



When Depreciation Meets Default

Stress-Testing Saudi Arabia's Used-Car Finance Market



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Executive Summary

Discussion of risk in Saudi car finance usually centres on one question: how many borrowers will stop paying? This paper argues that a second question matters just as much, and is far harder to answer: how much would lenders lose when they do?

The answer depends on used-car prices, and on how loans are structured. Many Saudi used-car loans carry a large final payment, known as a balloon payment, which keeps monthly instalments low but leaves the debt high for longer.

If used-car prices fall at their usual pace, the loan stays comfortably below the car's value. If they fall sharply, a balloon loan can become larger than the car behind it while the borrower is still paying.

Saudi rules allow such structures and set no limit on how much of a car's price can be borrowed, unlike some neighbouring markets.

Our stress test, built on a published Saudi loan and resale data from a listed rental company, shows that finance

companies as a whole could absorb considerable strain.

Losses would remain within a single year's profits under all but the most severe combination of rising defaults and falling car values, and even then would use up only a modest share of the sector's capital.

Individual lenders serving riskier borrowers, however, would reach their limits much sooner.

The deeper problem is visibility. No public data shows how many loans carry balloon payments, how much of each car's value is financed, or how lending splits between new and used cars. If used-car prices fell sharply, no one outside the lenders could see how many loans had quietly become larger than the cars securing them.

Our results rest on stated assumptions, not forecasts, and may overstate some risks while understating others. Used-car resale values and finance companies' losses over the coming quarters will show whether this risk is beginning to emerge.



The Saudi used-car financing market

The scale of Saudi Arabia's finance-company sector provides the starting point for assessing the collateral behind consumer auto finance.

Auto finance has expanded as part of a broader increase in lending by SAMA-licensed finance companies, whose total credit, including off-balance-sheet exposures, reached SAR96.2 billion in 2024, up 13.6% year-on-year, and SAR102.7 billion by the third quarter of 2025.

Auto financing was the sector's second-largest lending category in 2024, at approximately SAR25.1 billion, or 26% of total credit, up from SAR21.2 billion in 2023 — behind personal finance (29%, SAR27.6 billion) and ahead of residential real estate finance (24.3%, SAR23.4 billion).

SAMA's statistics now also cover 2025, when the auto-finance book grew to SAR29.1 billion, or 27% of total credit of SAR107.7 billion.

SAMA's Monthly Statistical Bulletin reports finance-company net income and equity for 2025, so the paper uses 2025 as its base year for the stress test, applying the losses in Section 7 to the SAR29.1 billion 2025 book, with the 2024 book shown for comparison.

Asset-quality figures (non-performing loans, provisions and coverage) are available only for 2024, in SAMA's Financial Stability Report 2025, and are used as the latest available.

The available data do not provide a clean public split

between new- and used-vehicle financing across the entire banking and finance-company sector.

That distinction is important for this analysis, since the risk being modelled is specifically the value of used vehicles securing outstanding consumer loans.

The market-level figures therefore provide context rather than a direct measure of the used-car loan book. The structure of individual financing contracts is more important to the analysis that follows.

Used-car financing can extend for as long as five years, while some products allow borrowers to defer a substantial proportion of the vehicle's cost to a final payment.

For example, Al Rajhi's published used-car financing terms (illustration dated 2024) allow terms of up to 60 months and a balloon payment of up to 25% for salary-transfer customers.

Its illustration for a SAR100,000 vehicle assumes a SAR10,000 down payment, five-year maturity, 11.20% APR and a SAR25,000 residual payment, with a stated monthly payment of SAR1,605.

The same used-car product page lists a down payment "from 0%" for salary-transfer customers (the terms and conditions set a 10% minimum), so the 90% initial LTV modeled here is not the most aggressive structure the bank advertises for used cars.

Editorial note:

Product pages are designed for marketing and showcase the most aggressive, attractive rate or terms possible ("from 0%") to capture interest. However, the standard T&Cs dictate the core baseline policy for an average applicant. The 10% down payment (representing a 90% initial Loan-to-Value ratio) serves as the standard template structure for general applicants who do not qualify for special exemptions.



The collateral equation: when does a used-car loan become risky?

