the subjects of our analysis.

1. Chunghaw Telecom (CHT)
   Chunghwa Telecom's main business covers three major areas: fixed-line communications, mobile communications, and data communications. By the end of 2018, there were 10.42 million telephone customers in CHT; 10.594 million mobile phone customers; 9.626 million mobile Internet customers; 4.13 million Internet customers; 4.483 million users; and the number of MOD users has exceeded 2 million, with an annual growth rate of more than 10%, ranking first in the domestic market.

   As the 5G interpretation in Taiwan is in the final stage, to gain the first stage of 5G launch, CHT established a task force to strive for high-speed bandwidth and strive to launch 5G services within six months of obtaining a license. The future capital expenditure for related network construction will exceed 500 100 million yuan. Since 2019, CHT is determined to transform and establishes a strategic transformation office to revise its development strategy. In addition, it will also strengthen the layout of international bandwidth in Asia and expand information security and smart home applications and services.

2. Taiwan Mobile Co., Ltd. (TWM)
   Taiwan Mobile Co., Ltd. mainly has four major business systems: mobile telecommunications, broadband landline, cable TV, and momo shopping for Internet TV retail business. With its advantage of having the largest 700MHz network frequency band in Taiwan, it has become Taiwan's largest 4G NB-IoT network provider to provide IoT application requirements.

   In order to develop the new Blue Ocean Strategy of 5G, at the end of 2018, the TWM and the Industrial Technology Research Institute collaborated on the Industrial Internet of Things / Artificial Intelligence Internet of Things and the deployment of the iMEC / VR360 cloud platform plan to build the first AI supercomputer in Taiwan. Also, TWM cooperated with Nokia in early 2019 to introduce the technology including 5G AirScale base station and AR technology, expecting to bring high-end applications through the implementation of 5G.

3. Far Eas Tone (FET)
   Far Eas Tone mainly provides services such as telecommunications and broadband landline, and cooperates closely with Arcoa Telecom and NCIC to sell mobile communications equipment and accessories. In addition, they also continue to actively deploy 5G technology and applications. Other than establishing a 5G vanguard team in 2018 to create a 5G connected car industry chain, they also recently announced that they will work with Nokia, an international telecom equipment provider, to sign a 5G cooperation memorandum, building a closer network on 5G cooperation and a more open network architecture. In July 2019, FET and Microsoft Taiwan jointly announced the launch of a strategic cooperation. Based on the Microsoft Azure platform, they will build three smart cloud services: "smart manufacturing", "smart healthcare" and "smart retail" to expand new business models and digital service landscape, becoming a "new economy digital service company."

IV. Financial Statements Analysis

The following analyses are all based on the amounts derived from the consolidated financial statements of the three companies discussed, CHT, TWM, and FET. The analyses are for the fiscal year 2018 only, since this is the latest annual financial statements we can get. Some figures may need the figures from the financial statements of 2017, but the statements of 2018 are mainly used for analyses. Note that some amounts are before earnings disposition, because the board of shareholders hasn’t adopted the resolution yet.

1. Capital Structure:
   - Debt-to-Equity Ratio
     Formula: Total Debts Amount / Total Equity Amount
   - Long-term Funds to Fixed Assets Ratio
     Formula: (Total Equity Amount + Long-term Debt Amount) / Total Fixed Assets Amount

Company	CHT	TWM	FET
Total Debt	80,696,384	79,673,332	52,780,326

Total Equity	386,572,320	67,993,696	74,036,183
Long-Term Debt	19,309,363	37,789,829	27,159,067
Total Fixed Assets	288,914,228	38,855,960	41,843,053
Debt-to-Equity Ratio	0.2087	1.1718	0.7129
Long-Term Funds to Fixed Assets Ratio	140.49%	272.25%	241.84%

- Conclusion:
  One can see that TWM has the largest D/E ratio, which means that it borrows more debt than raising equity to acquire assets. This represents that it needs to pay more interests relatively than the other two companies, which may cause a great pressure on working capital. On the contrary, CHT has the smallest D/E ratio, which represents a relatively healthier financial structure.

