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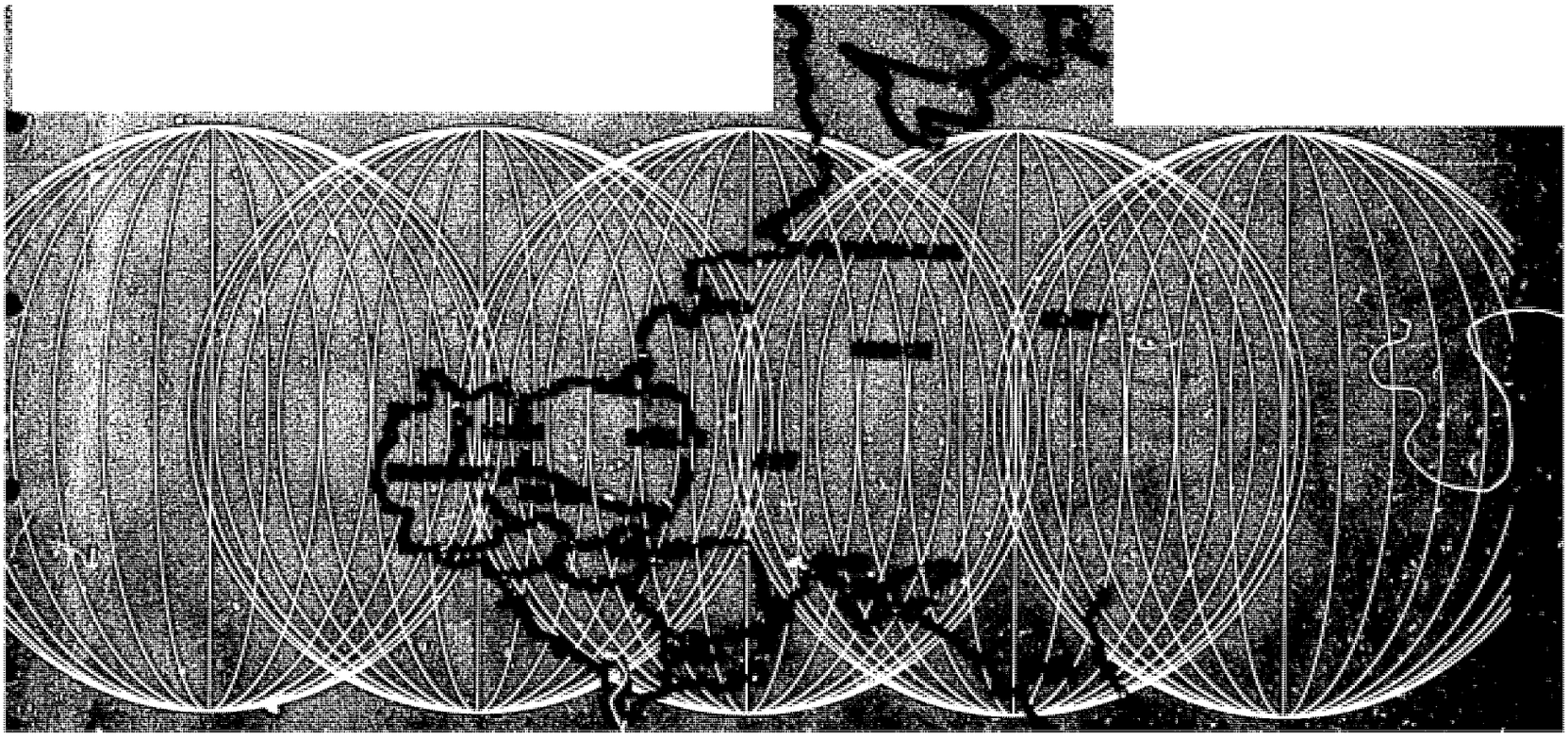
HOUSING IN EASTERN EUROPE



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Product Description for Bulgarian Indexed Capped Credit

Prepared by:

R. Marisol Ravicz
The Urban Institute

H. Beth Marcus
Fannie Mae

The Urban Institute
2100 M Street NW
Washington, DC 20037

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Introduction

The Bulgarian government has requested assistance in the design of a mortgage product that can operate in the current environment of high and variable inflation, falling real wages, and rapidly increasing unemployment. The mortgage product proposed in this paper is intended to function within this context while staying within the framework of a market economy.

