

**THE DEVELOPMENT AND
USE OF INTERACTIVE CASH
FLOW MODELS IN
RESIDENTIAL
CONSTRUCTION LENDING
PROJECTS**

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THE DEVELOPMENT AND USE OF INTERACTIVE CASH FLOW MODELS IN RESIDENTIAL CONSTRUCTION LENDING PROJECTS

CASH FLOW MODELS: PRINCIPLES OF DEVELOPMENT AND OPERATION

Financial analysis of an investment or lending project is a complex aggregate of rather complicated tools and approaches to evaluating feasibility of the project. One of these tools is the simulation of cash flows during financing and completion of such a project.

The concept of cash flow analysis consists in evaluating and forecasting future inflows and expenses connected with a project under consideration for all parts involved in the project as well as for the total project budget. Cash flow analysis provides a full set of indicators and information necessary for bank experts to understand the whole mechanism of the project from financial and economic points of view. Together with other instruments (such as market and borrower analysis), examining project cash flow is an important and necessary step preceding the decision to accept a loan application and subsequently to approve the loan.

A cash flow model serves as base for cash flow analysis. The general concept of a cash flow model is to combine all types of financial information about the project into one interactive table. It allows the user to present all costs and sales schedules, generate project inflows and outflows, and further calculate project budget deficits to be financed by the bank. It also makes it possible to calculate different ratios for evaluating risk levels and other indicators of the project and loan stability.

There are different types and forms of cash flow models (all the same in their concept). Below we will describe one of the possible forms of cash flow model. The third section of this report presents an example of a developed cash flow model.

COMPILATION OF A CASH FLOW MODEL

A sample cash flow model presented in Annex A consists of six major sections:

Section 1. Section 1 reflects proposed and planned schedules of units sales depending on their availability. Information presented in this section should be a result of a developer's proposal and further negotiations of the bank and developer experts supported by an

independent market and project evaluation carefully checked and analyzed by all parties involved. The following items are included in this section:

Item 1 Number of units under construction. In the case of a multi-apartment building this number can be entered for the first month only, and computer formulas will automatically extend it to the end of the project period. This number will be necessary for further calculations (multi-building projects require computer input at various stages as new building are started).

Note: For this and all other items of the model only the cells with gray background should be filled by the user. All other cells are automatically calculated by the program.

Item 2 Transfer to city. Reflects number of units not for sale. These might be units for transfer to the municipality or any other company or enterprise participating in the project in exchange for land rights, construction materials, etc.

Item 3 Units for sale. Number of units to be built and sold in the market and which will be paid for by purchasers.

Item 4 Units sold. Numbers of units to be sold during each month according to the agreed sales plan. "Sold unit" here means a unit with already assigned ownership rights according to a signed sales contract (not the same as "Units paid"—see Items 6-7).

Item 5 Units available. Number of units available for sale or other use. Reduces to 0 by the end of the project construction period.

Items 6-7 Units paid. Number of units to be paid for in full as described in the agreed sales plan. This figure is calculated automatically in accordance with the sales schedule (Item 4).

Items 8-9 Average sale prices. To be entered by the user in accordance with agreed sales plan.

Item 10 Cost of construction. Calculated automatically from the information entered below. Serves for comparison of



sale prices and costs of construction during whole project construction period.

Section 2. Section 2 represents both hard and soft costs breakdown schedules agreed on and certified by all parties involved in the project. Hard costs, or direct costs, reflect pure construction expenses (land, design, labor, materials). These costs should strictly conform to the construction costs breakdown schedules agreed on and certified by bank, borrower and contractor.

Items 11-75 Hard costs breakdown schedule. To be entered by the user in accordance with certified hard costs breakdown schedule.

Items 76-90 Soft costs breakdown schedule. To be entered by the user in accordance with certified soft costs breakdown schedule.

Item 91-94 Totals for hard-plus-soft costs breakdown schedules. This total is calculated automatically.

Section 3. Section 3 represents all expenses, or outflows, of the project. Inflows (uses) are presented in section four below.

Items 95-97 Borrower's equity. It is calculated automatically using the total amount of equity entered by operator in Item #124 and the bank policy not to advance loan funds before borrower's equity is spent in full.

Item 98 Proceeds of units sales. Rubles received from payments for sold apartments.

Item 99 Transfer costs. Costs associated with notarization and other applicable fees occurring at the moment of signing sale contracts and transferring units ownership rights. % of unit sale prices should be entered into the corresponding formula.

Items 100-101 Net proceeds of units sales. Equal to the proceeds of units sales less transfer costs.

Item 102 Total cash sources. Total of inflows to the project budget excluding the construction loan.

