

ALTERNATIVE FUNDING SYSTEM FOR HOUSING IN BRAZIL

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Abstract

Project financing in Brazil, specially for housing developments, has become a serious problem. In 80 decade, the government bank that provided financial resources for both developers, constructors and final buyers was extinguished. From 80 to 90, there were few projects, making the demand we have still greater. About 10 years ago, some developers designed a funding system, which focused on the saving availability of the market, as well as on the limited investment developer capacity. Named *self-funding systems*, the definition of the amount a buyer could pay for his house induced a production program, which had to be large enough to minimize developer investment. The viability of the system showed that developments had to take longer, compared with the usual periods. Even decreasing the rates of return patterns in which they used to practice, projects financed this way became a significant share, with developers gaining in the number of different developments produced. We can now see the possibility of housing financing being carried out by external capital but, at the beginning of the XXI Century, the *self-funding systems* will still be an interesting approach.

The paper will explain how this system works, which are the main differences in adopting it instead of the traditional financing systems, presenting it in terms of economic results and risk to developers.

1. Introduction

As a developing country, Brazilian population claims for the acquisition of their own house. People paying rents are very large, mainly for medium and low income families. In São Paulo, the main metropolitan area in the country, there were up to 16% of the families (IBGE, 1998) living in rented houses. This rate could be thought not being so great but the speed in which the families become capable to afford their own house are so long. In São Paulo city, the migration from rent living toward the own house has been about 1,4% (SECOVI, 1994-1999) of rented houses.

It occurs mainly because this migration needs a great portion of families budget to pay the price of their own house, taking it for a long time.

Brazilian lack of access to the own house can be understood by looking at many events in the past 30 years, always linked to economic policies.

In the middle of the 60s a national bank was created, capable of financing housing buyers, using long term money derived from economies. As inflation escalated at a tremendous speed, the payments concerning the contracts earlier settled were not even enough to maintain the original levels of financing. At that time, the situation got still worse because many decisions were made for political reasons rather than economic ones. Altogether, those factors contributed to reduce the availability of money that could see to low and medium income families for buying their own houses.

Besides, developers and constructors were intensively affected, not only by the difficulties in selling their ongoing developments, but also because the low levels of production financing reduced their capacity for building new ones.

This tendency reached its peak in 1986 when the bank, absolutely not longer capable of providing capital for housing, was extinguished by the government.

The developers, trying to keep their activity on, concentrated their production in house units, but changed the client profile, directing the products to high income families, which did not depend on long range financing.

Essentially referring to medium income families, they stayed out of the house market, even because their income level was being decreasing by macroeconomics effects.

This scenario showed how fragile the ongoing system was, pointing to the need for a new concept in real estate financing. But a new and great financing system would take a long time to be implemented, even because in the beginning of the 90's, the money kept from economies mechanisms was frozen by the government, greatly reducing the money volume that was directed to finance own housing. So, in the meantime, something different had to be created, preventing housing production, mainly the one directed to the medium income families.

As inflation has been controlled since 1994, it was possible to introduce a financing system based on mortgage, supported by external funding, that is about to be introduced in real estate business. Nevertheless, as interest rates became so high, it can't work in present days, yet.

This paper will concentrate in the alternative funding proposed and used by developers during the past 9 years, which reached a great share of the products that have being offered in São Paulo city, with prices from 50 to 125 thousand *Reals* each unit. In the end of 1998, it represented more than 50%(SECOVI, 1992)of the real estate offers, which expresses the great demand the old system could not see to.

2. The main concepts that led to the ideation of the system

The first approach was that an alternative system might be not only a financial system but a new product concept, that would come closer to the needs and wishes of the medium income families.

Under this understanding, a deep survey has been conducted to identify who the families were, what their needs and wishes were, how much they could afford in housing and how

long they could wait for the house unit, which could show important points for the ideation of the new product, as well as the financial capability of the families to hold it.

