



BNDES' POOLING

(UMBNDES - Res. 635/87)

BNDES' Currency Pooling

1) Introduction

Resolution 635/87, issued on January 13, 1987 by the BNDES' Board of Directors, aimed at regulating the cost of BNDES' loans resulting from fundings in foreign currency, unlinked to specifically conditioned transfers.

It was established that these loans' cost would be based on BNDES' average international market funding cost, plus a commission to be determined by the Bank's Board of Directors, nowadays defined as the spread¹ which is charged according to the client's risk.

The 635/87 cost's breakdown is as follows:

A) Indexer (UMBNDDES) - given by the weighted average of the exchange variations for the currencies in BNDES' pooling. It is adjusted daily.

B) Interest Rate - quarterly calculated, given by the weighted average cost of all the interest rates and others expenses incurred by BNDES funding; and

C) Income Tax - also quarterly calculated, it is equivalent to the weighted average tax, owed on payments remitted to BNDES' creditors.

¹ The spread was excluded from the work because its value is established from characteristics inherent to each client.

2) UMBNDES

The indexer that was applied, called BNDES' Monetary Unit (UMBNDDES) is a weighted average of the exchange rate variations of all the currencies used in BNDES' fundings (currency pooling).

Table 1, below, shows the breakdown of BNDES' currency pooling on April 1997. This breakdown is altered as BNDES makes new fundings.

Table 1
Percentual Breakdown of the Currency Pooling

CURRENCIES	PARTICIPATION %
Dollar	15.19
Canadian Dollar	0.01
German Mark	13.02
Pound Sterling	0.07
Lira	11.68
Swiss France	4.61
Yen	22.32
Guilder	0.10
World Bank ²	22.00
IDB ³	11.00

Source: Decap - April/97 - Forecast

As it can be seen in Table 1, BNDES' resources, as well as IDB and World Bank's resources, are distributed in various currencies.

² The World Bank tries to maintain a currency distribution in the following way: for every US\$ in its pooling there must be a combination of two European currencies and 125 Yens.

³ The Interamerican Development Bank (IDB) tried to maintain a distribution in equal parts by the Dollar, European currencies and the Japanese Yen. However, from January/97 onwards there have been changes aiming at attaining a pooling with 50% in dollars, 25% in European currencies and 25% in Yens.

3) Interest Rate

The interest rate applied to currency Pooling agreements refers to an average BNDES' funding rate, with a quarterly validity and a quarterly sampling period.

Validity and sampling periods are divided as follows:

Table 2
Variable Interest Rate

PERIOD	VALIDITY	SAMPLING
1st quarter	16/01 to 15/04	15/10 to 14/01
2nd quarter	16/04 to 15/07	15/01 to 14/04
3rd quarter	16/07 to 15/10	15/04 to 14/07
4th quarter	16/10 to 15/01	15/07 to 14/10

Interest rate calculations are made from the following equation⁴:

$$Tx = \left(\frac{Jc}{ND} \right) \times 36000$$

in which:

Tx = average funding rate of all BNDES' foreign currency operations, expressed per annum;

ND = debit numbers or, in other words, daily debit balance (principal) of BNDES' fundings and/or loans in the foreign market, quarterly accrued; and

Jc = compensatory interest and/or other charges expressed by daily interest owed by BNDES, quarterly accrued.

⁴ For further information, see numerical example, Appendix.

4) Income Tax

Income tax presents quarterly variable rates, where sampling and validity periods are distributed as the interest rate. The methodology calculates the weighted average tax owed on operations.

The following equation shows how this is calculated:

$$Tx = \left(\frac{I}{Jc} \right) \times 36000$$

in which:

TI = average tax rate owed in BNDES' foreign operations, expressed per annum;

I = total daily income tax owed, quarterly accrued;

Jc = compensatory interest and/or other charges, expressed by owed daily interest, accrued quarterly.

Table 3 shows the evolution of average interest rate and of tax rate since January 1987.

