Corporate Construction Finance

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Introduction

This paper presents with the key challenges faced by a company during the year 2011 and 2012 and then suggests possible measures in each situation to improve the internal process. The paper will first discuss the strategies involves in bidding construction projects followed by a discussion of factors that influence the bidding strategies and finally, the financial management involved during construction projects considering various parameters. To understand financial management in construction, a thorough study of a company's account has been done, including its income statement and balanced sheet, commenting on the financial stability of the company along with the financial issues in the company and their relevant measures has been discussed.

1: Bidding strategies

Following are the strategies adopted for bidding a construction project.

***High price, high profit strategy*:** This strategy offers huge bid amount in order to earn more profit. This bid is feasible for big projects such as ports, dams etc. Bidding high on small projects may cause you earn less projects.

***Low bid, more bid strategy*:** Bidding low may present you more projects so by doing several projects one can gain profit.

***Unbalanced quotation*:** It is quoting the lumpsum price of the project which cannot be changed through minor interior alterations.

(Yang Xin, 2017)

2: Factors Affecting Bid Decision

Deciding whether to bid or not is a significant task for construction stakeholders. To remain in the market, where contractors have to look for projects, the sensible decision is not to bid on every project. (tomas Hanak1, Adriana Drozdova 1 and Ivan Marovi,

Strategies adopted for bidding not only anticipate the win of project but for the project to produce maximum gain by complying with established specifications and contract. Presented here are ten sub variables grouped as external, internal, and environmental factors base on (A. Bagies and C. Fortune, 2007), (Y. Astana, R. HA, and A. Wibowo, 2015).

Table 1. Variable and Sub Variables of Bidding Strategy

Variable		Sub Variable
Bidding Strategy	External Factor	1. Client Characteristics
		2. Project Characteristics
		3. Contract
	Internal Factor	4. Benefit Of Business
		5. Project Financing
		6. Company Characteristics
		7. Company Experience
	Environment Factor	8. Bidding Situation
		9. Economic Condition
		10. Competition

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3: Financial Management in Construction

The effective regulator of all problems of a construction related to budget is said to be as financial management. For instance, controlling expenses, directing on cashflow and payments (Ashworth, 2004, p. 514)

Similarly, the knowledge of what, when and why cost is involved before the start of project, during the project and after the project. (Grant Bryan Jackson.2011. Pg. 14)

4: Financial Management Parameters Involved During Construction

Financial management involves the processes of obtaining and managing the financial resources for the project. Project financial management is more about revenue sources regulating net cash flows for the construction project than with managing day-to-day costs as compared to project cost management. The major procedures involved in financial management are Financial Planning, Administration and Records and Financial Control.

(Abadir H. Yimam. 2011. Pg 134)

The four financial issues addressed by The interview of D. Hugh Taylor by Mel Hensey suggests that engineering managers must assure their accounting staff that they should collaboratively provide for effective financial management of their design firm or their consulting engineering. The areas include, accounting reports and support, basic financial data, acquisitions of other firms and other financial management essentials. This paper presents with the background and essential parameters for successful financial management.

4a: Financial Ratios in Construction

For a company to understand balance and income sheet with lot of numbers is difficult at times hence, financial ratios are significant in understanding the financial stability of a company.

(https://accountingforconstruction.com/5-key-financial-ratios-for-construction/)

Following are the different financial ratios established from different sources:

Profitability Ratios

Return on Sales (Net Profit Margin)

Definition: A ratio widely used to evaluate a company's operational efficiency. ROS is also known as a firm's "operating profit margin".

Recommendation: 5 percent or greater

Formula: (Net Profit Before Taxes/Net Sales) x 100

Return on Owner's Equity (Return on Investment)

Definition: A ratio that measures the ability to realize an adequate return on the capital invested by the owners.

Recommendation: 25 percent or greater

Formula: (Net Profit Before Taxes/Net Worth) x 100

Return on Assets

Definition: This ratio matches net profits after taxes with the assets used to earn such profits. A high percentage rate can show if a company is well managed and has a healthy return on assets.

Recommendation: 15 percent or greater

Formula: (Net Profit After Taxes/Total Assets) x 100

Solvency Ratios/ Liquidity Ratios

Acid Test (Quick or Liquid Ratio)

Definition: A ratio that measures the extent a business can cover its current liabilities with those current assets readily convertible to cash.

Recommendation: 1.35 or greater

Formula: (Cash + Accounts Receivable)/Current Liabilities

Cash to Current Liabilities

Definition: This ratio measures a company's ability to handle an absolute worst-case scenario when liabilities must be satisfied immediately.

