



LEVEL 7 ASSESSMENT SPECIFICATION

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Executive summary

This report will analyse the financial report for ASM Pacific Technology (Stock code: 0522) from different angles. After that, there will be issues addressing according to the analysis.

Chapter 1 covers the company background of ASM of their business nature, customer locations, history backgrounds, business environment, company structure etc. It will also have introduction of the other comparison companies: Shanghai Fudan Microelectronics Group Company Limited (HKEX stock number: 1385) and Hua Hong Semiconductor Limited (HKEX stock number: 1347).

Chapter 2 has detail analysis of the three companies' financial analysis including financial structure, Z-score analysis, paying debt ability, operational ability, profitability, growth ability. The analysis will be mainly on ASM on its strength and weakness compare with the other two companies and there will be suggestions and recommendation made accordingly.

Chapter 3 demonstrates ASM's corporate governance assessment. Most of the part is shown in ASM's annual reports with all details and open to public and its stakeholders.

Chapter 4 is an investment project analysis. The project general information is from ASM's 2020 annual report. Based on the project information and assumptions, the analysis is focused on the financial figures to lead to the conclusion of if the project is feasible or not. The analysis will cover the cash flow calculation, ARR and NPV, payback period and IRR.

The last chapter of chapter 5 will be suggestions and recommendations based on previous calculation and analysis. The implementation plan and audit plan is also drafted as part of the suggestions to the ASM company.

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1 Introduction

This chapter will introduce the ASM Pacific Technology (HKEX stock number: 0522) and the broader view of the semiconductor industry. In order to have some understanding of its comparison company: Shanghai Fudan Microelectronics (HKEX stock number: 1385) and Hua Hong semiconductor (HKEX stock number: 1347), there will be a brief introduction of both companies.

1.1 Company Background and Structure

ASM Pacific Technology (ASM) is a leading global supplier of hardware and software solutions for the manufacture of semiconductors and electronics. The company was established in Hong Kong in 1975 and set up the head office in Singapore. ASM's products and solutions cover the semiconductor assembly and packaging, and SMT (surface mount technology) industry. The products are sold to different customers globally and are implemented into different areas including mobile communications, LED, auto-motion, and computing etc. The ASM group is a world leader in the supply of semiconductor assembly and packaging equipment and surface mount technology solutions. In 1975, it is incorporated, and then ASM was number one in semiconductor solutions, and it ranked number two in SMT solutions. The company had over 14,000 employees all over the world. It presented in 28 countries, with 11 R&D centres worldwide. It has 12 significant manufacturing operations worldwide with over 1,500 patents on key leading-edge technologies (ASM, 2021a). In late 1989, ASM had the IPO in Hong Kong.

The ASM group has updated member of the Board Directors, as well as the senior management team members on its homepage, newsletters and annual reports. The Board of Directors consists of the chairman of the board of directors, executive directors and non-executive directors etc (ASM, 2021b). The senior management team includes the group CEO (Chief Executive Officer), CTO (Chief Technical Officer), Group CFO (Chief Financial officer) etc. As of 31 December 2020, the number of employees of the group is over 10,000 (ASM, 2021c).

1.2 Business Operation Review

ASM group divided its structure to two segments: semiconductor solutions segment and SMT solutions. Under the semiconductor solutions segment, there are wire bonders, die bonders, encapsulation bonders, test handlers, clip bonders, CIS equipment, TCB bonders, Flip chip bonders, mould under fill, panel moulding, laser grooving and dicing. Under the

SMT segment, there are assembly line solutions, DEK printing systems, SIPLACE placement systems and ASM smart factory tools and services (ASM annual report, 2021).



Source: (ASM, 2021d)

Figure 1.1 ASM manufacturing sites and R&D sites

According to Figure 1.1, ASM has ten R&D centres and manufacturing sites. The multi-sites of both R&D and manufacturing reduces the business risks and strengthen the development and manufacturing power for the group.

On the other hand, the ASM group customers also cover all over the world, with majority business in mainland China, Europe and Americas. The details by geography sales numbers are shown on every year annual reports to public.

1.3 Business Environment

Nowadays, semiconductors are the powerful technology of the information age. They allow devices to run different software applications. With the development of information technology, the usage of semiconductors is getting broader (Keil et al., 2020). Although the global pandemic of COVID-19 impacted the global economy, the semiconductor market performed better than expected in 2020. Semiconductor overall revenue increased to \$442 billion in 2020, a growth of 5.4 per cent compared to 2019, based on the Semiconductor Applications Forecaster (SAF) from the International Data Corporation (Global – Semiconductor, 2021).

1.4 Comparison Companies' Information

Shanghai Fudan Microelectronics Group Company Limited (HKEX stock number: 1385) is one of the leading companies who is specialized in the design and development of ASIC (Application-Specific Integrated Circuit) and supplies total solutions in China (Shanghai Fudan, 2021). The company was established in 1998 in China, and the company had IPO in Hong Kong in 2000.

Hua Hong Semiconductor Limited (HKEX stock number: 1347) is a global leading pure-play foundry company. It provides professional process platforms specifically focused on embedded non-volatile memory ("eNVM"), analogue & power management, power discrete and logic & RF (Hua Hong, 2021). Hua Hong was established in 1996 in China, and the company had IPO in Hong Kong in 2014.

2 ASM's Financial Analysis

This chapter will give an overall financial analysis for ASM's performance in the past three years. The presence of data will also include other two companies: Shanghai Fudan and Hua Hong to have an idea of the market benchmark. The analysis will cover multiple angles for the corporate: company structure, Z-score analysis, paying debt ability, operating capacity, profitability, growth capacity and stock market analysis (Vernimmen et al., 2018).

