

EPA Greenhouse Gas Scores Shed Light on Auto Loan ABS ESG

Environmental, social, and governance (ESG) factors have become increasingly important considerations across the securitization market. However, objective and quantifiable metrics to help assess securitized assets against an ESG framework have been elusive. Our ongoing ESG research suggests that the Environmental Protection Agency's (EPA) vehicle greenhouse gas (GHG) score¹ may offer a new approach. By mapping the GHG score to make/model/year information provided in auto loan asset-level disclosures, we can calculate an average GHG score for each loan pool, providing an insightful data point regarding the relative environmental impact of each securitization. Some of the key takeaways of our analysis are as follows:

Key Takeaways

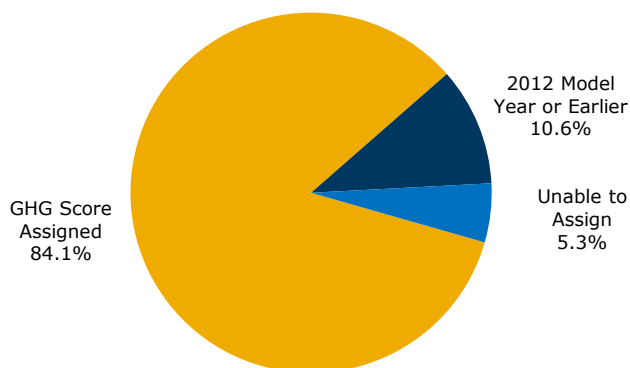
- Securitizations issued by Asian manufacturers typically had a higher average GHG score (lower emissions) compared to those issued by their U.S. counterparts, partly driven by a lower mix of financed SUVs and trucks.
- Lower income borrowers tended to finance vehicles with higher GHG scores, as they were more likely to finance sedans compared with more affluent borrowers, which partly explains why non-prime ABS securitizations often scored higher than their prime counterparts.

Mapping Specifics

The EPA's GHG score reflects a vehicle's tailpipe emissions of carbon dioxide (CO₂), the most prevalent greenhouse gas. The EPA assigns a score to the vast majority of vehicle types each model year², with scores ranging from 1 to 10, where 10 represents the lowest amount of GHG emissions and 1 represents the highest. We arrayed this information and attempted to map it to the vehicle type for 11.9 million auto loans contained in 184 securitizations for which asset-level disclosures are available (from 22 ABS issuers in total). We were ultimately able to map a GHG score to approximately 10 million of these vehicles (84.1%). The remaining 15.9% could not be mapped for various reasons including: (1) a GHG score was not available because the model year was before 2013, when the EPA made changes to its scoring methodology (10.6%); and (2) a GHG score was not available for a particular vehicle type or differences in naming/abbreviations prevented the mapping (5.3%) (see Figure 1).

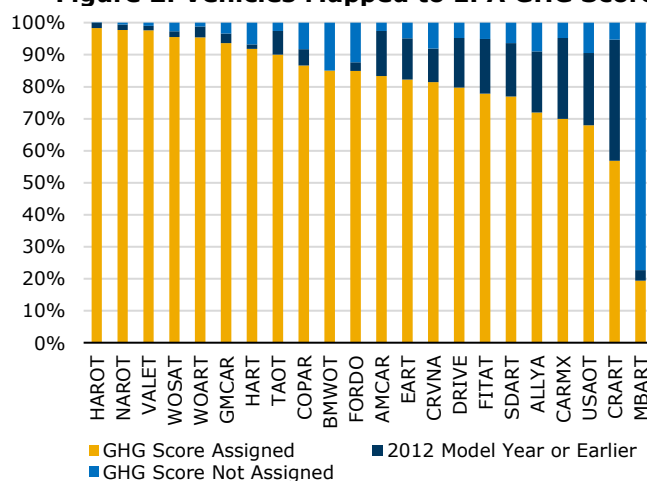
We successfully mapped over 95% of the vehicles in Honda (HAROT), Nissan (NAROT), Volkswagen (VALET), and World Omni (WOART/WOSAT) issued deals, and over 70% of the vehicles for 19 of the 22 ABS shelves. Mercedes Benz (MBART) was an outlier as we were only able to successfully map 20% of their fleet. As a result, we have chosen to exclude the MBART shelf from this analysis (see Figure 2).

Figure 1: Vehicles Mapped to EPA GHG Score



Sources: EPA, Elicient, KBRA

Figure 2: Vehicles Mapped to EPA GHG Score



Sources: EPA, Elicient, KBRA

¹ We provide a brief overview of the EPA's GHG score in the Mapping Specifics section. For more information, please visit: <https://www.epa.gov/greenvehicles/greenhouse-gas-rating>.

