

The Effect of the Contingent Liabilities Caused by Project Financing of the Domestic Construction Firms

Kang, Namhee¹ and Kim, Hyunjung² and Choi, Jaehyun³

Abstract: Project Financing (PF) is the long-term financing of infrastructure and industrial projects based upon the projected cash flows of the project rather than the balance sheets of its sponsors. However, the financial institution, the subject of financing in the case of PF in Korea, the lack of validation system of business, rather than to assess the feasibility of the project, requested a credit reinforcement to the construction company, the fact is Construction Company on loans of the employer is the guarantor or debt argument commitments accordingly. As a result, PF contingent liabilities, which are indirect debt, are triggered in the construction company, not included in the financial statements, along with the disclosure standards established according to 2009 PF contingent liabilities, and major can be a management item. In this study, PF contingent liabilities is of Pearson of the index and the PF debt ratio showing the main financial ratios and risk by classifying the credit rating and contractors Ranking of construction companies in order to analyze the impact on the financial condition of the company was performed correlation analyzes, through the Pearson correlation coefficient analysis indicated quantitative or negative relationship to derive the explicit indication.

Keywords: Financial Ratio Analysis, Project Financing, Contingent Liabilities

I. INTRODUCTION

A. Background

Since Asian financial crisis in 1997, unhealthy of the construction company followed, Project Finance (PF) based on the business of the project is beginning to appear, domestic real estate PF, the construction company to promote the project but construction company that was in charge of the construction is the subject of the funding is providing credit reinforcement in the form of such payment guarantee and debt argument against loans of construction company (Jon, 2009). In other words, financial institutions in the PF is, to decide whether to run the loan depends on the credit rating and Construction's construction capacity than the business of the project.

Since 2008, rapidly increasing real estate downturn in the global financial crisis, the delinquency rate of the real estate PF loans have increased significantly, which has had an adverse effect on the domestic economy in general. Thereby, the study carried to examine the impact of contingent liabilities due to the PF project on the financial state of the construction company.

B. Purpose and Method

In this study, contingent liabilities of the construction company due to the PF is for the purpose of support of participation at the decision-making to our PF preject of construction companies by analyzing the impact on the financial position. First, after select financial ratios which may influence in the PF through the research and literature, divide sample into A, B and C group by contract rank or credit level, each manufacturer the data of the 6-year PF contingent liability elected financial ratios in each it was

collected through Data Analysis, Retrieval and Transfer System(DART). Based on the collected data, Pearson correlation analysis was performed to derive the relevant indicators with PF debt, were analysed by the variance between groups.

II. THEORETICAL STUDY

A. Study Target

The subject of this company of the contractor rank 1-100 place, was classified a group to the credit graded as Table1 in understanding possible to collect the data of PF contingent liabilities of 2008-2013. In this study, construction companies are categorized into 3 groups by company's credit rating. A bond of credit rating AA~A contractors is A group, which rank relevantly higher, B group consists of six companies corresponding to credit rating BBB~B, C group is corresponding to the credit rating CCC~D.

TABLE I
 SUBJECT OF STUDY GROUP CLASSIFICATION
 corporate bond credit ratings

A group	9 companies
B group	6 companies
C group	5 companies

B. Comparative Analysis Target

According to the preceding research, 4 financial ratios can be varied to the PF business; current ratio, debt ratio, return on assets rate, and a total of operating margin.

¹ BArch, master course, Koreatech Univ. 2nd building 307 Byungcheon Cheonan Chungnam, 330-708 KOREA, jungleman@koreatech.ac.kr
² BArch, master course, Koreatech Univ. 2nd building 307 Byungcheon Cheonan Chungnam, 330-708 KOREA, killkillrla@koreatech.ac.kr
³ Ph.D, assistant professor, Koreatech Univ. 2nd building 307 Byungcheon Cheonan Chungnam, 330-708 KOREA, jay.choi@koreatech.ac.kr
 (*Corresponding Author)

C. Pearson Correlation Coefficient

The Pearson correlation coefficient provides a measure of the strength of linear association between two variables and R value represents the analysis result. R value, the degree to which X and Y are changed together, based on the X and Y values to be inputted to those X and Y are divided about changes separately, typically the relationship between X and Y as shown in Table2 me to analyse.

TABLE I
 PEARSON'S CORRELATION COEFFICIENT R

Range of Values of R	Relation
-1.0 < R < -0.7	Strong negative linear relation
-0.3 < R < -0.7	obvious negative linear relation
-0.1 < R < -0.3	Weak negative linear relation
-0.1 < R < +0.1	Negligible linear relation
+0.1 < R < +0.3	Weak positive linear relation
+0.3 < R < +0.7	Obvious positive linear relation
+0.7 < R < +1.0	Strong positive linear relation

III. ANALYSIS OF THE RESULTS

Pearson correlation analysis performed in this study, using the IBM SPSS Statistics20, Pearson correlation coefficient and the linear relationship of PF debt ratio and the financial ratio is as Table3, Table4.