Section 4. Section 4 consists of total inflows and outflows to the project balance prior to loan advances. All numbers in the section are calculated automatically.

Item 103	Prior project balance
Item 104	Net inflows
Item 105	Total expenditures (outflows)
Item 106	Ending project balance

Section 5. Section 5 reflects the automatically calculated cash flows for the borrower and the bank. Final adjusted amounts of construction loan advances and the borrower's equity necessary to finance the project are determined in this section. The schedule of cash flows and payments are established by the bank's policy and confirmed in the corresponding construction loan agreement.

Item 107	Loan proceeds to borrower (calculated). Amounts of money necessary to continue the project. It is equal to total expenditures less net inflows (item 105 – item 104). For analytical purposes only; actual loan advance amounts will be calculated further.
Item 108	Borrower's equity for temporary financing of the project. According to the terms of the example construction loan agreement, the borrower is to finance all project expenses during a given month from its own sources. At the end of each month the borrower submits to the bank all applicable documentation confirming its actual expenses. The bank then reviews all amounts spent and reimburses the borrower (see Item 109). Such a scheme allows the bank to shift many construction risks to the borrower and advance money only for work actually completed and materials purchased and stored.
Item 109	Repayment of the borrower's equity for temporary financing of the project. This is equal to item 108 for previous month. For an explanation of the item numbers, see item 108.
Item 110	Retention. Each time the bank repays to the borrower the amount of the borrower's equity spent during previous

month for temporary financing of the project, the bank retains an amount specified in the construction loan agreement (here 5 percent) which is held by the bank until the loan balance is repaid by the borrower in full or the construction is finished. This method encourages the developer and contractors finish construction as soon as possible. The retained amount falls to 0 by the end of construction or earlier (if the loan balance is repaid in full prior to the end of construction).

- Item 111 Transfer of retention to the borrower. Retention is transferred by the bank back to the borrower who in turn distributes this amount among contractors and subcontractors.
- Item 112 Retention (cumulative). Cumulative for Item 111.
- Items 113-114 Adjusted equity to finance the project. Items 95-96 adjusted by Item 110. Reflects actual investments by the borrower in the project (equity plus retention). Does not include money used by the borrower for temporary financing of the project for maximum period of one month prior to loan advances.
- Item 115 Loan proceeds to borrower.
- Item 116 Loan repayment
- Item 117 Borrower's debt (cumulative). Remaining construction loan balance.

Section 6. Section 6 includes other financial information about the project. Some of it is used for analytical purposes.

- Items 118-119 Net cash flows to the project and NPV of net cash flows to the project; calculated automatically.
- Items 120-121 Net cash flows to the borrower and NPV of net cash flows to the borrower; calculated automatically.
- Items 122-123 Interest rate. The rate is specified in the construction loan agreement; to be entered by the user.

- Item 124 Borrowers equity. This figure is specified in the construction loan agreement; to be entered by the user. See also description of Items 95-97 above.
- Item 125 Borrower's net income; calculated automatically.
- Item 126 Peak loan. Maximum unpaid construction loan balance; calculated automatically.
- Item 127 Percent coverage. An analytical indicator of loan risk level, equal to borrower's net income divided by peak loan amount. The higher the indicator, the lower the level of estimated loan risk.

The above-described cash flow model form is presented in Annex A.

Annex B presents an example of completed cash flow model which illustrates this example cash flow model and analysis.

In addition, it is necessary to mention that careful development of cash-flow models is important for the evaluation and underwriting stages of a project, but also have further uses during project implementation and the construction process. After having being used for project analysis purposes, these models, which include construction costs and other applicable expense schedules, become a powerful tool for project management. Being regularly updated in accordance with actual expenses occurred, they reflect the current situation in the project and give up-to-date information for forecasting the short-term future of the project as a whole and of the construction loan in particular. Consequently, this is a critical document for both underwriting and managing construction projects and loans to be used by all lending institutions with the goal of minimizing credit risk and making sound loans.