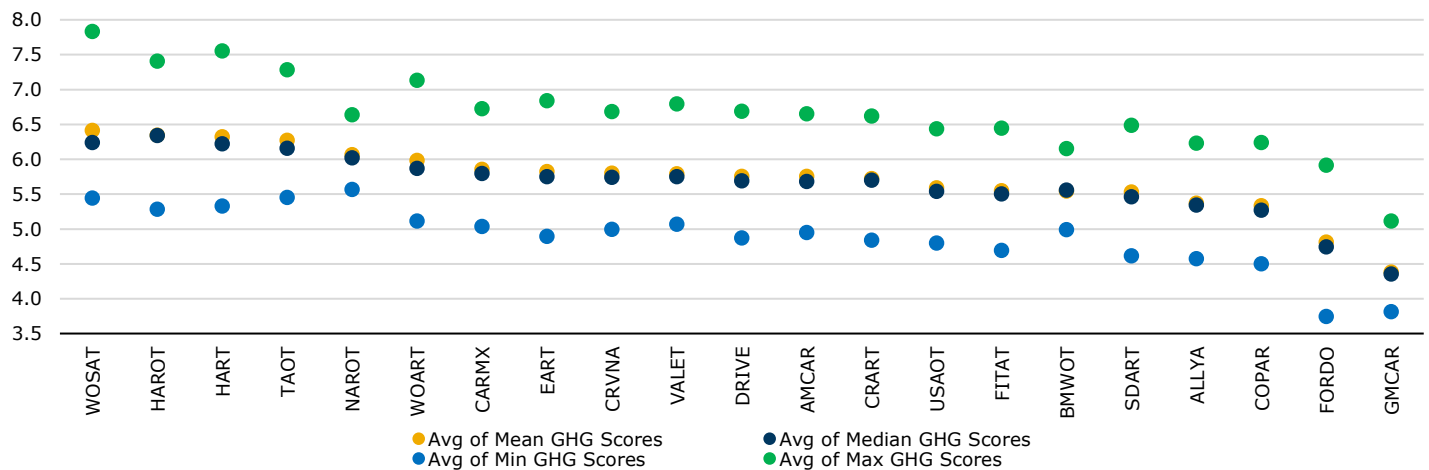
² The EPA's GHG scoring methodology changes year to year. For example, a vehicle with 27-30 MPG and 292-335 CO₂ g/mile scored a 7 for 2015 models but scores a 6 for 2021 models. We did not attempt to normalize the GHG score by model year in this report.

The EPA's GHG scores distinguish between trim levels, while asset-level disclosures generally lack such detail and contain only high-level make/model/year information. Most vehicles have multiple trim levels including fuel type, drivetrain, transmission, and horsepower which can lead to varying GHG scores for the same vehicle type. For example, the 2019 electric-powered Volkswagen Golf had a GHG score of 10, while the more common gasoline-powered versions scored anywhere between 5 and 7. It was also common across all vehicle types for the front-wheel drive version to score higher than the all-wheel drive version, as the latter generally exhibited poorer fuel economy. As a result, for purposes of this analysis, we calculated a securitized loan pool's average GHG score based on the mean, median, minimum, and maximum trim-level GHG score.

Asian Issuers Typically Scored Higher Than U.S. Competitors

Despite the added complexity created by the lack of trim-level information provided in the ABS asset-level disclosures, our analysis was able to provide meaningful results to gauge the overall environmental profile of auto ABS on a relative basis. Whether you assumed a securitization contained all the highest or lowest GHG emitting vehicle variants, the loan pools issued by the Asian manufacturers tended to score higher than their U.S. counterparts. Figure 3 shows that the entire securitized fleet of Honda (HAROT), Hyundai (HART), Toyota (TAOT), and Nissan (NAROT), as well as World Omni (WOART/WOSAT), which primarily finances Toyota vehicles, had average GHG scores of greater than 6 (using the trim-level mean). At the other end of the spectrum, the two U.S. captive finance companies that issue in the securitization market, Ford (FORDO) and General Motors (GMCAR), had a fleet-wide average GHG score of below 5 (again, using the trim-level mean).