Table 3

Interest Rate and Income Tax on Loans under 635/87*

Period	Interest rate p.a.(%)	Income Tax p.a. (%)	TOTAL p.a. (%)
16/01/87 to 15/04/87	8.56	15.16	9.86
16/04/87 to 15/07/87	8.56	15.16	9.86
16/07/87 to 15/10/87	8.56	15.16	9.86
16/10/87 to 15/01/88	8.56	15.16	9.86
16/01/88 to 15/04/88	8.71	14.22	9.95
16/04/88 to 15/07/88	8.81	14.31	10.07
16/07/88 to 15/10/88	9.03	13.24	10.23
16/10/88 to 15/01/89	8.85	13.89	10.08
16/01/89 to 15/04/89	8.99	13.43	10.20
16/04/89 to 15/07/89	9.90	12.28	11.12
16/07/89 to 15/10/89	9.06	12.60	10.20
16/10/89 to 15/01/90	8.65	13.30	9.80
16/01/90 to 15/04/90	8.46	12.98	9.56
16/04/90 to 15/07/90	9.09	11.75	10.16
16/07/90 to 15/10/90	8.37	12.30	9.40
16/10/90 to 15/01/91	8.36	11.25	9.30
16/01/91 to 15/04/91	8.26	10.90	9.16
16/04/91 to 15/07/91	8.33	10.66	9.22
16/07/91 to 15/10/91	7.99	9.89	8.78
16/10/91 to 15/01/92	7.96	8.30	8.62
16/01/92 to 15/04/92	7.54	7.17	8.08
16/04/92 to 15/07/92	7.44	6.44	7.92
16/07/92 to 15/10/92	7.42	5.47	7.83
16/10/92 to 15/01/93	6.70	5.21	7.05
16/01/93 to 15/04/93	7.53	3.85	7.82
16/04/93 to 15/07/93	7.49	3.42	7.75
16/07/93 to 15/10/93	7.03	2.74	7.22
16/10/93 to 15/01/94	7.70	1.69	7.83
16/01/94 to 15/04/94	7.16	1.22	7.25
16/04/94 to 15/07/94	7.66	0.83	7.72
16/07/94 to 15/10/94	7.18	0.60	7.22
16/10/94 to 15/01/95	7.46	0.25	7.48
16/01/95 to 15/04/95	7.22	0.10	7.23
16/04/95 to 15/07/95	7.04	0.03	7.04
16/07/95 to 15/10/95	6.94	0.00	6.94
16/10/95 to 15/01/96	6.78	0.00	6.78
16/01/96 to 15/04/96	6.65	0.00	6.65
16/04/96 to 15/07/96	6.47	1.20	6.55
16/07/96 to 15/10/96	7.06	4.85	7.40
16/10/96 to 15/01/97	6.99	6.33	7.43
16/01/97 to 15/04/97	6.52	7.53	7.01

* BNDES' funding operations with the IDB and the World Bank are exempted from Income Tax

It may therefore be concluded that Res.635/87 leads to a BNDES client's loan cost which is given by exchange rate variation, interest rate and income tax. Among these components, exchange rate variation and income tax have shown the highest volatility, while interest rate remained more stable. (table 4).

Table 4 - Monthly Evolution of the Currency Pooling

	UMBNDDES	Interest Rate + Income Tax	635/87
	p.m. (%)	p.m. (%)	p.m.(%)
Jul/94	-4.07	0.62	-3.47
Aug/94	-5.54	0.62	-4.95
Sep/94	-3.00	0.60	-2.41
Oct/94	-0.11	0.64	0.53
Nov/94	1.19	0.62	1.82
Dec/94	-2.35	0.64	-1.72
Jan/95	-0.35	0.62	0.27
Feb/95	1.12	0.56	1.69
Mar/95	9.63	0.62	10.31
Apr/95	6.02	0.59	6.64
May/95	0.60	0.61	1.21
Jun/95	0.86	0.59	1.45
Jul/95	0.98	0.60	1.58
Aug/95	-2.38	0.60	-1.79
Sep/95	-3.41	0.58	-2.86
Oct/95	1.09	0.58	1.68
Nov/95	0.01	0.57	0.58
Dec/95	0.59	0.58	1.18
Jan/96	-0.80	0.57	-0.23
Feb/96	0.04	0.54	0.58
Mar/96	-0.32	0.57	0.25
Apr/96	-0.20	0.55	0.34
May/96	-0.21	0.56	0.35
Jun/96	-0.28	0.55	0.27
Jul/96	1.52	0.64	2.17
Aug/96	1.19	0.64	1.84
Sep/96	-1.46	0.62	-0.85
Oct/96	-0.76	0.64	-0.12
Nov/96	0.04	0.62	0.66
Dec/96	-0.83	0.64	-0.20
Jan/97	-3.60	0.60	-3.02
Feb/97	-0.36	0.55	0.19
Mar/97	-0.10	0.60	0.50

5) Comparative Analysis

Analyzing the interest rates practiced by BNDES since July 1994, it may be seen that the cost of agreements corrected by the TJLP and FAT-Cambial was higher than that of 635/87 loans.