2.1 Financial Structure

Below data show the three companies business nature, market capitalization, PE ratio and market area. Market capitalization is the aggregated market value of a company represented in dollar amount. Within the three companies, Hua Hong has the most high value of market capitalization. PE ratio is the ratio for valuing a company that measures its current share price relative to its pre-share earnings. Hua Hong shows the highest PE ratio, indicates it is most expensive (Wild, Shaw and Chiappetta, 2018).

Table 2.1 ASM, Shanghai Fudan, Hua Hong financial structure

Company Name	ASM Pacific	Shanghai Fudan	Hua Hong
Stock number	0522	1385	1347
Business Nature	Manufacture of semiconductor	Manufacture of semiconductor	Manufacture of semiconductor
Market Capitalization (billion HKD) ^{*1}	39.9	3.9	59.7
PE Ratio	24.5	20.5	231.3
Market Area	Globally	Globally, mainly on mainland China	Globally, China over 70%

Note 1: Dec 31 closing value of stock and exchange rate

Source: from this research

From the above Table 2.1, in terms of market area geography, all companies have customers globally with a significant number in China. This is due to business nature that many electronics components manufacturing and distributors are located in China.

2.2 List Company Bankruptcy Index Z-score Analysis

It is common to use Z-score to examine the corporate bankruptcy rate. Generally, when Z-score < 1.8, the corporate will be in a “distress zone”, it indicates the corporate will have the high probability of bankruptcy; when Z-score is between 1.81 and 2.99, it is a grey area; when Z-score > 2.99, it is in a “safe zone” (Altman, 1968).

For the public-manufacturers, Altman’s Z-score = $1.2 \times (\text{NWC} / \text{Total Assets}) + 1.4 \times (\text{Accumulated RE} / \text{Total Assets}) + 3.3 \times (\text{EBIT} / \text{Total Assets}) + 0.6 \times (\text{MV Equity} / \text{BV Debt}) + 0.999 \times (\text{Sales} / \text{Total Assets})$.

Three companies Z-score as below:

Table 2.2 ASM, Shanghai Fudan, Hua Hong Z-score analysis

	ASM Pacific (HKD)			Shanghai Fudan (RMB)			Hua Hong (USD)		
Million	2020	2019	2018	2020	2019	2018	2020	2019	2018
NET CURRENT ASSETS	9,464	8,949	7,375	1,388	1,281	1,495	741	1,021	1,445
TOTAL ASSETS	23,164	20,846	21,075	2,678	2,458	2,547	4,569	3,613	3,078
RETAINED EARNINGS	12,307	11,301	1,158	1,861	1,715	1,873	549	279	195
EBIT	2,027	1,191	3,151	173	(143)	160	49	183	223
STOCK VALUE (HKD) ^{*1}	97.15	106.6	73.9	13.82	6.78	7	46	17.52	14.38
RMB or USD/HKD EX RATE ^{*1}	1	1	1	1.1884	1.114	1.1382	7.7522	7.7881	7.8309
NUMBER OF STOCK (MILLION SHARES)	411	409	407	284	284	284	1298	1289	1284
TOTAL LIABILITIES	9970	9214	8915	566	520	439	1214	531	374
SALES	16887	15883	19551	1665	1455	1410	961	933	930

Note 1: Dec 31 closing value of stock and exchange rate

Z SCORE $Z = 1.2A + 1.4B + 3.3C + 0.6D + 0.999E$									
A=Working Capital/Total Assets; B=Retained Earnings/Total Assets; C=EBIT/Total Assets; D=[(Stock Value X Total Number of Stocks)/RMB&HKD ex rate]/Total Liabilities; E=Sales/Total Assets									
A	0.41	0.43	0.35	0.52	0.52	0.59	0.16	0.28	0.47
B	0.53	0.54	0.05	0.69	0.70	0.74	0.12	0.08	0.06
C	0.09	0.06	0.15	0.06	-0.06	0.06	0.01	0.05	0.07
D	4.00	4.73	3.37	5.83	3.32	3.98	6.34	5.46	6.30
E	0.73	0.76	0.93	0.62	0.59	0.55	0.21	0.26	0.30
Z Score	4.65	5.06	3.94	5.93	3.99	4.88	4.41	4.15	4.98

Source: from this research

From Table 2.2, the result of ASM’s Z-score is 3.94 in 2018, 5.06 in 2019 and 4.65 in 2020. All numbers are above 1.81, which indicates the ASM company is always in a safe zone in the past three years. Year 2019 has the best Z-score among the three years. The other two companies of Shanghai Fudan and Hua Hong are both in safe zone in the past three years with Z-score of 3.99 to 5.93. The figures of B (retained earnings/total assets) and D ([(Stock Value X Total Number of Stocks) / RMB&HKD ex rate] / Total Liabilities) for ASM is less than Shanghai Fudan. These can be some areas to improve so that the overall financial performance of ASM can be improved future, Z-score result will be increased as well. Chapter 5 will offer some details suggestions and recommendations.

2.3 Paying Debt Ability

Table 2.3 ASM, Shanghai Fudan, Hua Hong paying debt ability

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			Average
	2020	2019	2018	2020	2019	2018	2020	2019	2018	
Current Ratio (%)	277%	302%	195%	391%	393%	458%	211%	315%	538%	342%
Quick Ratio (%)	169%	160%	111%	263%	259%	313%	177%	285%	499%	248%
Stock Credit Index	(0.64)	(0.42)	(0.13)	(1.27)	(1.18)	(1.47)	(2.27)	(6.19)	(10.15)	(2.63)
Cash Ratio (%)	84%	52%	29%	92%	106%	167%	139%	115%	236%	1.13
Total Debt Ratio (%)	43%	44%	42%	21%	21%	17%	27%	15%	12%	27%
Long Term Debt Equity Ratio*	0.19	0.23	0.04	0.00	0.00	0.00	0.15	0.01	0.01	0.07
Long Term Debt Ratio*	0.16	0.19	0.04	0.00	0.00	0.00	0.13	0.01	0.01	0.06
Total Debt / Fixed Asset Ratio	4.14	3.16	3.13	1.32	1.23	1.11	0.48	0.34	0.48	1.71
Time Interest cover Ratio	11.92	5.54	17.72	88.37	(55.18)	N/A	16.52	147.19	101.34	41.68