ANNEX A

**RESIDENTIAL CONSTRUCTION LENDING
CASH FLOW MODEL FORMAT**

A Residential Construction Loan Cashflows Model (blank form)

Table 1

	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Total
1	Number of units under construction*		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Transfer to city*		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Number of units for sale*		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	* - total on the project																
4	Units sold																0
5	Units available (cumulative)																0
6	Units paid		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Units paid - cumulative		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Average sale price (per unit)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Average sale price (per 1 sq. meter)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Cost of construction (per 1 sq. meter)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	USES:																
	HARD COSTS:																
11	Land																0
	Pre-design research, design and reconciliation:																
12	Geodesic survey of land plot																0
13	Engineering and geological survey																0
14	Reconciliation of feasibility study																0
15	Design of the "0" project																0
16	Receiving of order for demolishing																0
17	Receiving of order for excavating works																0
18	Dynamic testing of foundation																0
19	Design of architectural and construction part of the project																0
20	Project of water supply line and sewage system																0
21	Project of heating system and ventilation system																0
22	Project of power supply system of the building and weak-current power system																0
23	Project of fire alarm system																0
24	Reconciliation of the project																0
25	Receiving of permission for construction works																0
26	Total for pre-design research, design and reconciliation		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction costs:																
	General works:																
27	Auxiliary outside communications																0
28	Other preliminary works																0
29	Lease of equipment and expendable materials																0
30	Total:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A Residential Construction Loan Cashflows Model (blank form)

Table 1

	Works on construction site:																		
31	<i>Demolishing of ramshackle building</i>																		0
32	<i>Cleaning of construction site</i>																		0
33	<i>Installation of in-site communication</i>																		0
34	Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Excavation works																		0
36	Construction of foundation																		0
37	Installation of basement walls																		0
	----- 0																		0
38	Erection of exterior walls																		0
39	Erection of interior walls and partitions																		0
40	Installation of ceilings and covers																		0
41	Installation of roofing																		0
42	Installation of windows																		0
43	Installation of doors																		0
44	Construction of entrances																		0
45	Construction of staircases and landings																		0
46	Installation of balcony fencing																		0
	Finishing works:																		
47	<i>Plastering of interior walls</i>																		0
48	<i>Preparation of grounding for floors in apartments</i>																		0
49	<i>Parquet-floor works</i>																		0
50	<i>Carpeting</i>																		0
51	<i>Tiling works</i>																		0
52	<i>Painting works</i>																		0
53	<i>Wallpaper</i>																		0
54	Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Special works:																		
55	<i>Interior and exterior works on installation of water supply line and sewage system</i>																		0
56	<i>Interior and exterior works on power supply system</i>																		0
57	<i>Installation of weak-current power system</i>																		0
58	<i>Installation of centralized heating system and ventilation system</i>																		0
59	<i>Works on installation of gas pipe line</i>																		0
60	<i>Installation of fire alarm system</i>																		0
61	Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Finishing of facade																		0
63	Accomplishment																		0
64	Trash cans and other items																		0
65	Other works and expenses																		0
66	Total - construction works:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A Residential Construction Loan Cashflows Model (blank form)

Table 1

	General Contractor's activity:																	
67	Different fees and payments																	0
68	Supervising																	0
69	Overhead costs																	0
70	Total - General Contractor's activity:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Unexpected costs (5% of total main costs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	TOTAL HARD COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Total hard costs - %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
74	Total hard costs - cumulative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Total hard costs - %, cumulative	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	SOFT COSTS:																	
76	<i>General costs:</i>																	
77	Interest on the loan		0		0		0		0		0		0		0		0	0
78	Construction loan fee																	0
79	<i>Expenses for loan transaction closing:</i>																	
80	Legal consulting																	0
81	Registration fees																	0
82	Other expenses																	0
83	Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	<i>Marketing:</i>																	
85	Advertising																	0
86	Printed materials																	0
87	Sales agents	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	Other expenses of Developer																	0
90	TOTAL SOFT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	TOTAL USES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Total uses - %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
93	Total uses - cumulative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	Total uses - %, cumulative	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

A Residential Construction Loan Cashflows Model (blank form)

Table 1

	CASH SOURCES:																		
95	Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Equity - cumulative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Equity available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	Proceeds of units sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	Transfer costs (-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Net proceeds of units sales (=)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	NPV of net proceeds of units sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	TOTAL CASH SOURCES (before loan)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	Prior project balance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Net inflows (before loan)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Total uses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	Ending project balance (before loan)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	Loan proceeds to borrower (calculated)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Borrower's equity for temporary financing of the project (with repayment at the end of the month)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Repayment of the borrower's equity for temporary financing of the loan (from the loan)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Retainages (5%)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Transfer of retainages to the borrower		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Retainages (cumulative)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	Adjusted equity to finance the project		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	Adjusted equity to finance the project - cumulative		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	Loan proceeds to borrower		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Loan repayment		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Borrower's debt - cumulative		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Net cash flows to the project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	NPV of net cash flows to the project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Net cash flows to borrower	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	NPV of net cash flows to borrower	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Interest rate (per year)																		
123	Interest rate (per month)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
124	Borrower's equity																		
125	Borrower's net income	0																	
126	Peak loan	0																	
127	% coverage	0.00%																	

ANNEX B

**CASH FLOW MODEL FOR
AN EXAMPLE RESIDENTIAL CONSTRUCTION
LENDING PROJECT**

ANNEX B

CASH FLOW MODEL FOR AN EXAMPLE RESIDENTIAL CONSTRUCTION LENDING PROJECT

The following tables illustrate cash flow model development for an example residential construction project.