  All three companies have the long-term funds to fixed assets ratios over 100%, TWM and FET even have the ratios over 200%. This means that all three companies have sufficient long-term funds to cover their respective fixed assets. On top of that, TWM has the largest ratio of 272.25%, while CHT has the smallest ratio of 140.49%.

2. Solvency:
   - Current Ratio
     Formula: Current Assets Amount / Current Liabilities Amount
   - The Quick Ratio
     Formula: (Current Assets Amount - Inventory - Prepaid Expenses) / Current Liabilities Amount
   - Time Interest Earned
     Formula: Earnings Before Interest and Taxes / Interest

Company	CHT	TWM	FET
Current Assets	91,688,336	29,068,887	23,940,125
Current Liabilities	61,387,021	41,883,503	25,621,259
Current Ratio	149.36%	69.40%	93.44%
The Quick Ratio	121.68%	58.59%	74.87%
Time Interest Earned	1460.97%	3039.18%	28.79%

- Conclusion:

  CHT has the largest current ratio among the three companies with the ratio over 100%, which indicates that it has a high liquidity. For every NT dollars in current liabilities, it is more likely that enough compensation is paid. On the other hand, Both TWM and FET have the ratio less than 100%. This means that the two companies have negative working capital, which is unusual in a healthy firm.

  CHT has the largest current ratio among the three companies with the ratio over 100%, while TWM and FET have the ratio less than 100%. Note that from current ratio to quick ratio, the percentage drops by 27.68% for CHT, 10.81% for TWM and 18.57% for FET. This means that CHT has more inventory and prepaid expenses than TWM and FET.

  Both CHT and TWM have large interest coverage ratio. Especially TWM is able to cover the interest bill for about 30.39 times over. This implies that its creditors have more insurance on their debts. As for FET, which has the lowest times interest earned for about 0.29 times, has higher default risk. It's suggested to check if the debt ratio is too high or if there is lack of the management capacity.

3. Operating Ability:
   - Receivable Turnover

     Formula: Credit Sales Amount / Average Accounts Receivable
   - Average Collection Period

     Formula: 365 days / Receivable Turnover
   - Inventory Turnover

     Formula: Cost of Goods Sold / Average Inventory
   - Days' Sales in Inventory

     Formula: 365 days / Inventory Turnover
   - Fixed Asset Turnover

     Formula: Net Sales Amount / Average Net Fixed Assets
   - Total Asset Turnover

     Formula: Net Sales Amount / Average Total Assets

Company	CHT	TWM	FET
Receivable Turnover	6.22 times	14.08 times	9.74 times
Average Collection Period	58.68 days	25.92 days	37.47 days
Inventory Turnover	16.59 times	12.70 times	6.96 times
Days' Sales in Inventory	22 days	28.74 days	52.44 days
Net Sales	215,483,158	118,732,328	86,634,971
Average Net Fixed Assets	(288,914,228 + 288,707,910) / 2	(41,603,421 + 38,855,960) / 2	(46,233,707 + 41,843,053) / 2
Average Total Assets	(467,268,704 + 451,123,122) / 2	(154,522,754 + 147,667,028) / 2	(132,706,355 + 126,816,509) / 2
Fixed Assets Turnover	0.7461 times	2.9514 times	1.9673 times
Total Assets Turnover	0.4693 times	0.7858 times	0.6676 times

- Conclusion:
  We can see that TWM collected its outstanding credit accounts and reloaned the money 14.08 times during 2018, which is the most times among the three companies. FET has the second most receivables turnover with 9.74 times. The 6.22 times for CHT is the least among the three companies. It is suggested that CHT improve their receivables collecting ability.

  Those companies with more receivables turnover have shorter collection period, which is an indicator to good receivables collecting ability. TWM has the shortest average collection period (25.92 days), while CHT has the longest one.

  CHT has the most times of inventory turnover among the three companies, which shows that it management its inventory relatively well. In contrast, FET has only 6.96 times during 2018, the least among the three, it can be considered that FET has sluggish sales in inventory.

