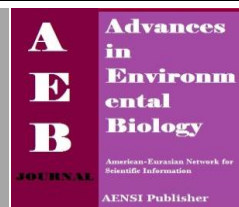




AENSI Journals

## Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/aeb.html>

# Unrealistic Profit Experienced by Bumiputera Entrepreneurs in the Malaysian Construction Industry

Mohd Suberi Bin Ab Halim

School of Business Innovation and Technopreneurship Universiti Malaysia Perlis (UniMAP)

### ARTICLE INFO

#### Article history:

Received 25 January 2014

Received in revised form

2 June 2014

Accepted 6 June 2014

Available online 15 June 2014

#### Key words:

unrealistic construction profit,  
financial management, construction  
industry

### ABSTRACT

Scholars in the construction industry state that several contractors have failed because they received unrealistic profit from construction projects that they undertook. This phenomenon is not only experienced by local contractor firms but is a global problem. To explain this phenomenon within the domestic level, three phases of data collection were conducted as a data collection strategy in this study. The first and second phases of data collection were performed via a case study with six selected contractor firms (large and medium-sized firms). In this study, four types of profitability ratios, namely, gross profit margin (GPM), after-tax profit margin (ATPM), return on assets (ROA), and return on equity (ROE), were used as measurement tools to assess the profitability of a company. Meanwhile, the third phase of data collection was performed via a questionnaire survey with a contractor from the same category. The results show that contractor firms enjoy unrealistic profits from projects they undertook. Based on the interviews, six factors cause this phenomenon: (1) increase of the price of construction materials during the construction period; (2) lower contract prices; (3) inability of the project to be completed on time; (4) contractor firms' high dependence on financial resources from creditors; (5) higher financing costs; and (6) financial mismanagement. Meanwhile, the third phase of the study (questionnaire) contributed quantitative data to this study. The perception of the other contractor firms can be evaluated based on the qualitative analysis. The result shows that all the six factors were considered significant according to the interpretation of Oxford (1990). Investigating the profit earned by the firm is very important in assessing the financial health of the firm because a firm that attains good profit performance is able to make dividend payments to shareholders and repay bank loans.

© 2014 AENSI Publisher All rights reserved.

**To Cite This Article:** Mohd Suberi Bin Ab Halim, Unrealistic Profit Experienced by Bumiputera Entrepreneurs in the Malaysian Construction Industry. *Adv. Environ. Biol.*, 8(9), 489-496, 2014

## INTRODUCTION

Based on the accounting definition, profit refers to the surplus of the total income received from business activities after deducting operating expenses and taxes (profit = total revenue - total expenses). Lasher [25] asserts that the most important basic measure to the success of a business is profit. Without profit, no dividend is obtained. According to Shiue, Tun Li, and Chen only firms that are able to achieve a good profit margin in the industry can survive and pay dividends to shareholders.

Kangari [23] and Strischek and McIntyre [27] report that many contractor firms in the US have failed because they received unrealistic profit from the construction projects they undertook. Arditi *et al.*, [6] find that 27% of contractor firms in the US have failed because of lack of profitability. A contractor's lack of profit from a construction project is due to the occurrence of high competition among contractors for the project. As a result of the competition, a contractor usually has to reduce profits by charging low prices while submitting the tender to acquire the project [7]. However, Davison and Maguire [12] explain based on their experience in the accounting firm of contractors; they report that most of the losses in the project can be attributed to shortcomings in estimating the cost of the project.

Construction firms in the UK only receive approximately 4.7% profit margin; meanwhile, contractors that focus on infrastructure and property development (real estate), which are classified as non-construction work, receive an average profit of 47% and 18%, respectively. Hung *et al.*, [19] also note descriptions of the small profit or loss among contractor firms. Their findings show that most of the contractors in Hong Kong (1993 to 2000) experienced an average net loss of 18%. The losses incurred were due to the high construction and capital costs. However, a further study by Chan *et al.*, [9] shows that the profits received by the contractors in Hong

**Corresponding Author:** Mohd Suberi Bin Ab Halim, School of Business Innovation and Technopreneurship Universiti Malaysia Perlis (UniMAP)  
E-mail: [suberi@unimap.edu.my](mailto:suberi@unimap.edu.my)

Kong have considerably improved. The results of the analysis showed that the ratio of profit before interest and tax was 1.8% in average. Furthermore, the average ratio of return on equity (ROE) was 3.6%. Meanwhile, the average ROA (return on assets) was 2.48%. However, the results indicated by these profit ratios are still at low levels. Based on the measurements provided by Peterson [32] the best target for pre-tax net profit margin is 5% of the total income, whereas the best ranking for ROE and ROA are 16.7% and 6.5%, respectively.