The survey results (O Empreiteiro, 1997) showed that an expressive number of medium income families (2,500 to 5,000 R\$ a month) were able to buy their own house if they could count on a financial program to allow long range payments, meaning that there was a market share to whom the new product could be offered. Whereas those target families saw their buying power decrease as inflation had risen, their wishes about the quality of the product increased. The survey also revealed that the lapse of time required in building process had a great weight in the decision making about choosing those houses.

As those families have no more access to financial programs, this action might be conveyed by the developers. But even reducing the usual time period used in early financial programs, it would certainly lead to an expressive decrease in their rates of return, if compared with the usual patterns, maybe resulting in a non attractive investment option.

In financial terms, as far as external resources had become expensive and scarce, from the developer's point of view, it would impose significant capital asset, leading to restriction of portfolio spectrum.

So, the challenge was to arrange developments in a way their progress could essentially be provided by the earnings received during the building phase, derived from the payments made by contracted owners, in a compatible lapse of time, so that investment needs could be minimized.

Some directions have been defined, according to different features, so as to make the system viable, many of them trying to minimize the effects listed above.

The first assumption concerned production volume, indicating that viability condition could be reached only if many different developments could be conducted at the same time thus enlarging developments portfolio in an attempt to gain by large scale production. It also refers to project level, which would be conceived by grouping several different towers of multi-stored buildings.

Those different projects would be based on similar design patterns, taking into account standardized items that would be repeated in almost every others developments. The intention was not only the minimization of design and construction costs, but mainly because it could promote partnership with suppliers and sub-contractors, reducing risks of growing costs.

The third one concerned land. Trying to keep investment levels as low as possible, the sites could not be very close to downtown areas, where land prices usually reach the highest pattern. As an intrinsic characteristic, lands would be flat, so as to reduce foundation costs and improve materials handling in construction site.

The speed in which the units could be sold might reach high levels, even demanding costs above the usual references, in order to limit investment needs.

The construction system itself had to be rethought, introducing a great degree of rationalized methods, that could guarantee the quality of the product, with building process respecting scheduled accepted dates, avoiding all forms of wastings, under efficient production management.

In terms of internal policies, human resources would be capable of carrying out their tasks at high performance levels, developing their skills through an education program, introduced even in construction site. To justify institutional investment in training, an objective to pursue

would be to reduce labor turnover, always high in civil construction activities (12 to 15% were the usual patterns and went to 4% with the new concept).

The self-funding system was developed under these assumptions, whose effects will be noticed in the system design.

3. The alternative system design

3.1. Paying the price

The system was created based on a 100 payment parcels, each one corresponding to 1% of the total price, distributed in a non-uniform frequency, with the numbers of parcels varying according to the stage it refers to.

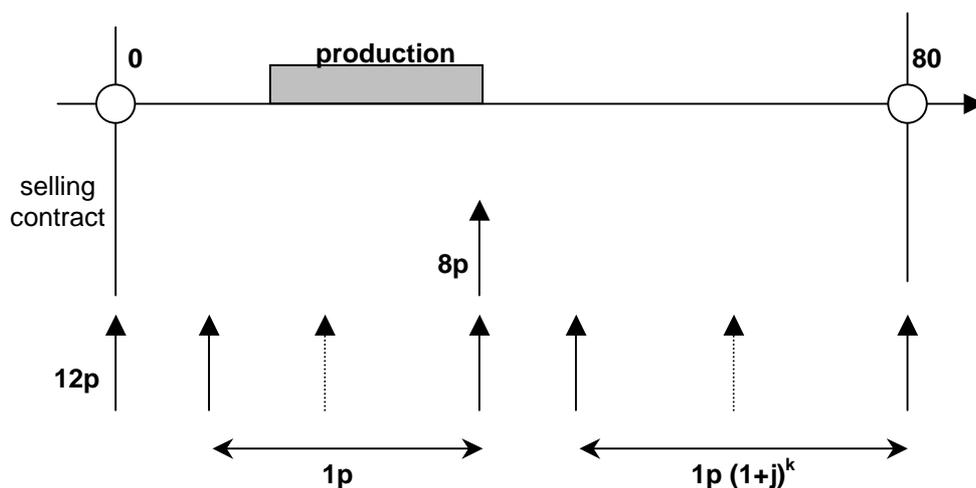
Stage 1 is a deadline, exactly when the selling contract is settled, and it's worth in 12 parcels.

