

RMBS / South Africa
Special Report

South African Residential Mortgage Default Model 2003

Analysts

Adrian Dommisie
+44 20 7417 3497
adrian.dommisie@fitchratings.com

Fiona Steel
+ 44 20 7417 3510
fiona.steel@fitchratings.com

Suzanne Albers
+44 20 7417 6325
suzanne.albers@fitchratings.com

■ Introduction

Introducing Fitch Ratings's ("Fitch") criteria for analysing credit risk in securities backed by South African residential mortgages, this report discusses some of the unique features of the South African mortgage market in terms of lenders, mortgage products and property prices. Fitch's methodology for rating South African residential mortgage backed securities ("RMBS") is based on three fundamental aspects: the credit quality of the collateral, the financial structure of the transaction and the legal framework. This report focuses on Fitch's approach to analysing collateral credit quality and outlines its credit enhancement methodology.

The residential housing market in South Africa has witnessed significant changes over the past few years. Specifically, competition in the mortgage market has intensified following the emergence of the alternate financing model introduced by South African Home Loans (Pty) Limited ("SAHL"). However the shortage of affordable housing in the country is posing increased challenges to both the market players and the government.

Retail banks and building societies were the only residential mortgage lenders of note in South Africa, providing mortgage loans at relatively high margins, until SAHL entered the arena in 1999, utilising securitisation as its main funding source. The South African residential mortgage market has evolved along the lines of many developed markets in terms of greater competition and lending volumes as well as the emergence of third-party mortgage brokers. Traditional South African mortgage lenders have responded by providing funding alternatives, such as personalised banking products that include mortgage funding. Traditionally, established lenders have been able to obtain funding at a low cost through retail deposits rather than the capital markets. However, as a result of the recent global stock market slump and a shortage of South African government bond issues, securitisation has emerged as a potentially attractive alternative borrowing instrument for lenders, as evidenced by recent securitisation transactions, such as Thekiwini for SAHL, which have been well received by investors.

The South African government continues to seek alternative mechanisms to address the local shortage of affordable housing, including a number of initiatives launched by state-sponsored entities and major retail banks to finance and develop the South African housing sector. In addition, the government has recently reduced taxes payable on property transfers to further encourage the South African housing market.

■ Model Summary

Fitch has developed a mortgage default model that calculates expected losses consistent with the associated rating level for residential mortgage securities in South Africa. The model incorporates a loan-by-loan analysis that takes into account various characteristics of individual properties, borrowers and loans.

As availability of data on mortgages and lending practices in the South African market is very limited, this study is based primarily on research conducted locally and in other international jurisdictions as well as on Fitch's local market expertise and historical information gained from rated transactions and prospective mortgage backed securitisations.

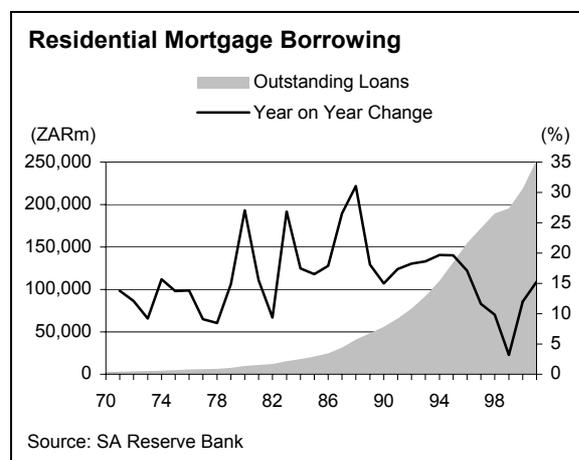
The South African mortgage default model calculates potential credit losses for RMBS that are a product of (i) the probability of default and (ii) the potential losses.

The following two factors serve as the primary determinants of base default probability:

- loan affordability, evidenced by the debt-to-income ratio (DTI);
- equity invested, as implied by the original loan-to-value ratio (LTV).

Loss severity is determined by considering *inter alia* regional property price trends, the costs involved once a borrower has defaulted (such as carrying costs and legal expenses) and LTV at the time of default. Fitch's market value assumptions are based not only on traditional determinants such as historical price volatility by region and sustainable growth, but also on regional economic stability, an emerging market consideration.

