2023 Q4 Credit Risk Review

Trends and Early Risk Indicators in Consumer Credit

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February 8th, 2023

Executive Summary – State of US Consumer Credit

There are both headwinds and tailwinds for consumer credit risk:

- **Headwinds**
  - Delinquencies are increasing or elevated across asset classes, driven by both near prime and subprime worsening.
  - Minimum payment amounts continue to increase across asset classes due to higher balances and interest rates.
  - Car payments hit record highs due to high interest rates and auto prices, but there is some easing recently with the drop in used car prices and lower inflation rates.
  - Millennials are experiencing financial stress due to student loan repayment and housing affordability. We observe higher roll rates into severe delinquency buckets, lower consumption, and pullback in mortgages for this group.
  - Increasing enrollment volumes for Debt Settlement Companies are shifting towards customers who are in earlier stages of delinquency or even current; leading to increased early-stage roll rates and lower contact rates

- **Tailwinds**
  - Although still high, there are some early signs of delinquency improvement in 2023 vintages compared to 2022.
  - Unemployment remains low, and real wage growth has continued to be positive. Historically, employment stress is one of the primary drivers for an increase in consumer credit risk, especially for prime customers.
  - As inflation rates cool down, the price pressure on consumers is expected to ease.
  - Credit card, personal loan, and auto loan issuers tightened their underwriting. As a result, subprime segments are experiencing delinquency improvements especially for personal loans.

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Executive Summary - Credit Cards

Credit Cards

- Card delinquencies are rising and are above pre-pandemic levels. However, the worsening seems to be slowing down as recent vintages are in line with previous ones after adjusting for risk level at origination.

- We continue to see an increase in balances as consumers borrow more, but they are still within the pre-pandemic trendlines.
    - Lower-income and subprime customers have seen a significant increase in their share of balances since H2-2022.

- Utilization and credit limits have increased back to pre-pandemic averages.

- Subprime card origination volumes have dropped since H2-2022 as lenders tightened their underwriting standards.

- Average credit limit has increased and is back to pre-pandemic levels across risk bands.

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Executive Summary - Personal Loans & Mortgages

Personal Loans

- Subprime personal loan delinquencies have flattened, likely driven by credit tightening beginning in the second half of 2022.
- While PL originators raising rates have helped pricing, the loan sale market remains soft.
- Significant tightening in underwriting continues, as seen in higher average origination FICO and income and a decrease in subprime originations.
- Recent vintages are performing better partly due to underwriting tightening.
- Newer loans display higher origination balances in 2023.

Mortgages

- Delinquency rates are trending slightly upwards but still well below pre-pandemic levels.
- High interest rates and increased payment burdens are leading newer vintages to have worse performance than those from 2019-2021.
- High home prices and interest rates led to the lowest number of mortgage originations since 2011. Millennials experienced a more significant origination slowdown than other groups.
- We continue to see an increase in subprime HELOC originations.

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Executive Summary – Auto Loans & Student Loans

Auto Loans

- Auto delinquencies increased in Q4 and are higher than pre-pandemic levels. Newer vintages are performing slightly worse across all risk segments.
- Sustained higher interest rates and vehicle values have led to record high monthly payments; a record share of new originations have monthly payments over $1,000.
  - This trend has also led to low cure rate, and high payment-made rates as consumers avoid repossessions.
- Loan-to-value ratio continues to be a key risk differentiator post-COVID.
- Auto lenders are making offers with lower APRs and higher term length to consumers.

Student Loans

- While servicers are not reporting student loan defaults until September 2024, customers have started paying down their debt as seen in an overall decrease in the aggregate SL balance.
- We do not yet see a significant impact on spending for those consumers with resumed student loan payments, likely due to the 'ramp on' period.