Stage 2 refers to a period, no longer than 80 months. During this period, the parcels must be paid at least once a month. This stage starts as soon as the contract is settled.

Stage 3 is another deadline, concerning the time when the unit gets ready. It corresponds to 8 parcels, paid cash.

From the moment a contract is signed, each parcel must be paid incorporating a 12% a year rate.

Picture 1 – Diagram of payments.



3.2. Scheduling Production

In order to minimize investment needs, the structure of payments suggests that the production had to be developed using equivalent periods of time (80 months). This extend is too long,

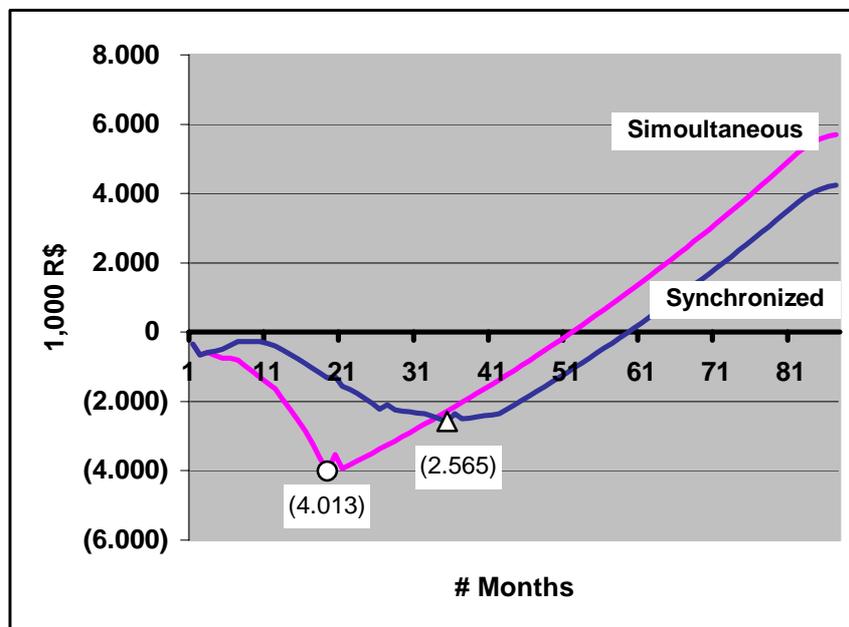
according to buyers' needs. Looking at resources assignments during construction, it would expressively increase construction budget. From the developer's point of view, it would certainly bring the rate of return down.

On the other hand, if usual periods of time in constructions were scheduled (15 to 18 months for a multi-store building), the level of investments would rise, promoting the decrease of the rate of return, too.

The solution found was maintain the usual periods of time taken in the production process, but synchronizing the dates for starting each of the different towers located on the same site.

It means an engagement from the buyers to derive their economies straightly to the development system, even knowing that the money will not be used immediately in the construction of the tower they paid for.

Chart 1 – Comparison between cash-flow of simultaneous and synchronized towers construction.



As shown in Chart 1, synchronized towers production is capable of reducing 36% in investment levels, at the same selling program, thus, improving financial viability conditions. The chart uses an example of a 3-towered development, composed by 56 units each.

In economic terms, the rate of return is non-sensible decreasing only 1 percentual point, in annual reference.

The system designed this way is capable of guaranteeing 57% of financial resources demanded with production, close to the 65% the early system was limited.

This program depends on reaching selling volume in a short period of time. The expectations are about 6 months in selling all the units, or 2 months each tower.

As far as the first tower is sold, the development starts at the schedule date. If the selling performance of the second tower is not equal, it can change the original program.