In designing the proposed mortgage - referred to as the Bulgarian Indexed Capped Credit or BICC - the authors considered alternative mortgage instruments recommended previously for other countries experiencing similar economic situations. The authors also analyzed a variation of the Price Level Adjusted Mortgage (PLAM) proposed in earlier work for Bulgaria. The result is an alternative mortgage instrument that attempts to take advantage of the benefits of these other mortgages while addressing some of the problems associated with them.

The first section of this paper defines the BICC. The second section briefly compares the BICC with other mortgage products. The third section discusses how the BICC addresses those issues critical to the success of a mortgage in Bulgaria: borrower affordability and lender risks (interest rate, liquidity, credit and political).

Product Description

The BICC is a loan with a fixed interest rate used to calculate borrower payments; a variable, indexed interest rate used to calculate liability accrual; and a payment cap. The key features of the instrument are:

Payment Interest Rate: Fixed rate used to determine borrower payments. The rate covers costs such as servicing, credit risk, uncertainty premiums, profit, and an approximation of the bank's real cost of funds.

Contract Interest Rate: Variable rate used to determine liability accrual. A fixed profit and administrative cost spread over a variable proxy measure of the bank's cost of funds.[1]

[1] The bank's cost of funds proxy will be the inter-bank lending rate prevailing in the month two months preceding the month in which the contract rate is applied. (e.g. the January inter-bank rate would be used to calculate the March contract rate). This delay is required to allow for collection and reporting of the

Monthly Liability Accrued:	The weighted average outstanding loan balance for a month multiplied by the contract interest rate prevailing in that month.
Initial Payment:	The amount necessary to amortize the loan over 20 years (the specified loan term) at the fixed payment interest rate.
Subsequent Payments:	Recalculated every three months as the amount necessary to amortize the outstanding loan balance over the remaining term at the payment rate. Subject to the Payment Cap below.
Loan Balance:	Adjustable, changing by the difference between the monthly liability accrued and the monthly payment made.
Payment-to-Income Ratio:	Initially, a percentage that is less than the maximum ratio a borrower could afford. The maximum ratio is 30% more than the initial ratio. (Example, if the initial percentage is 30%, the maximum percentage is 39%).
Payment Cap:	The payment level at the time when the borrower's payment to income ratio is 30 percent higher than when the loan was originated. "Payment" is defined as the borrower's actual payment each month and "income" is defined as the borrower's initial income adjusted each month by the percent change in average household income for the economy as a whole two months prior.[2] (Example, if borrower income is LV 6,000 in January, the month the loan is issued, and average wages in the economy as a whole increase by 5 percent in December, borrower income in February will be considered to be LV 6,030 regardless of the actual wage growth experience of

inter-bank rate. See Annex for a description of this proxy rate.

[2] This lag is required to allow for delays in reporting average wages. Average wages are used as a proxy for individuals' wages as the program would be too difficult to administer on an individual basis. See Annex for a description of this wage proxy.

	the individual household. If the payment to income ratio as measured by the borrower's actual payments and this proxy of his income increases by 30 percent from its initial level, the payment will be capped at the 30 percent increase level.
Loan-to-Value Ratio:	A maximum of 70% of the lesser of the sales price or appraised value.
Loan Term:	Set initially at 20 years. May increase up to an additional 5 years if the loan undergoes a significant period of negative amortization.
Final Payment:	If the loan has not fully amortized at the end of 25 years, the remaining balance will be due in full.

Comparison with Other Mortgage Products

The BICC and the Fixed Rate Mortgage (FRM)

The BICC's interest rate upon which payments are calculated is fixed, as is the FRM's interest rate. The BICC rate, however, will be lower than a comparable FRM's. Although the BICC payment interest rate does not vary, the principal balance of the BICC will adjust based upon the difference between the liability accrued from a variable, market-based interest rate and the payment made based on the payment rate. This allows the BICC to account for changes in economic conditions as they occur over time. In contrast, the FRM must incorporate into initial terms predictions of change in its interest rate. Also, because payments are fixed in nominal terms, in high inflation environments the real value of repayments declines rapidly. The BICC corrects the "payment tilt" problem inherent in the FRM by spreading repayment more evenly over the life of the loan and adjusting for economic changes as they occur.

The BICC and the PLAM

The BICC is designed to utilize the positive features of the PLAM while compensating for the problems experienced using the PLAM in other countries with volatile, inflationary economies. The BICC has features similar to a PLAM:

- A fixed interest rate applied to periodic increases in the loans' unpaid principal balance (UPB). For the classic PLAM, the UPB is increased by the inflation rate. The BICC's UPB changes based on the difference between a contract interest rate and the fixed payment rate. The contract interest rate is composed of a variable proxy for the bank's cost of funds and a fixed cost and profit spread. This modification guarantees lenders a positive real interest rate spread over liabilities, whereas the PLAM guarantees only a positive real interest rate.

