Cox Automotive

Market Insights & Outlook 2022

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www.coxautoinc.com/contact-us/

This report includes U.S. data and insights.

Welcome

As we look around the U.S. auto market today — in Q2, as we finalize the Cox Automotive Market Insights & Outlook report — we see an industry experiencing a set of simultaneous circumstances that it has never faced before. Rapid inflation is impacting the economy, and the Fed is moving aggressively to tame it by increasing borrowing rates and quantitative tightening. Real Gross Domestic Product (GDP) growth reversed to a decline of 1.4% in Q1 2022, following the strongest quarter of the year at the end of 2021. The slowdown was partially about January's surge in the omicron variant of COVID-19, but the conflict in Ukraine and further increases in inflation along with accelerating imports were the real drivers. Consumer sentiment declined in Q1 to new lows for the pandemic period, which may be reducing demand, especially for used vehicles. However, what holds the industry back the most is constrained new-vehicle production.

The automotive market is dynamic and constantly changing, though, and not all factors are negative. The job market is strong, and credit is still widely available — perfect conditions to spur consumer interest. However, sales of new vehicles have been stuck in low gear due to product availability that is getting worse again, and high prices have kept the used-vehicle market in check. Our team still believes the industry is primarily wrestling with an inventory problem, not a demand problem, despite all the negatives.

According to our vAuto Available Inventory data set, new-vehicle supply continues to hold near 1 million units, down approximately 50% from year-ago levels. Meanwhile, used-vehicle inventory, though down from 2019 in days' supply, is relatively high for this time of year, as delayed tax returns and higher-priced inventory, higher borrowing costs, and low consumer confidence are limiting the extent of the typical spring bounce. We believe the second quarter could produce the best used-vehicle sales for the year. However, headwinds are growing, and the back half of the year will likely be more challenging for the used market. We also believe the new-vehicle inventory situation should begin to improve by the end of the year. You can read all about it in the pages of this annual report.

In this complex and ever-changing market, reliable data and smart insights are a critical map for the road ahead. Our team continues to work overtime to collect, analyze and share the best information possible, pulling from numerous reputable sources, including Cox Automotive's broad portfolio of first-party automotive data. Earlier this year, we named our data intelligence capabilities DRiVEQ in order to communicate our market leadership in data intelligence. We firmly believe our family of brands — more than 20 in all — provides an unmatched portfolio of data that helps our team see the industry more clearly than any other.

Our goal has always been to help automotive industry stakeholders make the best decisions possible to help their businesses thrive. The 2022 Cox Automotive Market Insights & Outlook is just one of the many tools we provide. We hope you find this almanac useful. We encourage you to regularly check back to the Market Insights & Outlook section of the Cox Automotive Newsroom and sign up for From the Newsroom, our biweekly newsletter. There, you will find the most comprehensive, timely data and insights possible, brought to you by the best team of analysts and experts in the industry. We appreciate your interest.

To your continued success,
JONATHAN SMOKE
Chief Economist, Cox Automotive

Driven by Data

Introducing DRiVEQ, the Data Intelligence Engine Powering Cox Automotive

Regular readers of the annual Cox Automotive Market Insights & Outlook report, and the Used Car Market Report before it, will know that Cox Automotive has long been a go-to source for the auto industry's best data and insights. From across our family of brands — more than 20 in all — our Economic and Industry Insights team has access to an unmatched set of first-party automotive data sourced from the company's many end-to-end automotive solutions. Our data sets fall into three key categories:

Consumer Intelligence

Gathered through first-party web activity, including industry leaders Kelley Blue Book, Autotrader and Dealer.com, as well as in-store consumer visit records. Each year, Cox Automotive hosts 2.3 billion online visits, manages 80 million leads and sifts through 2.9 trillion consumer insights.

Market Intelligence

Built from software systems that power wholesale and retail listings, sales transactions, supply and demand indicators, and rates-and-incentives data sets. Each year, Cox Automotive helps facilitate 27 million vehicle sales, 48 million credit applications, and 4.4 million trade-in requests. Cox Automotive supports 18 billion vehicle valuation requests each year.

Vehicle Intelligence

Collected from build data, vehicle images, inspection reports, battery health measurements, and service records. Each year, Cox Automotive sees 30 million in-market VINs, manages more than 100 million service records, and develops 3.5 million condition reports.

"At Cox Automotive, the breadth of our first-party data is our superpower," notes Cox Automotive Chief Product Officer Marianne Johnson. "Through DRiVEQ, we've unified data streams from across all our businesses into a single platform. Applying artificial intelligence to this curated and connected data, we're able to deliver predictive insights and recommendations that no one else can."

Cox Automotive's significant investments in cloud technology, machine learning capabilities, and top engineering and data-science talent are also key factors in bringing DRiVEQ to life. With the capability of DRiVEQ, Cox Automotive can better service the entire lifecycle across vehicle shopping, buying, ownership, and disposition.

2,600 engineers

130 architects

75 data scientists

...and dozens of data product managers and analysts use cloud-first data platforms and leverage state-of-the-art machine learning technologies.

Jackie Callender
Sr Technology Service Manager
Cox Automotive

"Data and intelligence have always been at the center of Cox Automotive's operations," said Ken Kraft, Chief Marketing Officer at Cox Automotive. "Formalizing a brand name is important, as it will help us communicate our market leadership in data intelligence. When our partners and clients see DRiVEQ, they should know they're utilizing the industry's best solutions, made possible only by Cox Automotive."

The ability to seamlessly integrate many unique solutions is what allows Cox Automotive to provide its clients with the necessary tools to build profitable and forward-thinking businesses and for all consumers to receive a personalized and actionable shopping experience. And the work never stops. In 2022, Cox Automotive will be launching 37 new products, 55 new integrations, and roughly 10,000 product enhancements, all powered by **Cox Automotive DRiVEQ**.

> When our partners and clients see DRiVEQ, they should know they're utilizing the industry's best solutions, made possible only by Cox Automotive.
>
> — Ken Kraft, Chief Marketing Officer at Cox Automotive

COVID, Chip Shortage Forced Production Cuts, Constrained Supply

Inventory Crunch Dampened Sales Despite Strong Demand

The spread of COVID-19 surged to the point that the World Health Organization declared a global pandemic on March 11, 2020. Immediately, governments across the globe issued lockdowns, leading to supplier and automobile factories being idled and dealerships being closed.

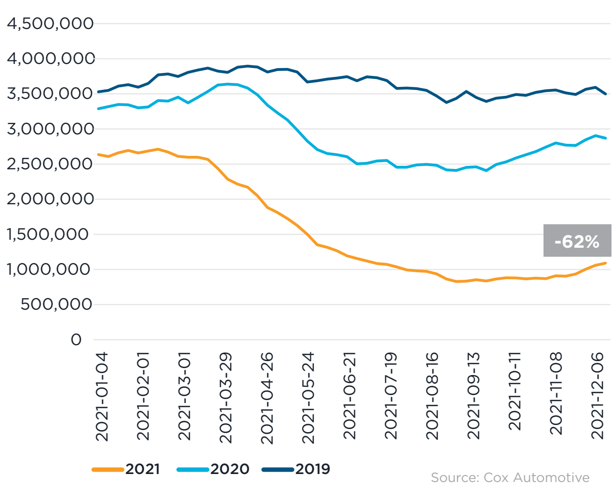
Those who could went home to work; some went home on layoff. The world braced for a recession. Automakers and their suppliers quickly dialed back future production plans. They canceled parts orders, including orders for computer chips. Suppliers canceled orders from their providers as well.

Automakers in the U.S. worried they would get stuck with unsold inventory in a recession. They offered zero-percent financing for 60-months or more to kick-start sales after the lockdowns. The incentives were wildly successful. Of all new vehicles sold in April 2020, a record 21% got zero-percent financing. Typically, zero-percent financing accounts for less than 5% of new-vehicle transactions. Truck sales, in particular, went through the roof.

The recession was short-lived — possibly the shortest on record. Quite remarkably, consumers raced back into the vehicle market. Some were lured by zero-percent financing. Others wanted vehicles for road trips since air travel wasn't an option. Still, others bought cars — some for the first time ever — to avoid public transportation and ride-sharing. Those still working had money and few places to spend it as they were forced to stay at home, away from restaurants, malls and vacation destinations.

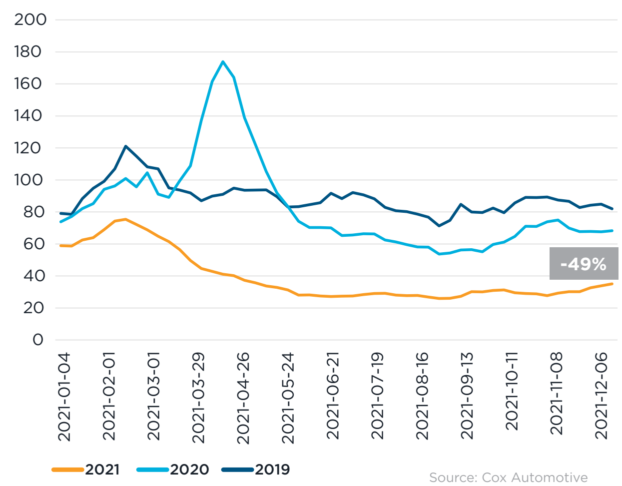
Automakers and their suppliers reversed course. They went back to their suppliers to reinstate parts orders. However, by then, chipmakers were swamped

AVAILABLE SUPPLY (WEEKLY)
New-Vehicle Inventory



Source: Cox Automotive

DAYS OF SUPPLY (WEEKLY)
New-Vehicle Inventory



Source: Cox Automotive

with orders for their chips — and more profitable chips than those for autos — from electronics makers trying to keep up with the high demand for laptops, phones and video games since we were working and schooling at home. Automakers had to wait in line.

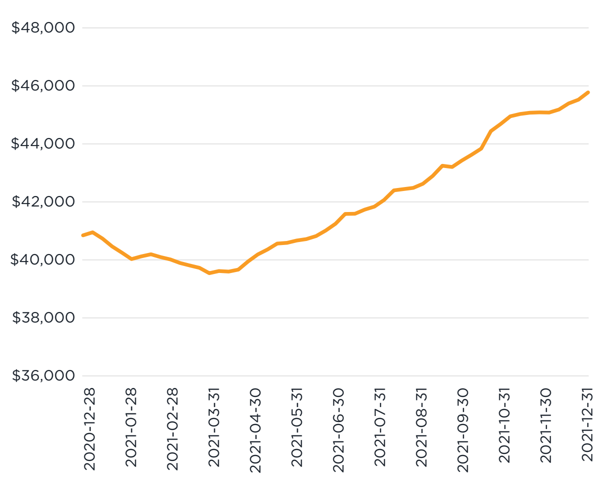
In addition, chipmakers were hit with their own production disruptions — a fire at a chip plant in Japan, COVID-19 outbreaks at chipmaking facilities in Taiwan and Malaysia, and ports clogged with chips waiting to be unloaded. Some automakers began trimming vehicle production.

Still, the early months of 2021 were as remarkable as 2020 ended. Sales were running stunningly strong, peaking at an 18.3 million seasonally adjusted annual rate (SAAR) in April, despite talk of the chip shortage that many auto executives initially dismissed as not being a significant concern.

But then it hit. Sales stayed high until summer, when more production was curtailed and inventories suddenly dropped. In June 2021, sales hit the wall, falling for the first time in months. They continued falling through the summer. By September, the sales rate plummeted to a 12.2 million SAAR.

