

APPLICATION OF THE CAPITAL BUDGETING TECHNIQUES IN THE DECISION MAKING PROCESS OF CROATIAN BANKS

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ABSTRACT

This paper reports the results of a mail survey of the capital budgeting techniques application in the decision making process of Croatian banks. It is based on a questionnaire sent to 33 banks from the rank list of banks in Croatia. The response rate was 33.33% (11 out of 33). The goal of the empirical survey was to determine the level of conscious about the need of the application of capital budgeting techniques, knowledge and competency of different methods in use, problems and improving opportunities of the capital budgeting practice in Croatian Banks.

INTRODUCTION

Empirical survey has been undertaken in Croatian banks from November 15 to December 31, 2007. Questionnaires were sent to 33 general managers according to the rank list of banks in Croatia [1]. Questionnaire contains 35 questions about the capital budgeting methods in use, cost of capital and cash flow estimation, risk analysis and application of real options approach. The survey had a response rate of 33.33%. According to the total assets, 2 of the sample banks have total assets of less than 1.000 billion, 4 from 1.000 – 5.000 bill., 2 from 5.000 – 15.000 bill., 2 from 30.000 – 45.000 bill., and 1 of the sample banks has total assets more than 70.000 billion kuna. According to the number of employees 7 of the banks have less than 500 employees, 3 from 1.000 - 3.000, and 1 bank has from 3.000 - 5.000 employees. According to ownership, just 2 of the sample banks are in Croatian ownership.

Capital Budgeting Practices

Survey shows that 5 of the banks have separate department for project forming and analysis and 6 of them don't have. Regarding formal Capital Budgeting Manual, just 2 of the sample banks have a Capital Budgeting Manual and 9 do not. The banks that have a Capital Budgeting Manual indicated the following items defined in Manual (Table 1).

Table 1. Capital Budgeting Manual define

Investment idea candidates	x	
Gathering data process	x	x
Cash flows forming	x	x
Cost of capital		x
Project risk		
Decision making rules	x	x
Investment evaluation and ranking	x	

Capital Budgeting Methods

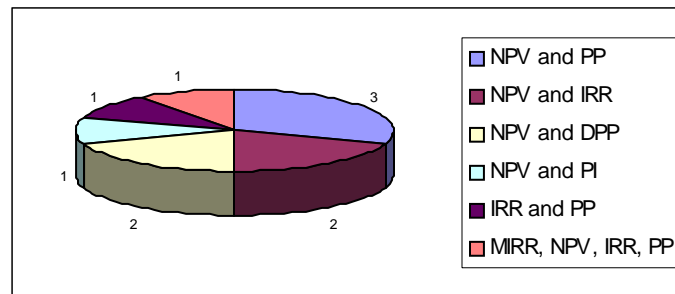
One of the goals of this survey was to determine the capital budgeting methods most commonly used by the Croatian's banks. The respondents were asked to score how frequently they use the different capital budgeting techniques (sometimes, often, always, never). When evaluating investment projects, Croatian banks use a variety of capital budgeting techniques. Their responses are summarized in Table 2.

Table 2. Capital Budgeting Methods in Use

	Sometimes	Often	Always	Never
Net Present Value (NPV)	1	4	5	1
Internal Rate of Return (IRR)	2	2	5	2
Payback Period	4	2	4	1
Discounted Payback Period	1	4	3	3
Profitability Index	0	2	6	3
Annuity Method	4	1	0	6
Modified Internal Rate of Return	1	3	1	6
Accounting Rate of Return	3	2	0	6
Adjusted Present Value (APV)	1	3	0	7

After indicating capital budgeting methods used when evaluating investment projects, the respondents had to select the two most important for decision-making. Results show that for 3 of the banks the two most important capital budgeting methods are NPV and payback period, for 2 these are NPV and IRR, and for 2 these are NPV and discounted payback period. For 1 bank these are NPV and profitability index, for 1 these are IRR and payback period and for one bank the most important are MIRR, NPV, IRR and payback. One bank did not answer the question (Figure 1).

Figure 1. The most important capital budgeting methods



Cost of Capital and Cash flow estimation

Another area of interest was the cost of capital and cash flow estimation. Survey shows that 8 of the banks estimate continuously their own costs of capital, and 3 of them do not. 4 of the sample banks estimate the cost of debt according to the market interest rates, 1 bank estimates the cost of debt according to the nominal interest rate, 1 uses ISFR (MRS) 39, 1 bank uses agreed upon interest rates and 4 of them did not answer. Of the 11 banks that participated in the survey, 4 of them use comparison with marketable debt when estimates the cost of non-marketable debt, 4 of them use adjusted nominal interest rate, 1 bank uses nominal interest rate for the cost of non-marketable debt estimation, and 2 of them did not answer the question.

The results of the survey shows that 5 of the sample banks determine the cost of equity capital as cost of debt plus risk premium, 3 of them use CAPM, 1 bank uses some other method, and 2 of them did not

answer the question. Banks that participated in the survey don't use dividend discount model or ATP for cost of equity capital calculation. Of the 11 banks, 7 of them determine WACC, and 3 of them don't. Of the 7 of the banks that determine WACC all of them use existing capital structure when determine the weights.

From 11 of the banks that participated in survey 8 of them estimate project cash flows. Table 2 presents different ways of project cash flow estimation. Two banks form project cash flows using master budget techniques, one of them uses expenditure rate method, sales forecast and master budget techniques, one uses profit models and scenario analysis, one uses sales forecast and scenario analysis, one uses sales forecast, % of sales, master budget techniques and scenario analysis, one uses profit models and one uses expenditure rate method and sales forecast as it is shown in Table 3.