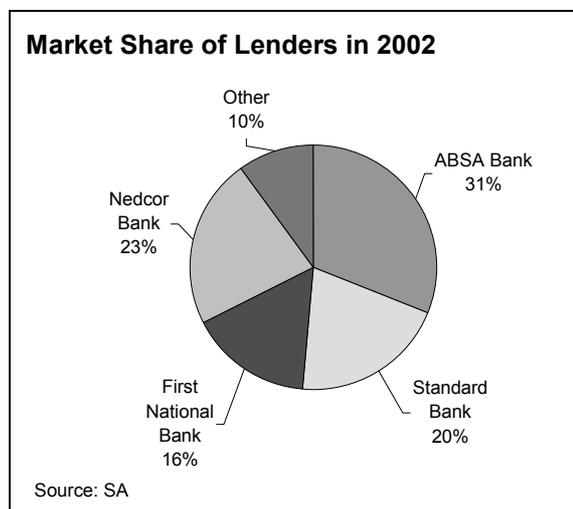
■ South African Mortgage Market



The South African Reserve Bank estimated total residential mortgage borrowing in the South African banking sector to be approximately ZAR250billion at end-2001. Growth in such advances had been substantial over the previous 10 years, as illustrated in the graph above.

Mortgage Lenders

Residential mortgage loans are extended by a number of banks and specialist mortgage lending institutions in South Africa. The largest of these, as illustrated in the graph below, are Nedcor Bank, ABSA Bank (the local leader), Standard Bank and First National Bank. Using statistical information made available by ABSA, inferences can be drawn that highlight characteristics of the overall mortgage industry in the country.



Mortgage Products

Flexible mortgages incorporating "access" or "redraw" facilities comprise a significant proportion of the market. Such products exist in only a few other mortgage markets, such as the UK, Spain and Australia. South African flexible loan borrowers have exhibited somewhat different behaviour to those in other countries in that substantial use of these facilities has been made. In view of the favourable interest rates afforded to mortgage loans relative to other facilities, borrowers will often finance short-term debt using the redraw feature of their mortgage loan. On the other hand, borrowers may also use surplus cash to reduce their mortgage balance to a level below that associated with a normal amortising mortgage loan.

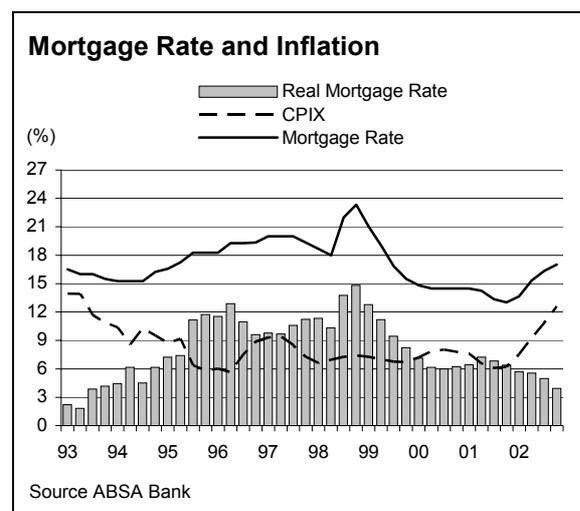
Many borrowers in South Africa use a combination of prepayment and redraw facilities to make the most efficient use of their mortgage loan facility. For instance, they may apply their entire monthly salary in reduction of their mortgage loan balance on, say

the 20th of the month, and withdraw, or redraw, a portion at month-end to pay bills, causing fluctuations in outstanding mortgage balances. Some institutions limit the number of transactions or attach additional costs to cover the resultant additional administration costs.

Mortgage loans in South Africa normally have 20- to 30-year maturities, although the average repayment terms are half this due to prepayments and the use of redraw facilities. While interest rates are generally variable, various alternative products are available on the market whereby a borrower has the option of fixing the interest rate on a loan for the first year or two.

Interest Rates

South Africa has relatively high inflation, which has directly affected mortgage rates and house prices. Over the past decade, [CPIX] - a measure of inflation - has fluctuated between 5% and 15%. The graph below compares mortgage rates with inflation, illustrating that the real mortgage rates are a differential of inflation and interest rates charged on mortgages.



Security

Mortgage loans are secured by a first-ranking mortgage bond over a property. All are written with full recourse to the borrower; if a borrower defaults on their mortgage and the property proceeds are insufficient to pay off the debt, all of their remaining assets are potentially exposed to the lender.