The project has the following main characteristics:

! Property under construction

Multi-apartment housing building consisting of 80 units

1 room units: 15 (total area 45 m²) + 10 (total area 50 m²)

2 room units: 20 (total area 60 m²) + 20 (total area 70 m²)

3 room units: 15 (total area 90 m²)

! Loan amount: 1,857,875,000 rubles

! Construction loan interest rate: 75 percent annually; interest payments are added regularly to the loan outstanding

! Completed units sales proceeds are disbursed primarily to repayment of the loan

! Borrower's equity invested in the project: 600,000,000 rubles

! Total project costs: 7,835,661 000 rubles

! Project term: 15 months

The structure of the model in the example differs somewhat from the format present in Annex A. This can be explained by:

! Subdividing units in the example into homogeneous groups by number of rooms and square meters (e.g. 1 room apartments of 45 m², 50 m², etc.) to make the sales proceeds calculation more precise;

! Using in the example two different units sales programs: (1) with immediate payment for the apartment; and (2) with payment by installments in 3 months where the 30 percent downpayment is paid by a purchaser upon closing the unit sales contract, another

30 percent is paid the next month, and the balance (of the sales price on the closing date) is paid the following month.

Residential Construction Project and Construction Loan Cashflows Model

Table 2

	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Total
Number of units under construction:*																	
1a Model I		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
1b Model II		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1c Model III		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
1d Model IV		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
1e Model V		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
1f Total		80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Including -																	
- transfer to buyers:*																	
2aa Model I		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
2ab Model II			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2ac Model III			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2ad Model IV			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2ae Model V			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2af Total		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
- transfer to city:*																	
2ba Model I			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2bb Model II			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2bc Model III			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2bd Model IV			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2be Model V			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2bf Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of units for sale:*																	
3a Model I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3b Model II		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
3c Model III		20	20		0	0	0	0	0	0	0	0	0	0	0	0	0
3d Model IV		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
3e Model V		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
3f Total		65	65	45	45	45	45	45	45	45	45	45	45	45	45	45	45
* - total on the project																	
Units sold (with immediate payment):																	
4aa Model I																	0
4ab Model II																	0
4ac Model III							5						1	1			7
4ad Model IV							5	5	5					1	1		16
4ae Model V							5						1	1	1	1	9
4af Total		0	0	0	0	0	15	5	5	0	0	0	2	3	1	1	32
Units sold (with payments by installments in 3 months):																	
4ba Model I																	0
4bb Model II				1	1				2	2	2	2					10
4bc Model III					2	2			2	2	2	2	1				13
4bd Model IV										1	1		1	1			4
4be Model V								1	1				2	2			6
4bf Total		0	0	1	3	2	0	1	5	4	5	5	4	3	0	0	33