As many different developments are being held at the same time, under the same design and prices, the protection against any low performance in selling is contained by changing any unit to another development, so that the number of towers can be reduced until the selling levels allow new towers to be completed.

To maintain the same investment level, the first tower must be 54% sold after starting production of the second one, or 30 units, in a 56-units tower; nevertheless, this is an extreme situation, that brings the rate of return to an unattractive level.

3.3. New overall cost performance

Concerning *production costs*, the new directions have led production costs about 9% below usual practices. The construction site management cost, central management cost and maintenance cost, which altogether represents *management costs*, are about 12% of the production costs. This reference, in parametric terms, is usual. Nevertheless, as production costs are lower, the overall cost results 9% above usual references.

At first sight, it could seem that no improvements were achieved concerning managerial costs. The explanation is that if it really happened, taking a longer production process, managerial costs tended to be greater but this effect was compensated by the policies implemented.

3.4. Defining prices

The maximum price to be paid per the unit must be compatible with families' earnings availability. The used references are that families can use 25% from their monthly earnings to buy their own house. Having in mind that the focus is on R\$ 2,500 to R\$ 5,000 monthly income, the references are of monthly payments that mount from R\$ 625 to R\$ 1,750, that define parcels value and, consequently, the final price, composed by 100 parcels.

In the example used above, each parcel was worth in R\$ 650.

3.5. Comparing systems

Even designed demanding investment levels close to those necessary using the early system, the rates of return produced by the extension of payment periods are lower.

If only financial to final buyers were available, so that the total remanent parcels could be received cash as soon as the unit becomes ready, the rate of return would increase in 38 percentual points.

It means that the using of the alternative system have brought process developer performance up to gain in competitive, if financial mechanisms could be back. The gap of the rate of return could be used in finding more attractive lands, minimizing prices, and so on.

3.6. Sensitivity of the results

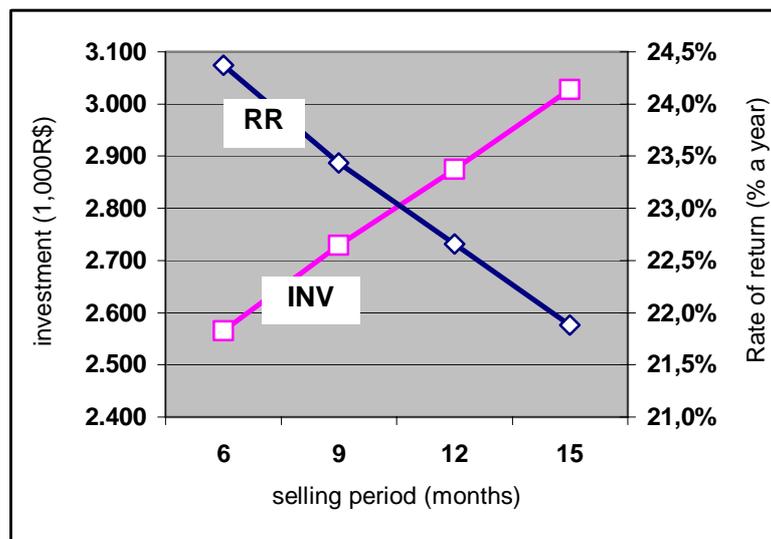
To test variable sensitivity the example just referred above is used.

The first test focuses on the speed of selling, even though the attitude in extreme cases have been just discussed.

The results are presented in Chart 2.

Taking more time to be sold, the investment level can rise 18% if compared with the original speed (6 months to na overall tower).

Chart 2 – Sensitivity analysis of selling speed.



Counting on a high selling speed, the second variable to be verified is about breaching the contract.

When the system was thought up, breaching contract revealed to be the most sensitivity variable. It was caused because Brazilians laws didn't allow the creditor to take the real estate unit back. It has just been approved in order to stand the new system that is standing by, based on security loans.

The results presented in Chart 3 show that 10% of breaching contracts will convey the rate of return to an unattractive pattern.