Those companies with more inventory turnover have shorter days' sales in inventory, which is an indicator to good inventory management ability. CHT has the shortest average collection period (22 days), while FET has the longest one.

We can see that TWM has the highest fixed asset turnover, with about 2.9514 times. FET has the ratio of 1.9673, while CHT with 0.7461 times is the lowest among the three companies. In this case, we can argue that TWM use their fixed assets to generate more in sales, and that CHT aren't handling their fixed assets usage well, compared with the other two companies.

The ranking of the total asset turnover to the three companies is still the same as that of the fixed assets turnover. TWM with the ratio of 0.7858 means that it can generate 0.7858 NT dollars sales for every dollar assets invested, which is the highest among the ratios of the three companies. So we can argue that TWM use their assets pretty well as a whole when compared to the other two companies.

4. Profitability

- Profit Margin
  Formula: Net income / Net Sales Amount
- Return on Assets (ROA)
  Formula: Net income / Average Total Assets (defined in the way of that described on the test book)
- Return on Equity (ROE)
  Formula: Net income / Average Total Equity

Company	CHT	TWM	FET
Net Income	36,456,171	14,485,768	9,424,776
Net Sales	215,483,158	118,732,328	86,634,971
Average Total Assets	(467,268,704 + 451,123,122) / 2	(154,522,754 + 147,667,028) / 2	(132,706,355 + 126,816,509) / 2
Average Total Equity	(386,572,320 + 373,579,580) / 2	(65,511,601 + 67,993,696) / 2	(70,446,213 + 74,036,183) / 2
Profit Margin	16.92%	12.2%	10.88%
ROA	7.94%	9.59%	7.26%

ROE	9.59%	21.7%	13.05%

- ROE computed by DuPont Identity
  Formula: ROE = (Net income / Net sales amount) * (Net sales amount / Average total assets) * (Average total assets / Average total equity) = Profit Margin * Total Asset Turnover * (1 + Debt-to-Equity Ratio)
  - CHT: 16.92% * 0.4693 * (1 + 0.2087) = 9.6%
  - TWM: 12.2% * 0.7858 * (1 + 1.1718) = 20.82%
  - FET: 10.88% * 0.6676 * (1 + 0.7129) = 12.44%

- Conclusion:
  As one can see that CHT has the largest profit margin ratio among the three companies, and the ratio is 16.92%. TWM has 12.2%, and FET has 10.88%, which is the lowest of the three. From the profit margin analysis it is deducted that for every NT dollar in sales, CHT generates the most amount (0.1692 NT dollars) in profit.

  TWM has the return of 9.59% on assets, the highest among the three companies. FET has the lowest ROA of 7.26%, although it is not deviated from CHT's 7.94% that much. We can argue that in these three companies, TWM use their assets to generate profit the most efficiently.

  We can see that TWM has the highest return of equity ratio with 21.7%. On the other hand, CHT with the return of 9.59% is the lowest among the three. In an accounting sense, TWM's shareholders are fared the most during the year 2018, which can be inferred that TWM has a relatively good performance during 2018.

V. Final Conclusion

For all the financial ratio analyses above, we sort out the results, shown as the following table. The table shows the ranking of CHT, TWM and FET, with respect to each ratio. 1 means that the company has the best performance among the three companies in the measures while 3 means the worst.

Company→	CHT	TWM	FET
Debt-to-Equity ratio	Lowest	Highest	Medium
Long-term Funds to Fixed Assets ratio	3	1	2
Current Ratio	1	3	2
Quick Ratio	1	3	2
Times Interest earned	2	1	3
Receivables Turnover	3	1	2
Average Collection Period	3(Longest)	1(Shortest)	2(Medium)
Inventory Turnover	1	2	3
Days' Sales in Inventory	1(Shortest)	2(Medium)	3(Longest)
Fixed Assets Turnover	3	1	2
Total Assets Turnover	3	1	2
Profit Margin	1	2	3
Return on Assets	2	1	3
Return on Equity	3	1	2

As we can see that for CHT, it has good performance in current ratio, quick ratio, inventory turnover, days' sales in inventory and profit margin. For TWM, it has good performance in long-term funds to fixed assets ratio, times interest earned, receivables turnover, average collection period, fixed assets turnover, total assets turnover, ROA and ROE. As for FET, it has either moderate or the worst performance in all ratios, getting none of the number one.