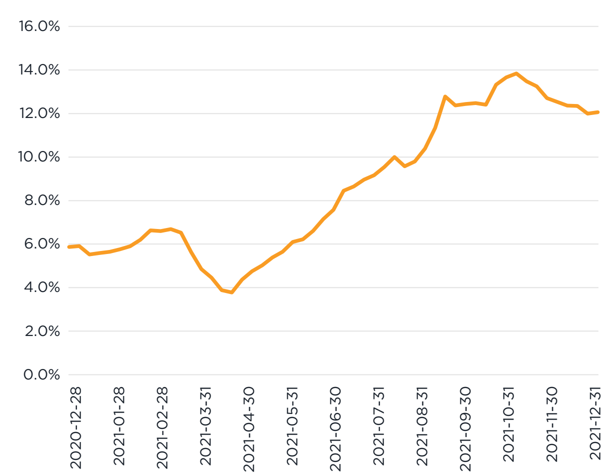
Meanwhile, automakers scrambled to allocate scarce chips to models in high demand with low inventory and high profit potential. They focused on top-of-the-line, fully loaded models, particularly SUVs and trucks. Automakers built vehicles without chips and parked them until they could be installed or eliminated certain in-vehicle features to save on chips. They focused on retail sales, nearly eliminating sales to commercial fleets and rental car companies. They slashed incentives and cut back on leasing as neither were required to lure customers.

AVERAGE LISTING PRICE (WEEKLY)



Source: Cox Automotive

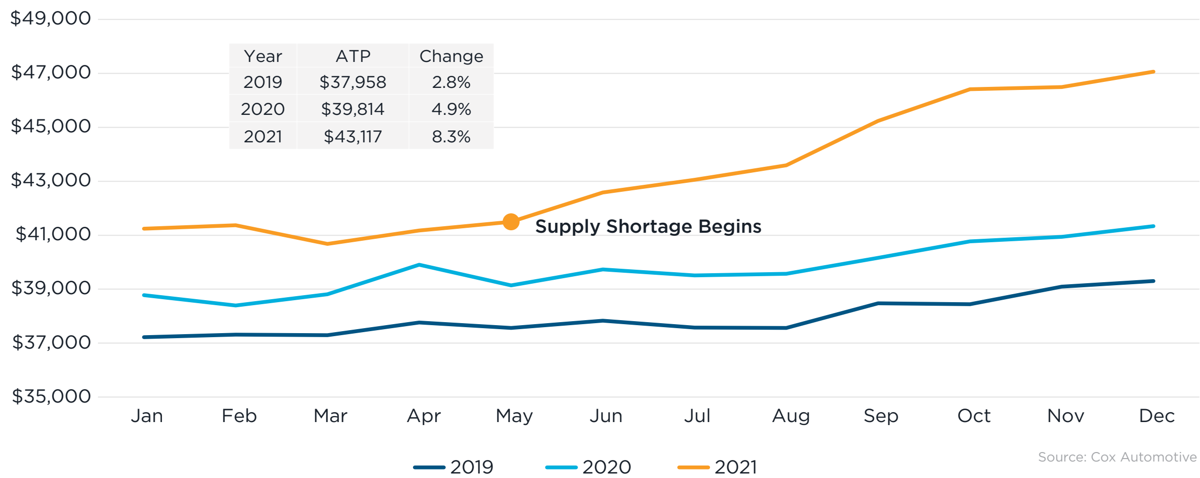
YEAR-OVER-YEAR CHANGE (WEEKLY)



Source: Cox Automotive

COVID, Chip Shortage continued...

ESTIMATED MONTHLY TRANSACTION PRICES



Year	ATP	Change
2019	$37,958	2.8%
2020	$39,814	4.9%
2021	$43,117	8.3%

Still, automakers worldwide continued to trim or idle production altogether due to chip and other parts shortages. As a result, vehicle inventory was depleted, leaving historic shortages. High consumer demand for that scant supply resulted in record-high prices.

Some consumers postponed purchases. Some lessors extended their lease in hope that new-vehicle supply would improve in future months. Others bought out their lease at the contract price set at the beginning of their lease and either kept the car or sold it for a profit. Those who stayed in the market got no deals, generally paying above manufacturer's suggested retail price (MSRP) with little to no incentives, which plummeted to a low of 3% of the average transaction price.

By the end of 2021, new-vehicle inventory had slumped to a historically low 1 million units, nearly 2 million units less than the end of 2020. Prices soared. The average listing price — the asking price — hit a record, approaching $46,000. The average transaction price — the price paid — was even higher at more than $47,000.

Demand remained strong, as high as 17 million vehicles a year by some auto company estimates, but lack of inventory caused actual sales to fall, barely hitting 15 million units in 2021. Still, auto dealers earned record profits, and automakers generated higher revenues on lower sales due to high prices.

Looking Ahead

Production cuts around the globe continue into 2022 due to chip and other parts shortages. Demand remains high, but sales are being hampered by low inventory. Cox Automotive forecasts U.S. new-vehicle sales at 15.3 million for 2022. Longer-term, the industry is re-thinking old ways. Specifically, they are looking at how they can keep prices and thus profit margins high by maintaining lower inventory.

In some cases, more efficient distribution methods are being considered, with automakers taking more control over the sales process from dealers. Automakers are re-evaluating long-held manufacturing practices, such as vertical integration of parts, local parts production and just-in-time inventory that may go by the wayside for critical components like chips. OEMs are taking more control of the supply chain or at least forcing more transparency into it.

Digital Retailing Streamlined Car-Buying Process

Consumers and Dealers Benefit from Improved Efficiency

Few positives came from the global COVID-19 pandemic and the subsequent computer chip crisis that led to inventory shortages. However, one clear silver lining was the positive changes that occurred in the vehicle-buying process.

For years, Cox Automotive surveys showed that consumers wanted to accomplish more of the car-buying process online. Digital retailing had existed before the pandemic, but the shift to online retailing accelerated as dealers were forced to find ways to do business. The inventory shortages drove the shift even further.

The result of expanding digital retailing has led to highly satisfied customers.

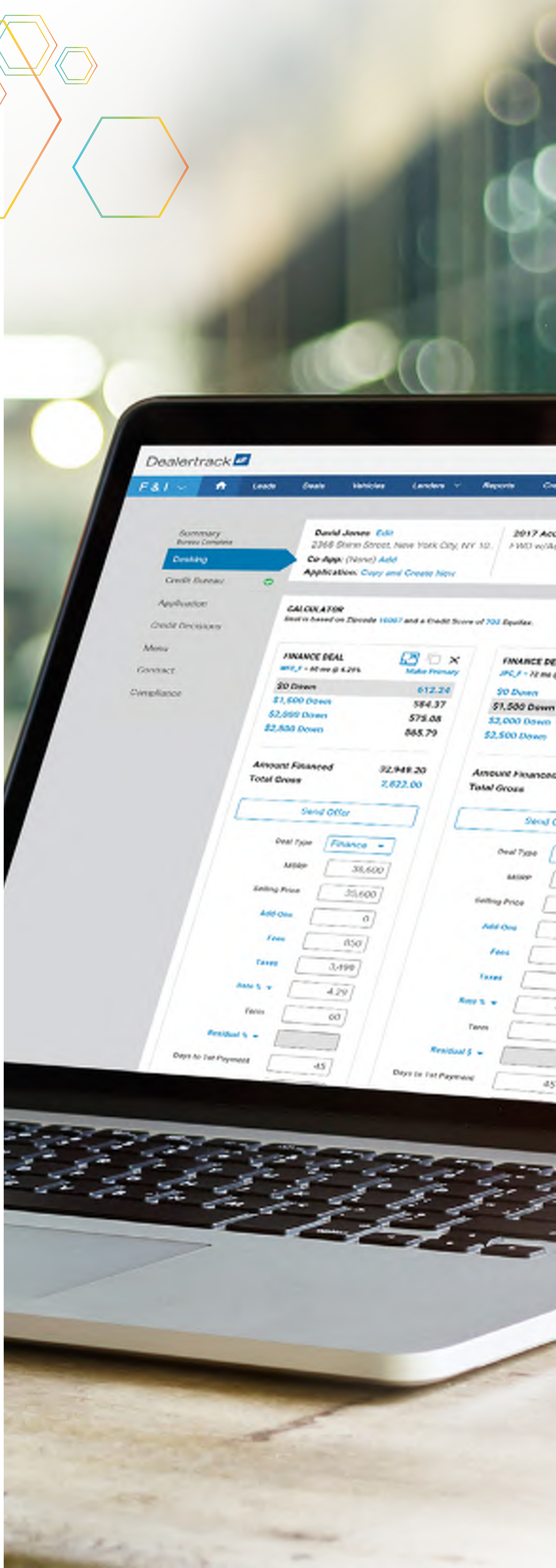
In 2020, buyers were very content because pandemic-induced incentives were high, dealers reached out with lucrative deals, and there was plenty of inventory to choose from. In 2021, the circumstances were different, but buyers remained highly satisfied.

New- and used-vehicle buyers in 2021 reported their shopping satisfaction softened some from the all-time high in 2020 but was still higher than pre-pandemic levels, according to the 12th annual Cox Automotive Car Buyer Journey (CBJ) Study. Three in four buyers were highly content with the dealership experience. The slight decline from the previous year had everything to do with inventory shortages and high prices caused by the chip shortage. Consumers said they were less satisfied with vehicle selection and price.

Digital engagement was stable with the previous year. Buyers who are most committed to using virtual tools proved to be the most satisfied. They were the most confident in their price, more content with the inventory selection, and more loyal to the dealer and brand. Those buyers heavily used dealer websites and third-party sites to shop for hard-to-find inventory.

Digital retailing streamlined the car-buying process and allowed consumers to be more efficient. In 2020, the time spent at the dealership was minimized and at an all-time low. The efficiency was attributed to the streamlined process established at the dealership. That remained consistent in 2021.

Digital Retailing continued...



Consumers spent about 46 minutes less time shopping and researching in 2021 than in 2020. They spent less time researching online as they had to be more focused and efficient in their search due to the inventory shortage. The most popular activities for shoppers to accomplish online in 2021 were locating a dealership, researching vehicle prices, comparing vehicles and brands and searching for vehicles for sale.

The average time in market was less than three months, particularly low for new-vehicle buyers. Some consumers felt the need to purchase sooner, fearing they would miss out if they passed on available vehicles.

Only about a third of the customers cited said that they purchased sooner because they found attractive purchase offers or appealing trade-in offers.

Since the pandemic in 2020, when dealers were closed and buyers shifted to online, consumers were less likely to visit dealerships. This trend continued into 2021. Both new- and used-car customers averaged visits to only two dealerships in 2021.

The higher engagement on dealer sites, the efficient, streamlined process and high satisfaction with the dealership experience led to dealership loyalty holding steady for the past two years. Those pluses ensure digital retailing is here to stay.

Looking Ahead

There is no turning back. 2020 turned out to be the tipping point for digital retailing, and 2021 moved it forward as it proved to be more efficient for both consumers and dealers, more satisfying for consumers, and more profitable for dealers. Most dealers believe they cannot survive without adopting digital retailing tools and moving more of the sales process online.

New-Vehicle Sales Reached 14.9 Million During Volatile Year

Modest Increase Expected in 2022

Industry observers entered 2021 with lots of optimism for a strong sales year. The arrival of vaccines, coupled with billions of dollars in government stimulus checks, created strong demand in the first half of last year. And indeed, the early months of 2021 saw strong sales. There was a spring sales surge as March, April, and May had the best three-month pace in over a decade. New-vehicle sales averaged a 16.8 million pace from January through June as the market felt close to normal. But sales slowed in the second half of the year, and the new-vehicle market finished 2021 with 14.9 million sales, a modest 3.3% increase over 2020's COVID-19 disrupted market.

