

A LINK BETWEEN FUEL ECONOMY AND AUTO LOAN REPAYMENT RISK

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Introduction

Auto loans represent one of the most common [forms of credit](#) in the United States, with interest rates that vary significantly across borrowers and vehicles. Lenders set interest rates based on factors like credit score, income, and loan terms at the time the loan is given, called loan origination.¹ In this analysis, we examined whether fuel economy was associated with late payment risk among otherwise comparable borrowers, and whether that relationship was reflected in loan pricing. We found that borrowers financing higher fuel economy vehicles were less likely to fall behind on payments. Interest rates, however, showed little variation based on fuel economy, despite [research showing](#) that higher fuel economy vehicles tend to cost less to own. Our findings suggest that fuel economy is a meaningful predictor of repayment risk, one that current loan pricing does not appear to account for.

To better understand these relationships, we analyzed loan data reported to the U.S. Securities and Exchange Commission (SEC) through Form [Asset-Backed Securities Electronic Exhibit](#) (ABS-EE) filings. The dataset includes 379,000 auto loans originated between January 1, 2019, and December 31, 2025, by Capital One, [one of the largest non-captive auto lenders](#)² in the United States. These filings provide standardized data at loan origination, covering borrower characteristics (e.g., credit score and income), loan terms (e.g., length of loan and interest rate), and vehicle attributes (e.g., make, model, and year). Because the data are reported consistently over time, they allow for comparisons of loan outcomes across borrowers. We matched each vehicle to Environmental Protection Agency (EPA) fuel economy data using the make, model, and model year from the filings. This allowed us to assess whether fuel economy was associated with differences in late payment outcomes among otherwise comparable borrowers, and whether those differences were reflected in the interest rates lenders charged.

¹ *Loan origination* is the process by which a lender approves and funds a loan. The origination date marks the start of the loan, when funds are disbursed and the repayment period begins.

² A *non-captive lender* is a financial institution that operates independently of any vehicle manufacturer and offers financing across a broad range of makes and models. Capital One is a non-captive lender.

Quantifying Late Payment Risk

Starting from borrowers with similar credit and loan characteristics, we estimated the likelihood of falling behind on payments by more than 30, 60, or 90 days. We then compared those results across the fuel economy of vehicles purchased. Instead of focusing on a single cutoff, we assessed the entire late payment distribution, using loans reaching 90 or more days past due as a proxy for serious non-payment. Figure 1 shows the four steps of the analysis.

Figure 1. Process to Assess Late Payment Risk



Predicted Risk by Fuel Economy

We grouped loans into four fuel economy ranges³ spanning gas-powered vehicles to electric vehicles (EVs), with fuel economy measured in miles per gallon (MPG) for gas vehicles and miles per gallon equivalent (MPGe) for EVs. Figure 2 shows the estimated likelihood of serious non-payment for each group relative to the Average fuel economy group. Borrowers in the Low group were 16 percent more likely to reach serious non-payment than the Average group, while the High and Very High groups were 17 percent and 50 percent less likely, respectively.