Recommendation: A ratio of 1. In other words, you should have $1 in cash to pay off $1 of liabilities.

Formula: Cash/Current Liabilities

Efficiency Ratios

Sales to Total Assets

Definition: This measures the percentage of asset investments required to generate the current annual sales level. If the percentage is abnormally high, it indicates a business is not aggressive enough in its sales efforts or that its assets are not fully used. A low ratio may indicate a business is selling more than can be safely covered.

Recommendation: A ratio of 5 to 7.

Formula: Net Sales/Total Assets

Sales to Inventory (Inventory Turnover)

Definition: This ratio typically applies to companies that rely on inventory to help create sales. When this ratio is high, it may indicate that sales are being lost because the company is under-stocked and/or customers are buying elsewhere. A low ratio may show there is not a lot of demand for what you have in stock.

Recommendation: A ratio of 6 to 8.

Formula: Annual Net Sales/Inventory

Collection Period (Average Age of Accounts Receivable)

Definition: This is helpful in analysing the collectability of accounts receivable or how fast a business can increase its cash supply. While each industry has its own average collection period, more than 10 to 15 days over terms should raise concerns.

Recommendation: 40 days or less.

Formula: (Accounts Receivable/Sales) x Days in Period

Sales to Total Labour Expense

Definition: This number indicates how much of your total sales revenue is consumed by payroll and labour-related expenses. The lower the number, the better because it suggests you efficiently use employees to create and manage sales.

Recommendation: A ratio of 0.3 or less.

Formula: Payroll/Sales

Sales to Technician (Field) Labour

Definition: This ratio indicates how much of your total sales revenue (income) is consumed by payroll and labour expenses related to the field (usually sales, technicians and installers). A low number for this is also better because it suggests that you effectively use employees to create sales.

Recommendation: A ratio of 0.2 or less.

Formula: Field Labour COGS/Sale

4b: Company's Case Study using financial ratios

To determine the company's financial strength an income statement and balance sheet of the company has been taken and explored the financial problems in the company and its solution. Attached below is the income and balance statement of a company.

Income Statement

			Vertical Analysis		Horizontal Analysis	
			%	%	$	%
	31/12/2012	31/12/2011	31/12/2012	31/12/2011	31/12/2012	
Revenue	40,875,351	34,701,250	100.00%	100.00%	6,174,101	17.79%
Cost of Revenue						
Materials	20,732,506	15,925,567	50.72%	45.89%	4,806,939	30.18%
Labour	3,317,123	3,307,879	8.12%	9.53%	9,244	0.28%
Subcontracts	6,417,407	4,721,312	15.70%	13.61%	1,696,095	35.92%
Other direct costs	487,059	426,885	1.19%	1.23%	60,174	14.10%
Total Cost of Revenue	30,954,095	24,381,644	75.73%	70.26%	6,572,452	26.96%
Gross Profit	9,921,256	10,319,606	24.27%	29.74%	(398,350)	-3.86%
Operating Expenses						
Variable overhead						
Advertising	898,398	826,927	2.20%	2.38%	71,471	8.64%
Truck, vehicle and equipment	1,164,800	864,500	2.85%	2.49%	300,300	34.74%
Insurance, workers' compensation	429,958	319,058	1.05%	0.92%	110,900	34.76%
Travel and entertainment	450,893	184,606	1.10%	0.53%	266,287	144.25%
Bad debts	165,935	98,706	0.41%	0.28%	67,229	68.11%
Miscellaneous	42,985	46,197	0.11%	0.13%	(3,212)	-6.95%
Total Variable overhead	3,152,968	2,339,994	7.71%	6.74%	812,975	34.74%
Fixed overhead						
Depreciation	555,220	560,500	1.36%	1.62%	(5,280)	-0.94%
Rent	165,000	140,000	0.40%	0.40%	25,000	17.86%
Salaries	3,760,500	3,555,200	9.20%	10.25%	205,300	5.77%
Legal and audit	101,997	83,542	0.25%	0.24%	18,455	22.09%
Maintenance and repair	176,598	96,960	0.43%	0.28%	79,638	82.13%
Office Supplies	158,221	132,982	0.39%	0.38%	25,239	18.98%