Furthermore, a study by Yng *et al.*, [40] on the construction industry in Singapore reports that most contractor firms cannot enjoy high profits from the projects they undertook. This condition can be attributed to the open tender system and the clients' high preference for the lowest price during the tender process. Such a situation has forced contractors to compete with one another and present a minimum price. The results showed that the profit margin earned by contractor firms has fallen to an unrealistic level. According to the study by Yin [39] in Malaysia, the low tender price forces contractors to perform high-quality work at low prices. As a result, many firms had to bear the loss, and the contractors fail to complete the project on time. Most construction projects are classified as exceeding the cost and time.

#### Objectives of the Study:

The main objectives of this study are to assess the level of profitability of Bumiputera contractors in Malaysia and to identify the factors that lead to this situation. The identification of the early signs of financial trouble would help contractors develop effective financial plans to prevent their companies from failing.

#### Research Methodology:

Three phases of data collection were carried out as a data collection strategy in this study. The first and second phases of data collection were performed via a case study with six selected contractor firms. The firms included in this study were selected from large and medium-sized Bumiputera contractor firms. Meanwhile, the third phase of data collection was conducted by using a questionnaire survey with a contractor from the category of large and medium-sized indigenous firms. A total of 54 construction firms were involved in the questionnaire survey. Analysis of financial ratio is a technique often used by researchers to assess the financial position of a firm. In this study, four types of profitability ratios, namely, GPM, ATPM, ROA, and ROE, were used as measurement tools to assess the profitability of a company. Afterward, the industry average and industrial zones were used as points of comparison for the ratio analysis. Peterson [32] explains that the point of the industry average is the best situation for a contractor to perform business. Meanwhile, the industrial zone is a safe zone for contractors. Furthermore, the interviews were conducted with owners of the above six selected firms to clarify the results from the ratio analysis, which refers to the causal factors to the financial situation. The two methods mentioned above (i.e., ratio analysis and interviews) contribute to the qualitative data in this study. Meanwhile, the third phase of the study (questionnaire) contributes the quantitative data. The perception of the other contractor firms can be evaluated based on the results of the qualitative analysis. This review process introduces the concept of triangulation in this study.

#### Research Findings:

##### Ratio Analysis:

**Table 1(1):** Four types of profitability ratios.

No	Ratios	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F	Industry Average (Median)	Zone Industry
1	GPM	4.7%	10.6%	6.96%	11.98%	9.06%	7.52%	17%	-
2	ATPM	0.78%	0.14%	1.17%	5.56%	0.24%	0.48%	2.2%	8.7% to 0.6%
3	ROA	1.8%	0.97%	2.07%	7.4%	1.69%	1.28%	6.5%	21.7% to 2.0%
4	ROE	16.1%	10.5%	20.25%	72.6%	4.5%	2.45%	16.7%	53% to 5.4%

The financial ratios shown in Table 1.1 above represent four types of profitability ratios, namely, GPM, ATPM, ROA, and ROE. The ratio analysis results of the four types showed that an average ratio of contractor firms obtain minimal profit from the construction project.

##### (a) GPM:

GPM is the percentage of the remaining income earned by the firm after deducting the cost of the project. Figure 1.1 shows the GPM of the six selected contractors.

The analysis indicates that firm D earns the highest GPM, followed by firms B, E, F, C, and A. Firm D acquired a GPM of 11.98%, implying that it spent 88.02% of its revenue to cover the cost of construction and was only left with a balance of 11.98% to fund overhead expenses as well as investment returns to shareholders, followed by firms B (10.6%), E (9.06%), F (7.52%), C (6.96%), and A (4.7%). The GPMs of all the firms are lower than the industry average for construction firms (17%) proposed by Peterson [32].