Tight Supply Held Back Second-Half Sales

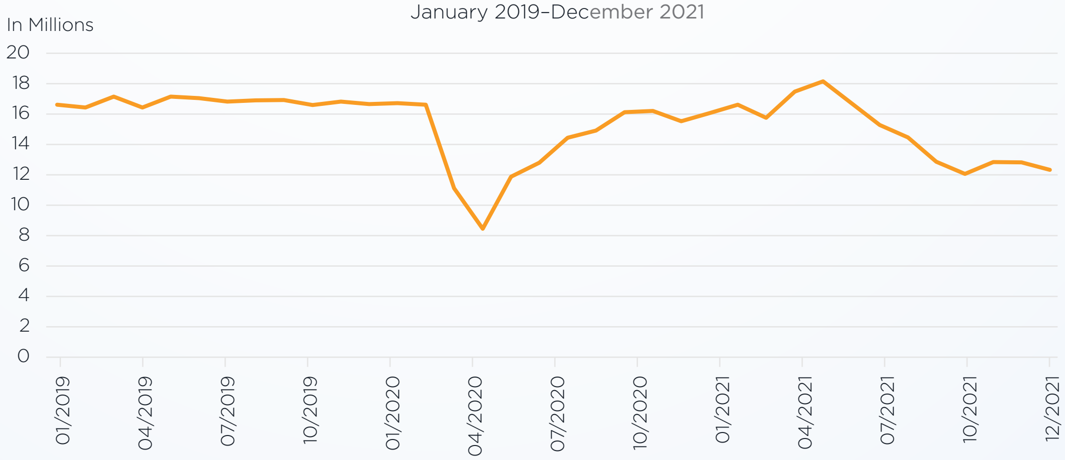
The second half of 2021 was a different story for new-vehicle sales. The spring sales success cleared out dealer lots across the country, and inventories could not be replenished. Vehicle production, already impacted by factories closing due to health reasons, was hit again, only this time due to the supply chain. Silicon computer chips, mainly manufactured in Asia, and used for multiple technology applications in vehicles, had only limited availability. As a result, vehicle production fell to a much lower level in 2021, and it remained there through the end of the year.

Sales in the second half of 2021 averaged only a 13.1 million pace, and the year finished in December with a 12.5 million pace, a level not seen since the early days of the pandemic.

Passenger vehicle sales fell nearly 1.5%, while truck sales, including most SUVs, were up 4.8%. Car share, which was 28% as recently as 2019, has fallen significantly since and finished 2021 at nearly 22%, and December 2021 finished at 19.8%, the lowest share ever.

TOTAL NEW-VEHICLE SAAR

January 2019–December 2021



Source: Cox Automotive

New-Vehicle Sales Overview continued...

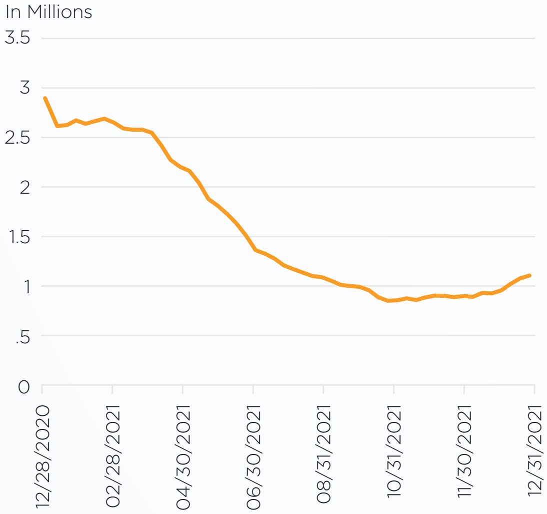
Chip Shortage Caused New-Vehicle Supply to Nosedive

The silicon chip shortage problem really began impacting the market in the spring of 2021. Although COVID caused supply disruptions that began impacting the vehicle market in 2020, it wasn't until the spring of 2021 that sales started to feel the effects. Spring sales in 2021 were particularly strong, but inventory couldn't be replaced. Sales continued to draw down available supplies until the pace of sales slowed dramatically by fall. New-vehicle supply started 2021 with 2.87 million units, but fell to 1.09 million, a 62% decline. This lack of product had massive implications for the vehicle market, resulting in higher prices.

Upward Pressure on Prices Intensified

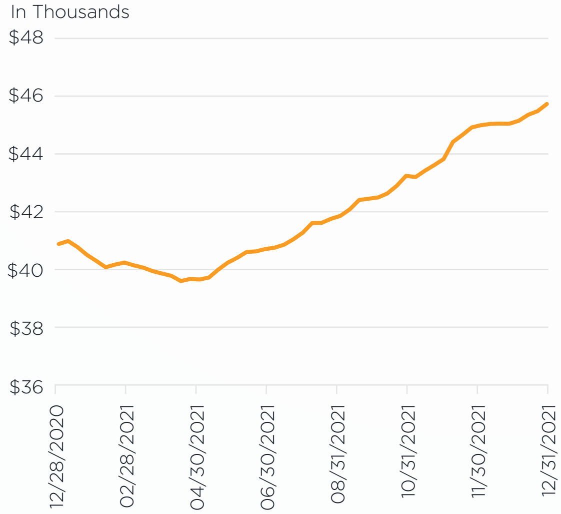
Tight inventories have been putting upward pressure on prices, and manufacturers have focused on building higher-margin, higher-priced vehicles over less profitable nameplates. The average new-vehicle listing price started 2021 at $40,850, but rose to $45,778 by year-end, a 12% increase. Prices always rise in the new-vehicle market as new technologies and more content lift prices; however, a normal range is 3-4%, and 2021's increase was well above this rate. A rich mix of luxury vehicles was a key driver of the overall industry average transaction price reaching an all-time high of $47,077 in December 2021.

ACTIVE NEW-VEHICLE SUPPLY



Source: Cox Automotive

2021 AVERAGE LISTING PRICE (WEEKLY)

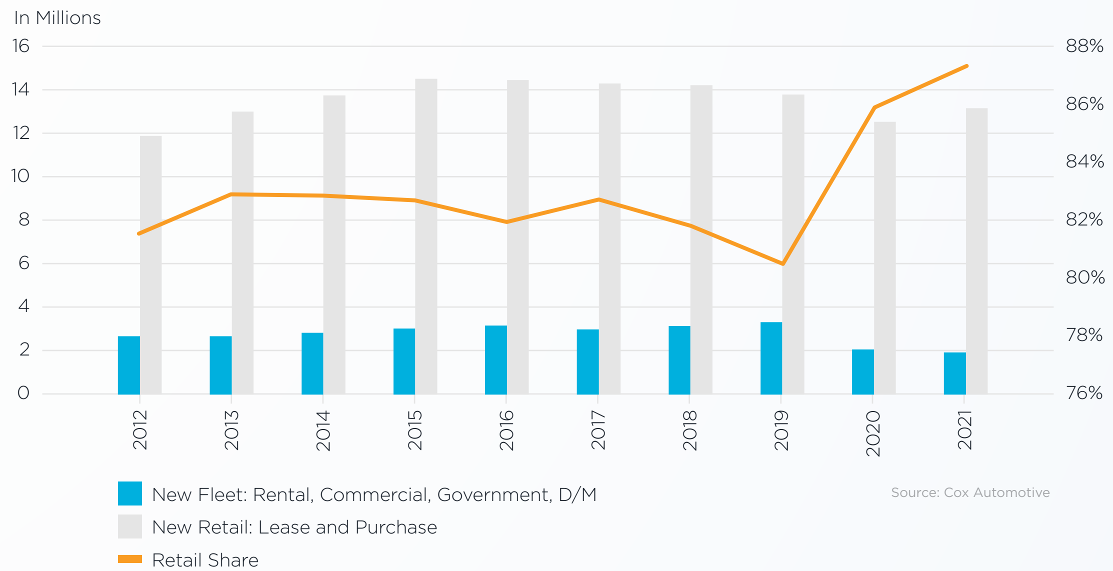


Source: Cox Automotive

New Retail Sales Continued to Lift the Market as Fleet Activity Remained Weak

The retail portion of light vehicle sales continued to be the key driver of the sales gains in 2021. The overall market was up 3.3% in 2021; however, retail sales increased nearly 5.0%, reaching 13.0 million units. Strong demand from consumers was constrained by the lack of supply. Retail sales gains would likely have been even higher in 2021, but a lack of product availability limited sales. The fleet portion of the market was down again in 2021 as sales into rental remained low. After falling 39% in 2020, fleet sales fell 6.9% in 2021, to finish at just 1.9 million units. Fleet remained 42% below 2019 levels, with volume in 2021 down nearly 1.4 million units from 2019. Retail's share of total sales rose in 2021 to 87.2%, up from 2020's 85.8%, and up from 2019's 80.6% share.

RETAIL AND FLEET SALES

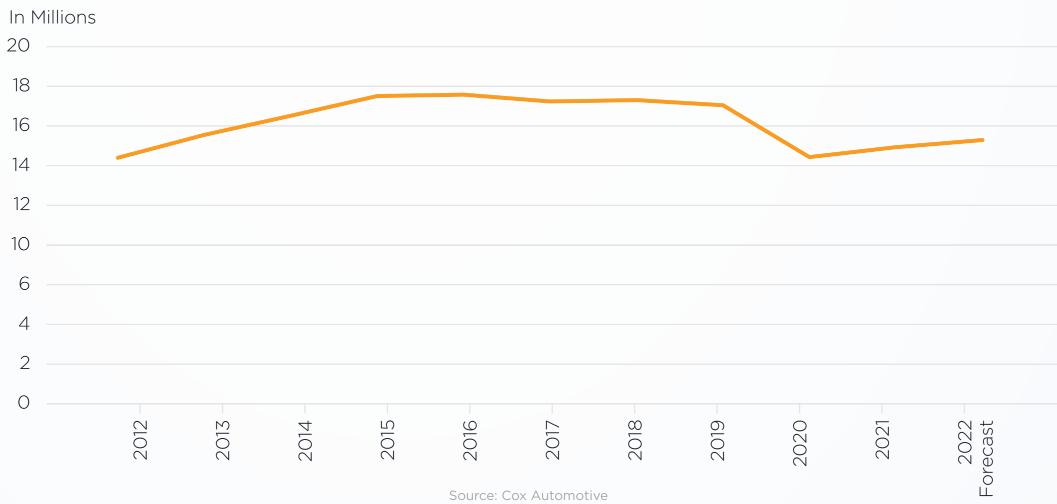


Looking Ahead

Light new-vehicle sales are expected to increase in 2022, but the amount is difficult to predict given ongoing supply chain issues. A lack of supply has constrained new-vehicle sales since August 2021, and the situation remains unresolved. Expectations are that supply should improve through the second half of 2022 as COVID-caused disruptions dissipate.

Given that assumption, Cox Automotive expects light new-vehicle sales to rise to 15.3 million units in 2022, up from 14.9 million in 2021. New retail sales are also expected to rise in 2022 to 13.3 million, up 2% from 2021. Production capabilities will improve through 2022 but slowly, so a more aggressive recovery is not forecasted. However, consumer demand is likely to remain elevated with ongoing low unemployment and above-average wage growth. High vehicle prices, expected higher interest rates, and supply issues will weigh on the vehicle market throughout 2022 and will likely remain headwinds into 2023.

TOTAL NEW-VEHICLE SALES



Source: Cox Automotive

Used-Vehicle Sales Finished Weak in 2021

Pace Slows in Second Half of the Year

The used-vehicle market had a significant sales increase in 2021, as ongoing concerns about COVID-19, which held back activity in 2020, gave way to a return to buying in 2021. Used-vehicle sales, as measured by IHS Markit state registration data, increased to 40.6 million units in 2021, up 3.2 million units, or 8.7%, from 2020.