* with interest bearing

Source: from this research

Based on the Table 2.3, the analysis is as below:

Current ratio is total current assets over total current liabilities. It is to assess a company's short-term liquidity. It reflects the company's ability to generate enough cash to pay off its debts when it comes true. Quick ratio is based on current ratio to deduct the inventory figures, as the inventory cannot immediately turn cash when there is a debt to pay (Alexander, Nobes and Ullathorne, 2016). As the uniqueness of electronics industry of long payment terms with both suppliers and customers, the three companies all show a strong number of current ratios. For ASM, its current ratio rate is a bit below the other two companies. It is not necessarily a bad thing because too high current ratio could lead to cash idle without investment (Tulsian, 2010).

Cash ratio is cash over the current liability. It is the ratio of cash and marketable securities to current liabilities (Bragg, 2002). This ratio should not be too large. ASM's number is less than the three companies' average, and the trend of cash ratio increased from 2018 to 2020 from 29% to 84%. The other two companies' cash ratio are high, Shanghai Fudan shows it is near or over 100%, and Hua Hong is over 100% or even 200% in 2018, which indicates Shanghai Fudan and Hua Hong have enough cash relatively, but on the other hand, they had to bear the risk of not investing the money.

Debt ratio is defined as the ratio of total debt to total assets (Hillier and Al, 2013). ASM's debt ratio is higher than three companies' average of total debt ratio is around 42%. However, the overall trend for the debt ratio keeps flat in the past three years, which indicated the company controlled it well. Hua Hong's debt ratio trend increased from 12% in 2018 to 27% in 2020, which is more than double in the past three years. Shanghai Fudan's debt ratio was slightly up from 2018 17% to 2020 21%. These two companies' debt ratio is increasing, compare with ASM's flat debt ratio trend.

Time interest cover ratio is calculated by dividing the EBIT (Earnings before the taxes) by its interest expense. It measures a company's ability to handle its outstanding debt (Khan

and Jain, 2007). ASM's interest cover ratio is relatively low compare with the other two companies, but it is still higher than 10 in 2020. Shanghai Fudan's interest cover rate is 88 in 2020 and in 2019 is a negative figure as its EBIT is negative in 2019, and 2018 shows not applicable because the total finance cost is 0. For Hua Hong, interest cover ratio was 101 in 2018 and reduced to 16.5 in 2020.

Overall, ASM's paying debt ability is still positive from the ratios presented above. But compare with other two companies who put more cash portion relatively, ASM intend to invest more cash in new markets and new projects from its annual reports. The action of invest more money into new projects drove more profit and return to the group and stakeholders.

2.4 Operational Ability

Below Table 2.4 shows the sales figures for ASM, Shanghai Fudan and Hua Hong in the past three years.

Table 2.4 ASM, Shanghai Fudan, Hua Hong sales number

Million	ASM Pacific			Shanghai Fudan			Hua Hong		
	2020	2019	2018	2020	2019	2018	2020	2019	2018
RMB or USD/HKD EX RATE ^{*1}	1	1	1	1.1884	1.114	1.1382	7.7522	7.7881	7.8309
SALES in Million HKD/RMB/USD	16887	15883	19551	1665	1455	1410	961	933	930
SALES in Million HKD	16887	15883	19551	1979	1621	1604	7452	7263	7285

Note 1: Dec 31 closing exchange rate

Source: from this research

For ASM, the sales figure decreased from 2018 (19,551 million HKD) to 2019 (15,883 million HKD). It is mainly due to COVID-19 from its annual report. It slightly increased from 2019 to 2020 as the overall market demand increased, as well as the company found its corresponding action towards business during COVID-19. For the other two companies, Shanghai Fudan and Hua Hong, the sales figures from 2018 to 2020 keeps flat. For Shanghai Fudan, the figures in 2020 shows slightly increasing which is also due to recovery from 2019 COVID-19 severe situation. The operating expenses will be measured from total assets turnover, average collection period, days sales in inventory and payment period.

Table 2.5 ASM, Shanghai Fudan, Hua Hong operating expenses

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			Average
	2020	2019	2018	2020	2019	2018	2020	2019	2018	
Total Assets Turnover	73%	76%	93%	62%	59%	55%	21%	26%	30%	55%
Average Collection Period (Days)	93	108	118	161	162	146	46	65	69	108
Days' Sales in Inventory	185	222	197	243	229	289	114	80	76	182
Payment Period (Days)	89	94	95	64	53	70	66	48	47	70

Source: from this research

According to Table 2.5, total assets turnover is sales over total assets. It is usual for TAT<1,

especially if a firm has a large amount of fixed assets (Sarngadharan and Kumar, 2011). The figures for all three companies are <1. ASMs total assets turnover is higher than average 55%.

Average collection period is to measure the days of account receivable, the longer the days are, the more pressure the company is suffering (Spurga, 2004). The electronics industry payment period is always long, payment terms of 90 days or longer is normal practice due to its long leadtime and high value. ASM's average collection period is around 100 days, which is quite close to the average. Shanghai Fudan has the longest collection period which is about 150 days and Hua Hong has the shortest collection period of around 60 days.

Days of sales in inventory measures how many days, in average, it takes to sell the inventory (Juan, 2007). As mentioned earlier, the leadtime of semiconductor is long based on its complexity of production and inspection, also, the payment is long, and therefore the business need to prepare more inventory or safety inventory to minimize the out-of-stock risk to the business. The average days of sales of inventory is 182. The longest one is Shanghai Fudan, which is from 229 days to 289 days, then follows by ASM of around 200 days. Hua Hong has the shortest days of 76 days to 114 days.