Table 3. How do you form project cash flows

1. Expenditure rate method	x					x
2. Sales forecast	x		x	x		x
3. % of sales					x	
4. Master budget techniques			x	x		
5. Profit models	x	x				x
6. Trend analysis						
7. Scenario analysis		x	x	x		
8. Budget with "ø" base						
Total	1	1	2	1	1	1

In 4 of the sample banks department for financial planning is responsible for project forming and forecasting, in 2 of them department for business planning, in 3 of them other departments, and 2 of the banks did not answer the question. Regarding opportunity costs, 6 of the banks include opportunity costs in project cash flows, 3 of them don't, and one did not answer. 2 of the banks include sunk costs in project cash flows, 7 don't, and one did not answer. 6 of the banks include interest expense in project cash flows, and 3 of the banks include inflation in project cash flows. Results of the survey shows that 5 of the banks analyse the interdependence of a project and firm cash flows, 5 of them don't analyse interdependence, and 1 bank didn't answer.

Risk analysis and strategic project analysis

Another area of interest in our survey was to determine whether or not banks estimate the total project risk and, if they do, which techniques for assessing risk are used. Regarding project risk analysis, 8 of the banks estimate the project risk, 2 don't, and one did not answer. From 8 of the banks that estimate project risk, 3 of them use sensitivity analysis for risk evaluation, 2 of them scenario analysis and simulation, one bank uses sensitivity analysis and scenario analysis, one bank uses sensitivity analysis, scenario analysis and simulation, and one bank did not answer.

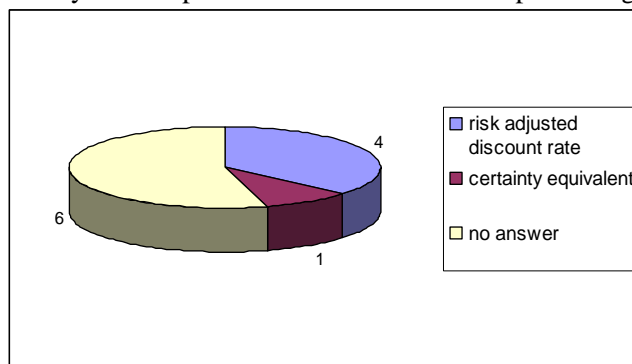
Regarding market risk, 4 of the banks assess market risk, 6 of them don't, and 1 bank did not answer. Of the 4 of the banks that assess market risk 3 of them marked the method they use, and 1 did not answer. Market risk assessment methods used are: 1 bank uses market beta, 1 uses projects classification, and one bank uses trends and comparison with similar countries. Results of the survey shows that 5 of the banks assess project risk for the firm, 4 don't and 2 did not answer.

There are various methods of incorporating risk into a capital-budgeting analysis including adjusting the payback period, using a risk-adjusted discount rate, adjusting cash flows, and calculating certainty equivalents for the cash flows [5] [7] [8]. Of the 11 sample banks, 4 of them adjust discount rate for risk

or use risk-adjusted discount rate, 1 of them calculates certainty equivalents for the cash flows, and 6 did not answer (Figure 2). In 4 of the banks project risk is ranked by type, 6 banks don't have risk ranked by type, and 1 bank did not answer.

Finally, we explore procedure of the strategic projects analysis [3] [4] [6]. We find that of the 11 banks that participated in the survey 8 of them analyse strategic projects. Of the 8 banks that analyse strategic projects, 5 of them or use just traditional cash flow analysis, 2 of them use traditional cash flow analysis and comparison with similar assets, and 1 bank uses just comparison with similar assets for strategic project analysis. Additionally, we find that just 1 bank uses decision trees for scenario analysis modification. Results of the survey show that 2 of the banks analyse strategic options. One bank estimates strategic options value but did not answer the question how.

Figure 2. How do you incorporate relevant risk into a capital-budgeting analysis



CONCLUSIONS

This paper has presented the findings of a mail survey of the capital budgeting techniques application in the decision making process sent to a selected sample of 33 Croatian banks. The purpose of this study was to determine the present application of quantitative capital budgeting methods, cost of capital and cash flow estimation, risk analysis and application of real options approach. The results of the survey show that the responding Croatian banks employ currently available capital budgeting methods when evaluating long-term investment projects. Specifically, 5 of Croatian banks always use IRR, 5 always use NPV and 4 always use payback period.

Results also show that for 3 of the sample banks the two most important capital budgeting methods are NPV and payback period, for 2 of the sample banks these are NPV and IRR and for 2 these are NPV and discounted payback period. The results of the survey show that 8 of the investigated banks estimate continuously their own cost of capital. 5 of them determine cost of equity capital as cost of debt plus risk premium and 3 of them use CAPM. The results of the survey show that of the 11 banks that participated in the survey 8 of them estimate project cash flows, and 8 of the banks estimate project risk. 4 of the banks use risk-adjusted discount rate, and 1 calculates certainty equivalents for the cash flows. We find that 8 of the banks that participated in the survey analyse strategic projects, and 2 of them analyse strategic options.

In conclusion, Croatian banks could use more extensively current capital budgeting methods when evaluating investment projects. Some of the Croatian's banks have conquered the traditional techniques of financial decision making, partly because of the supervision of the financial sector but there is a place for improvement especially in the area of the cost of capital and cash flow estimation.

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