Residential Construction Project and Construction Loan Cashflows Model

Table 2

	Units available (cumulative):																		
5a	Model I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5b	Model II	10	10	9	8	8	8	8	6	4	2	0	0	0	0	0	0	0	0
5c	Model III	20	20	20	18	16	11	11	9	7	5	3	1	0	0	0	0	0	- 20
5d	Model IV	20	20	20	20	20	20	15	10	5	4	3	2	0	0	0	0	0	0
5e	Model V	15	15	15	15	15	10	9	8	8	8	8	5	2	1	0	0	0	0
5f	Total	65	65	64	61	59	44	38	28	24	19	14	8	2	1	0	0	0	- 20
	Units paid:																		
6a	Model I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6b	Model II	0	0	0	0	1	1	0	0	2	2	2	2	2	0	0	0	0	10
6c	Model III	0	0	0	0	0	7	2	0	2	2	3	3	1	0	0	0	0	20
6d	Model IV	0	0	0	0	0	5	5	5	0	0	0	1	2	1	1	1	1	20
6e	Model V	0	0	0	0	0	5	0	0	1	1	0	1	1	3	3	3	3	15
6f	Total	0	0	0	0	1	18	7	5	1	5	4	7	8	5	4	4	4	65
	Units paid - cumulative:																		
7a	Model I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7b	Model II	0	0	0	0	1	2	2	2	2	4	6	8	10	10	10	10	10	10
7c	Model III	0	0	0	0	0	7	9	9	9	11	13	16	19	20	20	20	20	20
7d	Model IV	0	0	0	0	0	5	10	15	15	15	15	16	18	19	20	20	20	20
7e	Model V	0	0	0	0	0	5	5	5	6	7	7	8	9	12	15	15	15	15
7f	Total	0	0	0	0	1	19	26	31	32	37	41	48	56	61	65	65	65	65
	Average current sale price (per unit):																		
8a	Model I	69 300	72 000	74 700	77 400	80 100	82 800	85 500	88 200	90 900	93 600	96 300	99 000	99 990	100 990	102 000	102 000	87 519	
8b	Model II	80 500	83 636	86 773	89 909	93 045	96 182	99 318	102 455	105 591	108 727	111 864	115 000	116 150	117 312	118 485	118 485	101 663	
8c	Model III	94 500	98 182	101 864	105 545	109 227	112 909	116 591	120 273	123 955	127 636	131 318	135 000	136 350	137 714	139 091	139 091	119 344	
8d	Model IV	107 800	112 000	116 200	120 400	124 600	128 800	133 000	137 200	141 400	145 600	149 800	154 000	155 540	157 095	158 666	158 666	136 140	
8e	Model V	135 450	140 727	146 005	151 282	156 559	161 836	167 114	172 391	177 668	182 945	188 223	193 500	195 435	197 389	199 363	199 363	171 059	
8f	Average	99 028	102 886	106 745	110 603	114 461	118 319	122 178	126 036	129 894	133 752	137 611	141 469	142 883	144 312	145 755	145 755	125 062	
	Average current sale price (per sq. meter):																		
9a	Model I	1 540.00	1 600.00	1 660.00	1 720.00	1 780.00	1 840.00	1 900.00	1 960.00	2 020.00	2 080.00	2 140.00	2 200.00	2 222.00	2 244.22	2 266.66	2 266.66	1 944.86	
9b	Model II	1 610.00	1 672.73	1 735.45	1 798.18	1 860.91	1 923.64	1 986.36	2 049.09	2 111.82	2 174.55	2 237.27	2 300.00	2 323.00	2 346.23	2 369.69	2 369.69	2 033.26	
9c	Model III	1 575.00	1 636.36	1 697.73	1 759.09	1 820.45	1 881.82	1 943.18	2 004.55	2 065.91	2 127.27	2 188.64	2 250.00	2 272.50	2 295.23	2 318.18	2 318.18	1 989.06	
9d	Model IV	1 540.00	1 600.00	1 660.00	1 720.00	1 780.00	1 840.00	1 900.00	1 960.00	2 020.00	2 080.00	2 140.00	2 200.00	2 222.00	2 244.22	2 266.66	2 266.66	1 944.86	
9e	Model V	1 505.00	1 563.64	1 622.27	1 680.91	1 739.55	1 798.18	1 856.82	1 915.45	1 974.09	2 032.73	2 091.36	2 150.00	2 171.50	2 193.22	2 215.15	2 215.15	1 900.66	
9f	Average	1 545.80	1 606.03	1 666.26	1 726.48	1 786.71	1 846.94	1 907.16	1 967.39	2 027.61	2 087.84	2 148.07	2 208.29	2 230.38	2 252.68	2 275.21	2 275.21	1 952.19	
10	Cost of construction (per 1 sq. meter)	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529	1 529