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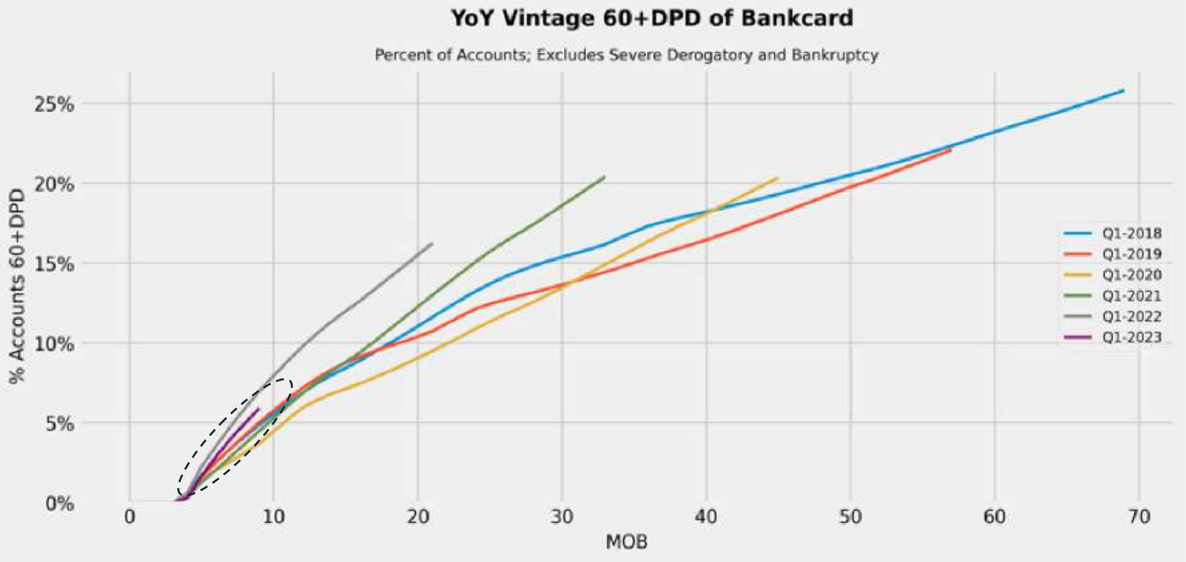
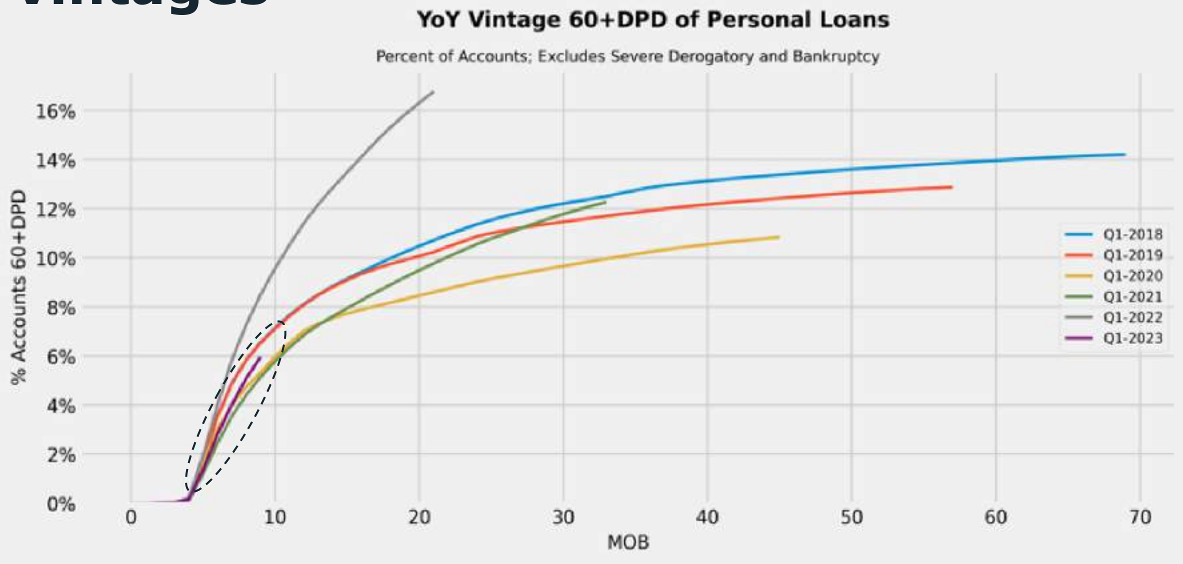
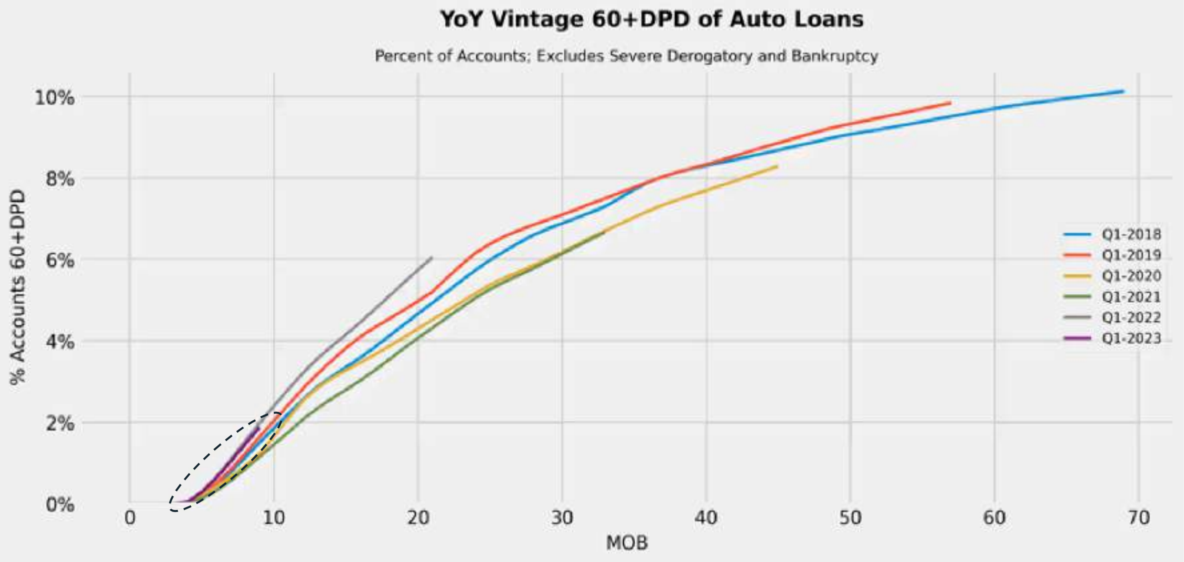
Delinquencies are still high compared to the last couple of years, but there are signs of improvement in the most recent vintages