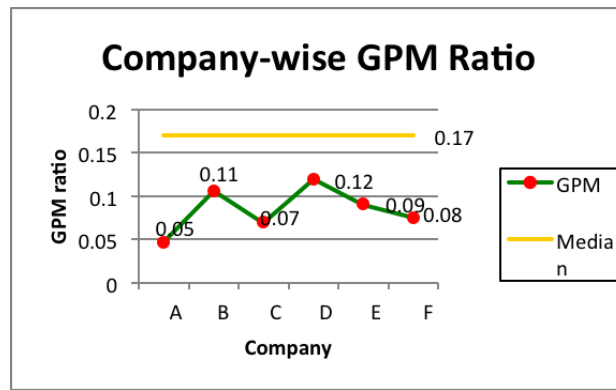


Fig. 1(1): Gross profit margins of the six selected firms.

(b) *ATPM:*

Firm C obtained the highest ATPM (1.17%), followed by firms A (0.78%) and E (0.24%). Meanwhile, the firm that obtained the highest losses was firm D (-5.56%), followed by firms F (-0.48%) and B (-0.14%). The profit margins earned by firms C, A and E are lower than the industry average (2.2%). Nevertheless, the ATPMs of firms A and C are still within the designated industrial zones, which ranged from 0.6% to 8.7%. The ATPMs of firm E is slightly lower than the minimum level of industrial zones. The position of the ATPMs of the six contractor firms in the industry average and industrial zones is shown in Figure 1.2 below.

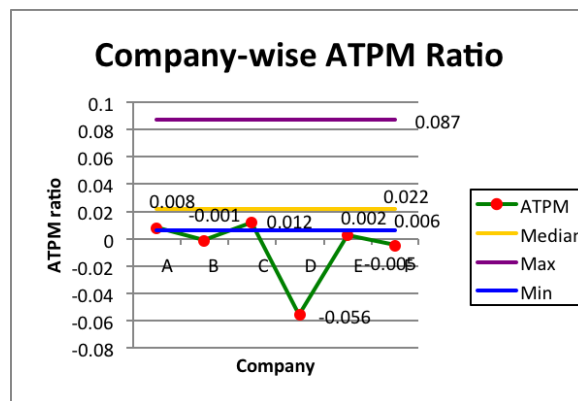


Fig. 1(2): After-tax profit margin of six selected firms.

(c) *ROA:*

The ratio of ROA is generally used to measure the efficiency of contractors in using their assets. Efficient management produces high returns on investment assets of the firm. Figure 1.3 shows the ratio of ROA for the six selected firms.

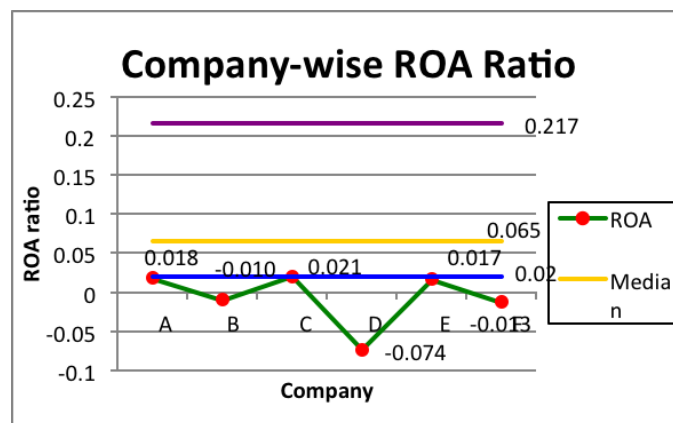


Fig. 1(3): Return on assets of the six selected firms.

The analysis of the ROAs of the six firms shows that firm C obtained the highest ROA, followed by firms A, E, B, F, and D. However, the ROAs of all the firms are smaller than the industry average (6.5%) proposed for the construction industry. Firms B, D, and F acquired negative ROAs, which are considerably lower than the minimum level for the industrial zone. The ROA of firm D was the lowest (-7.4%), followed by those of firms F (-1.28%) and B (-0.97%). The ROA of firm C (2.07%) was higher than the minimum level for the industrial zone. The ROAs of firms B (1.8%) and E (1.69%) were all positive but were lower than the minimum level for the industrial zone.