Utilities	210,950	135,800	0.52%	0.39%	75,150	55.34%
Miscellaneous	54,872	50,699	0.13%	0.15%	4,173	8.23%
Total Fixed overhead	5,183,358	4,755,683	12.68%	13.70%	427,675	8.99%
Total Operating Expenses	8,336,326	7,095,677	20.39%	20.45%	1,240,650	17.48%
Operating Profit	1,584,930	3,223,930	3.88%	9.29%	(1,639,000)	-50.84%
Other Income/Expense						
Interest income	46,000	37,550	0.11%	0.11%	8,450	22.50%
Interest expense	(297,490)	(446,750)	0.73%	1.29%	(149,260)	-33.41%
Net Profit before Tax	1,333,440	2,814,730	3.26%	8.11%	(1,481,290)	-52.63%
Tax Expense (25% tax rate)	333,360	703,682				
Net Profit after Tax	1,000,080	2,111,047	2.45%	6.08%	(1,110,967)	-52.63%

Figure 1: Income Statement of a Company

Balance Sheet		
	31/12/2012	31/12/2011
Assets		
Current Assets		
Cash	2,305,078	1,877,676
Accounts receivable	6,124,992	5,837,658
Retention money	1,743,663	1,659,415
Material Inventory	942,765	761,763
Costs and estimated earnings in excess of billings on work in progress	581,221	486,472
Prepaid expenses and others	1,000,026	1,062,968
Total Current Assets	12,697,745	11,685,952
Fixed Assets		
Property and equipment	2,655,000	2,580,000
Construction plant	806,200	800,000
Vehicles/Trucks	414,500	310,000
Furniture and fixtures	69,560	60,100
Total depreciable assets	3,945,260	3,750,100
Less accumulated depreciation	2,051,900	1,663,400
Net Fixed Assets	1,893,360	2,086,700
Total Assets	14,591,105	13,772,652
Liabilities		
Current Liabilities		
Accounts payable	3,930,309	3,481,330
Accrued expenses	1,441,215	1,076,450
Notes payable	588,149	358,817
Retention money payable	835,495	551,763
Billings in excess of costs and estimated earnings on work in progress	560,847	495,167
Other current liabilities	323,232	213,478
Total Current Liabilities	7,679,247	6,177,005
Long-term Liabilities	1,480,513	1,901,445
Total Liabilities	9,159,760	8,078,450
Equity (i.e. Net Worth)		
Capital stock	2,000,000	2,000,000
Additional paid-in capital	800,000	800,000
Retained earnings	2,631,345	2,894,202
Total Equity	5,431,345	5,694,202
Equity + Total Liabilities	14,591,105	13,772,652

Figure 2: Balance Sheet of a Company

1) It is evident at a very first glance that the revenue has increased by 6174101 from 34701250 in 2011 to 40875351 in 2012. The increase is about 17.79% so it can be a positive sign, but it is only a preliminary analysis. Nevertheless, it is right to see the revenue's trend initially but considering it a positive sign is not right at the initial stage. Further exploration is required.

2) Looking to the gross profit margin's trend of the company it is evident that the ratios are 24.27% in 2012 and 29.74% in 2011, showing a decline of 5.47%. There is a concern about this decline because when this ratio falls shows that the revenue generated for every dollar there will less profit earned. The reason behind it may be the revenue cost increment without the increment in price of contract. It may be due to competitive market condition, the purchase may not be favourable and so on hence, there is a need to further explore on the revenue cost, materials, labours, and subcontractors cost etc.

3) Looking at the revenue's cost there is a two-digit percentage increment in all the items excluding the labour, the rise of which is 0.28% which is not significant. Examining the vertical analysis of the income statement it is evident that the revenue has increased while the cost as the revenue's percentage has declined. It is to be noted that compared with previous year, there is a rise of 35.92% in the cost of subcontractors and the rise of subcontractor may be the possible cause of reduction of labours, which needs to be investigated further. Therefore, maintaining a balance between the direct labour of the company and subcontractors is necessary.

4) Further investigation of income statement suggests that although the revenue has increased, the fall of 52.63% in net profit in 2012 is marginal, which is quite disappointing. There is a need to examine the report taken from the management and the causes behind this decline because from the vertical analysis it is evident that the net profit margin which is 3.26% is

quite below the average which is 5%. There is a concern for the company to gain on its investment a satisfactory return.

5) The increase in the variable overhead total which is 34.74% from 2011 to 2012 has significantly fallen the profit. This is because of the increment of travel and entertainment cost. The rise of 68.11% in bad debts is also marginal. Also, there is a rise in instruments and compensation expenses of workers. A deep study of these expenses is required.