- A first payment as the amount necessary to completely amortize the loan over the stated maturity period (for Bulgaria, 20 years). Subsequent payments are recalculated as the amount necessary to amortize the current outstanding loan balance over the remaining life of the loan.

In contrast to the PLAM, the BICC addresses the credit risk and affordability concerns associated with a disparity between borrower wage increases and the UPB index. This is accomplished by capping the payment as noted above, which will result in negative amortization. Subsequent payments under the BICC would reflect the need to amortize the new loan balance over the remaining life of the loan. If the differential between wage growth and payment growth remains negative for extended periods, the loan term can be extended for up to 5 more years, at which point any remaining balance would be due in full.

The BICC and the Dual Indexed Mortgage (DIM)

The BICC attempts to partially mimic one of the most important affordability benefits of the DIM - its payment cap - while avoiding the problem of the DIM's potentially significant negative amortization. Under the DIM, the payment is initially set at 25% of monthly income; payment changes are then based upon changes in the wage index. The interest rate varies, however, according to an inflation or cost-of-funds index. If the latter index increases faster than the former index, the DIM results in real negative amortization.

The BICC also has a payment cap, but this cap is not automatically set by the wage index. Based upon experience with adjustable rate mortgages in other countries, the BICC assumes that borrowers will pay more than the original

payment-to-income ratio in order to maintain their home. However, the BICC also recognizes that this "stretch" has its limits. With the BICC, the limit suggested is the payment level at the time when the difference between the an index of payments and the wage index is 30% more than when the loan was originated.

In contrast to the DIM, the BICC's negative amortization is restricted because there are less instances when the cap will be in place. This is critical for the lender; negative amortization results in delayed cash flow which affects the lender's liquidity risk.

The BICC and the Deferred Payment Mortgage (DPM) or Gap Adjusted Loan (GAL)

The BICC, like the DPM, has a fixed payment rate and a variable contract interest rate. Payments made are a function of the former and liability accrued a function of the latter. Each month, the difference between the liability accrued and the payment made is added to the outstanding loan balance.

The DPM contract rate however, is set entirely at the discretion of the lender while the BICC contract rate is set as a fixed spread over an independent proxy for the bank's cost of funds.[3] Indexing the contract rate to an independent measure protects borrowers from arbitrary abuse by the bank and protects the bank from political intervention from the government.

The BICC provides an additional protection for borrowers and lenders in the form of the payment cap described above. This cap reduces the risk that rising payment to income ratios will force borrower default.

Product Benefits

As noted, the BICC has been designed to address the issues of borrower affordability, and lender protection against interest rate risk, credit risk, liquidity risk and political risk. In addition, the product is designed to standardize servicing for ease of administration.

Borrower Affordability

The BICC can offer a fixed interest rate that reflects costs, such as servicing, credit risk, and profit, without having to factor in changes in economic conditions. This allows for a relatively low rate which is applied over time, as household incomes rise, to a changing loan balance.

[3] The inter-bank lending rate.

The BICC does recognize that, especially in an economic environment like Bulgaria's, household income growth may not keep pace with required payment increases. For this reason, the BICC includes a payment cap that is known upfront to the borrower, lender, and any future investors in the loan.

Because the BICC allows for some payment increases that result in a higher payment to income ratio before the cap becomes effective, there is greater credit risk. This is offset by requiring a larger downpayment. Although this impacts borrower affordability, there is a flip side to this situation. Because the interest rate on the BICC is lower than it would be under other products like the FRM or the US version of the Adjustable Rate Mortgage, the initial payment will be lower, increasing the loan amount for which a borrower will qualify. Thus, although the borrower will be required to put in more equity into the home under the BICC, the loan amount will be larger.

Interest Rate Risk

Interest rate risk is the risk that the interest banks must pay on their liabilities will exceed that which they receive on their assets. The BICC mitigates this risk by accruing liability at a contract interest rate that takes into account changes in the bank's cost of funds. Thus, the liability owed to the lender on a BICC loan will parallel the amount the lender must pay out to its depositors.

Credit Risk

Credit risk is the risk that borrowers will default on their loans. While careful underwriting can mitigate this danger, it cannot completely eliminate it. Credit risk is addressed with the BICC by capping payments, using conservative initial payment to income ratios, and requiring a large downpayment.