The core credit-risk measure in this analysis is loan-to-value (LTV), defined as the outstanding loan balance divided by the current market value of the vehicle: $LTV = \text{Outstanding loan balance} \div \text{Current vehicle value}$.

At origination, LTV is determined largely by the down payment. Thereafter, the two sides of the equation move differently: the loan balance declines as the borrower makes payments, while the vehicle generally loses value through depreciation. The lender's collateral position therefore depends on the relative speed of those two changes.

A published Al Rajhi used-car financing illustration (2024) provides a useful Saudi example.

A SAR100,000 vehicle is financed with a SAR10,000 down payment, a five-year term, an 11.20% APR and a

SAR25,000 final payment.

The initial financing represents 90% of the vehicle's purchase price. The important point for the analysis is that the final payment leaves a substantial balance outstanding late in the contract.

If the vehicle's market value falls faster than the financing balance, LTV can rise rather than fall over part of the loan's life.

This distinction is important because default and collateral shortfall are separate risks. A borrower can remain current while LTV rises above 100%, while a borrower with positive equity can still default.

The stress model therefore treats LTV as the link between vehicle-price movements and the potential severity of losses, rather than as a direct measure of default probability.



How quickly do Saudi used cars lose value?

There is no public Saudi dataset that provides a complete depreciation curve for every vehicle financed in the Kingdom.

The available evidence nevertheless gives a useful basis for defining the range of collateral values used in the analysis.

In October 2025, the Saudi Authority for Accredited Valuers (Taqeem) launched Marjea, a national vehicle-price reference platform that aggregates government records and vehicle-level information including mileage, accident history and ownership records, processed with machine-learning models, to generate indicative prices for new and used vehicles. The platform is intended to provide a common valuation reference for financing institutions as well as other market participants.

A second source of evidence comes from vehicle disposals by Lumi, whose used-car sales business provides an observable link between vehicle age and realized resale proceeds.

In 2024, Lumi sold 8,300 vehicles at an average age of 2.6 years and recovered 70.7% of their original purchase price.

In 2025, it sold 7,900 vehicles at an average age of 3.6 years, and recovery fell to 67.8%.

The two quarters reported since show a similar picture: recovery of 65.3% at an average age of 3.3 years in the first quarter of 2026, and 67.4% at 3.5 years in the second.

These figures should not be treated as a direct measure of depreciation for the wider used-car market: Lumi's fleet composition, vehicle mix, utilization and disposal strategy will differ from those of privately owned vehicles.

They do, however, provide a Saudi reference point for the relationship between vehicle age and resale value.

For the purposes of the stress model, the Lumi recovery rates can be converted into annualized rates of decline.

The 2024 figure (70.7% at 2.6 years) implies about 12.5% a year, the 2025 figure (67.8% at 3.6 years) about 10.2%, and the first two quarters of 2026 about 12.1% and 10.7% respectively.

The analysis uses 11% annual depreciation as its base case, within that observed range of roughly 10% to 12.5%, with 15% and 20% representing faster and severe depreciation scenarios.