Residential Construction Project and Construction Loan Cashflows Model

Table 2

	USES:																		
	HARD COSTS:																		
11	Land	10 000																	10 000
	Pre-design research, design and reconciliation:																		
12	Geodesic survey of land plot	3 500																	3 500
13	Engineering and geological survey	8 000																	8 000
14	Reconciliation of feasibility study	5 000	10 000																15 000
15	Design of the "0" project	10 000																	10 000
16	Receiving of order for demolishing		5 000																5 000
17	Receiving of order for excavating works		5 000																5 000
18	Dynamic testing of foundation	7 100	6 400																13 500
19	Design of architectural and construction part of the project	10 500	9 400	1 000															20 900
20	Project of water supply line and sewage system	4 000	4 500	500															9 000
21	Project of heating system and ventilation system	4 000	4 500	500															9 000
22	Project of power supply system of the building and weak-current power system	3 000	4 000	500															7 500
23	Project of fire alarm system	2 000	2 000	200															4 200
24	Reconciliation of the project			2 000															2 000
25	Receiving of permission for construction works				10 000														10 000
26	Total for pre-design research, design and reconciliation	57 100	50 800	4 700	10 000	0	0	0	0	0	0	0	0	0	0	0	0	0	122 600
	Construction costs:																		
	General works:																		
27	Auxiliary outside communications		3 000	3 000	2 000	1 500	1 500												11 000
28	Other preliminary works		15 600	24 892															40 492
29	Lease of equipment and expendable materials		1 500	1 500	4 500	2 500	2 500	2 500	2 500	2 500	1 500	1 500	1 500						27 000
30	Total:	0	20 100	29 392	6 500	4 000	4 000	2 500	2 500	2 500	1 500	1 500	1 500	0	0	0	0	0	78 492
	Works on construction site:																		
31	Demolishing of ramshackle building			38 675															38 675
32	Cleaning of construction site			42 500	15 000								5 000	20 000					82 500
33	Installation of in-site communication			9 500	8 500	1 500	1 500	1 000	1 000	1 000	1 000	1 000	1 500	500					27 000
34	Total:	0	0	81 175	24 500	8 500	1 500	1 500	1 000	1 000	1 000	1 000	6 500	20 500	0	0	0	0	148 175
35	Excavation works			28 700	68 750	12 300													109 750
36	Construction of foundation				80 000	255 500	74 300												409 800
37	Installation of basement walls					50 000	123 460	49 805											223 265
	----- 0																		
38	Erection of exterior walls						76 500	156 200	150 000	120 000	45 100								547 800
39	Erection of interior walls and partitions						60 000	220 000	270 000	290 000	200 000	24 000							1 064 000
40	Installation of ceilings and covers						20 000	190 000	275 600	215 400									701 000
41	Installation of roofing									25 000	230 800	47 300							303 100
42	Installation of windows								49 500	76 400	95 300	58 020	55 000	20 000					354 220
43	Installation of doors							28 380	57 500	48 684	47 984	35 616	30 935						249 099
44	Construction of entrances										10 000	59 382	15 600	3 465					88 447
45	Construction of staircases and landings										32 312	35 685	12 506	15 903					96 406
46	Installation of balcony fencing									2 000	7 500	7 500	7 500	3 500					28 000
	Finishing works:																		
47	Plastering of interior walls								15 000	40 000	35 000	25 000	20 000						135 000
48	Preparation of grounding for floors in apartments										15 000	11 000	11 000	9 000					46 000
49	Parquet-floor works											40 000	55 000	30 000					125 000
50	Carpeting												20 000	20 000					40 000
51	Tiling works								20 000	50 000	45 000	45 000	30 000	8 000					198 000
52	Painting works									24 000	58 000	63 700	42 500	27 800					216 000
53	Wallpaper										18 000	40 000	30 000	4 000					92 000
54	Total:	0	0	0	0	0	0	0	0	35 000	114 000	171 000	224 700	208 500	98 800	0	0	0	852 000

Residential Construction Project and Construction Loan Cashflows Model

Table 2

	Special works:																	
55	Interior and exterior works on installation of water supply line and sewage system			15 000	20 000	30 000	40 000	30 000	20 000	20 000	30 000	23 000						228 000
56	Interior and exterior works on power supply system			6 000	17 000	25 000	33 000	40 000	40 000	35 000	30 000	25 000	15 000					266 000
57	Installation of weak-current power system						2 000	2 500	15 000	10 000	4 000	4 000	2 000					39 500
58	Installation of centralized heating system and ventilation system			40 000	70 000	120 000	100 000	60 000	50 000	40 000	20 000	20 000						520 000
59	Works on installation of gas pipe line				35 000	20 000	55 000	29 000	34 000	20 000	40 000	50 000	50 000					333 000
60	Installation of fire alarm system								5 000	5 000	4 000	5 000						19 000
61	Total:	0	0	0	61 000	142 000	195 000	230 000	161 500	164 000	130 000	128 000	127 000	67 000	0	0	0	1 405 500
62	Finishing of facade:										5 000	10 000	15 000	8 000				38 000
63	Accomplishment										10 000	15 000		25 000				50 000
64	Trash cans and other items													25 000				25 000
65	Other works and expenses												60 000	50 000				110 000
66	Total - construction works:	0	20 100	139 267	240 750	472 300	554 760	878 385	1 002 600	1 058 984	988 496	647 703	540 041	338 668	0	0	0	6 882 054
	General Contractor's activity:																	
67	Different fees and payments		7 000	5 000	5 000													17 000
68	Supervising		1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000				12 000
69	Overhead costs		1 500	1 500	1 500	1 500	1 500	1 500	1 500	1 500	1 500	1 500	1 500	1 500				18 000
70	Total - General Contractor's activity:	0	9 500	7 500	7 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500				47 000
71	Unexpected costs (5% of total main costs)	3 355	4 020	7 573	12 913	23 740	27 863	44 044	50 255	53 074	49 550	32 510	27 127	17 058	0	0	0	353 083
72	TOTAL HARD COSTS	70 455	84 420	159 040	271 163	498 540	585 123	924 929	1 055 355	1 114 558	1 040 546	682 713	569 668	358 226	0	0	0	7 414 737
73	Total hard costs - %	0.95%	1.14%	2.14%	3.66%	6.72%	7.89%	12.47%	14.23%	15.03%	14.03%	9.21%	7.68%	4.83%	0.00%	0.00%	0.00%	100.00%
74	Total hard costs - cumulative	70 455	154 875	313 915	585 078	1 083 618	1 668 741	2 593 670	3 649 025	4 763 583	5 804 129	6 486 842	7 056 510	7 414 737	7 414 737	7 414 737	7 414 737	7 414 737
75	Total hard costs - %, cumulative	0.95%	2.09%	4.23%	7.89%	14.61%	22.51%	34.98%	49.21%	64.24%	78.28%	87.49%	95.17%	100.00%	100.00%	100.00%	100.00%	100.00%