TABLE II
 PEARSON'S CORRELATION COEFFICIENT OF PF DEBT RATIO AND FINANCIAL RATIO

Group	Company Name	CR	DR	ROA	ROO
A	A1	0.36 ^a	-0.50 ^b	0.47 ^b	0.32 ^b
	A2	-0.09 ^a	0.66 ^b	0.85 ^a	0.36 ^b
	A3	0.10	0.37 ^b	0.42 ^b	0.88 ^a
	A4	0.74 ^a	0.71 ^a	0.37 ^b	0.71 ^a
	A5	-0.45 ^b	-0.18	0.01	-0.06
	A6	-0.63 ^b	-0.35 ^b	0.52 ^b	0.53 ^b
	A7	0.61 ^b	0.21	-0.83 ^a	-0.84 ^a
	A8	-0.75 ^a	0.29	0.15	0.34 ^b
	A9	-0.77 ^a	-0.84 ^a	0.10	0.68 ^b
B	B1	-0.62 ^b	0.71 ^a	0.55 ^b	0.44 ^b
	B2	-0.53 ^b	0.10	0.05	0.60 ^a
	B3	-0.84 ^a	0.81 ^a	0.63 ^b	0.87 ^a
	B4	-0.81 ^a	-0.58 ^a	-0.56 ^b	-0.74 ^a
	B5	-0.62 ^b	-0.08	-0.42 ^b	0.31 ^b
	B6	-0.09 ^a	0.89 ^a	0.77 ^a	0.82 ^a
C	C1	-0.73 ^a	0.87 ^a	-0.96 ^a	-0.86 ^a
	C2	-0.10	-0.18	0.25	0.15
	C3	-0.06	0.93 ^a	-0.47 ^b	-0.05
	C4	-0.12	0.87 ^a	-0.56 ^b	-0.70 ^a
	C5	0.05	-0.55 ^a	-0.42 ^b	-0.15

^astrong positive and negative relation

^bobvious positive and negative relation

In the case of the relationship between the PF debt ratio and liquidity ratio, seven companies corresponding to the strong negative linear relationship, clear two companies corresponding to the quantitative linear relationship, the case of the relationship between the total rate of return on assets in relation to the PF debt ratio and profitability indicators, both, the number of companies that are similar to negative linear relationship, teeth that , the relationship between the ratio of operating income to net sales, the number of companies corresponding to the quantitative linear relationship was revealed in twelve.

IV. CONCLUSION

In this study, contingent liabilities of the construction company due to the PF is being carried out for the purpose of support of participation at the decision-making to the business of PF of our influence construction company by analysing on the financial position, the conclusion of this study are as follows. Despite the decrease of the PF liability by a sharp decrease in total assets, as PF debt decreases, profitability is reduced and the liquidity increases in both A and B group, except for the C group whose PF debt ratio rapidly increases. That is, if PF debt increases, if it is possible to improve the profitability fluidity of funds is not ensured, it may be applied as this risk factor. This study have limit that each project end-points are different, which PF debt's occurred. Therefore, if subdivided the data value for each semi-annual or quarterly, it is plausible for correlation analysis to operate systematic research.

ACKNOWLEDGEMENTS

This research was supported by the Plant Research Project (Project ID: 14IFIP-B091004-01) funded by the Ministry of Land, Infrastructure and Transport of the Korean government. The authors gratefully acknowledge their support.

REFERENCES

- [1] K. Ahn, Y. Cho, S. Lee, "An Analysis on the Investment Determinants for Insolvent Housing Development Projects", Construction Engineering and Project Management Association, vol. 15, no. 2, pp. 112-121, 2014.
- [2] J. Jeon, "Impact of Capital Structure on Construction Firm's Contingent Liability in Real Estate Project Finance", Korea Planning Association, vol. 48, no. 6, pp. 181-198, 2013.
- [3] J. Kim, "A Study on the Credit Risk of Real Estate Development Project Finance Loans", Korea Planning Association, vol. 44, no. 5, pp. 175-191, 2009.
- [4] S. Kim, J. Lee, C. Lee, "A Study on the Risk Management of Projects to which the Real Estate Project Finance", Construction Engineering and Project Management Association, pp. 491-496, 2008.
- [5] D. Jeong, "A Study on the Feasibility of Projects to which the Real Estate Project Finance is Applied", Korea Planning Association, vol. 36, no. 6, pp. 175-188, 2004.
- [6] J. Kim, C. Seo, "A Study on the Impact of Marketability of and Cash Flows from Housing Pre-Sales on the Credit Risk of Project Finance Loans", Korea Planning Association, vol. 45, no. 2, pp. 129-147, 2010.
- [7] T. Kang, H. Lee, "An Analysis on Characteristics of Real Estate Project Financing Lender Types", Korea Research Institute for Human Settlements, vol. 58, pp. 151-165, 2008.