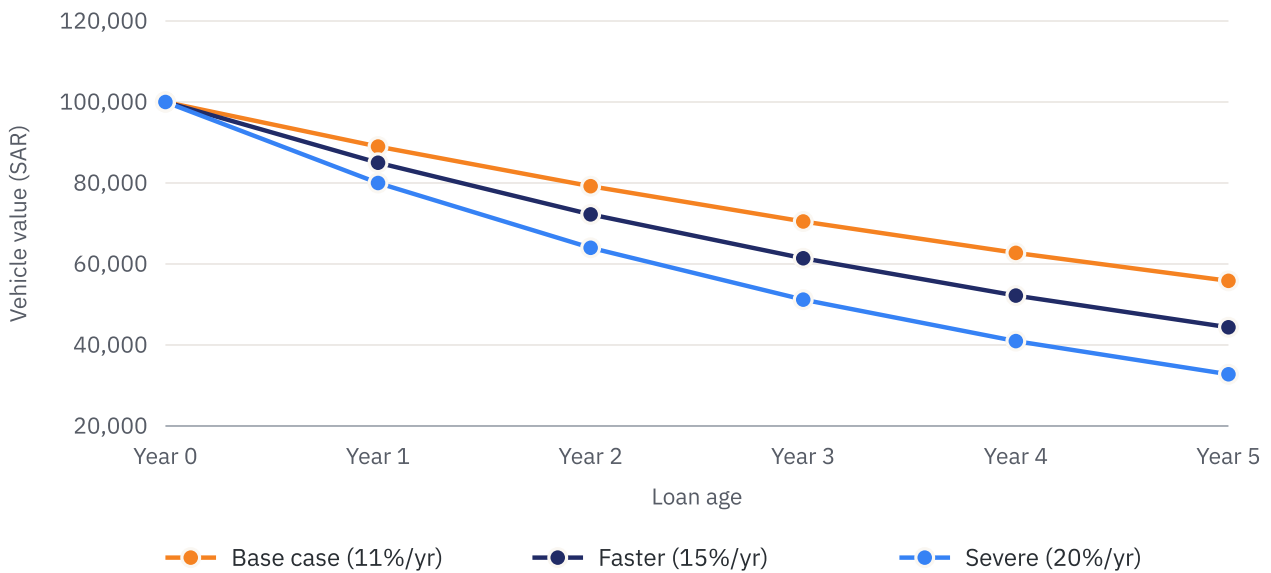
These are model assumptions, not estimates of observed average Saudi depreciation. Applied to a vehicle purchased for SAR100,000, the resulting paths are:



Figure 01

Saudi Used-Car Depreciation Curves (SAR100,000 vehicle)

Modeled vehicle value (SAR) by loan age



Source: Argaam Intelligence calculations. Vehicle value = SAR100,000 × (1 - d)^t, with annual depreciation d = 11%, 15% and 20% (model depreciation assumptions, Section 3). Illustrative, not a forecast.

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The purpose is not to identify a single "correct" depreciation rate. It is to establish a reasonable range of collateral

outcomes against which the financing structures can subsequently be tested.

LTV through the life of the loan

The next step is to combine the vehicle-value assumptions with the financing structure.

The relevant measure remains the ratio between the outstanding balance and the vehicle's current value, but its trajectory can differ substantially depending on how quickly principal is repaid.

A loan with a lower initial LTV can withstand more depreciation before entering negative equity, while a long maturity or large final payment can leave the balance elevated even after several years of depreciation.

The model uses a SAR100,000 vehicle and a 90% initial LTV, consistent with the Saudi financing example used above.

It applies an 11.2% annual percentage rate and compares three structures: a fully amortizing three-year loan, a fully amortizing five-year loan and a five-year loan with a SAR25,000 final payment.

Instalments are derived from the published APR, which gives SAR1,653 a month for the balloon structure; Al Rajhi's own illustration shows SAR1,605, implying the APR embeds fees not in the amortization rate.

Using SAR1,605 would leave the month-12 balance at about SAR80,300 rather than SAR79,700, a difference that does not change the results.

The latter structure is particularly relevant because the final payment means that the loan does not amortize to zero over the contractual term.

Under the base 11% depreciation assumption, the fully amortizing five-year loan falls from an initial LTV of 90% to approximately 85% after one year and 60% after three years.

The faster 15% depreciation case leaves LTV at about 89% after one year and 69% after three years.

At 20% depreciation, LTV reaches roughly 95% after one year and 82% after three years. The shorter three-year loan reduces exposure much more rapidly because principal is repaid over a shorter period.

The effect of the balloon structure is more pronounced. With a 25% final payment, the balance remains sufficiently high that 15% annual depreciation produces an LTV of approximately 94% after two years and 90% after three years.

At 20% depreciation, LTV rises above 100% during the second year and reaches approximately 108% after three years.

Accordingly, the vehicle can enter negative equity while the borrower is still within the original five-year financing period.