Like the new-vehicle market, used sales saw a massive sales surge in the spring of 2021. Optimism about the newly developed COVID vaccines, coupled with $1,400 stimulus checks from the federal government, created a robust first half of the year. However, also like the new-vehicle market, the second half of the year was much slower. Available supplies of older, more affordable vehicles disappeared quickly during the sales surge, and what remained on dealer lots were more expensive vehicles. The sales pace in the first half of 2021 averaged 41.4 million units, but this fell to 39.4 million in the second half as higher prices held back the market.

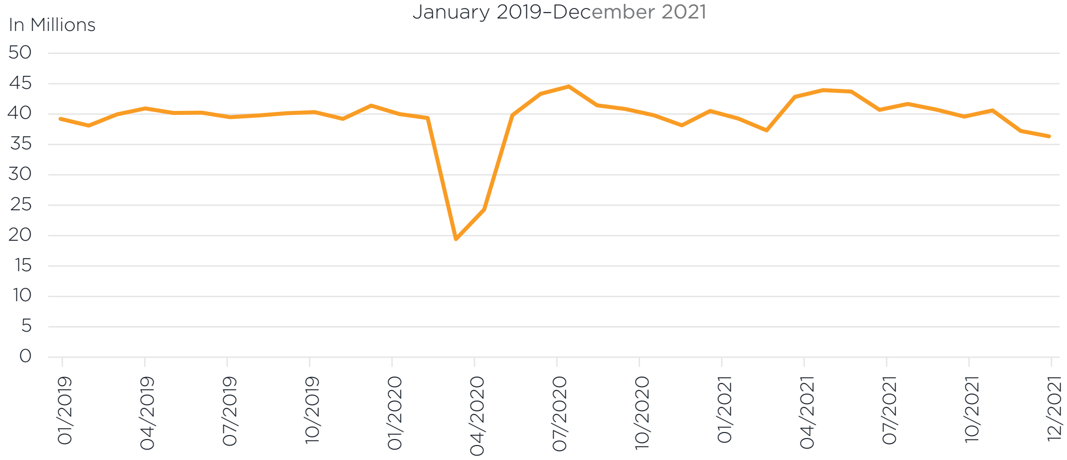
Combined New and Used Retail Market

Retail activity for new and used vehicles rose to 34.2 million units in 2021, up nearly 6.2% or 2.0 million units from 2020. Franchised dealers sold 23.6 million new and used vehicles as their total retail activity increased by 6.6%. Used share of franchised retail sales rose to nearly 45% in 2021, up from 44% in 2020. Independent dealers sold 10.2 million units, a gain of just 3.2% over 2020, less than half that of franchised dealers. Used direct sales, or sales made directly to consumers from companies such as Carvana, Vroom and Shift, are estimated to have numbered more than 0.4 million units, up 101% from the prior year.

Certified pre-owned (CPO) sales reached 2.7 million in 2021, up 5.4% from 2020. Interest in these specific used vehicles was strong due in large part to the limited availability of new vehicles. And, higher realized residual values made CPO units, which are usually off-lease vehicles, especially attractive in the marketplace.

USED-VEHICLE SAAR

January 2019–December 2021



Source: Cox Automotive

Used-Vehicle Sales Overview continued...

Used-Vehicle Supply

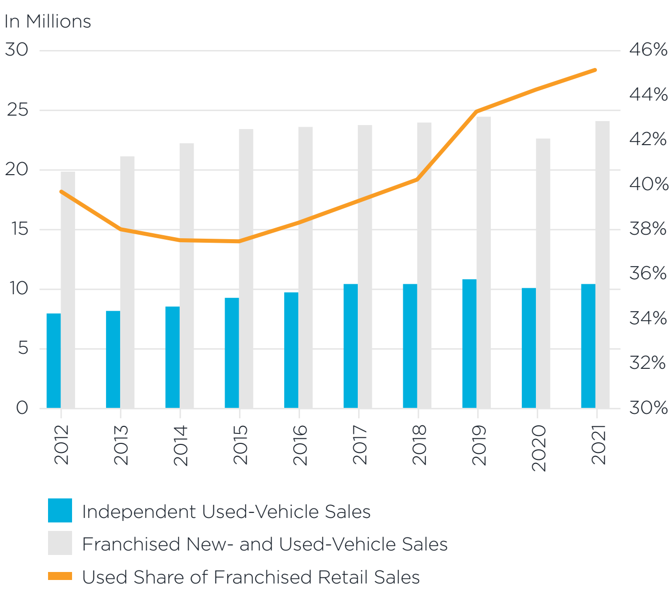
The number of vehicles available for sale at dealerships across the country fell significantly during 2021 as the new-vehicle supply shortage expanded. The year started with 2.63 million used vehicles in inventory, but supply fell quickly in the spring and never fully recovered throughout the remainder of 2021. The year ended with 2.38 million units of used-vehicle available supply, 9% lower than at the start of the year.

Days' supply, or how long existing inventories will last based on the current sales pace, also saw considerable changes in 2021, but little change year over year. The year started with 54 days' supply, a relatively typical amount compared to previous years. However, as the supply shortage hit the new and used markets in the spring of 2021, availability fell to just 31 days' supply, and it remained at low levels through much of the summer. Supply improved gradually in the fall, and days' supply finished the year at 51, down just 6%.

Used-Vehicle Prices

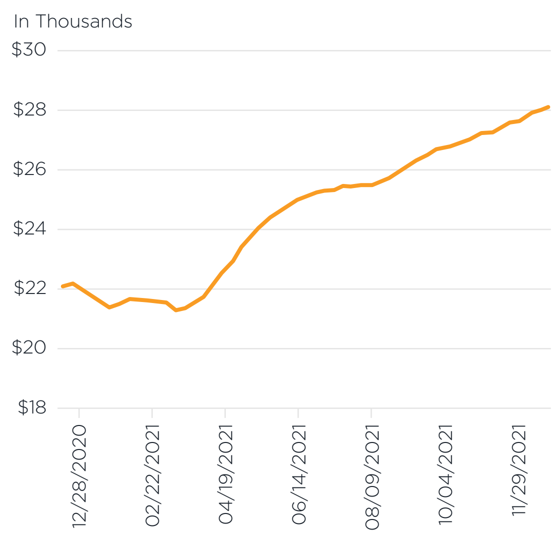
Due to limited product supply in the new-vehicle market and supply constraints within the used market, used-vehicle prices rose significantly in 2021. Demand was already elevated, and $1,400 stimulus checks from the federal government ignited vehicle purchasing in the spring, and prices rose quickly. The average used-vehicle listing price started 2021 at $22,083 and ended at close to $28,193, nearly a 28% increase. Higher price levels are expected going forward as limited new-vehicle supply will keep demand for used personal transportation elevated.

NEW AND USED RETAIL MARKET



Source: Cox Automotive

AVERAGE LISTING PRICE: WEEKLY 2021



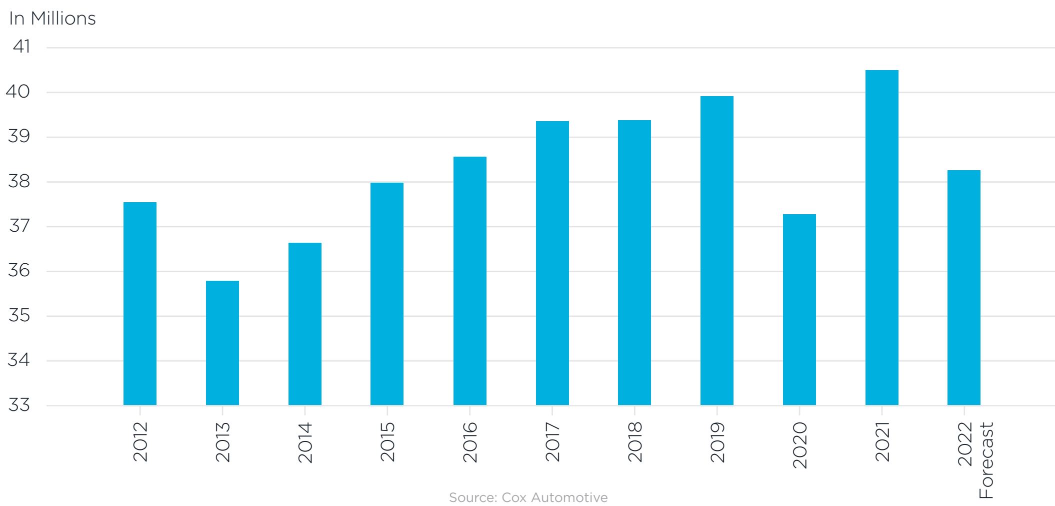
Source: Cox Automotive

Looking Ahead

The used-vehicle market is expected to decline in 2022 as high vehicle prices, higher interest rates, and less government financial support will slow the market from last year's level. Used-vehicle sales, as measured by IHS Markit state registration data, reached 40.6 million units in 2021 as optimism around COVID vaccines, $1,400 stimulus checks, and record low interest rates helped create a robust market.

However, there is less optimism for sales in the year ahead, and there is certainly less government support to stimulate sales. With vehicle prices and rates now higher, the number of transactions is expected to fall in 2022. Cox Automotive forecasts used-vehicle sales to drop to 38.3 million units in 2022, down 5.5% from 2021. Used retail sales are also expected to fall and settle at 20.2 million in 2022, down 4.7% from 2021. Prices are expected to remain elevated as future supply to the used market is constrained. Fewer new-vehicle sales and less fleet and leasing activity during the COVID years of 2020 and 2021 mean the supply of used vehicles will remain relatively constrained in the years ahead.

TOTAL USED-VEHICLE SALES



Source: Cox Automotive

Ample Credit and Improved Credit Standing Contributed to Record-Level Auto Loan Originations in 2021

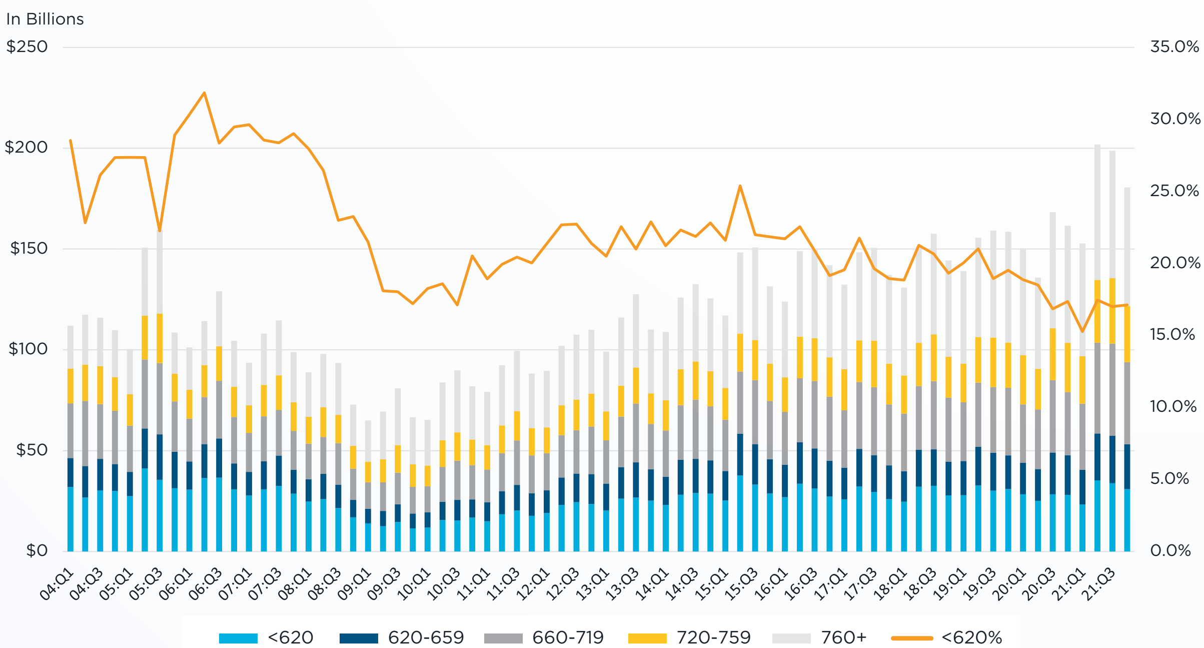
Auto loan originations increased to $734 billion in 2021, breaking the previous record of $616 billion set in 2019, according to the Federal Reserve Bank of New York. Record vehicle values in new and used helped offset supply-constrained new-vehicle volumes, but record used retail volumes also supported the loan growth.