Payment period measures the average time a company takes to make payment to its creditors. The longer the payment period, the less pressure the company will have (Berk and Demarzo, 2017). The average payment period for the three companies is 70 days. Within these three, ASM has the longest payment period which is around 90 days or above. Hua Hong has shorter payment days of 50 to 60 days.

2.5 Profitability

Table 2.6 ASM, Shanghai Fudan, Hua Hong profit analysis

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			Average
	2020	2019	2018	2020	2019	2018	2020	2019	2018	
Net Profit (Million HKD)	1,631	622	2,212	191	(166)	147	258	1,207	1,453	840
Net profit growth	162%	-72%	-21%	215%	-213%	-46%	-79%	-17%	28%	-5%
Gross profit margin	32%	35%	38%	45%	36%	46%	24%	30%	33%	36%
Net profit margin	10%	4%	11%	10%	-10%	9%	3%	17%	20%	8%

Source: from this research

From Table 2.6, the net profit shows that almost all companies had a positive profit in the past three years except for Shanghai Fudan recorded a negative one in 2019, mainly due to the COVID-19 impact based on the annual report. The average profit is 840 million HKD. ASM performs the best from net profit value, with 2018 over 2 billion HKD and 2020 over 1.6 billion HKD. Shanghai Fudan's 2020 net profit turned positive in 2020 with 191 million HKD. Hua Hong's net profit is going down from 2018 to 2020, which shows the

company still faces many challenges and difficulties to make profit.

The net profit growth can see the trend of growth or decline of net profit year on year. The COVID-19 has impacted every company of a negative net profit growth in 2019. However, in 2020, ASM and Shanghai Fudan have changed its sales strategy to make a dramatic profit increase, while Hua Hong had a further decrease in 2020.

Gross profit margin is used to evaluate a company's financial health by calculating the amount of money left over from product sales after subtracting the cost of goods sold (Dalton et al., 2019). The three companies' average is 36%. Shanghai Fudan has the highest gross profit margin rate which is over 40%. ASM and Hua Hong's gross profit margin is between 32% and 38%. One the key actions to increase the profit margin is to reduce the cost of goods which involves internal review process of purchasing, engineer, manufacturing etc. There will be detail suggestions and recommendations in chapter 5.

The net profit margin shows how much the net income or profit is generated as a percentage of revenue. The average of net profit margin is 8% of the three companies. ASM kept a 10% to 11% net profit margin in 2020 and 2019. Shanghai Fudan had the similar figures. Hua Hong got a good position of net profit margin in 2018 and 2019 which is 20% and 17% respectively based on Table 2.6. However, the 2020 number dropped to 3% which need the company to drill down to the details reasons and take actions to rectify it as soon as possible.

Table 2.7 ASM, Shanghai Fudan, Hua Hong leverage ratio and return on equity

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			Average
Year	2020	2019	2018	2020	2019	2018	2020	2019	2018	
Total Assets Turnover	73%	76%	93%	62%	59%	55%	21%	26%	30%	55%
Leverage Ratio	1.8	1.8	1.7	1.3	1.3	1.2	1.4	1.2	1.1	1.4
Return on Equity (After Tax) (%)	12.4%	5.4%	18.2%	7.6%	-7.7%	6.1%	1.0%	5.0%	6.9%	6.1%

Source: from this research

Based on Table 2.7:

Leverage ratio is total assets over equity. It indicates how much capital comes in the form of debt or loans. It measures the ability of a company to meet its financial obligations (Moosa, 2015). The average leverage ratio of the three companies is 1.4. ASM got the highest numbers of 1.7 and 1.8. Shanghai Fudan and Hua Hong had 1.1 to 1.4. In general, the leverage ratio is stable and acceptable.

Return on Equity (after tax) is net income over equity. It is a measurement of a company's profitability in relation to shareholder's equity (Brittenham, 2011). The average is 6.1%. Best performance is ASM which 2018 and 2020 figures are over 10%. The other two

companies' figures are below 10% but still be positive except Shanghai Fudan of year 2019.

In general, the three companies' profitability is still positive and in a good shape. From the ratio, ASM and Shanghai Fudan have the high numbers to drive profitability which Hua Hong still have opportunities to develop more profit in their process and strategy. But for many of the business, drive more profit will always be one of the key objectives, which means ASM need to always review how to drive more profit to the business.

2.6 Growth Ability

The growth ability is measured by the self-sustainable growth rate.

Table 2.8 ASM, Shanghai Fudan, Hua Hong self-sustainable growth rate

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			
Year	2020	2019	2018	2020	2019	2018	2020	2019	2018	Average
Self-sustainable Growth Rate	93.3%	97.2%	9.5%	88.1%	88.5%	88.9%	16.4%	9.1%	7.2%	55.3%

Source: from this research

According to Table 2.8, the sustainable growth rate tells that how much the company can grow by using internally generated funds and issuing debt to maintain a constant debt ratio (Landström, Council and Al, 2008). The average of the three companies is 55.3% based on Table 2.8. Hua Hong got the smallest number of less than 20%. Shanghai Fudan keeps flat around 88% in the past three years. ASM had a very low level of 9.5% in 2018. In 2019, it bounced back to 97% and kept in 93% in 2020. The best performance in terms of sustainable growth rate is ASM among these three companies.

2.7 Stock Market Prospects Analysis

Table 2.9 ASM, Shanghai Fudan, Hua stock market prospects analysis

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			
Year	2020	2019	2018	2020	2019	2018	2020	2019	2018	Average
Earning per share (HK\$)	4.0	1.5	5.4	0.6	-0.5	0.5	0.0	0.1	0.1	1.3
Price-earning Ratio (Times)	24.5	70.0	13.6	24.4	-12.9	15.4	1780.3	145.7	99.5	240.0

Source: from this research

Above Table 2.9 shows the earning per share is a company's profit divided by the outstanding share of its common stock. This figure shows the company's profitability (Drake and Fabozzi, 2012).