Figure 2. Likelihood of Serious Non-Payment Risk Relative to Average Group



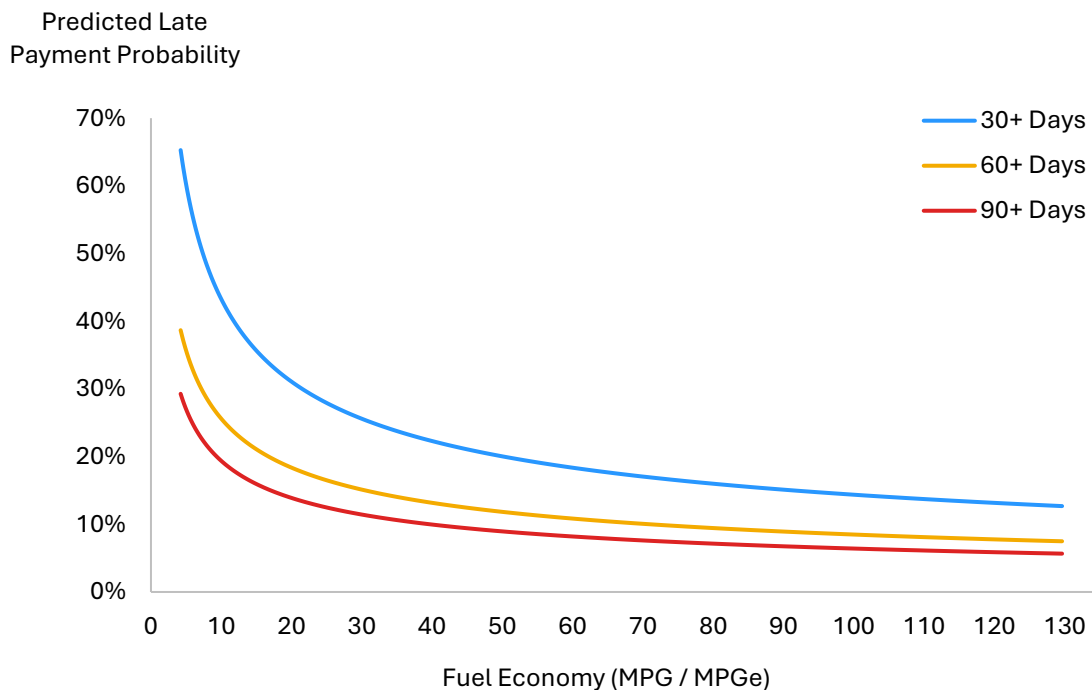
³ Fuel economy ranges were selected to highlight differences in vehicle technology. The Low group (10 - 25 MPG) captures larger, less efficient vehicles. The Average group (25 - 35 MPG) includes compact and midsize gas vehicles and some hybrids, near the 25.1 MPG average in the dataset. The High group (35 - 60 MPG/e) captures efficient conventional hybrids and plug-in hybrids, while the Very High group (above 60 MPGe) consists of battery electric vehicles.

We only analyzed loans where vehicle fuel economy could be clearly matched; models available in both gas and hybrid versions were excluded. Hybrid-only models, such as the Toyota Prius, were included.

A Link Between Fuel Economy and Auto Loan Repayment Risk

Figure 3 shows the estimated likelihood of late payments across the full range of vehicle fuel economy. Each curve follows the same nonlinear shape, with late payment risk falling most sharply among lower fuel economy vehicles and leveling off as fuel economy rises. This pattern is similar to the “MPG Illusion” discussed in Box 1.

Figure 3. Predicted Late Payment Risk Across Fuel Economy



Box 1. A Note on the MPG Illusion

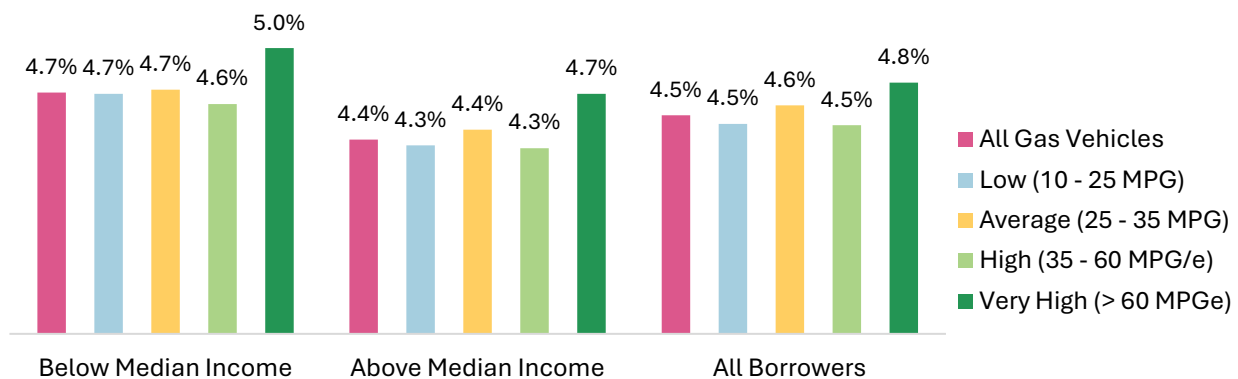
The predicted late payment curves follow a nonlinear shape similar to what researchers call the MPG Illusion. Because MPG is a distance per fuel metric, equal MPG increases do not produce equal fuel savings: a jump from 10 to 15 MPG saves 33 gallons per 1,000 miles, while a jump from 30 to 35 MPG saves only five.