Newer vintages of credit card are in line with previous years after adjusting for Vantage score at time of origination

Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

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- State of the Consumer
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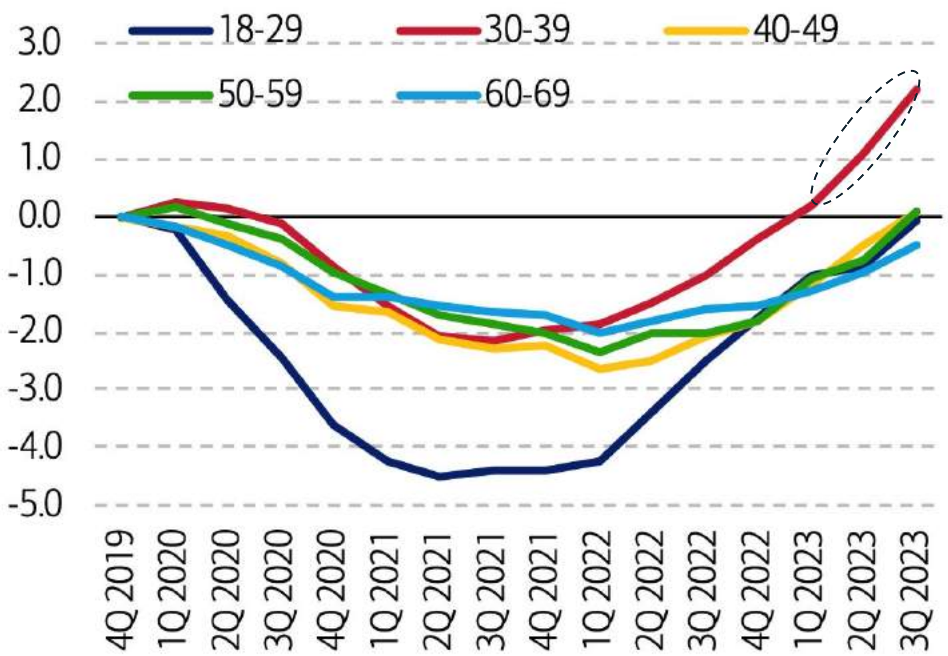
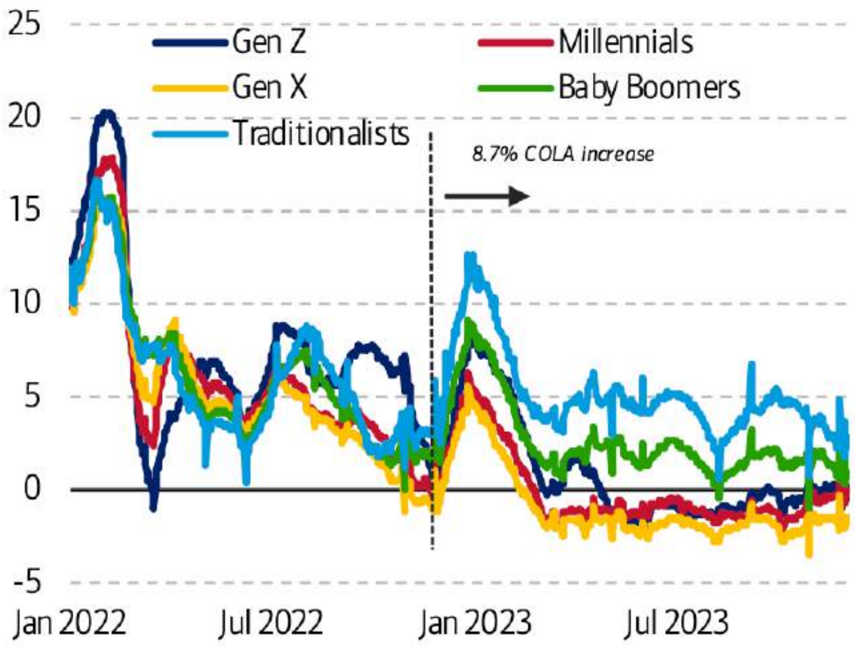
Millennials are more likely to go delinquent compared to their pre-pandemic levels. Younger cohorts are cutting down their spending more recently.

Transition into 90DPD+ for credit cards by age (percentage change from Q4-2019)*



YoY % change in card spending per household by generation



Millennials are disproportionally impacted by SL repayments, a challenging housing market, and rising childcare costs.

Source: New York Federal reserve; BOA internal data. Data as of December 31, 2023.
Millennials are 28-45 years old as of 2023.