The earning per share for ASM is 4.0 in 2020, which is higher than other two companies.

Price-earning ratio is the ratio for valuing a company that measures its current

share price relative to its per-share earnings. The P/E ratio shows the expectations of the market and is the price you must pay per unit of current earnings (or future earnings, as the case may be). The figure of ASM is 24 which is lower than the competitors.

3 ASM's Corporate Governance Assessment

Chapter 2 shows ASM's financial analysis, its growth ability, profitability and operating costs. This chapter will be focused on the ASM's corporate governance of its financial performance of the firm, and in its internal control and risk management to assess its current mechanism, so that to have appropriate recommendations.

3.1 Corporate Governance of Business

Corporate Governance is the way in which companies are governed and how the company to have decision-making powers, the accountability and responsibilities assigned to the owners, Board of Directors and senior management teams. In the three roles above, the owners are the stakeholder, the board of directors is the policy makers and the senior management team is the management. It identifies who has power and accountability, and who makes decisions. It is, in essence, a toolkit that enables management and the board to deal more effectively with the challenges of running a company. Corporate governance ensures also controls the interests of all stakeholders (shareholders, employees, suppliers, customers and the community) are balanced (Mallin, 2013).

Governance at a corporate level includes the processes through which a company's objectives are set and pursued in the context of the social, regulatory and market environment. It is concerned with practices and procedures for trying to make sure that a company is run in such a way that it achieves its objectives, while ensuring that stakeholders can have confidence that their trust in that company is well founded. The good governance is very important since it provides the infrastructure to improve the quality of the decisions made by those who manage businesses. Good quality, ethical decision-making builds sustainable businesses and enables them to create long-term value more effectively (Naciri, 2013).

3.2 ASM's Current Corporate Governance

The ASM group has complied with all the code provisions set out in the Corporate Governance Code. The annual reports show the details of board directors, management team of the delegation and management functions etc. For the risk management, the Board of Directors understands its responsibility for the Group's risk management and also to review effectiveness. The group has in place a risk management framework. It is based on the three lines of defence model including a process of Strategic Risk Review. There are detail introduction of the Board composition and committees. Internal audit, corporate

governance functions are cleared stated in the annual report.

Table 3.1 ASM, Shanghai Fudan, Hua Hong ROA and ROE

Company Name	ASM Pacific			Shanghai Fudan			Hua Hong			Average
Year	2020	2019	2018	2020	2019	2018	2020	2019	2018	
ROA (After Tax)	7.0%	3.0%	10.5%	6.0%	-6.1%	5.1%	0.7%	4.3%	6.0%	4.1%
ROE (After Tax)	12.4%	5.4%	18.2%	7.6%	-7.7%	6.1%	1.0%	5.0%	6.9%	6.1%

Source: from this research

According to Table 3.1, the ROA (return on assets) and ROE (return on equity) analysis shows ASM's corporate performance is above the average. Both figures measure how much money a company earns by putting its assets to use. The average of ROA is 4.1%, while ASM achieved 7% in 2020; the average of ROE is 6.1%, and ASM achieved 12.4% in 2020.

4 Investment Project Analysis

ASM group worked with other companies to form a strategic joint venture for the group's material segment business. This joint venture business is named as AAMI (Advanced Assembly Materials International Limited). Here is project basic information.

Table 4.1 ASM's project basic information

	HK \$'000	Remarks
Project Costs	1,240,001	ASM 2020 annual report P131
Depreciation Years	5	Straight line depreciation method, ASM 2020 annual report P84 and P126
Sales growth rate	14%	Based on average of 2017, 2018 and 2020
Sales*1	1,553,520	*1, from website: https://pdf.dfcfw.com/pdf/H3_AP202105171492227742_1.pdf?1621258520000.pdf
EBITDA	18.39	Based on average of 2017, 2018 and 2020
Tax rate %	8.25	Group tax rate 8.25% ASM 2020 annual report P113

Source: from this research

Above Table 4.1 shows the project basic information. According to ASM's 2020 annual report, the project cost is 1.24 billion Hong Kong dollars. The assumption of depreciation years is 5 and it follows the straight-line depreciation method. The sales growth rate is based on the average sales growth in 2017, 2018 and 2020. The 2019 number is eliminated due to the COVID-19 impact as an exceptional case. The sales target was set based on the company's prediction. The tax rate is based on the group tax rate of 8.25%.

4.1 Cash Flow Calculation

Table 4.2 ASM's project cash flow calculation – cash flow 189 days

Growth		14%				
Yr		1	2	3	4	5
Sales		1,553,520	1,771,013	2,018,955	2,301,608	2,623,833
EBITDA	19.39	301,228	343,399	391,475	446,282	508,761
Depreciation	straight line depr method		20%			
Project Cost	5	248,000	248,000	248,000	248,000	248,000
Total Depreciation		248,000	248,000	248,000	248,000	248,000
EBIT		53,227	95,399	143,475	198,282	260,761
Tax	8.25%	4,391	7,870	11,837	16,358	21,513
Profit		48,836	87,529	131,638	181,923	239,248
EBITDA		301,228	343,399	391,475	446,282	508,761
Expenditure*1		(804,425)	(917,045)	(1,045,431)	(1,191,792)	(1,358,642)
Tax		(4,391)	(7,870)	(11,837)	(16,358)	(21,513)
Cash flow		(507,589)	(581,516)	(665,793)	(761,868)	(871,394)