6) The minor fall and rise in the revenue of total fixed overhead in the consecutive year is acceptable while there is a need to look at the marginal rise in maintenance and repair and utilities expenses which is 82.13% and 55.34% respectively.

7) On one hand, the net profit margin, which is below the average, the equity ratio is an adequate return in the company which is 24.55%. It is evident that there is a good return to the stakeholders of the industry. Therefore, the points raised on 4 has to be done which is enough at the moment.

8) The increase in maintenance and repair cost in the following year as compared to previous may be the indication of aging assets that need to be replaced. There is a need to look closely to replace the aging assets in a way that the cost of repair should be saved. Also, there is a need to rectify poor management in cost control which may be responsible for high maintenance and repair cost.

9) Although the working capital has fallen in 2012, but it is not of concerned because the ratio 0f 1.65 at present is quite positive. And above all, the working turnover is 8.14 times which has been improved as compared to previous year. So, working capital can be minimized to maximize the cash flows.

10) Further analysis suggests that the quick ratio is 1.10 for 2012 which is quite good hence it is agreed that the financial health of the company is stable in short terms because the quick ratio gives a more accurate evaluation of financial stability of a company in short term, but it is not reliable in terms of cash flow timings, which is important in determining the debt paying ability of a company when due. So, considering quick ratio along with cash demand period is more adequate. Hence by visualizing the cash demand period, which is 18.63 days, which is adequate, we can say that the company's financial stability is well in short terms.

11) The average age of 54.69 days is quite longer as compared to the normal industrial age, which is 45 days, so a better control on this factor is required on management level.

12) A maximum of 30 days is the age of material inventory according to the norm, so the company's average age of inventory which is 16 and 17 days for 2011 and 2012 respectively. So, a balance should be maintained allocating funds in inventory and fulfilling the requirements of projects in hand.

13) The normal practise 45 days of payable account's age is quite lower than the company's average age, but it is none of concern because there will be more cash existing in hand as the payable days are longer.

5: Impact of Covid-19 on Construction Sector:

5a: Positive Impact

Gumble (2020, p.18) stressed that "as a society and as an industry, we will not be the same when this is over. We're adapting to working differently quite successfully (my steep learning curve with Skype not withstanding!)

Kale (2020) also agreed with Gumble's (2020, p.18) and said that "I suspect there are many office-based construction roles that can be done at home, and this period is likely to have proved that such flexibility is viable and should be more widely accepted"

5b: Negative Impact

On behalf of Construction Leadership Council the survey led by Build UK reveals that 43% of respondents of the survey of "Retaining Talent in Construction" predicted over longer-term to make terminations (see Construction Manager, 2020a). From September 2020, about 6.7% of internes are likely to become jobless, while 20% of the effective employees will get affected.

Construction company represents a workforce decrease of 7.7% who are directly employed where as there is a decline in independent and agency workers by 26.7%. The directly employed professionals, the fall of independent workers and dependent are collectively responsible for the

fall of workers in 2020. At the time of survey, an average of about 32% are already fur longed. (Lexology, 2020)

5c: Impact of covid-19 on the company under consideration:

The covid 19 affected the construction company more in a negative way as compared to positive.

The manager of the company interviewed that due to the financial crises of covid 19 the cost of the steel went too high due to which the stakeholders of construction project, especially the builders went in loss because a project worth of a price x is now of 2x due to the price increment in steel. As a result, the builders are offering less projects to the consulting and contracting firms hence, their monthly profit decreases.

As there is less labour work involved during the crises, the company has laid off many workers to maintain their monthly profit. The lay-off imparted a negative effect on the poor, as they become jobless.

The remaining workers are working remotely hence the number of discrepancies at site are more as the site is less crowed hence, there are less people to perform and instruct at site. Similarly, the draftsman working at home are more liable to errors as there are no engineers beside them to instruct and to correct. As a result, a drawing has many flaws which are ignored by the engineers working at home.

The positive effects include saving minor travel costs and overheads also, it provided the workers to work at their ease from home, hence increasing their productivity

Conclusion

To conclude, the stakeholders of construction projects should analyse the factors discussed to decide the most effective bid strategy for their projects. Moreover, they should perform the financial management to cater all their problems related to budget. By analysing the company's account such as income and bank statement, it is evident that the company had many problems related to finance that required efficient and effective solutions, otherwise the company would have suffered loss in terms of money. This reflects the importance of effective financial management, especially in construction industries whose scope is substantial and involves several stakeholders and lot of activities.

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