(d) ROE:

The analysis of the ROEs of the selected firms shows that the ROE of firm C is the highest, followed by those of firms A, E, F, B, and D. The ROE of firm C (20.25%) is higher than the industry average (16.7%) and is located within the designated industrial zone. The firm that obtained the second highest positive ROE (16.1%) was lower than the industry average but is still within the industrial zone. The ROE of firm E (4.5%) was also slightly lower than the minimum level for the industrial zone (5.4%). Meanwhile, the ROEs of firms B, D, and F were negatively positioned. The ROE of firm D (-72.6%) was the lowest. Figure 1.4 shows the ROEs of the six selected contractor firms.

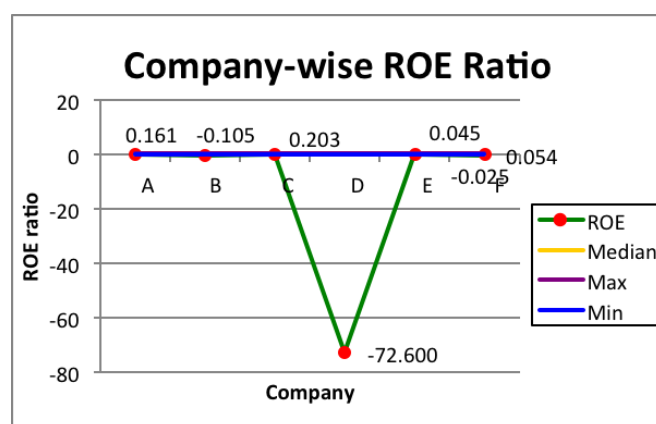


Fig. 1(4): Return on equity of the six selected firms.

*Factors That Determine Small Profit Margin:*

Based on the interviews, six determinant factors that cause small profit margin or losses in contractor firms were identified: (1) increase of the price of construction materials during the construction period; (2) lower contract prices; (3) inability of the project to be completed on time; (4) contractor firms' high dependence on financial resources from creditors; (5) higher financing costs; and (6) financial mismanagement. Table 1.2 shows the list of the six factors that cause small profit margin to contractors. The factors are arranged following the level of the respondents' perception as revealed in the questionnaire survey. All the factors were considered significant according to the Oxford [31] interpretation.

Table 1(2): Factors that cause small profit to contractors.

No	Factor	Min	Rank	SD	Interpretation
1	Increase of the price of construction materials during the construction period	3.62	1	0.745	Very important
2	Lower contract prices	3.56	2	0.639	Very important
3	Inability of the project to be completed on time	3.38	3	0.771	moderately important
4	Contractor firms' high dependence on financial resources from creditors	3.15	4	0.776	moderately important
5	Higher financing costs	3.09	5	0.955	moderately important
6	Financial mismanagement	2.73	7	0.931	moderately important

Notations used: Means, 3.5 to 5.0 = very significant; Means, 2.5 to 3.49 = moderately important; Means, 1.0 to 2.49 = slightly important

*Increase of the Price of Construction Materials During the Construction Period:*

The drastic increase of the price of building material during the construction period significantly affects the construction cost. Aside from severely affecting of the construction sector, the price increase also indirectly reduces the profit margin of firms. For example, Construction Industry Development Board reports that the price of iron rods has increased by 90% in 2007 as compared with that in 2006. CIDB generally estimates that each 10% increase in the price of materials corresponds to a 1% increase in the project cost. Therefore, a 90% increase in the transaction price implies that the contractor has to bear a 9% increase in the project cost, with an

average gain of 7% to 12%. In addition, CIDB also finds that almost all the prices of other construction materials increased in 2007 at a rate of 12%. This increase resulted in an average of 6% increase in project costs. Contractor firms will suffer losses if their profit margin is lower than the percentage of the price increases. In the present study, the interviews showed that the majority of the respondents (except respondent A) suffered significant losses because of the price increases.