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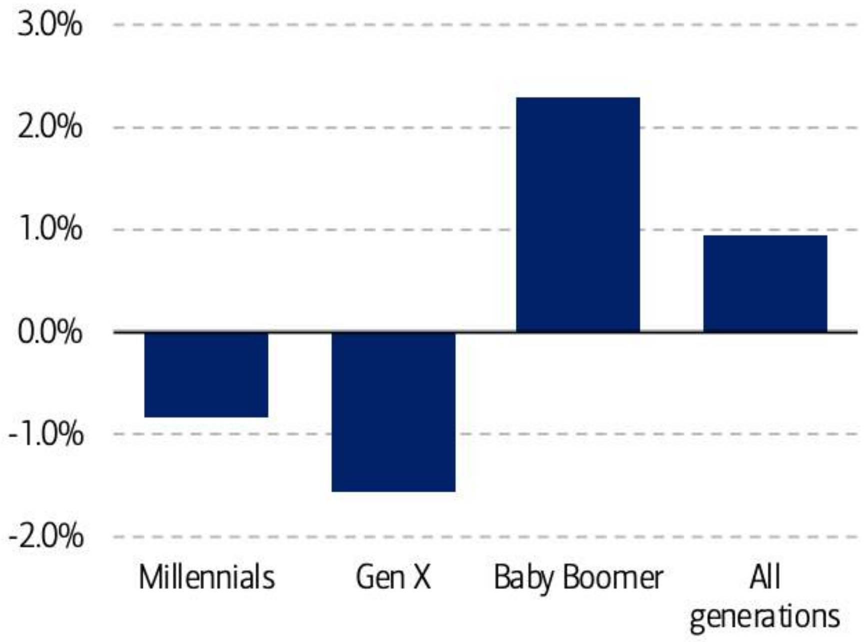
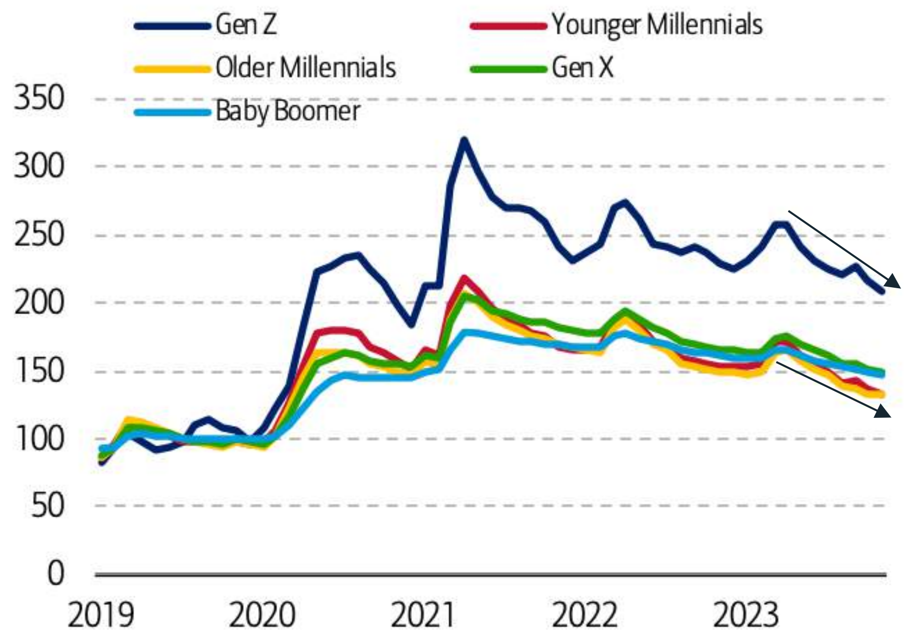
Younger generations pulled back on holiday spending and saw a drop in savings, both signs of financial stress

YoY growth in card spending per household on holiday items by generation (2022 vs 2023)



Monthly median household savings and checking balances by generation (index, 2019 = 100)*



Gen Z and millennials savings are falling more rapidly than other cohorts, although still above pre-pandemic

Source: BOA internal data. Data as of November 30, 2023.