Residential Construction Project and Construction Loan Cashflows Model

Table 2

	SOFT COSTS:																	
76	<i>General costs:</i>																	
77	Interest on the loan	0	0	0	269	11 936	35 541	23 873	0	6 803	33 461	58 355	65 883	52 330	18 144	0	306 595	
78	Construction loan fee	30 000															30 000	
79	<i>Expenses for loan transaction closing:</i>																	
80	Legal consulting	2 000	5 000														7 000	
81	Registration fees		3 500														3 500	
82	Other expenses		5 500														5 500	
83	Total:	2 000	14 000	0	0	0	0	0	0	0	0	0	0	0	0	0	16 000	
84	<i>Marketing:</i>																	
85	Advertising		1 000	1 500	1 500	1 500	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000		23 500	
86	Printed materials									1 000							1 000	
87	Sales agents		0	0	0	0	0	10 089	3 325	13 519	3 325	3 430	0	1 643	2 437	2 629	3 433	
88	Total:	0	1 000	1 500	1 500	1 500	2 000	12 089	5 325	15 519	6 325	5 430	2 000	3 643	4 437	2 629	3 433	
89	Other expenses of Developer																0	
90	TOTAL SOFT COSTS	2 000	45 000	1 500	1 500	1 769	13 936	47 629	29 198	15 519	13 128	38 891	60 355	69 526	56 767	20 774	3 433	420 925

Residential Construction Project and Construction Loan Cashflows Model

Table 2

91	TOTAL USES	72 455	129 420	160 540	272 663	500 309	599 059	972 559	1 084 553	1 130 077	1 053 674	721 604	630 023	427 752	56 767	20 774	3 433	7 835 661
92	Total uses - %	0.92%	1.65%	2.05%	3.48%	6.39%	7.65%	12.41%	13.84%	14.42%	13.45%	9.21%	8.04%	5.46%	0.72%	0.27%	0.04%	100.00%
93	Total uses - cumulative	72 455	201 875	362 415	635 078	1 135 386	1 734 446	2 707 004	3 791 557	4 921 634	5 975 308	6 696 912	7 326 935	7 754 687	7 811 454	7 832 228	7 835 661	7 835 661
94	Total uses - %, cumulative	0.92%	2.58%	4.63%	8.10%	14.49%	22.14%	34.55%	48.39%	62.81%	76.26%	85.47%	93.51%	98.97%	99.69%	99.96%	100.00%	100.00%
	CASH SOURCES:																	
95	Equity	72 455	129 420	160 540	237 585	0	0	0	0	0	0	0	0	0	0	0	0	600 000
96	Equity - cumulative	72 455	201 875	362 415	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000	600 000
97	Equity available	527 545	398 125	237 585	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98a	Proceeds of units sales (prepayments)		0	0	26 032	116 332	155 836	65 536	50 134	235 488	323 081	323 225	376 347	393 649	366 723	163 923	0	2 596 307
98b	Proceeds of units sales (final payments)		0	0	0	0	34 709	2 138 127	752 382	686 000	66 845	247 138	183 636	575 831	741 790	467 789	417 927	6 312 176
98c	Total proceeds of units sales		0	0	26 032	116 332	190 545	2 203 664	802 516	921 488	389 926	570 364	559 984	969 480	1 108 513	631 712	417 927	8 908 483
99	Transfer costs (-)		0	0	0	0	2 603	69 562	26 504	20 580	5 013	18 535	13 773	28 405	33 705	26 202	22 373	267 254
100	Net proceeds of units sales (=)		0	0	26 032	116 332	187 942	2 134 102	776 012	900 908	384 913	551 828	546 211	941 075	1 074 809	605 511	395 554	8 641 229
101	NPV of net proceeds of units sales		0	0	23 139	97 964	150 354	1 625 982	564 373	626 718	256 609	353 170	336 130	557 674	614 176	334 075	210 962	5 751 326
102	TOTAL CASH SOURCES (before loan)	72 455	129 420	160 540	263 616	116 332	187 942	2 134 102	776 012	900 908	384 913	551 828	546 211	941 075	1 074 809	605 511	395 554	9 241 229
103	Prior project balance		0	0	0	- 9 046	- 393 023	- 804 140	357 403	48 863	- 180 306	- 849 068	- 1 018 843	- 1 102 655	- 589 332	428 710	1 013 447	0
104	Net inflows (before loan)	72 455	129 420	160 540	263 616	116 332	187 942	2 134 102	776 012	900 908	384 913	551 828	546 211	941 075	1 074 809	605 511	395 554	9 241 229
105	Total uses	72 455	129 420	160 540	272 663	500 309	599 059	972 559	1 084 553	1 130 077	1 053 674	721 604	630 023	427 752	56 767	20 774	3 433	7 835 661
106	Ending project balance (before loan)	0	0	0	- 9 046	- 393 023	- 804 140	357 403	48 863	- 180 306	- 849 068	- 1 018 843	- 1 102 655	- 589 332	428 710	1 013 447	1 405 567	1 405 567