Subprime Lending Grows but Loses Share

A key measure of credit access in auto lending is the number of loans made to subprime borrowers. Auto loan originations increased in 2021 in all credit tiers, unlike the performance in 2020 when the highest credit tiers drove the growth. Subprime auto loan originations in 2021 increased by 12.1%, still less than any of the growth in the other credit tiers, and as a result, the subprime share of total originations fell to an 18-year low of 16.8%.

Subprime borrowers saw favorable rate declines and were more likely to be approved for an auto loan in 2021. Still, with record-high vehicle prices, buying conditions were less favorable to borrowers increasingly challenged by affordability. Consumers, on average, also saw improving financial conditions throughout the pandemic, which led to improving credit scores on average and, therefore, an overall decline in the number of subprime borrowers. As a result of these factors, the subprime share of auto lending fell to a record low in 2021.

AUTO LOAN ORIGINATION VOLUME ($) BY CREDIT SCORE



Source: Federal Reserve Bank of New York

In the fourth quarter of 2021, the share of auto loan origination volume to subprime borrowers was 17.1%, down from 17.4% the prior year and down from its most recent peak of 25.4% in the second quarter of 2015.

A first auto loan, especially for a young, lower-income borrower, is often the beginning of moving up the social ladder and a crucial part of building credit.

Data from Equifax show that age and credit scores are correlated. An adult under 35 is 49% more likely to have a credit score under 620 compared to the broader population. According to Equifax, 13.5% of consumers with active credit have a score that defines them as subprime.

Credit Tightens; Defaults Stay Low

Keeping a vehicle for transportation is so vital to borrowers that, even at the worst stage of the Great Recession, the default rates on auto loans remained close to 4%. In comparison, defaults rose to nearly 6% for mortgages and over 9% for credit cards. The default rate on all auto loans in 2021 was 2.0%, down from 2.2% in 2020 and 2.9% in 2019, according to an analysis of Equifax data. Low defaults resulted from elevated numbers of loan accommodations, unprecedented government support and stimulus, record-high vehicle values, and a recovering job market.

The Fed's quarterly survey of senior loan officers at domestic banks reveals a clear trend in credit standard tightening on auto loans that started well before the pandemic in 2016, throughout 2017 and during the first half of 2018. Since then, credit standards remained relatively unchanged until they began tightening again in the third quarter of 2019. Credit standards continued to tighten in 2020, particularly in reaction to the COVID-19 pandemic.

In the third quarter of 2020, a record net 55% of banks reported tightening standards on auto loans. Tightening turned into loosening in 2021. Each quarter of 2021 featured declines in loan officers reporting that they were tightening standards. The result of loosening meant that borrowers were more likely to be approved and see more favorable terms and conditions on loans.

Financing Sources Vary by New Versus Used

Consumers obtain financing for their vehicle purchases through three primary sources: banks, credit unions and dealerships. Dealerships, in turn, can tap multiple lender types through technology platforms like Dealertrack, which connect 22,000-plus dealers with more than 1,600 lenders, including banks, captive finance companies and independent finance companies.

Across these sources, lenders provide financing to a wide range of consumers on a wide range of vehicles. The credit application-level data from Dealertrack provide great insights into differences in loan amounts, rates and payment by vehicle type and consumer segment.

Used-vehicle loans are smaller than new-vehicle loans. In 2021, the average difference was over $10,700, which was smaller than the $14,300 difference in the average price difference of the vehicles financed.

Used-vehicle loans also have higher interest rates, as used vehicles represent a greater risk to lenders due to variability in valuation and greater risk of default. The difference between the annual percentage rate (APR) on new-vehicle loans and used-vehicle loans was 3.6% on average in 2021.

Credit/Consumer Profile continued...

Within used-vehicle loans, the average APR varies dramatically by the borrower's credit score. In 2021, the average difference in APR between borrowers with credit scores above 760 compared to borrowers with credit scores under 620 averaged 14 percentage points.

Historically, the average term length of new-vehicle loans has been longer compared to used-vehicle loans, as lenders are less willing to take on the higher risk of default of an already riskier loan. However, used loan terms have lengthened, and that gap is now closing. New-vehicle loans averaged 69.4 months in 2021, while used-vehicle loans averaged 68.5 months.

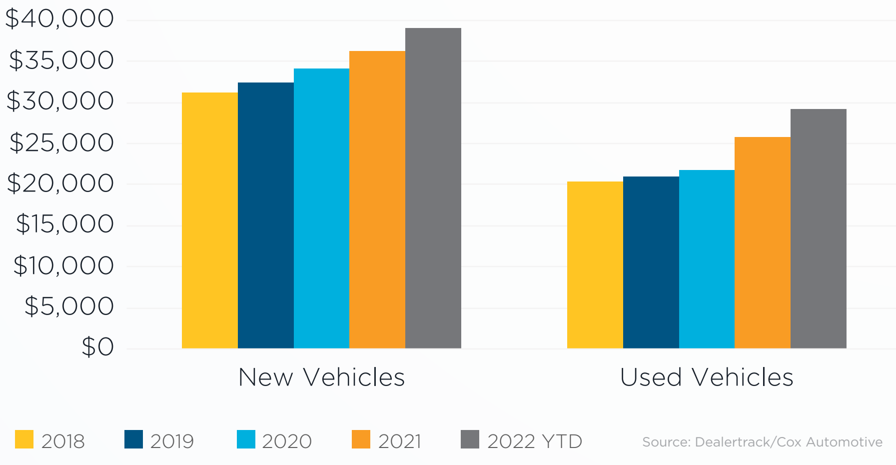
The payment on a vehicle loan is a function of the loan amount, the term length and the APR.

Credit Continues to be Tailwind

The decline in interest rates since the pandemic began and persisting into 2021 helped offset some of the affordability challenges that would have resulted from the inflation trend in vehicle prices.

In 2019, the industry was in a more challenging financial environment, which made it harder for consumers to get as much vehicle as they did during the earlier years of the recovery from the Great Recession when interest rates were low and credit was more accommodating. Lower rates brought on by the monetary response to the pandemic combined with strong loan performance and record vehicle values and a booming economy meant that what was a headwind in 2019 was clearly a tailwind for vehicle demand in 2021.

AVERAGE AUTO LOAN SIZE



Source: Dealertrack/Cox Automotive

The Federal Reserve kept the short-term rate policy at zero for the lower bound of short- term rate policy throughout 2021. The bond market rallied in the spring but then retreated in the back half of 2021, so lenders were under little pressure to raise rates. Average interest rates on new- and used-vehicle loans declined for much of the year, with new rates ending at a record low in December.

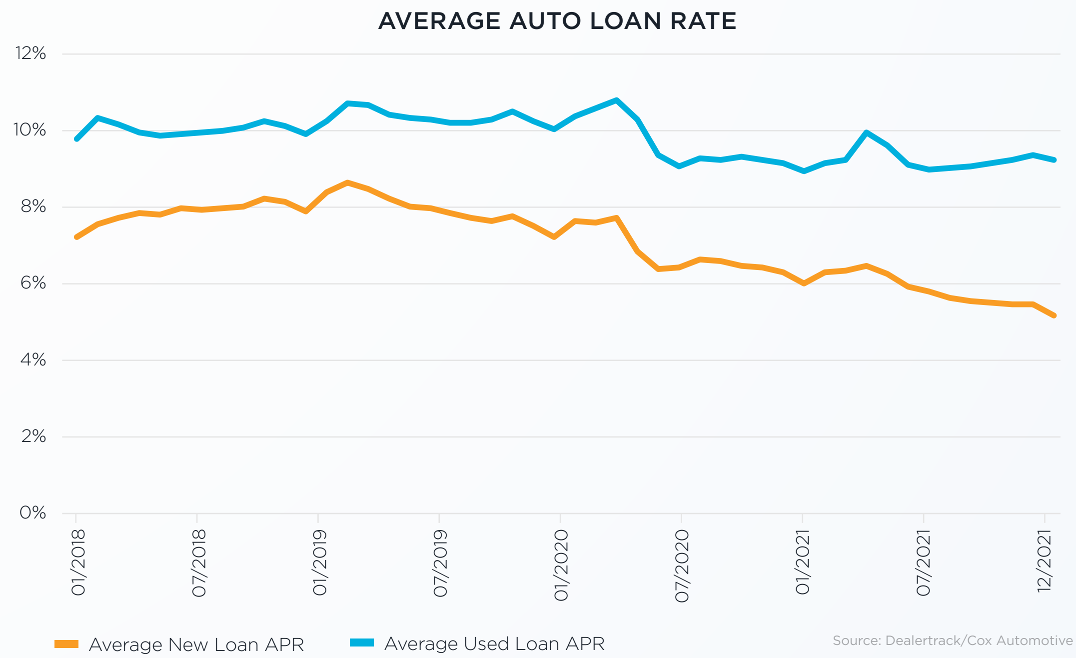
The average interest rate for new-vehicle loans ended the year down 90 basis points (BPs) to 5.15%. The average used vehicle loan ended the year at 9.29%, up slightly by 27 BPs compared to December 2020. All credit tiers enjoyed lower interest rates in 2021 compared to where rates were before the pandemic.

Record Prices Drive Record Loan Amounts and Record Payments

Record-high prices for both new and used vehicles in 2021 led to record finance amounts on loans and record monthly payments despite lower rates. The average new loan amount in 2021 grew 8% to $36,620. The average used loan amount in 2021 grew 18% to $25,882. The average new loan payment in 2021 was $612, a 7% increase over 2020. The average used loan payment in 2021 was $480, a 15% increase over 2020.

Looking Ahead

The new year has started with big increases in bond yields and a stark shift in the Federal Reserve's monetary policy to focus principally on reducing inflation, which is now being driven higher by the impact of the Russian invasion of Ukraine. With rates already higher and likely to continue increasing throughout 2022, affordability will be further challenged. However, one positive for the vehicle market, at least through the first quarter, has been the continued easing of credit standards as lenders seem poised to shift credit preference to autos and away from other sectors such as the mortgage market. As a result, consumers may benefit from more favorable terms and may be more likely to be approved for auto loans across the credit spectrum.



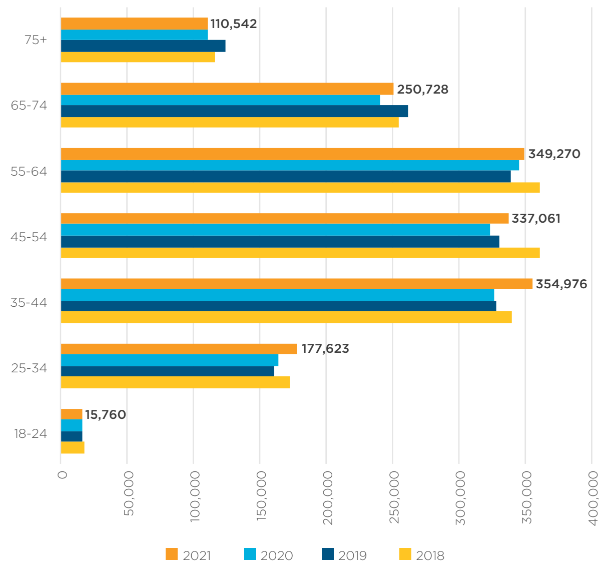
Source: Dealertrack/Cox Automotive

Millennials Finally Made Their Mark in Car — and Truck — Sales

For the first time in recent years, millennials, and specifically the group of buyers aged 35-to-44, were the largest cohort of vehicle buyers in both the new and used markets, surpassing baby boomers for the first time since 2018. The reversal is due to millennials buying more vehicles while baby boomers buy fewer.