Liquidity Risk

Liquidity risk is the risk that a lender will experience a cash flow mismatch between assets and liabilities. Liquidity risk is much higher for UPB indexed mortgages than FRMs because in the early years of loan repayment the former experience significant nominal negative amortization and may also have real negative amortization. The BICC will only experience real negative amortization during times of falling real wages coupled with high real interest rates.

Although negative amortization will not occur until a certain index disparity takes place, the authors recognize that the BICC may experience significant nominal negative amortization in Bulgaria's current macroeconomic environment. It is anticipated that at least in the early stages of product introduction this will not pose a danger to lenders as these loans will account for a small share of their

portfolio, with the bulk of their assets consisting of short-term commercial loans. Over the medium and long term, as inflation and cost-of-funds changes moderate and loan originations increase, the likelihood for reaching the cap and experiencing significant negative amortization will be reduced.

Political Risk

Political risk is the risk that responding to consumer pressure a government will require a lender to act in ways counter to its best interests. Political risk is highest when governments are unstable, and/or loan contracts contain opportunities for future decisions based on discretion. The BICC protects lenders from political risk by ensuring that all variable aspects of the mortgage are keyed to economic indicators, and are therefore not subject to individual discretion.

Loan Underwriting and Servicing

In addition, to protecting borrowers and lenders as described above, the BICC eliminates individual discretion from instrument implementation that will help in the automation of loan servicing. In contrast, other proposals, such as the DIM originally proposed for Poland, would require underwriting of individuals that is administratively very costly.

Annex:

Cost of Funds Proxy

The bank should base its contract interest rate on a proxy of its cost of funds rather than on its actual cost of funds. If the rate were left up to bank discretion it would be too easy for borrowers and/or the government to put pressure on the bank not to adjust the rate upwards when interest rates rose. Pegging interest rate adjustments to a rate beyond bank and government manipulation reduces the risk than the bank's profits will be compromised for political reasons. This practice also protects borrowers from the bank's abuse of interest rate discretion.

The bank's cost of funds proxy should be reflective of the bank's actual cost of funds, and likely to remain that way for the long term. It should be accurately measured, and reported in a timely, public way. Product developers considered the inter-bank deposit auction rate, the average inter-bank lending rate for the Bulgarian banking system and the average one-month time deposit rate to serve as this proxy.

After careful analysis and consultation with Lyubomir Filipov, Head of the Bulgarian National Bank's National Currency Operations Department, the one-month inter-bank lending rate was chosen. This rate represents the weighted average rate at which all inter-bank loans of one month or more are made. It is accurately reported to the Bulgarian National Bank (BNB) and published in the BNB's bi-monthly BNB News Bulletin. The information is available approximately 20 days after the close of the month. It is market determined as banks set this rate through bi-lateral negotiation. As the market for deposit collection becomes more competitive, it should accurately mirror banks' cost of funds since if a bank's cost of funds are above this rate, they would lower their rates, lose some deposits and make up the shortfall by borrowing on the inter-bank market. If a bank's cost of funds are significantly below this rate, other bank's will reduce their inter-bank borrowings and increase their deposit mobilization efforts. While the rate reported in the BNB Bulletin is a rate for inter-bank loans of one month or more, Filipov reported that in practice, virtually all loans in that category are for one month.

The average time deposit rate was rejected as the Bulgarian National Bank (BNB) expressed fears that banks did not accurately report this figure. The deposit auction rate was rejected because the BNB is the overwhelmingly dominant deposit auction seller. Therefore, it was feared that this rate would be more heavily influenced by short-term monetary policy than market conditions.

While currently the inter-bank lending rate is above the SSB's actual cost of funds, over the long term as competition for resources increases, the bank's cost

of funds rate should rise to almost this level.

Borrower Income Growth Proxy

The percent change in average income for each district was chosen for this proxy. The State Statistical Institute conducts a monthly, nationwide survey of 2,508 randomly selected households to determine average incomes. This figure includes income from wages, self-employment, rents, occasional jobs, state financial support and in-kind income. Ideally this figure would be net of taxes, but information on tax expenses is not readily available.

Currently there is a several month lag between the collection and reporting of this data. Bogdon Bogdonov of the State Statistical Institute expects however, that this information will be available with approximately a 20 day lag by spring, 1993. As different districts will experience varying degrees of financial success, it was felt to be important to use district rather than national data.

While it is felt that incomes are significantly under-reported, it should be the case that the degree of under-reporting is relatively constant across time. Since the BICC uses the change in average income rather than actual income figures, it should not be affected by this data fault.