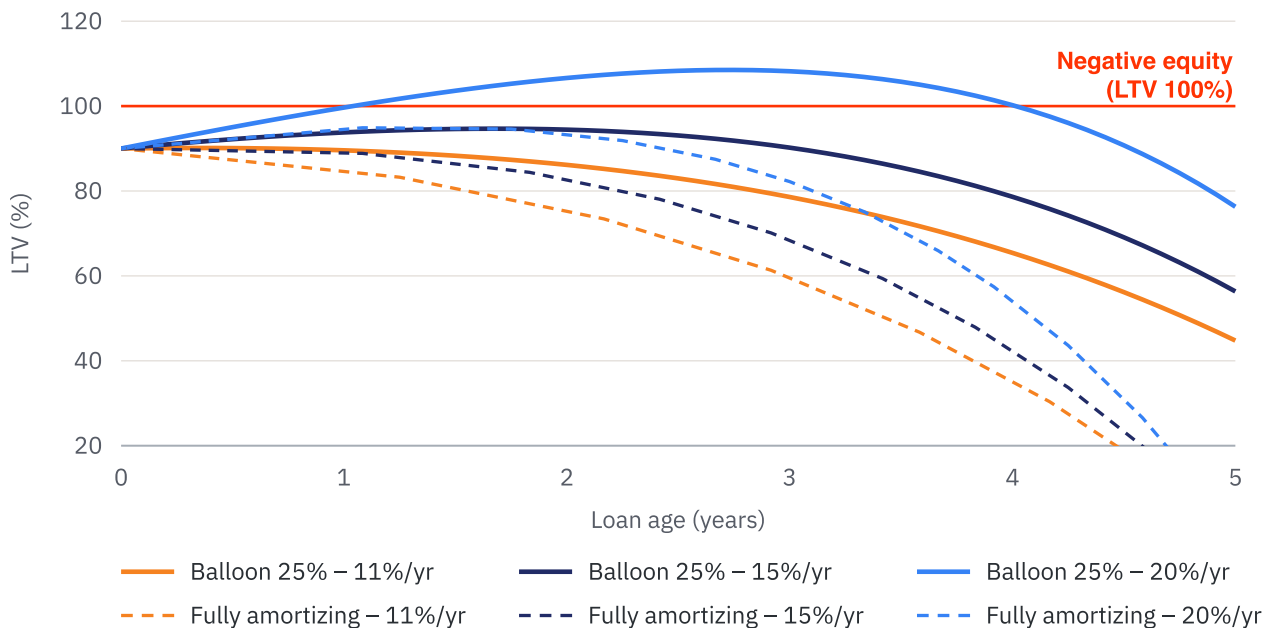
A lower initial LTV provides only a partial buffer within this structure: with the same SAR25,000 final payment, starting at 80% rather than 90% leaves LTV at roughly 99% after three years under the severe depreciation case, against 108%. The larger gain comes from combining a lower initial LTV with full amortization: an 80% fully amortizing five-year loan is at roughly 73% after three years in the same scenario.



Figure 02

LTV Through the Life of the Loan (SAR90,000 loan, 11.20% APR)

Five-year balloon structure (solid) vs fully amortizing five-year loan (dashed), by annual depreciation rate



Source: author calculations from Al Rajhi published used-car financing terms and model depreciation assumptions (Section 3). Illustrative, not a forecast.

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The results illustrate why the stress test cannot treat vehicle depreciation independently of loan structure.

Initial LTV determines the starting buffer, amortization determines how quickly that buffer is rebuilt, and a balloon payment can preserve lender exposure well into the later

stages of the loan.

The next section therefore moves from LTV into the question that matters for lenders: what happens when a borrower defaults while that collateral buffer has already been eroded?

From negative equity to recovery losses

Negative equity does not automatically translate into a credit loss. A lender incurs a loss when a borrower defaults and the amount ultimately recovered from the vehicle, after repossession and disposal, is insufficient to cover the outstanding exposure. The relevant sequence is therefore default, repossession, sale and recovery.

For a loan that defaults, the value recovered from the collateral can be expressed as:

Recovery value = vehicle value at default × recovery rate

The resulting loss given default (LGD) is: $LGD = 1 - \text{recovery value} \div \text{outstanding loan balance}$.

Saudi evidence provides a useful reference point for the recovery-rate assumption, although it does not directly measure lender recoveries.

Lumi reported that its used-car operation recovered 70.7% of original purchase price in 2024, when vehicles sold had an average age of 2.6 years.

Recovery declined to 67.8% in 2025, as the average age of vehicles sold rose to 3.6 years, and was 67.4% in the second quarter of 2026, at an average age of 3.5 years.