The last variable to be tested is about production costs rising up relatively to the original budget, which is shown in Chart 4.

The influence of growing costs are not so bad as breaching contracts.

The worst result just verified was an 8% deviation from the original budget, what means that is quite comfortable.

Trying to know the effects produced when a group of variables go different from the original scenario, a Monte Carlo simulation was done, to verify the behaviour of either the investment levels and the rate of return.

The variable chosen was growing costs (from 0% to 8%) and the breaching contract (from 0% to 8,5%). The results, constructed to 50 different combined scenarios are shown in Charts 5 and 6.

Chart 3 – Sensivity analysis of breaching contract levels.

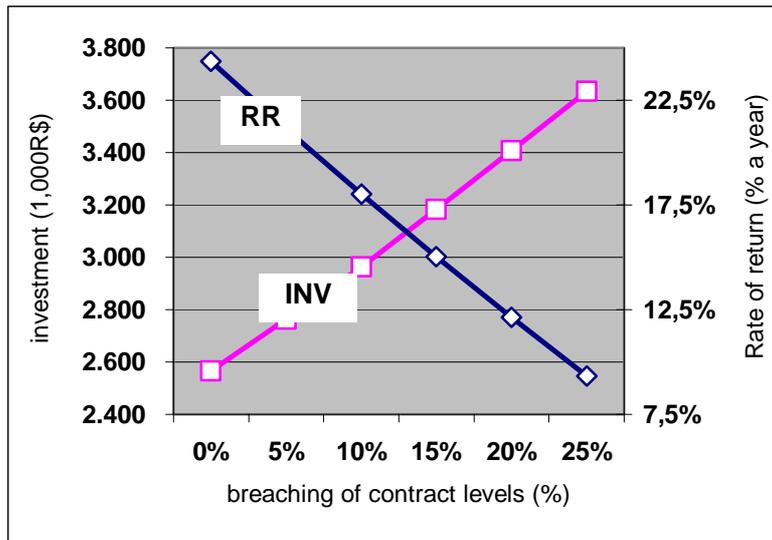
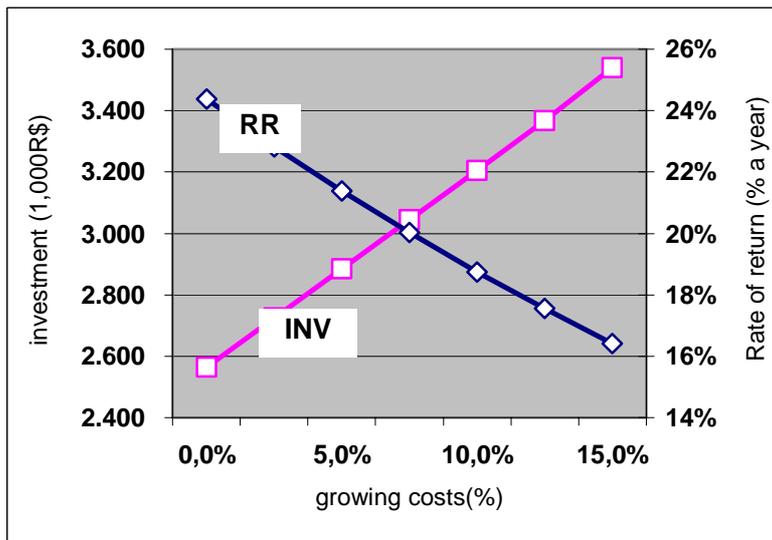


Chart 4 – Sensivity analysis of growing production costs.



Related to investment demand, with 90% confidence level, it will be inside the interval from 3,025 –3,136 thousand R\$.

Related to the rate of return, with 90% confidence level, it will be inside not up to 18,8% per year and not less than 17,4%.

Chart 5 – Monte Carlo simulation – investment levels.