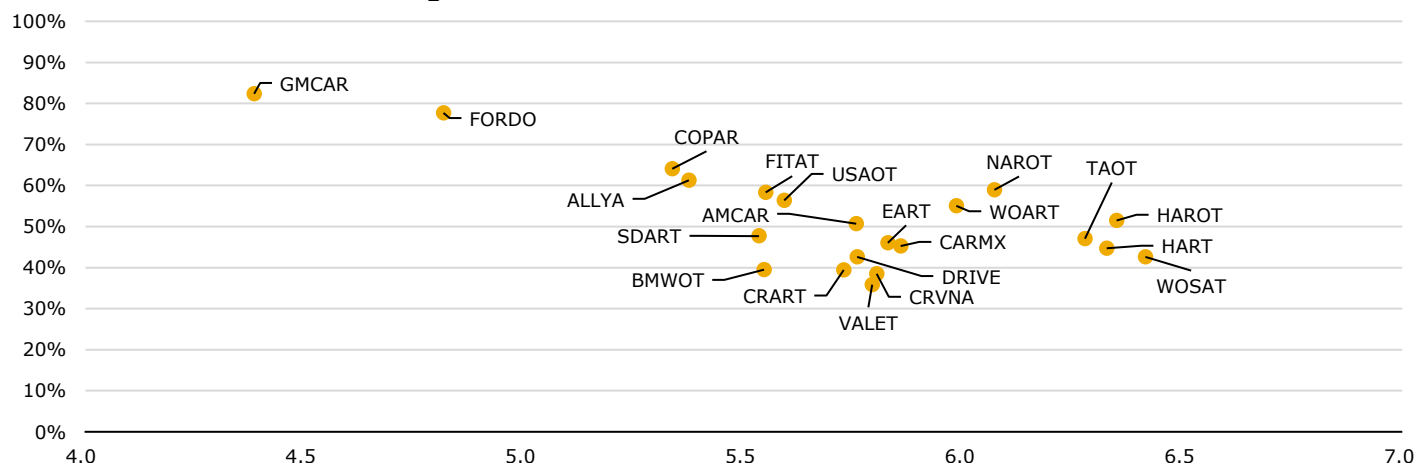
Figure 3: GHG Score by Issuer Fleet



Sources: Elicient, EPA, KBRA

The two U.S. captives had the lowest average GHG issuer score, mainly due to the vehicle types they manufacture and ultimately finance. The FORDO and GMCAR shelves had the highest percentage of trucks and SUVs, with over 75% of their financed vehicles falling into one of these two categories. Capital One (COPAR) and Ally Financial (ALLYA) had the third and fourth highest concentration of trucks and SUVs (60%-65%), and not surprisingly, their fleets had the third and fourth lowest GHG scores (see Figure 4). However, this relationship begins to break down once the truck-SUV mix falls below 60%.

Figure 4: Issuer Truck-SUV Mix and GHG Score



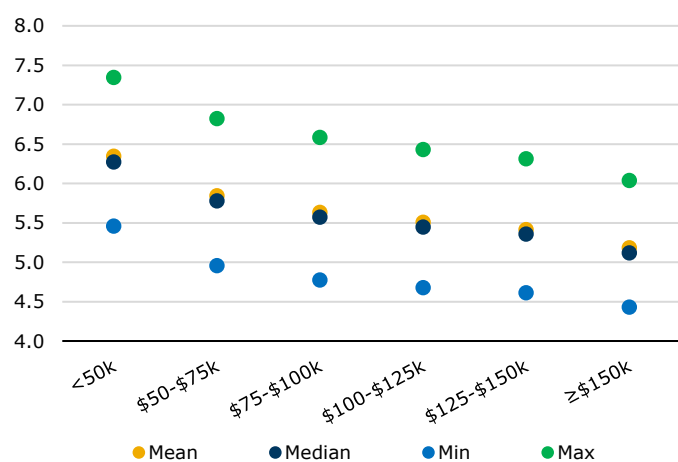
Sources: Elicient, EPA, KBRA

Non-Prime Securitizations Scored Relatively High

Interestingly, we found that non-prime securitizations typically scored higher than their prime counterparts. For example, General Motors' non-prime ABS shelf (AMCAR) had an average GHG score of 5.8, which was 1.4 points higher than the average score of 4.4 in its prime ABS shelf (GMCAR). A similar relationship held for World Omni, as its non-prime shelf (WOSAT) scored higher than its prime shelf (WOART). Even within the non-prime space, Santander's deep-subprime shelf (DRIVE) scored slightly higher than its subprime shelf (SDART).

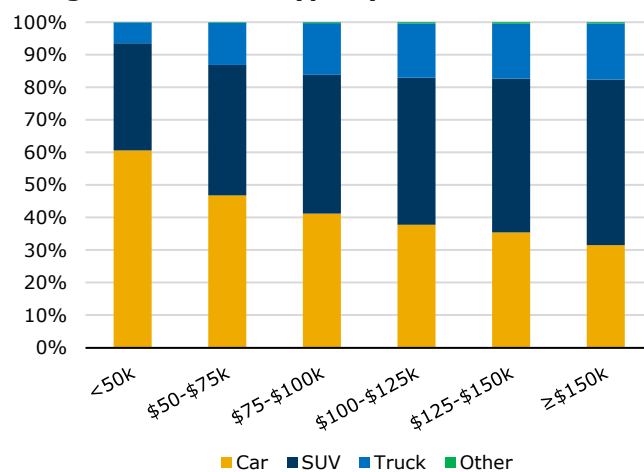
In the aggregate, there was not a strong relationship between a borrower's credit score and the financed vehicle's GHG score. However, a borrower's income was an important factor. Higher income borrowers typically finance vehicles with lower GHG scores, as they were more likely to finance a truck or SUV compared with less affluent borrowers (see Figure 5 and 6). Given that lower creditworthy borrowers tend to also be lower income earners, in the aggregate, they tend to finance smaller and more environmentally friendly cars, a fact that may partly explain why many non-prime securitizations had a higher GHG score than their prime counterparts.

Figure 5: Average GHG Score by Borrower Income



Sources: Elicient, EPA, KBRA

Figure 6: Vehicle Type by Borrower Income



Sources: Elicient, KBRA

Individual securitization GHG scores and the percentage mapped can be found [here](#). Please feel free to reach out to the authors with comments and feedback regarding this publication, as well as ideas for future ESG research.



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