Expenditure is calculated based on cash period 189 days, 2020 data

Source: from this research

Above Table 4.2 shows the cash flow calculation from year 1 to year 6, based on the assumptions made. Because of the expenditure amount is large, the cash flow for the coming 5 years are all negative. The expenditure is based on 2020 cash period of 189 days calculation. In order to launch the project successfully, the company has to reduce its expenditure. That is to say to reduce its cash period. If to assume its cash period 60 days, the result shows as below Table 4.3:

Table 4.3 ASM's project cash flow calculation – cash flow 60 days

Growth		14%				
Yr		1	2	3	4	5
Sales		1,553,520	1,771,013	2,018,955	2,301,608	2,623,833
EBITDA	19.39	301,228	343,399	391,475	446,282	508,761
Depreciation	straight line depr method		20%			
Project Cost	5	248,000	248,000	248,000	248,000	248,000
Total Depreciation		248,000	248,000	248,000	248,000	248,000
EBIT		53,227	95,399	143,475	198,282	260,761
Tax	8.25%	4,391	7,870	11,837	16,358	21,513
Profit		48,836	87,529	131,638	181,923	239,248
EBITDA		301,228	343,399	391,475	446,282	508,761
Expenditure*1		(255,373)	(291,125)	(331,883)	(378,347)	(431,315)
Tax		(4,391)	(7,870)	(11,837)	(16,358)	(21,513)
Cash flow		41,463	44,404	47,756	51,577	55,933

Expenditure is calculated based on assumption of cash period 60 days

Source: from this research

However, the cash flow is still not good enough to make positive NPV. More aggressive target has to be made for cash period. If to assume the cash period of 13 days, the result shows as below Table 4.4:

Table 4.4 ASM's project cash flow calculation – cash flow 13 days

Growth Yr			14%				
			1	2	3	4	5
Sales			1,553,520	1,771,013	2,018,955	2,301,608	2,623,833
EBITDA	19.39		301,228	343,399	391,475	446,282	508,761
Depreciation	straight line depr method			20%			
Project Cost	5		248,000	248,000	248,000	248,000	248,000
Total Depreciation			248,000	248,000	248,000	248,000	248,000
EBIT			53,227	95,399	143,475	198,282	260,761
Tax	8.25%		4,391	7,870	11,837	16,358	21,513
Profit			48,836	87,529	131,638	181,923	239,248
EBITDA			301,228	343,399	391,475	446,282	508,761
Expenditure*1			(55,331)	(63,077)	(71,908)	(81,975)	(93,452)
Tax			(4,391)	(7,870)	(11,837)	(16,358)	(21,513)
Cash flow			241,505	272,452	307,731	347,949	393,797

Expenditure is calculated based on assumption of cash period 13 days

Source: from this research

4.2 ARR and NPV Calculation

Table 4.5 ASM's project ARR calculation

ARR			
	Initial cost	-1,240,001	
	Cash flow	Dep'n	net profit
Year 1	241,505	248,000	-6,495
Year 2	272,452	248,000	24,452
Year 3	307,731	248,000	59,730
Year 4	347,949	248,000	99,948
Year 5	393,797	248,000	145,797
	ARR		5%

Source: from this research

ARR is accounting rate of return. It reflects the percentage rate of return expected on the project (Brief, 2013). Based on the project assumptions and calculations (assumption of cash period of 13 days), the ARR is 5%, show in Table 4.5. It indicates the project is profitable to go ahead.

Table 4.6 ASM's project NPV calculation

NPV						
Required Return	7%					
	0	1	2	3	4	5
Cashflow	-1,240,001	241,505	272,452	307,731	347,949	393,797
NPV	21,095					

Source: from this research

NPV is net present value. It is the result of calculations used to find today's value of a future stream of payments (Kimmel, Weygandt and Kieso, 2011). The assumption of required return rate of 7% is based on 2020 ROA (after tax) rate. According to Table 4.6, the figure of ASM's NPV is 21K HKD, which indicated go ahead of the project as long as the assumption is met of 13 days of cash period.

4.3 Payback Period and IRR

Table 4.7 ASM's project payback period,

	Net Cash Flows (HK \$'000)
Year 1	241,505
Year 2	272,452
Year 3	307,731
Year 4	347,949
Year 5	393,797
Total	1,563,433
Payback Period (Years)	4.2

Source: from this research

Payback period is the amount of time it takes to recover the cost or investment of the project (Parrino, Kidwell and Bates, 2012). Based on the net cash flows calculation to compare with the total cost of the project, which is \$1.241 billion, the payback period is 4.2 years according to Table 4.7. This is a positive number, it also shows confidence for the project to go ahead, based on the assumption of 13 days cash period.

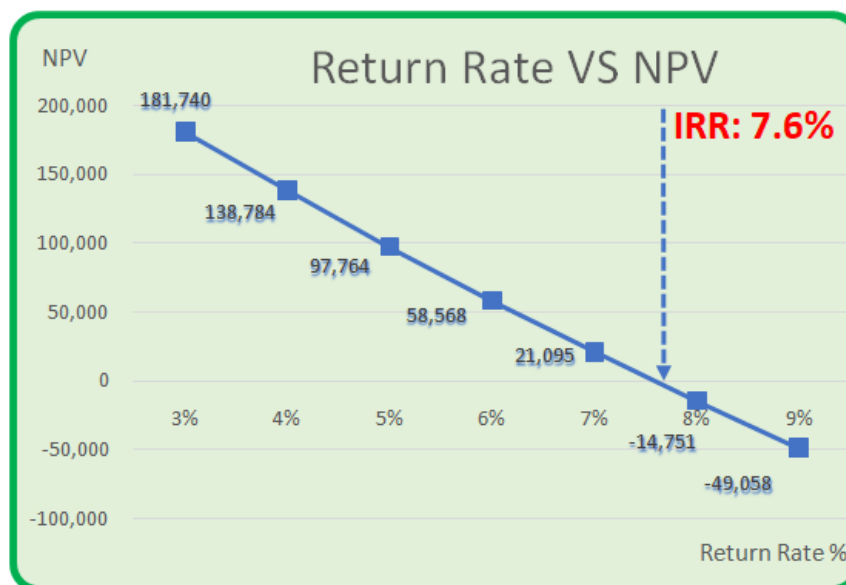


Figure 4.1 ASM's project IRR

Source: from this research

IRR is the internal rate of return. It is a metric used to evaluate the profitability of potential investment (Dayananda, 2008). The IRR of the project is 7.6% according to Figure 4.1. All the data and analysis above show the project is profitable with a positive return, the company should execute the new project. The very important pre-condition is that the company need to take action to reduce its cash period to 13 days.