Provided the most market share, CHT do have good performance in managing its inventory, as the inventory turnover shown. In addition, the highest profit margin ratio indicates that CHT is good at making their sales profitable. As for the high current ratio and quick ratio, we can argue that the firm has a high liquidity. With high liquidity and low debt-to-equity ratio, the firm is relatively healthy than the other two. The weakness of CHT is on the collection of receivables, and the efficiency of assets usage, which can be observed in the poor performance in receivables turnover and the two assets turnover. Note that CHT has the largest difference between current ratio and quick ratio. We conjecture that this might be because CHT actually prepared lots of inventory to meet their good sales. Thus the relatively big difference between current and quick ratios compared to the other two companies does not conflict with the results that CHT has a high inventory turnover ratio.

Next, we are going to talk about TWM. Although having a relatively high financial leverage than the other two companies, TWM has the highest times interest earned with 3039.18%. This shows that TWM has enough earnings before interest and taxes to cover the interest. However, in the other two liquidity measures, the current ratio and the quick ratio, TWM has a poor figures. Both ratios are less than 100% and are the least among the three companies, meaning that TWM has negative working capital. So, even their earnings are able to cover the interests, the relatively low current and quick ratio are the warnings to TWM for the fact that high financial leverage are actually causing great pressures on their working capital. Besides enough interest coverage, from all the three ratios concerned with assets usage: fixed assets turnover, total assets turnover and ROA, we can observed that TWM also performs well in managing their assets efficiently. We consider that TWM keep the same policies with respect to assets usage, because they are doing good job on it. This is one of their strength, another one is the high ROE, which can make TWM's stock look quite attractive to the shareholders.

The last companies we are discussing is FET. Most of the ratio analyses conducted above show the moderate performance of FET among the three companies. Nonetheless, there are some of the ratios, such as times interest earned, inventory return, profit margin and ROA, indicate that FET has the poorer performance compared to CHT and TWM. Despite having similar market shares with TWM, FET's profitability cannot catch up to TWM's. This is not a good sigh for FET, if it wants to compete with TWM. We suggest that FET try to improve their sales policy. During the process of analyzing the financial statements of FET, we find out that FET has times interest earned less than 100%, which means that FET might not have enough earnings to pay their interest expenses. Having a larger default risk than the other two companies, FET may face difficulty borrowing money, since the creditors may required for a higher return rates to balance the risk. What’s worse, FET may go bankrupt if they cannot afford the interests. We suggested that FET adjust their financial structure, so that they can lower the risk mentioned above.

During the conducting of the analyses, we have been struggling with some difficulty. As the readers might notice, some figures might not be the same from those done by other professionals. There are two reasons for this phenomenon. First, the computations are based on the figures derived from the financial statements. Sometimes, we cannot perform the computations, due to the lack of information about the detailed amount. These detailed terms concerning with the analyses such as inventory, accounts receivables and interest expenses are often simplified or even concealed from the financial statements, either because they are too complicated or because they are private. Thus we sometimes have no choice but to look for the ratios online, and there we face another problem. There are many websites containing these ratios, but they are all different from each other, which really confuse us because we are not sure which to choose. The discrepancy might come from different definitions or estimation measures with respect to the same ratio. The other reason for the discrepancy between our analyses and others’ is that to estimate some of these ratios, there might exist methods that are much more difficult, but with more correctness and accuracy at the same time. Similarly, some analyses may require for professional knowledge. None of our team members has the telecommunication or accounting backgrounds, so the analyses measures are somehow confined. Maybe these are the directions that we can try to improve in the future analyses.

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