Table 5 - Monthly Rates Used by BNDES (%)

	TJLP*	TJLP accrued	FAT- cambial**	FAT accrued	635/87***	635/87 accrued
Jul/94	-	-	-5.66	-5.66	-3.47	-3.47
Aug/94	-	-	-5.29	-10.65	-4.95	-8.25
Sep/94	-	-	-2.59	-12.96	-2.41	-10.46
Oct/94	-	-	-0.92	-13.76	0.53	-9.99
Nov/94	-	-	0.83	-13.04	1.82	-8.35
Dec/94	2.01	2.01	-0.09	-13.12	-1.72	-9.93
Jan/95	2.01	4.06	0.38	-12.79	0.27	-9.68
Feb/95	1.81	5.95	0.21	-12.61	1.69	-8.16
Mar/95	1.84	7.90	7.29	-6.15	10.31	1.31
Apr/95	1.78	9.83	2.26	-4.03	6.64	8.04
May/95	1.84	11.86	-0.87	-4.86	1.21	9.35
Jun/95	1.86	13.94	2.09	-2.87	1.45	10.93
Jul/95	1.92	16.12	2.41	-0.53	1.58	12.69
Aug/95	1.92	18.36	2.06	1.51	-1.79	10.67
Sep/95	1.67	20.33	1.07	2.60	-2.86	7.51
Oct/95	1.72	22.40	1.15	3.78	1.68	9.31
Nov/95	1.67	24.44	0.81	4.62	0.58	9.94
Dec/95	1.41	26.20	1.33	6.01	1.18	11.24
Jan/96	1.41	27.99	1.14	7.22	-0.23	10.98
Feb/96	1.32	29.68	1.00	8.30	0.58	11.62
Mar/96	1.46	31.57	0.95	9.33	0.25	11.90
Apr/96	1.41	33.43	0.95	10.37	0.34	12.29
May/96	1.46	35.38	0.93	11.39	0.35	12.68
Jun/96	1.20	37.01	1.11	12.63	0.27	12.98
Jul/96	1.24	38.72	1.18	13.97	2.17	15.42
Aug/96	1.24	40.44	1.07	15.19	1.84	17.54
Sep/96	1.17	42.08	0.88	16.21	-0.85	16.55
Oct/96	1.21	43.80	1.11	17.50	-0.12	16.40
Nov/96	1.17	45.48	0.99	18.67	0.66	17.17
Dec/96	0.90	46.80	1.19	20.08	-0.20	16.94
Jan/97	0.90	48.13	1.09	21.39	-3.02	13.41
Feb/97	0.82	49.34	0.99	22.60	0.19	13.62
Mar/97	0.85	50.60	1.38	24.29	0.50	14.19

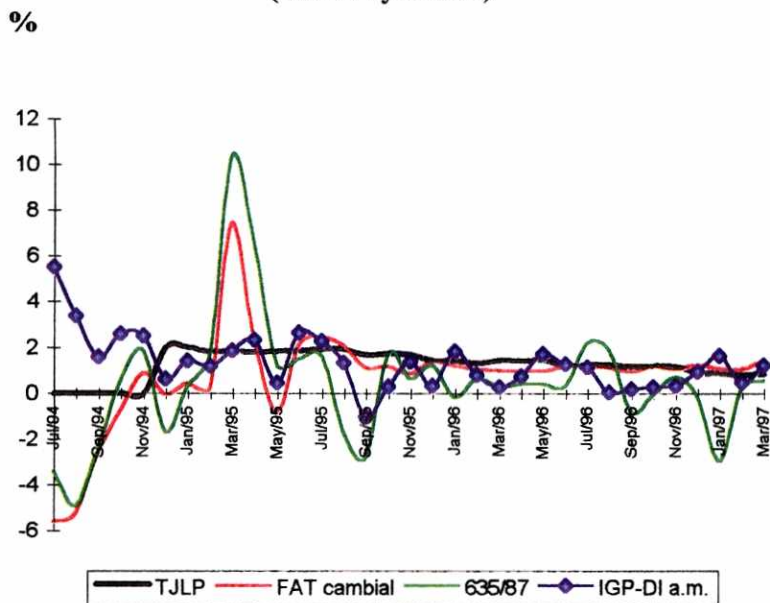
* Data obtained from yearly TJLP

** Formed by the six-month Libor added by the exchange rate (R\$/US\$)

*** Compounded by the interest rate, income tax and exchange rate of BNDES' (UMBNDDES) currency pooling.

Graphs 1 and 2, below, show the cost between each interest rate and the IGP-DI. Graph 1 shows the month-by-month evolution, while Graph 2 shows the positions of the various rates for values accumulated along 12 months.

Graph 1: BNDES' Rates x IGP-DI
(month by month)



The historical series of rates charged to clients in 635/87 loans, shown in Graph 1, demonstrates how volatile these loans can be. It may be seen, however, that increased volatility, as compared with TJLP loans, is compensated by low cost.