Above analysis cover ARR, NPV, payback period and IRR, the figures of NPV and IRR are more accurate as they consider the time value. In conclusion, when we look at the figures of the projects cash flow, ARR and NPV, payback period and IRR, all figures showing positive and confidence for this project, ASM's management also indicates its confidence to the project in their annual reports.

In terms of the fund of the project, the company could consider the company cash, which 2020 the cash is 4.5 billion HKD or they could consider to have bank loan. The interest of bank loan is no more than 2.75% according to ASM annual report page 140. The ROA is 7%, it would be suggested to have bank loans for the project fund.

5 Recommendations and Audit Plan

This chapter will have the suggestions, recommendations and audit plan of the timeframe to execute the recommendations based on the previous calculation and analysis.

5.1 Recommendations and Suggestions

The Z-score shows that ASM is not good at B (returned earnings/Total assets) compare with Shanghai Fudan (2020 figures ASM 0.53 vs Shanghai Fudan 0.69). One of the reasons of it is that ASM distributed much dividend to the shareholders. In order to increase Z-score further, ASM could consider reserving some of the dividend on hand for current business and future projects investment to gain more return earning. This should be raised and discussed during Board meeting and comply with the company policy and procedure.

The Z-score D [(Stock Value X Total Number of Stocks)/RMB&HKD ex rate]/Total Liabilities) shows that ASM is less than Shanghai Fudan (2020 figures ASM 4.00 vs Shanghai Fudan 5.83, Hua Hong 6.34). This figure indicates the public or stakeholders' confidence towards ASM's future marketing prospective. In this circumstance, the suggestion to ASM is to provide more confidence by releasing more transparent information or newsletter to let the public know its positive attitude and actions; to show more figures and data to prove its future vision.

The inventory ratio is relatively high for ASM. The quick ratio which considers inventory is 169% for ASM, while Shanghai Fudan is 263% and Hua Hong is 177%. Looking at the value of inventory of ASM, from 2018 to 2020, the inventory numbers are decreasing from 6,542 million HKD to 5,773 million HKD, which is a good trend. However, the inventory numbers should be further reduced to improve the overall financial performance. The days of sales in inventory is always in a high level of over 180 days, 2018 of 197 days; 2019 of 222 days and 2020 with 185 days. Although 2020 inventory level is getting down compared with 2019, overall, 185 days of inventory is still high considering aging of stock, quality of stock and risks of out of mainstream within the rapid development of electronics industry. The suggestions to reduce the inventory would be review the inventory level every month, review the ordering patterns, define the EOQ (economics ordering quantity), and take corresponding actions to clear the stock by resale, broker or even write off (Wild, 2018).

The gross profit margin for ASM is 38% in 2018, 35% in 2019 and 32% in 2020. Compared Shanghai Fudan, which the gross profit margin is average 42%, ASM has relatively low gross profit margin. To improve this, the company would think about internal process of cut cost of sales by looking at alternative suppliers to reduce cost, for instance, to move from high manufactory cost area to lower manufactory cost area. Some of the industrial practice is to move the factory from mainland China to Southeast Asia as the labour cost is much lower. On the other site, for the business to the US, the duty rate is also cheaper from Southeast Asia comparing China, it could be reduced from 35% to single digit or even 0% (Choudhury, 2021).

The collections days for ASM is around 90 days, while Hua Hong is 45-60 days. The action for ASM is to work with customers to try to reduce the payment terms to collect the payment sooner. It could involve some customers' negotiation action including price discount etc. However, it is still worthy to do the practice to shorten the payment collection period. On the other hand, payment period for ASM is around 90 days while the other two companies are no more than 70 days. This is good for ASM, and they should keep the advantage of this.

5.2 Audit Plan

To summarize above suggestions and recommendations, the actions for the ASM company are as below:

- 1, Review the dividend rate and amount accordingly based on company policy.
- 2, Actions to improve stakeholders' confidence, i.e., marketing actions, newsletters etc.
- 3, Actions to reduce inventory, i.e., review ordering pattern, review inventory level and deal with the aging inventory.

4, Cost reduction, i.e., move more production from China to Southeast Asia with lower tariff rates.

5, Review with customers to have shorter payment terms.

The implementation plan by quarter will be suggested as below Table 5.1:

Table 5.1 Implementation plan action

Action	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4
Review the dividend		V		V		V
Release newsletters	V	V	V	V	V	V
Review ordering pattern	V	V	V	V	V	V
Review inventory level	V	V	V	V	V	V
Execution of inventory reduction	V	V	V	V	V	V
Review factory/production line movement			V			
Factory/production line transit					V	V
Review payment terms with customer		V		V		V

Source: from this research

The company should nominate responsible department and employee for the projects and set up KPI (key performance index) for each item. The internal review and audit meetings should be in place to monitor the challenges, progress.