These figures incorporate fleet characteristics and disposal economics and therefore cannot be treated as the recovery rate on a defaulted finance loan. They are better used as an empirical anchor for the range of vehicle values that might be realized when collateral is sold.

The distinction becomes important once the vehicle is worth less than the loan. Consider a vehicle originally worth SAR100,000. If it is worth SAR70,000 when the borrower defaults and the lender realizes 90% of that value after disposal costs, the recovery is SAR63,000.

Against an outstanding balance of SAR75,000, the resulting LGD is 16%. If the vehicle is worth only SAR60,000, the resulting LGD rises to 28% at the same 90% realization rate, or 36% if only 80% is recovered.

The timing of default therefore matters as much as the occurrence of default itself. A borrower defaulting while the vehicle still has substantial equity may generate a relatively small loss, while an otherwise identical borrower defaulting after prolonged depreciation can leave the lender with a materially larger shortfall. That relationship is carried into the expected-loss model in the next section.



Building the expected loss model

The recovery analysis can be translated into a portfolio-level measure of credit loss using the standard expected loss framework:

$$\text{Expected Loss} = \text{PD} \times \text{LGD} \times \text{EAD}$$

Where PD is the probability of default, LGD is the proportion of exposure lost after recoveries, and EAD (exposure at default) is the outstanding exposure when default occurs.

The advantage of this framework is that it allows the effect of vehicle depreciation to enter the loss calculation without assuming that falling collateral values themselves cause borrowers to default.

For each loan cohort, the model tracks the outstanding balance and estimated vehicle value at different points

in the contractual life of the loan.

These determine LTV at the point of default and, together with the assumed recovery rate, the resulting LGD. A separate PD assumption is then applied to the exposure at that point. This produces an expected loss that varies when default occurs rather than applying a single loss rate to the entire loan book.

Section 7 evaluates it at month 12, where the balloon structure keeps the balance close to its original level.

The portfolio stress test therefore treats PD, collateral value and EAD as separate variables, allowing the analysis to identify whether losses are driven primarily by more defaults, weaker recoveries, or the interaction between the two.



Saudi Used-Car Finance Stress Test

The stress test applies the loan and collateral mechanics built in Sections 2 and 4 directly, rather than a separate illustrative loan.

Using Al Rajhi's disclosed terms — a SAR90,000 loan (90% initial LTV) repaid over 60 months at the published 11.20% APR with a SAR25,000 balloon, which implies a monthly instalment of SAR1,653 — the outstanding balance at month 12 is SAR79,726.

Under the base-case 11% annual depreciation path established in Section 3, the vehicle's modeled value at month 12 is SAR89,000, giving an LTV of 89.6%. This point is used for the stress calculations because it reflects the actual product terms examined earlier in the paper, at the point where a full year of depreciation has occurred but the balloon structure has kept the outstanding balance close to its original level.

Default rates of 5%, 10%, 15%, 20% and 30% are treated as portfolio-level credit scenarios rather than forecasts.

The range is informed by SAMA's finding that finance companies have a structurally higher NPL ratio than banks, with the sector NPL ratio at 5.9% in 2024, which SAMA

attributes partly to finance companies' focus on smaller-scale, higher-risk borrowers.

Vehicle-value shocks of 0%, 5%, 10%, 15%, 20% and 30% represent an additional decline in collateral value at the point of default, on top of the depreciation embedded in the base case.

A 75% recovery rate is applied throughout, a modeling assumption designed to capture repossession costs, time to sale and distressed disposal pricing, rather than an observed Saudi lender recovery rate.

The resulting loss rate is applied to the finance-company sector's auto-finance book of SAR29.1 billion at the end of 2025, with the SAR25.1 billion 2024 book shown for comparison.

That book includes new- as well as used-vehicle financing, and newer vehicles generally hold their value better than the used-car paths modeled here, so applying used-car mechanics to the whole book is more likely to overstate than understate losses. The results should therefore be read as stress losses on the auto-finance book under used-car collateral assumptions, not as forecasts.