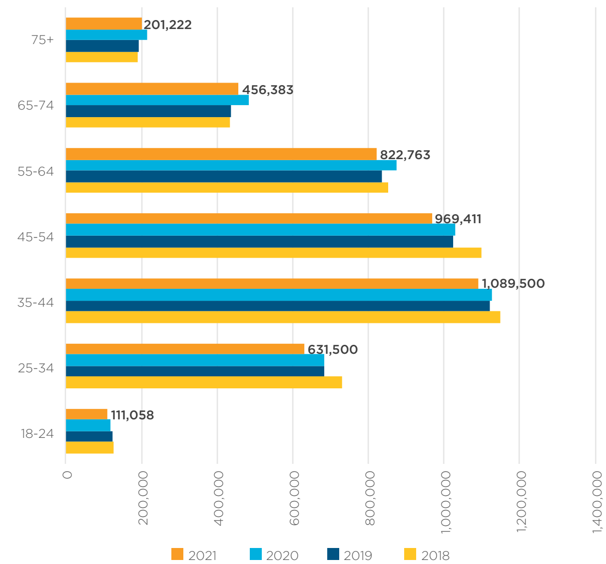
Millennials, notably affected by the Great Recession and saddled with high student loan debt, are now further along in their careers and have achieved comfortable lifestyles with higher incomes. This generation has started families and is now making big purchases, including homes and new vehicles.

NEW-VEHICLE BUYERS BY AGE GROUP



Source: IHS Markit Vehicle Registration Data

USED-VEHICLE BUYERS BY AGE GROUP

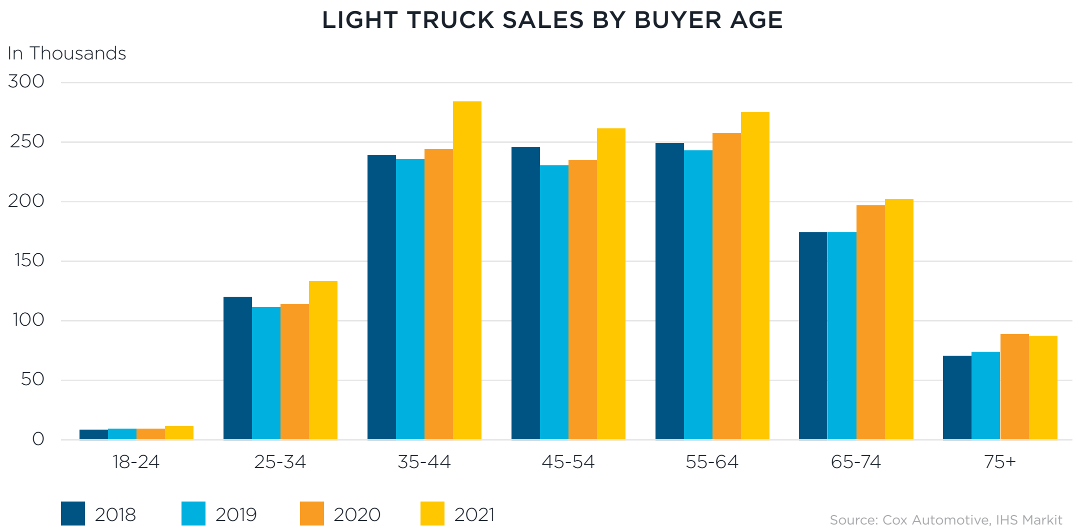


Source: IHS Markit Vehicle Registration Data

2021 EV CONSIDERER PROFILE

Females	Millennials	Average HHI	College Grad	Kids in HH	Multicultural
45%	52%	$87K	61%	51%	35%

Source: Motor Intelligence



Pickup trucks remain among the highest-selling vehicle segments for buyers, partly driving overall sales in recent years. Another first in 2021: 35-to-44-year-olds were the top buyers of light-duty pickup trucks. Millennials bought trucks for travel, transporting family members, and projects around the house and yard.

As a population more concerned with climate change, millennials are also driving growth in electric vehicle (EV) sales. Older millennials have steadily increased their take-home pay and are spending it on more expensive vehicles, including EVs with higher price tags. Buyers ages 35-44 bought 31% of electric vehicles in 2021. In a recent Cox Automotive study of buyers, millennials and Generation Z (many of whom are just beginning to enter car-buying age) constituted 52% of shoppers considering EVs.

Millennials are also driving changes in how vehicles are purchased. Improvement in their financial status combined with an aversion to dealerships, this generation has taken to digital retailing for vehicles. Millennials were raised on technology, including social media, and are less inclined to visit dealer showrooms. This generation wants to be able to shop from their devices and not deal with dealer tactics such as upselling.

Buyer Demographics continued...

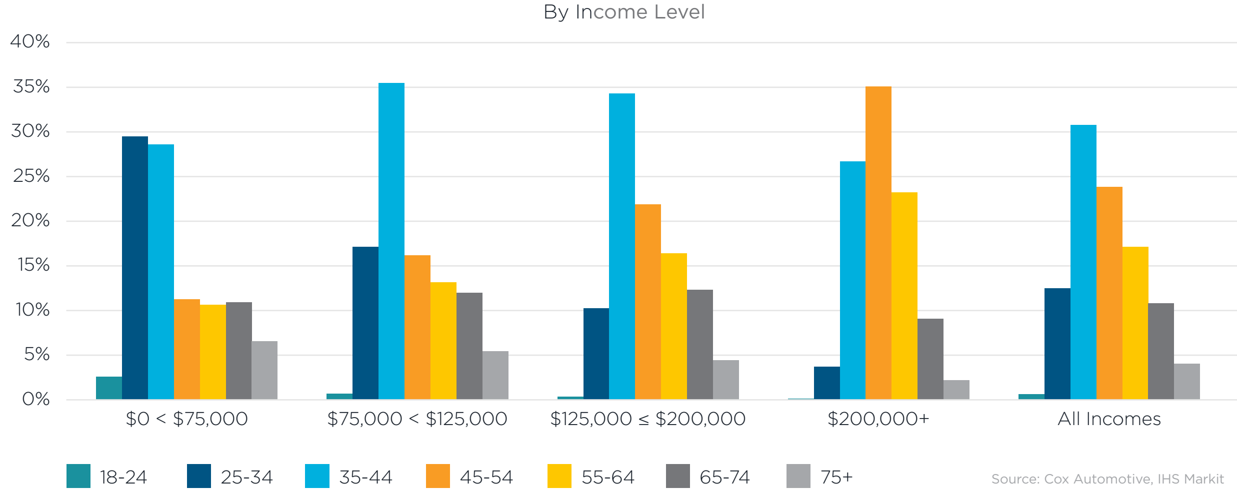
The 2021 **Cox Automotive Car Buyer Journey (CBJ) Study** showed that millennials and Gen Z remained committed to digital buying in 2021 after the pandemic lockdowns of 2020. Meanwhile, the older Gen X and baby boomers felt more comfortable returning to dealerships to perform certain steps of the car buying process in person. The 2021 Car Buyer Journey found that demographics of the buyer who wanted to do the most steps of the buying process online were younger, male, Hispanic, with higher incomes ($75,000 and higher) and who favored luxury vehicles.

Looking Forward

Overall, millennials, which represent the largest generation, have become the most important consumer segment for dealers. They are buying more vehicles and will continue to push the new and used markets upward. They will also increase purchases of electric vehicles as more models enter the market. These shoppers will also fuel changes in the shopping and purchasing experience, driving further advancements in digital retailing.

AGE GROUP SHARE OF EV ONLY RETAIL SALES

By Income Level



Source: Cox Automotive, IHS Markit

Auto Loan Defaults, Repossessions Fell to at Least a 16-Year Low

Auto loan defaults and repossessions fell to at least a 16-year low in 2021 due to a combination of factors, including fiscal support, loan accommodations and record-high used-vehicle values.

Cox Automotive estimates that repossessions totaled 1.1 million vehicles in 2021, down 12% from 2020's 1.3 million and down from a decade high of 1.7 million in 2019. Driving most of this decline was the decline in auto loan defaults to only 2.0% of all loans.

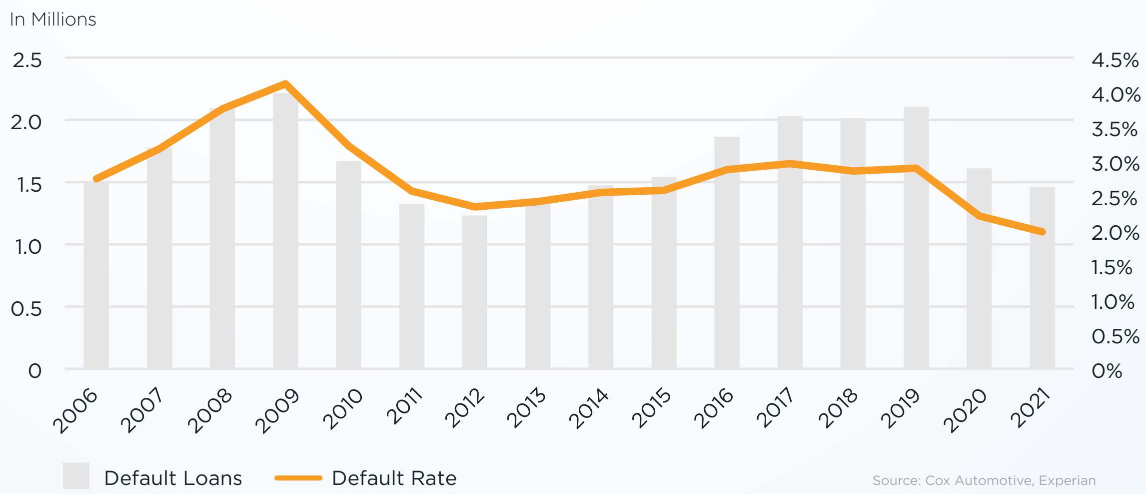
No government or third-party source officially tallies repossession volumes. As the world's largest wholesale auto marketplace, Manheim repossession volume trends serve as one proxy for the overall market.

Working with Equifax data, Cox Automotive has established a view of auto loan defaults to track the basis for repossessions. Defaults are auto loans beyond 120 days past due, but exclude loan accounts in bankruptcy proceedings.

Historically, the default volume is larger than the actual repo volume, as approximately 20% of auto loans in default never become a repossession. There are many reasons for this, including loans that the lender chooses not to pursue with a repossession, such as when the vehicle value or default amount may not be worth the effort or when the consumer and lender worked out some other plan.

Based on trends in 2021, the percentage of loans that did not become a repossession likely increased to an estimated 22% of defaults. Record-high vehicle values meant consumers had more options than turning in the keys.

ESTIMATED DEFAULTS AND DEFAULT RATE ON AUTO LOANS



Source: Cox Automotive, Experian

Repossessions continued...

The auto loan default rate in 2021 was the lowest in at least 16 years. The decline resulted from a combination of factors, including fiscal support, loan accommodations and record used-vehicle values. For those reasons, defaults were down 23% in 2020 to 1.6 million from a decade high of 2.1 million in 2019. In 2021, defaults declined another 9%.

Assuming 78% of defaults ended up as repossessions in 2021, as observed looking at Manheim trends, the year had 1.1 million vehicles repossessed, compared with 2020's 1.3 million repos, and down from an estimated 1.7 million in 2019.