This finding is consistent with those reported by Gallagher and Riggs [17] and Simon [35], which explains that changes in price correspond to increases in construction costs. Consequently, the firms' profits will be reduced. However, respondent A explained that the increase of the prices of construction materials does not significantly contribute to the losses suffered by the firm. This assumption is due to the clause in the contract that allows a contractor to make a claim in cases when the prices of building materials increase during construction. Nevertheless, the explanation of respondent A was not supported by the five other respondents. They explained that the claims against price hike involve only a few items. As proof, Treasury circular number 3 of 2008 on the implementation of the terms of price changes in government contracts only allow 12 items for claims, namely, cement, wood, stone, sand, brick, cross, iron, plumbing equipment, paint, toilet equipment, and accessory doors and windows. Wong [38] explains that the situation of severe price increases that occurred in 2007 involved almost all types of building materials. The contractor firms had to bear the loss because the claims are not exhaustive.

The quantitative analysis results (questionnaire survey) showed that the majority of the respondents provided a positive perception of these factors. Based on its mean score (mean=3.62, SD=0.745), the increase of the price of building materials during construction significantly contributes to the small profits or losses in contractor firms.

The literature indicates that a slight increase in the prices of building materials have an adverse effect on the profit margin of firms. Although a contractor has the right to make a claim against the price hike, as described by respondent A, such a claim is restricted to certain materials only. In reality, price increases have involved almost all construction materials. The situation would be especially difficult for domestic contractors because the contract prices they implement are usually low.

#### *Lower Contract Prices:*

This study also found that the small profit margin received by contractors is also due to lower contract prices. Majority of the interview respondents (except respondent C) reported that the percentage of GPM charged by the contractors during the tender process is between 5% and 10%. If the contractors place a high price during the submission of tender, the chances to obtain the tender is very slim. The high competition among contractors to obtain tender has forced contractor firms to submit the tender for the project with the lowest price. However, a different opinion was held by respondent C. According to him, contractors are unlikely to charge lower prices that will be detrimental to them. However, the quantitative analysis showed that the respondents generally consider the above factors. Lower contract prices are also regarded as a very important factor that contributes to the small profit or losses in contractor firms, as reflected by its mean score (mean=3.56, SD=0.639).

This phenomenon has been explained by CIDB. According to CIDB (2007), the average gross profit contractors obtain from the project they undertook is between 7% and 12%. This situation occurs because a contractor needs to present a low price during the tendering process. According to Yin [39], the low tender price is due to the open tender system that prefers the lowest price. Such condition has resulted in unhealthy competition among contractors for the project. Contractor firms will tender with the lowest possible price to win the tender. Furthermore, the high competition among local contractor firms also causes the influx of new contractor firms participating in the construction industry while the number of projects is limited. As of March 2010, the number of contractor firms registered with the CIDB. This situation can be attributed to the failure of the legal terms of construction to balance the entry of new contractor firms. In fact, many contractor firms suffer losses when they implement a project. According to the statistics released by the CIDB, from June 2005 to December 2009, a total of 6,031 contractor firms were classified as inactive.

#### *Inability of the Project to be Completed on Time:*

This study also found that the small profit that firms gain is also caused by the delay in the completion of the construction project. This delay results in the increase of construction costs. All of the selected respondents have faced this problem. They acknowledged that the delay negatively affected their firm in terms of the rising cost of construction and cost management; moreover, the contractors may eventually face problems on the increase of the price of construction materials. The project's inability to be completed on time was also regarded as a moderately important factor that contributes to the small profit or losses in contractor firms, as reflected by its mean score (mean=3.38, SD=0.771). Such a phenomenon has been described previously by Bashir. He reports that many contractor firms failed to complete their projects although they implemented those in a timely manner. According to the statistics released by the Public Works Department in January 2012, a total of 50

projects under their control in the country were not completed within the stipulated time. In an earlier study, Sambasivan and Soon [33] reveals that a total of 417 government contracts in 2005 were classified as “sick projects”. According to Elias the loss of a contractor becomes larger when the delay exceeds a certain time and a contractor fined delay. Late charges are imposed based on the number of days until the project is completed. Several international studies also assert that the rising cost is attributable to the contractor’s inability to complete the projects on time. These studies include those of Odeh and Battaineh [30] in Jordan, Aibinu and Jagboro [3] in Nigeria, Frimpon in Ghana, Assaf *et al.*, [8] in Saudi Arabia, Sweis *et al.*, [37] in Jordan, Al Hadi Tumi *et al.*, [4] in Libya, and Shaikh, Muree, and Soomro [34] in Pakistan.