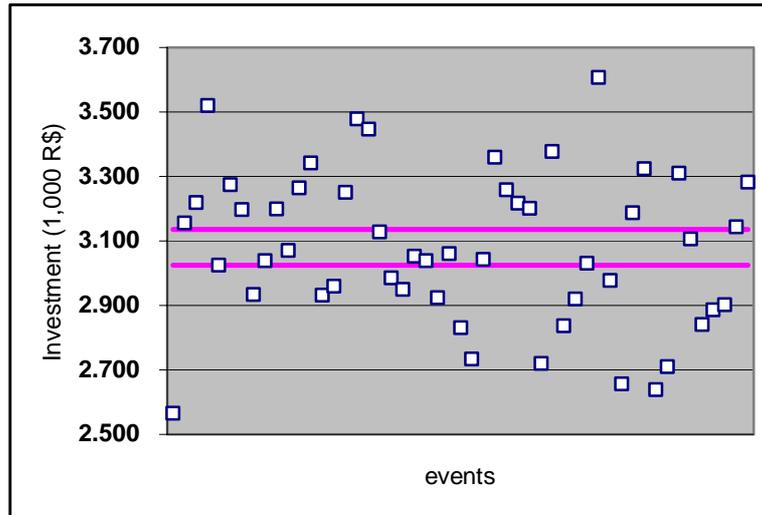
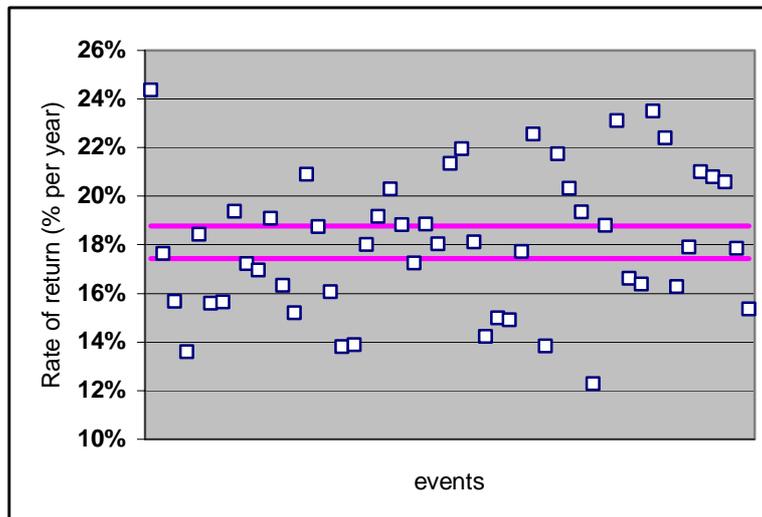


Chart 6 – Monte Carlo simulation – rate of return.



4. Present trends

As said before, Brazilian systems directed to finance housing is now being changed.

Even though production financing is still difficult, the trend is that, in a very short time, funding systems are likely to be spread among different developers. The present mechanism that are to develop are security ones, based on mortgage loans.

For the buyers, the way will be the mortgage banks, structured closely to American systems.

Anyway, the alternative system shown here will always be a viable way, even if the belief is that it will be used only until the new system would be implemented, as far as Brazilians rates goes down.

5. REFERENCES

Instituto Brasileiro de Geografia e Estatística – IBGE. **IBGE Web Site**. Online. Internet. 13 Nov 1998.

Sindicato das Empresas de Compra, Venda, Locação e Administração de Imóveis Residenciais e Comerciais de São Paulo – SECOVI. **Pesquisa sobre o mercado imobiliário**. (Jan/94-Jan/99). São Paulo.

Fundação João Pinheiro. Belo Horizonte. Centro de estudos políticos e sociais. **Déficit habitacional no Brasil - síntese**. Belo Horizonte, 1995. 146p.

SINDUSCON - SP - Sindicato da Indústria da Construção Civil do Estado de São Paulo. **Sumário Econômico**. São Paulo, oct. 1997. 51p.

Reinventando a casa própria da classe média. Revista O Empreiteiro. N.343. Apr.1997. São Paulo.