In 2020, Manheim observed a 22% decline in repossession volumes. That is consistent with the 24% loan default decline seen in Equifax data. In 2021, Manheim saw a 7% decline in repossession volumes, consistent with the 9% decline in loan defaults.

The default rate of 2.0% in 2021 was far below normal levels, such as the 2.9% rate seen in 2019.

Looking Ahead

With the end of stimulus support, more normal levels of loan accommodation, and used-vehicle values declining, the auto loan default rate is slowly normalizing. Through the first quarter of 2022, defaults have been at an annualized rate of 2.3%. However, the default rate is not likely to return to 2019's 2.9% rate in 2022 as the loan portfolio has a higher share of higher credit tier loans, which have much lower expected default rates. In addition, with high vehicle values, consumers who have fallen into default continue to have more options and that likely means a lower percentage of defaults will lead to repossessions.

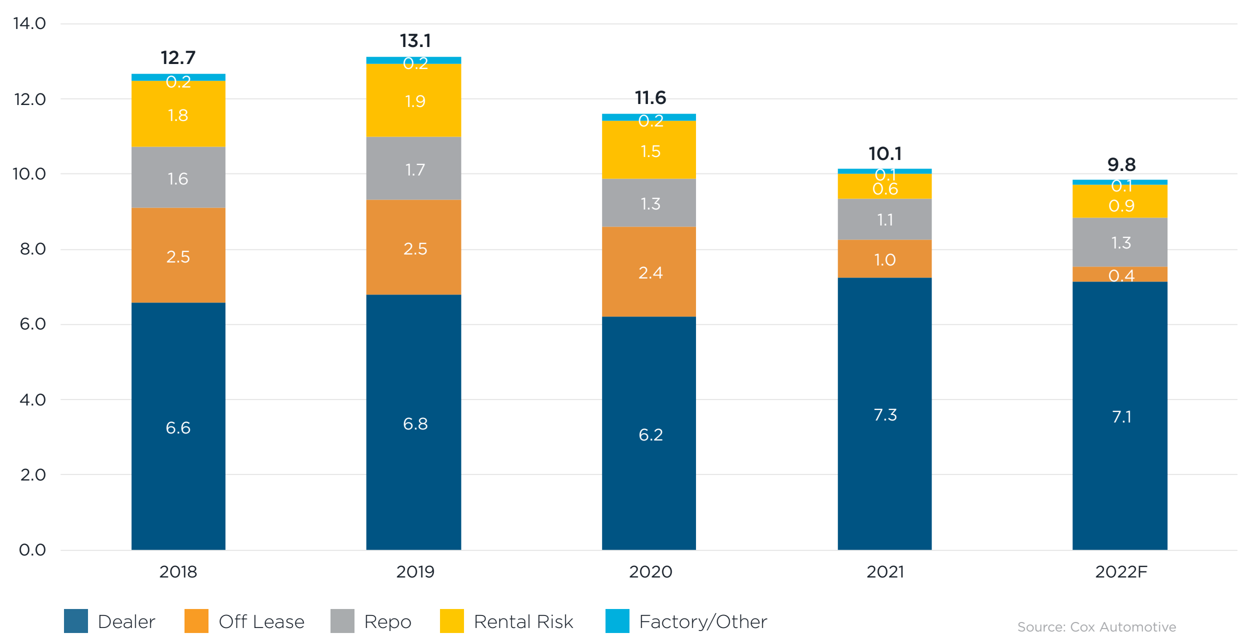
2021 Experienced Continued Wholesale Inventory Challenges

2022 Expected to See More of the Same

While the move to all-digital sales helped support wholesale flows from 2020 into 2021, the traditional channels of inbound vehicles continue to see significant declines from 2019, the last year of "normal" market dynamics. The wholesale auto market is feeling many of the same headwinds impacting the broader markets, including inflation concerns, inventory issues, and higher-than-usual fuel prices impacting shipping costs. Still, demand for used vehicles continues to be strong, thanks in part to disruption in new-vehicle production caused by the global microchip shortage, the war in Ukraine, a March earthquake in Japan, and secondary inspections of U.S.-bound trucks from Mexico in April causing significant auto parts delays. Until the new-vehicle inventory situation notably changes, the used-vehicle market will continue to be challenged.

2021 wholesale inflow was down 18% compared to 2020. Dealer activity was stronger than anticipated, a result of low used-vehicle inventory across the industry. High equity positions for off-lease units kept most out of the wholesale funnel. Repossessions remained depressed from loan accommodations. Rental supply remained constrained from the new side, and, surprisingly, rental companies entered the wholesale market to bolster their fleets. Factory supply decreased throughout 2021 as commercial fleet companies kept units in service longer, and employee lease programs were canceled or put on hold.

ESTIMATED WHOLESALE VOLUMES BY INFLOW CHANNELS



Source: Cox Automotive

Wholesale Volume continued...

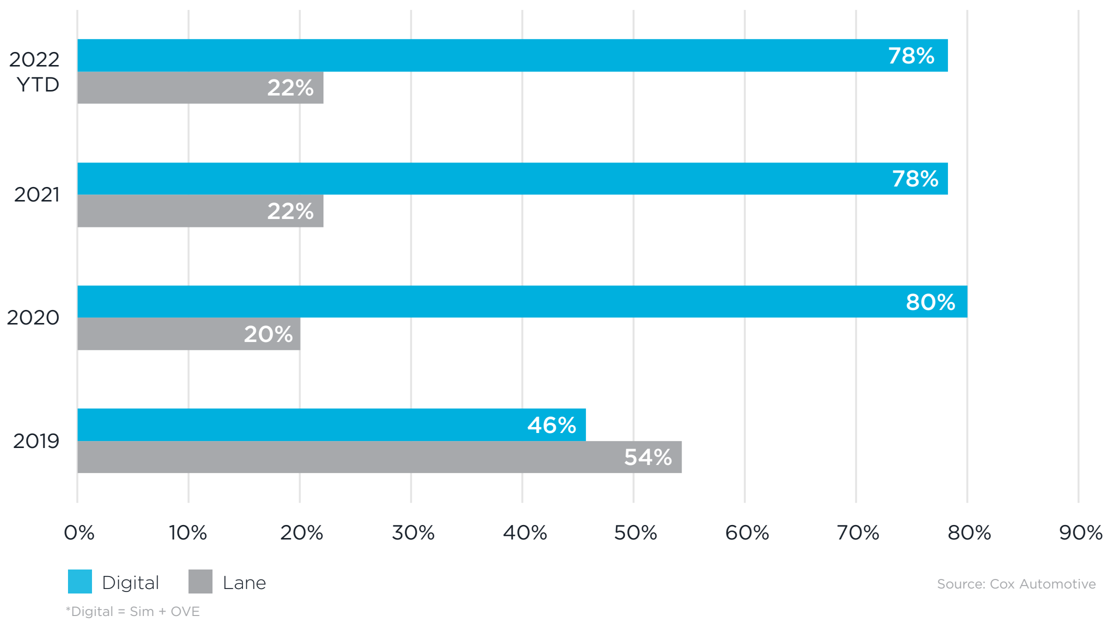
Demand

Lockdowns and other pandemic-related business restrictions led to massive digital transaction adoption in both the retail and wholesale space, seemingly overnight. The share of sales that are digital, defined by Manheim as Simulcast and OVE transactions, increased from 46% to 80%, or 48% year over year, from 2019 to 2020. From 2020 to 2021, the digital share decreased only slightly from 80% to 78%. Vaccines and general operational adjustments led to an 8% year-over-year increase in physical sales, but the vast majority of sales in 2021 were digital.

Supply constraints have clearly had an impact on the industry since the beginning of the pandemic. The auction volume at Manheim declined 15% from 2019 to 2020, all from the impact of COVID, but volume increased by only 1% from 2020 to 2021.

Wholesale used-vehicle prices saw the largest year-over-year increases in history in December 2021, up 47% versus December 2020 and 67% versus December 2019, according to the Manheim Used Vehicle Value Index. With the industry wrestling with continued new-vehicle inventory issues, demand remained strong in the used market, pushing prices higher. Rental companies, lacking new supply for their fleets, also entered the used market, amplifying price increases even further. All vehicle segments saw year-over-year gains, most notably in Vans, Compact Cars, and Midsize Cars.

MANHEIM SHARE OF SALES BY CHANNEL TYPE



Looking Ahead

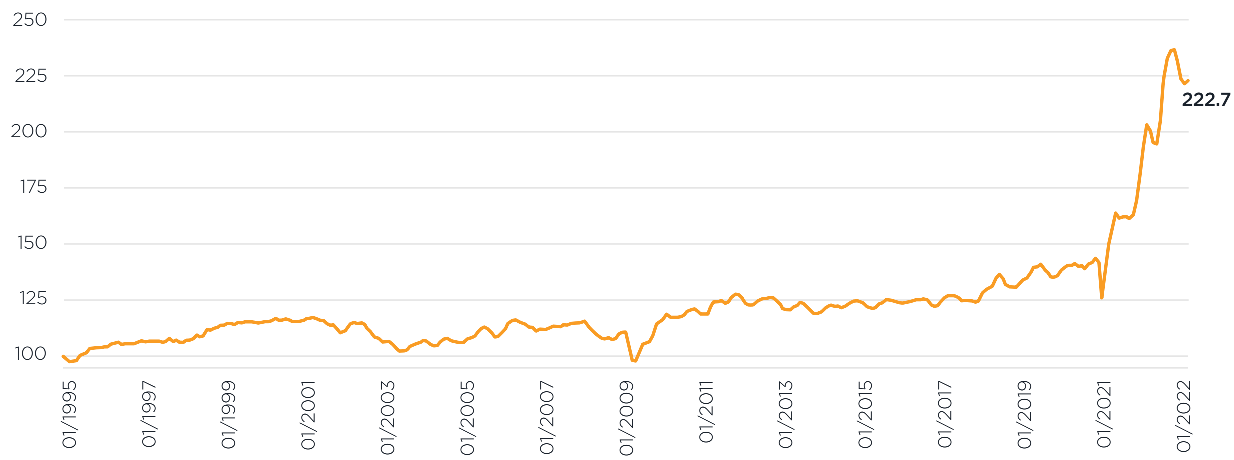
Supply chain disruptions emanating from COVID-related manufacturing shutdowns continue to challenge used-vehicle inventory. In 2022, the total volume of wholesale units requiring disposal is forecasted to reach 9.8 million units, a 0.3 million decrease from 2021, as the wholesale market sees growth in repossessions and rental risk, offset by depressed factory volumes, modest declines in dealer vehicles, and a significant decline in off-lease units.

A similar share of digital sales is expected throughout 2022 from 2021, as the shift has become fairly mainstream. New technologies such as Fyusion, Upside™, and Manheim Express (offsite buying/selling) will continue to power digital as the most common and most efficient buying experience. As COVID variants shift or develop, digital is expected to continue as a major buying channel for the foreseeable future.

Prices, while remaining at historic highs, are forecast to decline 3% in December 2022 from December 2021. That also implies a net 3% decline for the year. As supply disruptions persist, prices are not seen crashing, rather they should slowly drift back into normal depreciation patterns last seen prior to the pandemic. Given the uncertainties mentioned earlier, we expect any future impacts to raise risk to the downside, though not to levels that would be considered a major decline or price correction.

MANHEIM USED VEHICLE VALUE INDEX

Mid-May 2022



Source: Cox Automotive

Fabiola Mendoza
Manheim

Dealer Service Departments Experienced Notable Increases in Volume and Revenue in 2021

Service centers at U.S. franchised dealerships finished 2021 on a high note after a COVID-impacted 2020, according to an analysis of Xtime metrics. Both the Repair Order Volume Index and the Repair Order Revenue Index increased in 2021 compared to the prior year. Repair order volume in 2021 remained below pre-pandemic levels, but the average service ticket size or revenue per repair continued to increase throughout the year, setting many monthly record-highs along the way.