Table 01

Modeled loss rate (% of auto-finance book)

PD = borrower default rate; Shock = additional vehicle-value decline at default

PD ↓ · Shock →	0%	5%	10%	15%	20%	30%
5%	0.81%	1.02%	1.23%	1.44%	1.65%	2.07%
10%	1.63%	2.05%	2.46%	2.88%	3.30%	4.14%
15%	2.44%	3.07%	3.70%	4.33%	4.95%	6.21%
20%	3.26%	4.09%	4.93%	5.77%	6.60%	8.28%
30%	4.88%	6.14%	7.39%	8.65%	9.91%	12.42%

Source: Argaam Intelligence calculations, based on the loan, depreciation and recovery assumptions described above. Stress scenarios are illustrative and are not forecasts.

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Table 02

Modeled loss on the SAR25.1bn 2024 auto-finance book (SAR millions)

PD ↓ · Shock →	0%	5%	10%	15%	20%	30%
5%	205	257	310	362	415	520
10%	409	514	620	725	830	1,040
15%	614	772	929	1,087	1,245	1,561
20%	818	1,029	1,239	1,450	1,660	2,081
30%	1,227	1,543	1,859	2,174	2,490	3,121

Source: Argaam Intelligence calculations, based on the loan, depreciation and recovery assumptions described above. Stress scenarios are illustrative and are not forecasts.

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SAMA reports finance-company net income of SAR3,038 million in 2025 and SAR2,872 million in 2024.

On the 2025 book, the matrix diagonal produces a loss of SAR298 million at 5%/5%, 9.8% of 2025 sector earnings, rising to SAR717 million (23.6%) at 10%/10%, SAR1.26 billion (41.4%) at 15%/15% and SAR1.92 billion (63.2%) at 20%/20%.

Only at 30%/30%, with a loss of SAR3.61 billion (118.9%), does the modeled loss exceed a full year's sector profit; the 30%/20% cell (SAR2.88 billion, 94.8%) sits just below it.

The 2024 book, measured against 2024 earnings, gives the same pattern: 57.8% at 20%/20% and 108.7% at 30%/30%.

The table below runs the same loss rates on the 2025 book, which was 15.9% larger than in 2024; the diagonal figures above are drawn from it. Because sector earnings grew more slowly than the book, by 5.8%, the same scenario absorbs a somewhat larger share of a year's profit in 2025 than in 2024, but the breaking point stays in the same place.

Table 03

Modeled loss on the SAR29.1bn 2025 auto-finance book (SAR millions)

PD ↓ · Shock →	0%	5%	10%	15%	20%	30%
5%	237	298	358	419	480	602
10%	473	595	717	839	960	1,204
15%	710	893	1,075	1,258	1,440	1,806
20%	947	1,190	1,434	1,677	1,921	2,408
30%	1,420	1,785	2,150	2,516	2,881	3,611

Source: Argaam Intelligence calculations, based on the loan, depreciation and recovery assumptions described above. Stress scenarios are illustrative and are not forecasts.



On the 2025 book, the matrix shows that the interaction between credit and collateral stress is materially more important than either shock in isolation. Default stress alone, with no additional collateral shock, produces a loss of SAR1.42 billion even at a 30% default rate (46.7% of 2025 sector earnings), and a 30% collateral shock at a 5%

default rate produces SAR602 million (19.8%). Combined at 30%/30%, the loss is SAR3.61 billion, well above the sum of the two.

The question then becomes how much of such a loss could actually be absorbed through provisions, earnings and capital.



Where Is the Breaking Point?

On the auto-finance book, the matrix identifies a high threshold for the sector as a whole.

Through the 20%/20% scenario, modeled losses remain within a single year's sector earnings (63.2%); only in the 30%/30% corner, SAR3.61 billion against SAR3.04 billion of 2025 net income, does the loss exceed a full year's profit, so that absorption depends on capital instead. That capital is substantial: finance-company equity was SAR31.1 billion at the end of 2025, so even the 30%/30%