*Households include those that had a consumer deposit account for all months from January 2019 through November 2023

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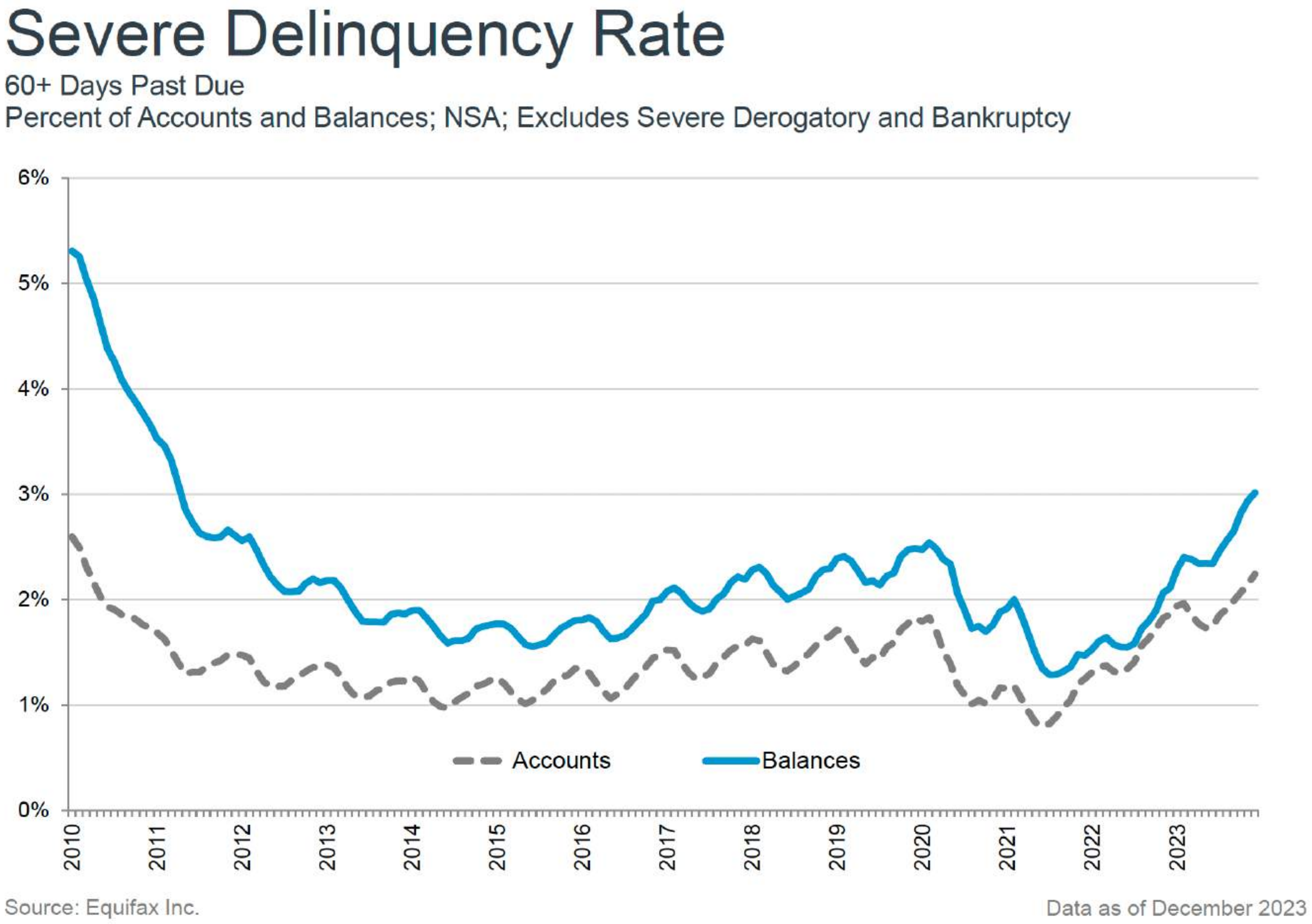
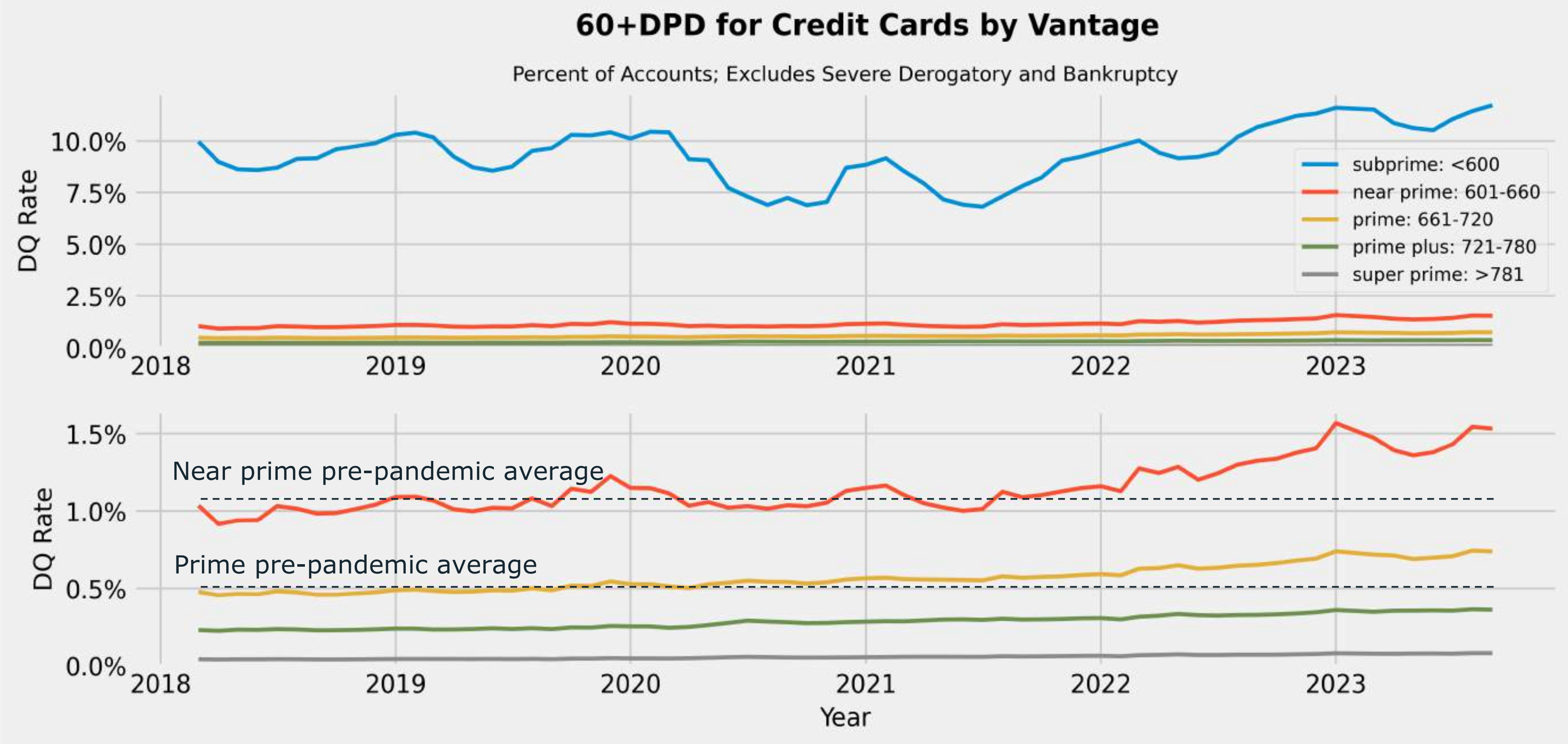
Delinquencies are rising and above pre-pandemic levels