The above findings show that many construction projects have experienced extreme delays that exceeded the expected time and cost. Such situations have been experienced by many contractor firms, both domestically and internationally. This condition resulted in the decrease of contractor firm profitability.

#### *Contractor Firms’ High Dependence on Financial Resources from Creditors:*

Previous studies have shown that majority of the local contractor firms are highly dependent on the creditors as a major source of financing to fund the projects they undertake. Normally, creditors are paid after the contractors obtain progress payments from the client. Most of the interview respondents (except respondents A and C) expressed that their firms paid higher prices for purchases on credit. The price difference between paying for purchases on credit and in cash is 5% to 10%. Such condition results in the decrease in the profit of contractors.

Respondents A and C consider this factor as insignificant because the price difference is only experienced by small contractor firms or new start-ups. Large and well recognized firms have high bargaining power and thus obtain considerably cheaper price compared with their smaller counterparts.

However, the quantitative analysis showed that the majority of the respondents regard this factor as significantly contributing to the small profit of contractor firms. Among the six factors, this factor ranked fourth based on its mean score (mean=3.15, SD=0.776). Based on the interpretation of Oxford [31], it is classified as moderately important contributing factor. However, no specific study on the price differences has been conducted, both domestically and internationally. This study is the first to report this factor.

#### *Higher Financing Costs:*

This study found that all of the selected contractor firms have used the bank loan facility to finance projects they undertook. Bank loan is an alternative financial resource used by contractors when they receive late progress payments. This loan is used to pay short-term bills and subcontractors. However, this source of capital requires contractors to pay interest on the amount and duration of use. Higher amount of loan used corresponds to higher interest burden for firms.

Lin [26] shows that many firms have suffered losses because of the contractors’ excessive use of bank lending. A total of Rs 4.3 billion loans to local contractors in 2005 were unpaid by firms. The excessive use of bank loans is also discussed by Kangari [23], Arditi *et al.*, [6], Enshassi *et al.*, [14] and Strischek and McIntyre (2008). As a result of such use, contractors need to pay high interest costs to the banks. This factor is considered significant because paying higher loan interest costs affect the profitability of firms. The quantitative findings indicate that majority of the respondents report this factor, as reflected by its mean score (mean=3.09, SD=0.955). This factor is classified as a moderately significant factor that contributes to the small profit of contractor firms. Based on the literature as well as the present findings, many contractor firms obtain small profit or losses because of their excessive use of bank loans, which consequently forces them to pay high interest.

#### *Financial Mismanagement:*

This study also found that financial management also causes the small profit earned by firms from the projects they undertook. The quantitative analysis showed that the majority of the respondents consider this factor as significant. Based on its mean score (mean=2.73, SD=0.931), this factor is classified as a moderate significant factor that contributes to the small profits or losses in contractor firms. This situation is described previously by Kangari [23]. He stated that one of the problems faced by most contractor firms is weaknesses in financial management. As a result of these weaknesses, many contractor firms have failed in the construction industry. Several researchers, such as Kaka [22] Navon [29] Kenley [24], Barbosa and Pimentel, Hwee Tiong [20], Hassim *et al.*, [18], Enshassi [14], McIntyre [27], Arain [5], Cui *et al.*, [11] and Abdul-Rahman *et al.*, [1] discuss the financial management aspects of cash management. The failure of contractor firms to properly plan cash flow movements induces adverse effects on the finances and profit of firms. In the present study, all the selected contractor firms did not prepare an ideal plan for the management of their cash flow. In addition, all of the interview respondents admitted that they failed to provide profit estimates for the projects they undertook. This failure resulted in the contractors’ inability to foresee the amount of cash required and the expected profit from the project.