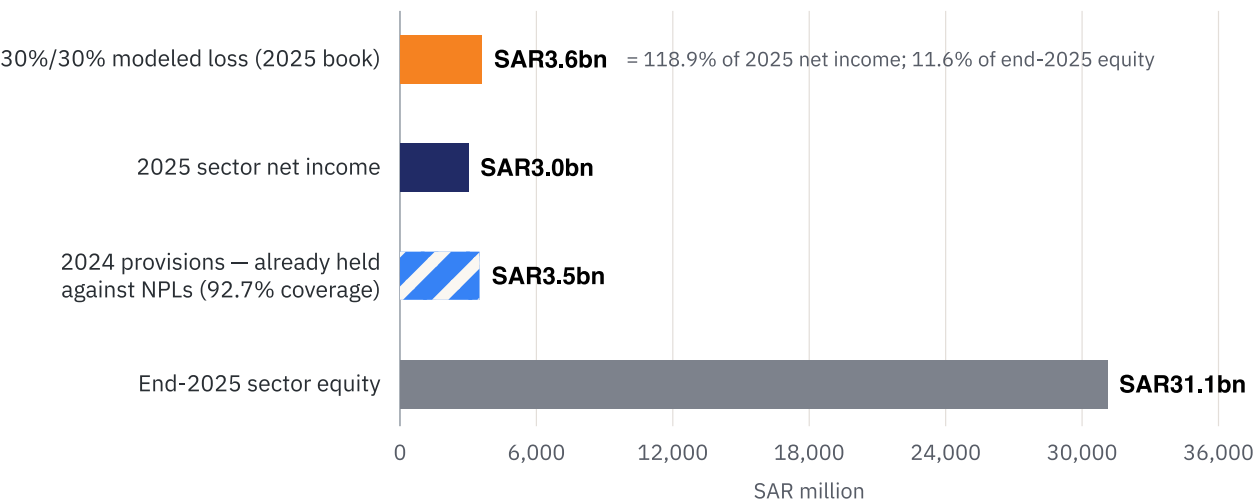
loss would absorb about 11.6% of it (10.5% of end-2024 equity on the 2024 book).

For asset quality, the latest SAMA figures are for 2024, in the Financial Stability Report 2025: provisions rose 17.0% to SAR3.5 billion, and the NPL coverage ratio was 92.7%, down from 95.1%². The provisions figure is not spare capacity: at 92.7% coverage it is almost entirely held against loans that are already non-performing, so a new stress loss would fall first on earnings and then on capital.

Figure 03

What Absorbs a Severe Loss? Earnings, Provisions and Capital

30%/30% modeled loss on the SAR29.1bn 2025 auto-finance book against the finance-company sector's buffers



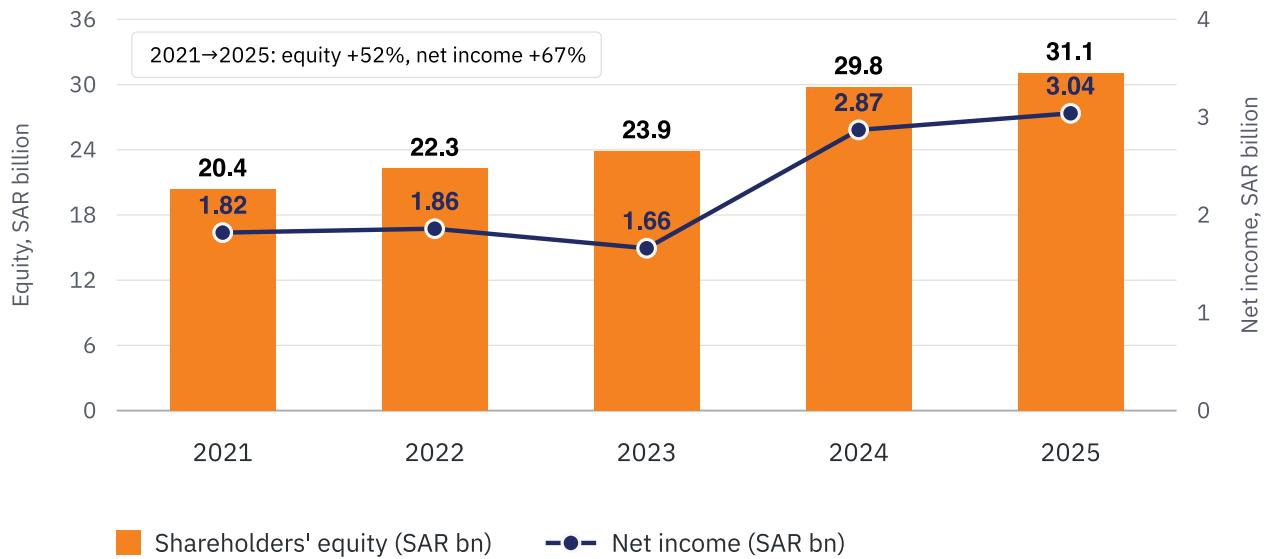
Sources: SAMA Monthly Statistical Bulletin (Aug 2026), Tables 1–2 (equity, net income); SAMA Financial Stability Report 2025 (2024 provisions and coverage). Loss is a model result, not a forecast.