For this analysis, the steepest reductions in late payment risk occurred with lower fuel economy vehicles. The analysis did not directly test this relationship, and the shape of the curves alone does not establish a causal link; other factors outside this analysis may explain the pattern. That said, establishing causation may not be necessary to inform better lending practices.

Current Rates Don't Match Risk

Borrowers financing gas and hybrid vehicles in the Low, Average, and High fuel economy groups received comparable interest rates across income levels regardless of fuel economy. The highest fuel economy borrowers consistently paid higher rates despite being associated with lower late payment risk, as shown in Figure 4. Borrowers in the Very High fuel economy group, comprised of all EVs, paid nearly a quarter of a percentage point more than comparable gas vehicle borrowers on average, a gap that grew to nearly a third of a percentage point for borrowers below the median income of the dataset. EV borrowers financed the highest fuel economy vehicles we explored and were expected to carry the lowest late payment risk on average, yet paid the highest interest rates. Over 72 months, [a common loan term](#), this translated to more than \$300 in additional financing costs for the average EV borrower, and more than \$350 for those below the median income.

Figure 4. Interest Rates by Fuel Economy and Income Group



*Median income in the dataset is \$88,500.

Box 2. Data and Analysis Limitations

Our analysis relied on a dataset from a single non-captive lender, Capital One; results may differ across lenders, loans, and borrower populations. In addition, the dataset skewed toward higher credit and higher income borrowers relative to national averages, with an average credit score of 778 compared to the [national average of 713 in 2025](#). Separately, lenders incorporate proprietary factors into loan pricing that are beyond the scope of this analysis. Finally, we excluded loans for vehicles where fuel economy could not be matched, such as vehicle models available in both hybrid and conventional drivetrains.

Leading Lenders and Near-Term Opportunities

A small but growing number of lenders have begun pricing loans differently based on vehicle fuel economy, with some programs dating back to at least 2012. Several credit unions offer interest rate discounts for higher fuel economy vehicles: [Verity Credit Union](#) offers a 0.50 percentage point discount, [JetStream Federal Credit Union](#) offers a 0.25 percentage point reduction, and [Forrit Credit Union](#) applies a 0.25 percentage point reduction for high fuel economy vehicles and a separate 1.00 percentage point reduction specifically for hybrids and EVs.

A Gap Between Risk and Pricing

Based on our analysis, late payment risk decreased as vehicle fuel economy increased. Borrowers financing higher fuel economy vehicles appeared less likely to fall behind on payments than borrowers financing lower fuel economy vehicles. This pattern held across income levels and was consistent throughout the dataset.

Lenders, however, did not appear to price loans in a way that recognized the lower repayment risk with higher fuel economy vehicles. Interest rates showed little variation based on fuel economy among gas vehicles, and EV borrowers, who carried the lowest predicted late payment risk in the dataset, paid more than \$300 in additional financing costs over the life of a loan compared to otherwise comparable gas vehicle borrowers. As noted in Box 2, lenders may have reasons for this pricing that fall outside the scope of our analysis, but the disconnect between risk and pricing was consistent and meaningful.

The current pricing pattern works against borrowers financing higher fuel economy vehicles, who represent lower repayment risk yet pay more in interest. Some lenders have already begun incorporating fuel economy into loan pricing, demonstrating that doing so is possible. As higher fuel economy vehicles become a larger share of the market, the case for aligning loan pricing with fuel economy will only grow.