Meanwhile, several other researchers, such as Laser, Fabozzi and Peterson [15], Peterson[32] and Moyer *et al.*, [28] perceive aspects of financial management in a wider context, which covers the entire asset management of firms. For example, the amount of fixed asset ownership of firms should also be considered. According to Peterson [32], the contractors' ownership of assets usually requires high maintenance costs and results in asset impairment or losses. This condition can lead to the decrease of profit obtained by contractor firms.

#### Conclusion:

Based on the literature review and the results of this study, many contractor firms obtain small profit or suffer losses from the projects they undertook. This condition is because they fail to properly manage their firms' finances. Efficient estimation of profits and losses in the early stages of the project is important for the firms to control and plan for the construction cost and expected profits from projects.

#### REFERENCES

- [1] Abdul-Rahman, H., C. Wang, R. Takim, S. Wong, 2011. Project schedule influenced by financial Issues: Evidence in construction industry. *Scientific Research and Essays*, 6(1): 205-212.
- [2] Agenti, J., 1976. Corporate collapse: The causes and symptoms. John Wiley and Sons, New York, N.Y. Dipetik daripada Kangari, Farid, Elgharib, 1992. Financial performance analysis for construction industry. *Journal of Construction Engineering and Management*. 118(2): 349-360.
- [3] Aibinu, A.A., G.O. Jagboro, 2002. The effects of construction delays on project delivery in Nigerian construction industry. *International Journal of Project Management*, 20: 593-599.
- [4] Al Hadi Tumi, S., A. Omran, A.H. Kadir Fakir, 2009. Causes of delay in construction industry in Libya. *The international Conference on Administration and Business, ICEA-Faa Buchares*. Bashir, M.T. 2000. *Factors influencing construction delays*. Master thesis. Universiti Sains Malaysia. Barbosa, P. S. & Pimentel, P. R. 2001. Linear programming model for cash flow management in the Brazilian construction industry. *Construction Management and Economics*, 19: 469-479.
- [5] Arain, F.M., 2008. Causes of insolvency and unethical practices of contractors in Pakistan construction industry. *Proceedings from International Conference on Building Education and research (BEAR)*. <http://www.irbnet.de/daten/inconda/CIB11344.pdf>.
- [6] Arditi, D., A. Koksal, S. Kale, 2000. Business failures in the construction industry. *Journal of Engineering, Construction and Architectural Management*, 7(2): 120-132.
- [7] Arslan, G., M. Tuncan, M.T. Birgonul, I. Dikmen, 2006. E-bidding proposal preparation system for construction projects. *Building and Environment*, 41: 1406-1413.
- [8] Assaf, S.A., S. Al-Hejji, 2006. Causes of delay in large construction project. *International Journal of Project Management*. 24: 349-357.
- [9] Chan, J.K.W., C.M. Tam, R.K.C. Cheung, 2005. Construction firms at the crossroads in Hong Kong going insolvency or seeking opportunity. *Journal of Engineering, Construction and Architectural Management*. 12(2): 111-124.
- [10] Construction Industry Working Group on Payment (WG10), 2007. *The importance of payment in the construction industry*. Report on Enactment of Construction Industry Payment and Adjudication Act (CIPAA), 2: 1-16. *Contractors 2005-2009*, Kuala Lumpur, Malaysia.
- [11] Cui, Q., M. Hastak, D. Halpin, 2010. Systems analysis of project cash flow management strategies. *Construction Management and Economics*, 28: 361-367.
- [12] Davidson, R.A., M.G. Maguire, 2003. Ten most common causes of construction contractor failures. *Journal of Construction Accounting and Taxation*, 13(1): 35-37.
- [13] Ellis, M., R. Earl, K. Evans, 2006. CFMA's 2006: Financial survey results. In accounting and reporting CFMA-BP. Construction Financial Management Association, Princeton, NJ. Cited from Balatbat, M. C.; Lin, Carmichael, 2011. Management efficiency performance of construction business: Australia data. *Engineering Construction and Architectural Management*., 18(2): 140-158.
- [14] Enshassi, A., K. Al-Hallaq, S. Mohamed, 2006. Causes of contractor's business failure in developing countries: The case of Palestine. *Journal of Construction in Developing Countries*, 11(2): 1-14.
- [15] Fabozzi, F.J., P.P Peterson, 2003. *Financial Management & Analysis*. John Wiley & Sons, Inc.
- [16] Frimpong, Y., J. Oluwoye, L. Crawford, 2003. Causes of delay and cost overruns of groundwater projects in a developing countries: Ghana as a case study. *International Journal of Project Management*, 21: 321-326.
- [17] Gallenger, J., F. Rigger, 2006. Material price escalation: allocating the risks. *Construction Briefing*. Thomson/West, 2006-2012.
- [18] Hassim, S., M.R.A. Kadir, Y.L. Lew, Y.C. Sim, 2003. Estimation of minimum working capital for construction project in Malaysia. *Journal of Construction Engineering and Management*, 129(4): 369-374.