Graph 2: BNDES' Rates x IGP-DI
(accumulated along 12 months)

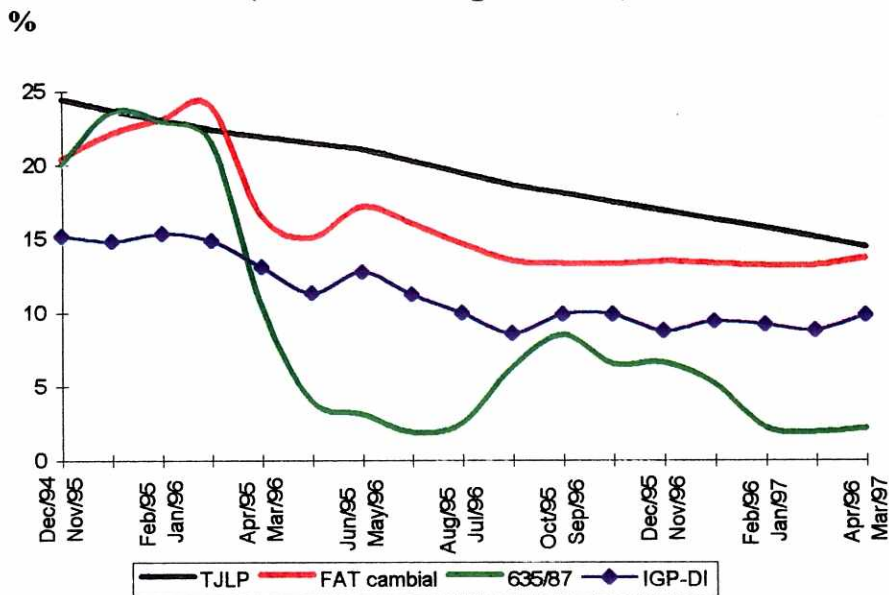


Table 6 shows that, in 1996, 635/87 was of 5% per annum, whereas TJLP was of 16.32% and FAT-Cambial of 13.15%. One may conclude that in spite of its higher volatility, 635/87 has meant significant gains for its clients. The Graph 2 areas between the 635/87 line and the lines referring to other rates represent the scope of these gains.

Table 6**BNDES' Rates x IGP-DI (accumulated along 12 months)**

	TJLP	FAT cambial	635/87	IGP-DI
Dec/94 to Nov/95	24.44	20.31	19.96	15.12
Jan/95 to Dec/95	23.71	22.03	23.46	14.77
Feb/95 to Jan/96	22.99	22.96	22.88	15.26
Mar/95 to Feb/96	22.40	23.93	21.54	14.82
Apr/95 to Mar/96	21.94	16.49	10.45	13.02
May/95 to Apr/96	21.49	15.00	3.93	11.26
Jun/95 to May/96	21.03	17.09	3.05	12.67
Jul/95 to Jun/96	20.25	15.97	1.65	11.14
Aug/95 to Jul/96	19.46	14.58	2.43	9.89
Sep/95 to Aug/96	18.66	13.47	6.21	8.49
Oct/95 to Sep/96	18.08	13.27	8.41	9.81
Nov/95 to Oct/96	17.48	13.22	6.49	9.80
Dec/95 to Nov/96	16.91	13.43	6.57	8.67
Jan/96 to Dec/96	16.32	13.27	5.12	9.33
Feb/96 to Jan/97	15.74	13.15	2.18	9.10
Mar/96 to Feb/97	15.16	13.14	1.85	8.73
Apr/96 to Mar/97	14.46	13.62	2.11	9.75

Appendix

Numerical Example

Based on the calculation for 635/87, the following numerical example aims at clarifying BNDES' calculation method.

Given that:

ND = debt numbers, or daily debt balance (principal) accrued in a four-day period;

Jc = compensatory interest and/or other charges expressed by daily interest owed, accrued along four days;

Tx = contractual rate, always expressed per annum.

Suppose that in the four days of a given month happened the following operations:

- a) First day - two BNDES' Bonds were launched at 8 and 9% rates;
- b) Second day - no change;
- c) Third day - the 9%-Bond operation matured;
- d) Forth day - a new BNDES' Bond was launched at a 7% rate.

Days	Debt Numbers (Principal)	Compensatory Interest
1	100 +100	$(8/36000 \times 100) + (9/36000 \times 100) = .047$
2	100 +100	$(8/36000 \times 100) + (9/36000 \times 100) = 0.047$
3	100	$(8/36000 \times 100) = 0.022$
4	300	$(8/36000 \times 100) + (7/36000 \times 200) = 0.061$
Σ	800	0.177

According to the afore-mentioned formulas, we have the following equation:

$$Tx = \frac{Jc}{ND} \times 36000$$

$$Jc = \frac{Tx}{36000} \times ND$$

The example above supposes that the contractual rate has daily variations. Given this information, the average rate would be obtained as follows:

$$Tx = \frac{Jc}{ND} \times 36000$$

$$Tx = \frac{0,177}{800} \times 36000$$

$$Tx = 7.97\% \text{ a.a.}$$

The rate obtained is 7.97% per annum, representing the average rate of the foreign fundings.