Home Ownership

Home ownership in South Africa has, for many years, been skewed in favour of the more privileged or developed sector of the economy. It is estimated that approximately one third of the population still seeks shelter in informal settlements such as shacks made of wood, zinc or mud.

The South African government is addressing the local shortage of housing in various ways, key among which is the allocation of free houses to the very poor and destitute. Known as RDP houses (Reconstruction and Development Programme) they are built at a cost of approximately USD3,000 each. First-time buyers in the very low income brackets also have the choice of applying for a subsidy of a similar amount, which can be used as a down-payment for a larger house or to acquire the land on which to erect a house.

In the developed sector of the economy, most South Africans aspire to home ownership rather than renting. For most, a home is their single largest asset and associated with personal security and prestige. In general, South Africans prefer to apply their monthly accommodation expenditure to the dual purpose of acquiring a lifelong asset and providing a roof over their heads rather than paying rent for accommodation.

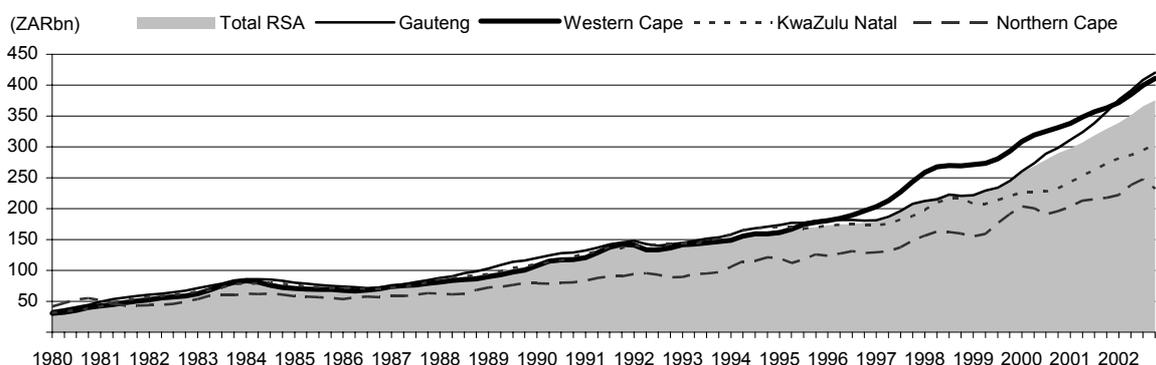
Residential Property Market

House prices have grown rapidly in recent years in South Africa, particularly in the major cities (see charts below). After 1995, property prices in the Western Cape (which incorporates Cape Town) boomed; market speculators indicated this may have been due to Cape Town's, ultimately unsuccessful, 2004 Olympic bid. The pace of house price rises in Western Cape has since moderated, while those in Gauteng (which incorporates Johannesburg) accelerated after 1999 such that average prices there exceeded those in the Western Cape after 2001. Houses in Gauteng, South Africa's industrial powerhouse, are regaining their status as the most expensive properties, on average, in South Africa.

The graph below provides an illustration of property price trends for four of South Africa's nine provinces. Prices in the Northern Cape are the lowest in the country and have experienced slower growth over the past two years than elsewhere.

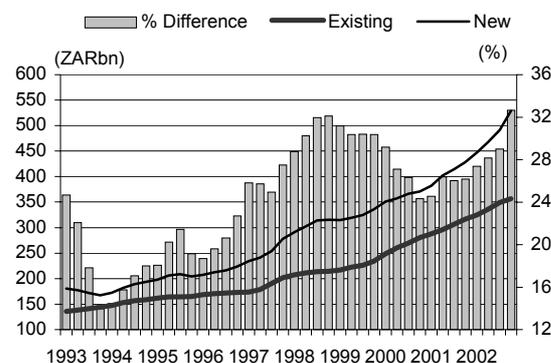
Newly built houses have, for many years, been the more expensive option, as shown in the graph below, a phenomenon not seen in many developed markets and ascribed to building cost inflation.