- [19] Hung, C.Y., C.P.C. Albert, H.C.M. Eddie, 2002. Capital structure and profitability of the property and construction Sectors in Hong Kong. *Journal of Property Investment & Finance*, 20(6): 434-453.
- [20] Hwee, N.G., R.L.K. Tiong, 2002. Model on cash flow forecasting and risk analysis for contracting firms. *International Journal of Project Management*, 20: 351- 363.
- [21] Jabatan Kerja Raya (JKR) Malaysia, 2012. *Statistik Projek Sakit dibawah JKR*.
- [22] Kaka, A.P., 1996. Towards more flexible and accurate cash flow forecasting. *Construction Management and Economics*. 14: 35-44.
- [23] Kangari, R., 1988. Business failure in construction industry. *Journal of construction Engineering and Management*, 114(2): 172-190.
- [24] Kenley, R., 1999. Cash farming in building and construction: A stochastic analysis. *Construction Management and Economics*, 17: 393-401.
- [25] Lasher, W.R., 2003. *Practical Financial Managemen*. Thomson, South-Western, 3<sup>rd</sup>
- [26] Lin, L.S., 2008. Project financing for small and medium contracting firms. *Master thesis*. Universiti Sains Malaysia, Penang, Malaysia.
- [27] McIntyre, M., 2007. Why do contractors fail. *Construction Business Owner*, pp: 62-65.
- [28] Moyer, R.C., J.R. McGuigan, R.P. Rao, 2007. *Fundamentals of Contemporary Financial Management*. Thomson/ South-Western. Eagan, Minn.
- [29] Navon, R., 1996. Company-level cash-flow management. *Journal of construction engineering management*, 122(1): 22-29.
- [30] Odeh, A.M., H.T. Battaineh, 2002. Causes of construction delay: traditional contract. *International Journal of Project Management*, 20: 67-71.
- [31] Oxford, R.L., 1990. *Language Learning Strategies: What Every Teacher Should Know*. New York: Newbury House.
- [32] Peterson, S.J., 2005. *Construction Accounting and Financial Management*. PrenticeHall, Upper Saddle River, New Jersey.
- [33] Sambasivan, M., Y.W. Soon, 2007. Causes and effects of delays in Malaysian construction industry. *International Journal of Project Management*. 25: 517-526.
- [34] Shaikh, A.W., M.R. Muree, A.S. Soomro, 2010. Identification of critical delay factors in construction. *Sindh Univ. Journal (Sci, Ser)*. 42: 11-14.
- [35] Simon, S., 2008. Getting a handle on construction costs. *Rider Levett Bucknall* (www.rlb.com). Published Janaury 2008
- [36] Strischek, D., M. McIntyre, 2008. Red flags & warning signs of contractors failure. *The RMA Journal*. 90: 72-79.
- [37] Sweis, G., R. Sweis, A.A. Hammad, A. Shboul, 2008. Delay in construction project- The case of Jordan. *International Journal of Project Management*. 26: 665-674.
- [38] Wong, P., 2008. MBAM Respon to fuel price increase & escalating cost of building materials. *Master Builders Association Malaysia*. June. 2008.
- [39] Yin, K.Y., 2006. How to become a competent contractor. *The Monthly Bulletin of the institution of Engineers, Malaysia*. 02: 38-39.
- [40] Yng, L.F.Y., G. Ofari, D. Mohammed Fadhil, 2005. Targeting constraints and improving performance in Singapore construction. Technical research centre of Finland (VTT)/association of finnish civil engineers.