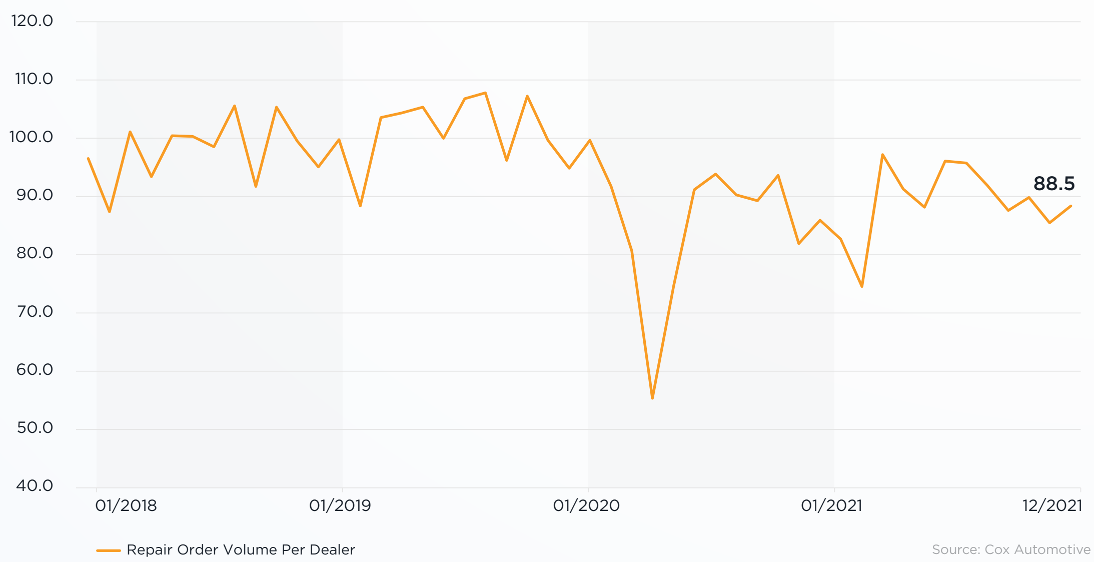
The monthly Xtime volume and revenue metrics are designed to showcase average service department performance over time, with the information indexed to January 2019. The two, top-line measures provide a glimpse into service department performance at franchised dealerships in the U.S. Xtime provides software that helps auto dealers facilitate more than 10 million service appointments monthly.

In 2021, the Repair Order Volume Index hit 88.5 in December and finished the year up 4% year over year.

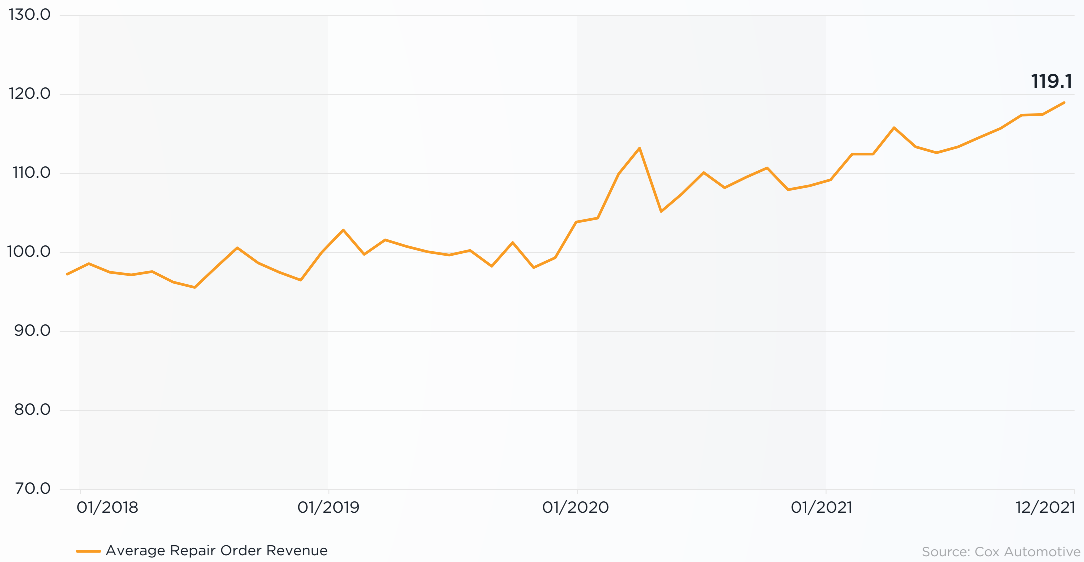
The overall volume of repair orders being processed at U.S. franchised dealerships continues to be lower compared to the months prior to the onset of the global pandemic. Initially, service appointments declined by nearly 50% year-over-year in April 2020 when lockdowns prevented many vehicle owners from being able to take their vehicles for service, forcing dealers to innovate and begin offering service pickup and delivery.

In 2021, as the country experienced surges and declines in COVID cases, reduced driving (due in part to work from home), and diminished capacity at dealer service departments (due to lack of certified technicians), appointment volumes remained well below 2019 levels but saw notable improvements over the low levels seen in 2020.

XTIME REPAIR ORDER VOLUME INDEX



XTIME REPAIR ORDER REVENUE INDEX



Source: Cox Automotive

However, when vehicle owners came in for service, they had more work completed and spent more money per visit. The average revenue generated per repair order rose in 2021. At 119.1, the Repair Order Revenue Index in December 2021 was 9.7% higher than in December 2020. The Revenue Index in December 2021 was also up 14% from December 2019.

The overall trend line indicates revenue per repair order has taken a step change since the COVID-19 pandemic hit the auto industry. Each repair order generated more than $450 in revenue on average in 2021.

Looking Ahead

Even before the pandemic, the service department delivered more than half of a typical franchised dealer's profits, according to NADA. With vehicles worth more and with pent-up demand for service from delayed maintenance during the pandemic, service appointments are likely to continue to grow. At the same time, dealers are likely to continue to enjoy strong pricing power with parts more expensive and capacity limited due to the ongoing lack of certified technicians. As a result, Cox Automotive expects growth in revenue per repair order and overall repair revenue to increase year over year in 2022.

2022 and Beyond

New and Used Forecast and Outlook

New-Vehicle Market Outlook

Light new-vehicle sales are expected to increase in 2022, but the amount is difficult to predict given ongoing supply chain issues. A lack of supply has constrained new-vehicle sales since August 2021, and the situation remains unresolved. Expectations are that supply should improve through the second half of 2022 as COVID-caused disruptions dissipate.

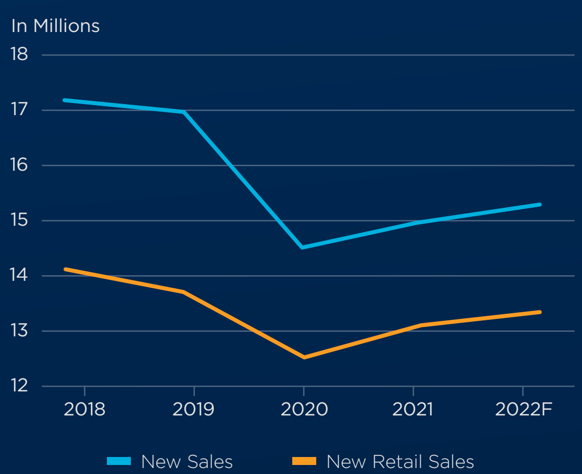
Given that assumption, Cox Automotive expects light new-vehicle sales to rise to 15.3 million units in 2022, up from 14.9 million in 2021. New retail sales are also expected to rise in 2022 to 13.3 million, up 2% from 2021. Production capabilities will improve through 2022 but slowly, so a more aggressive recovery is not forecasted. However, consumer demand is likely to remain elevated with ongoing low unemployment and above-average wage growth. High vehicle prices, expected higher interest rates, and supply issues will weigh on the vehicle market throughout 2022 and will likely remain headwinds into 2023.

Used-Vehicle Market Outlook

The used-vehicle market is expected to decline in 2022 as high vehicle prices, higher interest rates, and less government financial support will slow the market from last year's level. Used-vehicle sales, as measured by IHS Markit state registration data, reached 40.6 million units in 2021 as optimism around COVID vaccines, $1,400 stimulus checks, and record low interest rates helped create a robust market.

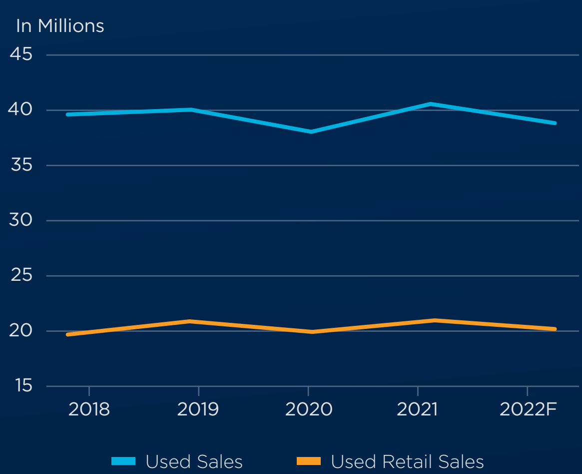
However, there is less optimism for sales in the year ahead, and there is certainly less government support to stimulate sales. With vehicle prices and rates now higher, the number of transactions is expected to fall in 2022. Cox Automotive forecasts used-vehicle sales to drop to 38.3 million units in 2022, down 5.5% from 2021. Used retail sales are also expected to fall and settle at 20.2 million in 2022, down 4.7% from 2021. Prices are expected to remain elevated as future supply to the used market is constrained. Fewer new-vehicle sales and less fleet and leasing activity during the COVID years of 2020 and 2021 mean the supply of used vehicles will remain relatively constrained in the years ahead.

NEW-VEHICLE SALES



Source: Cox Automotive

USED-VEHICLE SALES



Source: Cox Automotive

Contributors

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Jonathan Smoke leads Cox Automotive's economic and industry insights team, which tracks key metrics and trends impacting both the wholesale and retail markets for vehicles informed by the proprietary data from the company's businesses and platforms. For 28 years, Smoke has focused on translating data and trends into relevant actionable insights for the industries that represent the biggest purchases that consumers make in their lifetimes: real estate and automotive. Smoke joined Cox Automotive in 2017.

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Charlie Chesbrough is a business economist with more than 20 years of experience in the automotive industry. He leverages Cox Automotive's assets to deliver industry-leading data and insights that empower decision-makers in the rapidly changing automotive marketplace. Chesbrough joined Cox Automotive in 2017 and is based in Detroit.

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Michelle Krebs is an automotive analyst and award-winning writer with over 35 years of experience covering the global auto industry. She has spent the last eight years providing analysis and insights on the auto industry using a trove of consumer and industry data from Cox Automotive and its brands including Autotrader and Kelley Blue Book.

MARK STRAND

Cox Automotive Senior Director of Economic and Industry Insights

Mark Strand provides perspective on industry trends informed by the best available internal and external market data and research to address the industry's critical questions. He has spent the last seven-plus years providing insightful connections across market dimensions, including demographics, economic indicators, industry trends, shopping behaviors and preferences, and vehicle sales to illuminate implications, risks and opportunities to inform decision making.

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Chris Frey is an automotive analyst and economist with more than 20 years of experience. He is responsible for the industry's best indicator of used vehicle pricing, the Manheim Used Vehicle Value Index, as well as providing insights regarding the wholesale and retail used-vehicle markets. He joined Cox Automotive in 2013 and held several roles within Manheim before moving to the economic and industry insights team in March 2022.

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Cox Automotive