Regional Property Prices In South Africa



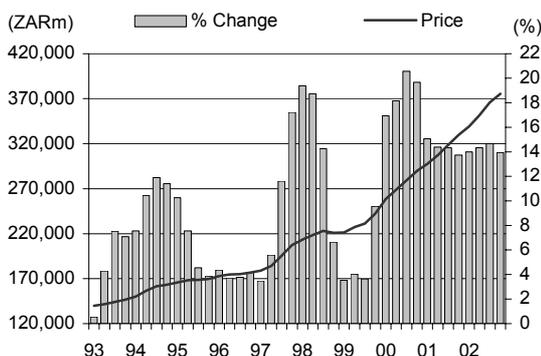
Source ABSA Bank

Average Price of New & Existing Houses (Nominal)



Source ABSA Bank

Average Nominal House Prices (80m²-400m², ≤ZAR1.5m)



Source ABSA Bank

Many factors underlie the property price increases, including the real value of the ZAR, a relatively stable economy in emerging market terms and relatively stable mortgage lending rates. Annual growth in nominal property prices was steady at around 15% in 2001 and 2002, as evidenced in the following graph. The last few years have also seen stable growth in property prices compared with the 1990s, a period of marked volatility in the South African economy.

■ Guidelines and Model Development

Model Approach

To determine loss coverage for residential mortgage backed securities, Fitch's default model employs a loan-by-loan analysis of several specific loan, borrower and property attributes that influence default probability and loss severity. Fitch's model assigns each loan a base default probability, derived from a matrix, with ability to pay (income multiple) and willingness to pay (LTV) as the variables. The base default probability is further adjusted according to specific loan, borrower and property characteristics (see below).

Fitch's loss severity and recovery values are derived from trends in property prices and from foreclosure timing and costs. Market value decline ("MVD") assumptions are a function of historical regional volatility and sustainable growth in property prices.

■ Default Probability

Fitch believes that the primary indicator of a borrower's propensity to default is a combination of ability to pay and willingness to pay.

A borrower's ability to pay is dictated by their DTI ratio at origination: the higher the income relative to debt service the greater the ability to pay.

A borrower's willingness to pay is influenced by the amount of equity invested in their home as determined by initial LTV. Fitch's model assumes higher default probabilities for higher LTV loans. When placed under financial distress, borrowers with more equity invested in their homes are considered to have a greater incentive to continue to service their debt to protect their equity. For flexible mortgage loans Fitch assumes that redraw capacity is fully utilised when calculating the original LTV.

Base default probabilities are determined using a matrix, shown below, that considers affordability and LTV at time of origination (OLTV) for each loan. The matrices classify affordability into five classes, the most affordable of which (class 1) encompasses loans with a DTI ratio of less than 15%, while the least affordable (class 5) corresponds to loans with DTI ratios exceeding 30%.

Debt-to-Income Ratio (DTI)

	(%)
Class 1	<15.00
Class 2	15.00-19.99
Class 3	20.00-24.99
Class 4	25.00-29.99
Class 5	>30.00

AAA Default Frequencies

(%)	Class 1	Class 2	Class 3	Class 4	Class 5
LTV <40	5.00	6.00	6.00	7.00	8.00
40-50	6.00	7.00	8.00	9.00	10.00
50-60	7.00	8.00	10.00	11.00	12.00
60-70	9.00	10.00	12.00	13.00	15.00
70-80	11.00	13.00	14.00	16.00	18.00
80-85	14.00	15.00	17.00	20.00	22.00
85-90	17.00	19.00	21.00	24.00	27.00
90-94	20.00	23.00	26.00	30.00	34.00
94-98	25.00	28.00	32.00	36.00	41.00
98-100	30.00	34.00	39.00	44.00	50.00
>100	Analysed on a Case-by-Case Basis				

■ Default Probability Adjustments

Fitch applies certain adjustments to the base default probability to account for loan and borrower characteristics, as discussed below.

Interest Rate Type

The majority of mortgage loans granted in South Africa are variable rate; the few that are fixed typically revert to variable after one or two years. Given the interest rate volatility in South Africa, 20- or 30-year fixed rate mortgages are virtually non-existent bar some state-sponsored and employer-subsidised housing schemes. Default probability is increased to reflect any additional risk associated with payment terms not covered by employer or state subsidies.

Borrower Profile

Fitch believes that self-employed borrowers have a greater likelihood of defaulting on their mortgage obligations compared with employed borrowers on the basis they are more likely to be affected financially in times of economic stress. It is also difficult at times to determine income levels, and hence affordability, in respect of self-employed individuals. For this reason, the agency will increase the default probability of such borrowers.