Residential Construction Project and Construction Loan Cashflows Model

Table 2

107	Loan proceeds to borrower (calculated)	0	0	0	9 046	383 977	411 117	0	0	229 169	668 761	169 776	83 812	0	0	0	0	1 955 658
108	Borrower's equity for temporary financing of the project (with repayment at the end of the month)	0	0	0	9 046	383 977	411 117	0	0	229 169	668 761	169 776	83 812	0	0	0	0	1 955 658
	Repayment of the borrower's equity for temporary financing of the loan (from the loan)	0	0	0	8 594	364 778	390 561	0	0	217 711	635 323	161 287	79 621	0	0	0	0	1 857 875
110	Retainages (5%)	0	0	0	452	19 199	20 556	0	0	11 458	33 438	8 489	4 191	0	0	0	0	97 783
111	Transfer of retainages to the borrower	0	0	0	0	0	0	40 207	0	0	0	0	0	0	57 576	0	0	97 783
112	Retainages (cumulative)	0	0	0	452	19 651	40 207	0	0	11 458	44 897	53 385	57 576	57 576	0	0	0	0
113	Adjusted equity to finance the project	72 455	129 420	160 540	238 037	19 199	20 556	0	0	11 458	33 438	8 489	4 191	0	0	0	0	697 783
114	Adjusted equity to finance the project - cumulative	72 455	201 875	362 415	600 452	619 651	640 207	600 000	600 000	611 458	644 897	653 385	657 576	657 576	600 000	600 000	600 000	600 000
115	Loan proceeds to borrower	0	0	0	8 594	364 778	390 561	0	0	217 711	635 323	161 287	79 621	0	0	0	0	1 857 875
116	Loan repayment	0	0	0	0	0	0	763 933	0	0	0	0	0	513 323	580 619	0	0	1 857 875
117	Borrower's debt - cumulative	0	0	0	8 594	373 372	763 933	0	0	217 711	853 034	1 014 321	1 093 942	580 619	0	0	0	0
118	Net cash flows to the project	0	0	0	0	0	0	397 610	- 308 541	0	0	0	0	0	437 423	584 737	392 121	1 503 350
119	NPV of net cash flows to the project	0	0	0	0	0	0	302 941	- 224 393	0	0	0	0	0	249 956	322 613	209 131	860 248
120	Net cash flows to borrower	- 72 455	- 129 420	- 160 540	- 238 037	- 19 199	- 20 556	397 610	- 308 541	- 11 458	- 33 438	- 8 489	- 4 191	0	437 423	584 737	392 121	805 567
121	NPV of net cash flows to borrower	- 72 455	- 129 420	- 151 097	- 211 588	- 16 167	- 16 445	302 941	- 224 393	- 7 971	- 22 292	- 5 433	- 2 579	0	249 956	322 613	209 131	224 801
122	Interest rate (per year)		75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%
123	Interest rate (per month)		6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
124	Borrower's equity	600 000																
125	Borrower's net income	805 567																
126	Peak loan	1 093 942																
127	% coverage	0.74																