In conclusion, based on the financial analysis from different ratios and figures, ASM company show very positive position in terms of financial performance. It is not easy during the specific challenging atmosphere of COVID-19, China-US trade war, rapid development, and intense competition of the electronics market. ASM achieved very good result overall. A project feasibility analysis has been done to validate if the investment is fine to go ahead, and the result shows the green light of the execution. After looking at the details of figures, there are many figures that ASM are leading the industry. However, ASM can do better if they take some more actions to improve their financial figures. Some suggestions and recommendations with implementation plan and review plan are presented at the final chapter of this report.

References

Alexander, D., Nobes, C. and Ullathorne, A. (2016). *Financial accounting : an international introduction*. Harlow Etc.: Pearson.

Altman, E.I. (1968). 'Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy'. *The Journal of Finance*, 23(4), pp.189–209.

ASM (2021a), ASM introduction

Available at: <https://www.asmpacific.com/en/about>

(Accessed: 4 Aug 2021).

ASM (2021b), ASM Board of Directors

Available at: <https://www.asmpacific.com/en/directors>

(Accessed: 4 Aug 2021).

ASM (2021c), ASM Senior Management Team

Available at: <https://www.asmpacific.com/en/senior-management>

(Accessed: 4 Aug 2021).

ASM (2021d), ASM customer and R&D locations

Available at: <https://www.asmpacific.com/en/about/asmp-t-worldwide>

(Accessed: 4 Aug 2021).

ASM (2021e), ASM annual report 2020

Available at:

https://www.asmpacific.com/components/com_asm/files/financial_reports_annual_report_attachment/e0522-2020-annual-report.pdf

(Accessed: 4 Aug 2021).

Berk, J.B. and Demarzo, P.M. (2017). *Corporate finance*. New York, Ny: Pearson.

Bragg, S.M. (2002). *Business ratios and formulas : a comprehensive guide*. Hoboken, N.J.: Wiley.

Brief, R. (2013). *Estimating the Economic Rate of Return From Accounting Data (RLE Accounting)*. Routledge.

Brittenham, D.A., L Francis Huck and Practising Law Institute (2011). *Leveraged financing, 2011*. New York, N.Y.: Practising Law Institute.

Choudhury, R.N (2021). *The China-US trade war and South Asian economies*. Abingdon, Oxon ; New York, Ny: Routledge.

Dalton, M.A., Gillice, J.M., Dalton, J.F. and Langdon, T.P. (2019). *Fundamentals of financial planning*. Metairie, La: Money Education.

Dayananda, D. (2008). *Capital budgeting : financial appraisal of investment projects*. New York: Cambridge University Press.

Donatila Agtarap-San Juan (2007). *Fundamentals of accounting : basic accounting principles simplified for accounting students*. Bloomington, In: Authorhouse.

Drake, P.P. and Fabozzi, F.J. (2012). *Analysis of financial statements*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Electronics Bazaar (2021), despite COVID 19, Semiconductor market performed better than expected

Available at:

<https://www-proquest-com.ezproxy.uwtsd.ac.uk/docview/2485521351/fulltext/4B5064BFE2DB4A20PQ/1?accountid=130472>

(Accessed: 4 Aug 2021).

Global - Semiconductor (2021), global semiconductor industry

Available at:

<https://www-proquest-com.ezproxy.uwtsd.ac.uk/docview/2556123293/fulltextPDF/72B5300A43194AC2PQ/1?accountid=130472>

(Accessed: 4 Aug 2021).

Hillier, D. and Al, E. (2013). *Corporate finance*. London Etc.: McGraw-Hill Education, Cop.

Hua Hong (2021), Hua Hong company profile

Available at: <http://www.huahonggrace.com/html/index.php>

(Accessed: 4 Aug 2021).

Keil, S., Lasch, R., Lindner, F. and Lohmer, J. (2020). *Digital transformation in semiconductor manufacturing : proceedings of the 1st and 2nd European Advances in Digital Transformation Conference, EADTC 2018, Zittau, Germany and EADTC 2019*. Milan: Cham Springer.

Khan, M.Y. and Jain, P.K. (2007). *Financial management*. New Delhi: Tata Mcgraw-Hill.

Kimmel, P.D., Weygandt, J.J. and Kieso, D.E. (2011). *Accounting : tools for business decision making*. Hoboken, N.J.: Wiley.

LandströmH., Council, E. and Al, E. (2008). *Entrepreneurship, sustainable growth and performance : frontiers in European entrepreneurship research*. Cheltenham (Uk) ; Northampton, (Ma): E. Elgar.

Mallin, C.A. (2013). *Corporate governance*. Oxford: Oxford University Press.

Moosa, I.A. (2015). *Good regulation, bad regulation : the anatomy of financial regulation*. Basingstoke: Palgrave Macmillan.

Naciri, A. (2013). *Internal and external aspects of corporate governance*. New York ; London: Routledge.

Parrino, R., Kidwell, D.S. and Bates, T.W. (2012). *Fundamentals of corporate finance*. Hoboken, Nj: Wiley.

Sarngadharan, M. and Kumar, R.S. (2011). *Financial analysis for management decisions*. New Delhi: Phi Learning Private Limited.

Shanghai Fudan (2021), Shanghai Fudan group company information

Available at:

<http://www.fm-chips.com/shanghai-fudan-microelectronics-group-co-ltd-introduction.html>

(Accessed: 4 Aug 2021).

Spurga, R.C. (2004). *Balance sheet basics : financial management for non-financial managers*. New York: Portfolio.

Tulsian, P.C. (2010). *Tulsian's financial management a self-study textbook ; (for B.com., M.com., BBA and MBA of all Indian Universities and professional courses)*. New Dehli Chand.

Vernimmen, P. et al. (2018) *Corporate finance : theory and practice*. Chichester: Wiley.

Wild, A. (2018). *Best practice in inventory management*. London Abingdon, Oxon New York, Ny Routledge.

Wild, J.J., Shaw, K.W. and Chiappetta, B. (2018). *Financial and managerial accounting : information for decisions*. New York, Ny: Mcgraw-Hill Education.