Fitch may also increase default probabilities for certain industries where there is deemed to be excessive concentration within an asset pool. Some sectors within the local economy are also more volatile than others, necessitating a consideration of additional risk when evaluating a prospective asset pool.

Underwriting Quality

The agency's assessment of the underwriting quality and capability of an originator in respect of policies and guidelines applied will affect default probabilities. Default probabilities stated in the tables above are based on the origination and servicing guidelines of an average South African lender.

Fitch's review of the policies and processes of an originator and servicer may result in an adjustment to default probability. The areas of review are summarised in Appendix I.

Occupancy Status

Fitch considers second homes and investment properties more susceptible to default than primary residences. A borrower is held to be more likely to abandon a second home (whether for holiday or investment) than a primary residence during times of financial stress. The agency therefore increases the default probability for loans secured on these property types.

Payroll Deduction

Where mortgage instalments are deducted at source the agency is able to modify its willingness-to-pay factor, thereby decreasing its default probabilities.

Mortgages in Arrears

Most performing RMBS portfolios have little or no loans in arrears at closing. For those loans that are in arrears, Fitch will make adjustments to default probabilities to adjust for the increased risk. The agency notes that the majority of RMBS portfolios securitised to date exclude all loans in arrears as part of the selection criteria.

Loss Severity

Fitch's South African default model quantifies loss severity or recovery value by focusing on several factors including MVD, foreclosure and carrying cost.

Market Value Decline

In determining a stressed MVD, Fitch uses historical information to chart price movements in each of South Africa's nine geographic regions. While each showed long-term price growth, the extent thereof differed from region to region, as did price volatility. Fitch's MVD methodology focuses on three key factors: (i) volatility in observed prices; (ii) current position of the index relative to the long-term trend; and (iii) historical stress observed in the regional housing market.

Further adjustments are made for high- and low-value properties on the basis that a limited market exists for these properties. This is necessitated by the diverse South African population as well as housing needs being concentrated in the lower income sectors which demand smaller and cheaper housing.

A number of variables influence house price movements, such as sudden changes in housing demand brought about by government policy or speculation, variations in disposable income induced by fluctuations in taxes, interest rates and wages, and changes in lending practices. While sometimes measurable, these drivers are generally unpredictable in nature and, as a result, do not lend themselves to the traditional methods of assessing future

downturns in market values. For this reason, Fitch's model focuses on historical house price movements rather than the events that influence them.

Determination of stressed MVDs starts with the calculation of the standard deviation of price observations from the long-term trend. This is an indication of volatility: the greater the volatility the higher the standard deviation. The index price is reduced by a multiple of the standard deviation determined by two factors: (i) the rating level category (e.g. 'AAA', 'AA', etc.); and (ii) historical stresses embedded in the observed period. The value is further adjusted depending on the current index relative to the long-term trend line. A current index above the trend line will lead to a greater assumed price decline, whereas if the index is already below the long-term trend line, any assumed price decline will be less pronounced.

The MVD used is the difference between this stressed value and the current index value, expressed as a percentage of the current index value. This MVD calculation results in the highest MVD figures in those regions that have experienced the greatest volatility and which have a current index well above the trend line.

For example, the 'AAA' stressed MVD for the Western Cape is the highest, at 49%, reflecting marked historical volatility and current prices well above the long-term trend line. The 'AAA' stressed MVD for KwaZulu/Natal, on the other hand, is the lowest, at 31%, reflecting a lower level of historical house price volatility.

Foreclosure Procedures

Following a default, lenders are entitled to demand full repayment of the loan concerned. Should the borrower fail to pay, the civil courts can be petitioned, which, if not satisfied, can be followed by an application to the courts for a Writ of Attachment to the property under the mortgage security documents. The property is then classified as a Property in Possession. At this point, the lender may either tenant the property, with rental streams accruing to it, or sell the property by either private treaty or public auction.