Figure 04

Finance-Company Sector Loss-Absorption Capacity, 2021–2025

Shareholders' equity (bars, left axis) and net income (line, right axis), SAR billion



Source: SAMA Monthly Statistical Bulletin (Aug 2026), Table 1 (equity) and Table 2 (net income), finance companies excluding the Saudi Real Estate Refinance Company. Year-end figures.

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What Protects the Saudi Market from These Losses?

Several mechanisms can limit the vulnerability identified in the stress test, although they address different parts of the risk.

SIMAH, Saudi Arabia's national credit bureau, gives lenders visibility into borrowers' existing obligations and credit histories before new financing is extended. SAMA's Responsible Lending Principles for Individual Customers (2018) limit consumer-finance terms, including vehicle finance, to five years or 60 months, constraining the period over which a vehicle can depreciate while a loan remains outstanding, and cap total monthly repayments across all creditors at 33.33% of gross salary (25% for retirees).

Marjea, launched by Taqueem in 2025, adds a data-driven reference for vehicle values, potentially reducing the risk of lending against collateral that has been incorrectly valued. The platform has now been operating for a year, but Taqueem's public releases to date describe its role without publishing aggregate price or depreciation series, so it cannot yet be used to calibrate the depreciation assumptions in Section 3.

The remaining question is how Saudi Arabia's framework compares with markets where auto-finance risk has been subject to more explicit structural constraints. The UAE provides a useful contrast. Under Article 3 of the Central Bank of the UAE's Regulation 29/2011 on bank loans to individual customers, a car loan may not exceed 80%

of the value of the financed vehicle, a limit the central bank applies to new and used passenger cars alike, with a maximum repayment period of 60 months; separately, Article 7 caps total loan deductions at 50% of gross salary.

This directly limits the amount of negative equity that can emerge from subsequent vehicle depreciation.

The US takes a different approach. There is no general federal LTV ceiling for auto loans. Instead, borrowers can purchase GAP insurance, which covers some or all of the difference between an insurance settlement and the outstanding finance balance when a vehicle is written off. The mechanism therefore addresses negative equity after the loan has been originated rather than preventing high initial LTV.

Saudi Arabia sits between these approaches. Its framework contains credit-screening, affordability, tenor and valuation safeguards, but the analysis suggests that the interaction between initial LTV, amortization, balloon payments and vehicle depreciation remains important. The international comparison does not establish that one regulatory model is preferable. It illustrates instead that lenders can manage the same collateral problem at different points in the credit cycle: through origination constraints, through borrower and collateral assessment, or through protection against losses after negative equity has emerged.



What Does the Stress Mean for Lenders?

The sector earned SAR3.0 billion in 2025, a buffer the matrix shows is exceeded on the auto-finance book only when default and collateral shocks both approach 30%. For individual lenders the threshold is lower.

Disclosure differs by lender type: SAMA's quarterly consumer-lending return, in place since 1998, requires banks to report a "Cars & Other Equipment" category, and its Monthly Statistical Bulletin publishes banks' "vehicles and private transport means" loans quarterly (SAR12.7 billion at end-2025), excluding finance leasing; finance

companies' auto exposure is published only as a sector-wide aggregate that mixes new and used vehicles. This asymmetry means the stress test, built on the finance-company auto-finance book, cannot be extended to banks without separate data.

Saudi Central Bank (SAMA), Rulebook, "Quarterly Statement on Consumer Lending" reporting template: banks report consumer lending in three categories — real estate/housing/furniture, cars & other equipment, and other personal loans.

Endnote

Methodology and sources are available to subscribers on request at intelligence@argaam.com.