Market Value Declines

Code	Region	B	BB	BBB	A	AA	AAA
1	Gauteng	22.18	24.64	28.46	32.27	35.57	38.87
2	Western Cape	26.30	29.22	34.44	39.67	44.34	49.01
3	KwaZulu/Natal	16.23	18.04	21.45	24.87	27.76	30.65
4	Mpumalanga	20.39	22.66	26.04	29.42	32.29	35.17
5	Limpopo Province	17.49	19.44	22.78	26.12	28.95	31.77
6	North West	24.09	26.77	30.23	33.68	36.66	39.63
7	Eastern Cape	20.59	22.87	26.82	30.76	34.18	37.60
8	Northern Cape	24.16	26.84	31.16	35.48	39.28	43.07
9	Free State	19.94	22.16	25.92	29.68	32.92	36.16

Proceeds from the sale would be applied firstly against any external costs then in reduction of the principal debt and any accrued interest. Any balance outstanding after the sale of the property would remain claimable from the obligor.

While the legal process is well defined and relatively short, the cycle from default to realisation can take over 15 months.

■ Liquidity Coverage

RMBS need liquidity to cover short-term delinquencies; assumptions thereof can vary dramatically given the timing of delinquencies and shortfalls is difficult to predict. A cash flow analysis is performed to test whether sufficient credit enhancement is available for a rating to survive Fitch's stress scenarios. Refer to "*A Guide to Cash Flow Analysis for RMBS in Europe*", dated 20 December 2002, available from www.fitchratings.com

■ Operational Review

In analysing an RMBS, Fitch will review the underlying operational procedures and processes for underwriting and servicing. The agency considers there to be a direct correlation between the performance of a collateral pool and the origination and servicing procedures of the seller. Fitch's

assessment of the quality of these procedures will affect gross credit enhancement levels.

During an on-site review, Fitch will examine an originator's underwriting guidelines and servicer's controls and procedures against market benchmarks.

Fitch tailors its review criteria to each individual issuer as well as to the nature of a transaction. The key aspects of reviews are summarised in the checklist in Appendix II.

■ Performance Analytics

As part of its regular performance monitoring, Fitch will monitor all transactions on a regular basis and as warranted by events. The structured finance Performance Analytics team ensures that the assigned ratings remain, in the agency's view, an appropriate reflection of the issued notes' credit risk.

Further details of the transaction's performance are available to subscribers at www.fitchresearch.com. Further information on this service is available at www.fitchratings.com.

Please call the Fitch analysts listed on the first page of this report for any queries regarding this report.

Appendix I: Originator and Servicer Review Checklist

Mortgage Origination Checklist

Underwriting	Appraisals/ Valuations	Quality Control
<ul style="list-style-type: none"> • Underwriter Experience • Adequate Training • Compliance With Guidelines • Computation Guidelines for Ability-to-Pay • Credit Bureau Checks 	<ul style="list-style-type: none"> • Management Experience • Formal Review Process • Computation Lending Value • Appraisals Examples • Use of Approved Appraisers • Completion of Appraisals to Industry Standards 	<ul style="list-style-type: none"> • Management and Staff Expertise • Conformity With Guidelines • Documentation Procedures • Involvement in Early Payment Defaults and Foreclosures

Servicing Checklist

Collections/Work-Out	Foreclosure
<ul style="list-style-type: none"> • Management Experience • Collector Experience • Formal Collection Strategy • Familiarity with Industry Guidelines • Tracking System • Level of Borrower Contact 	<ul style="list-style-type: none"> • Management and Staff Experience • Committee with State Requirements • Selection of Lawyer and Monitoring • Property Inspections

Appendix II: Collateral Information Checklist

Loan Attributes

- Current loan balance
- Original loan balance
- Mortgage balance
- Mortgage type (if applicable)
- Market value, lending value (if applicable)
- Appraisal date
- Original loan-to-value ratio
- Original loan term
- Remaining loan term
- Origination date
- Months in arrears (if applicable)
- Arrears balance (if applicable)
- Mortgage rate and description e.g. fixed or variable, resets etc.)
- Loan type (e.g. repayment type)
- Loan purpose (e.g. refinance, purchase, etc.)
- Loan status (e.g. performing, repossession, etc.)

Borrower Attributes

- Profile (e.g. first-time home buyer)
- Status (e.g. first-time home buyer)
- Debt-to-income ratio or monthly debt payments to net income

Housing Attributes

- House type
- Occupation (e.g. owner-occupied, second home or investment property)
- Region
- Geographic location

Appendix III: Provincial Map of South Africa



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