NSA refers to not seasonally adjusted.

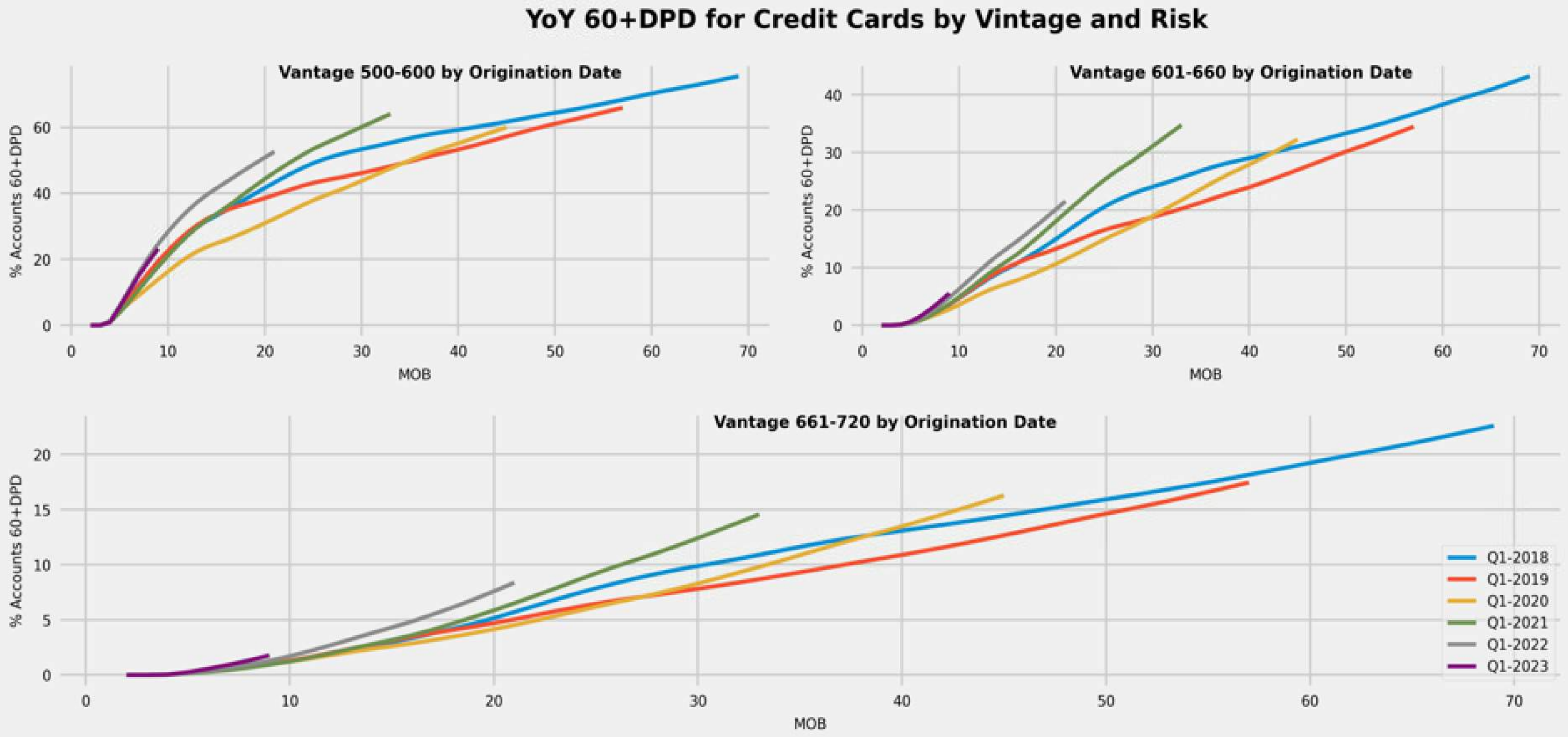
Delinquency rates continue to rise across risk score buckets

Especially for prime and near-prime



Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
Vantage buckets are lagged 3 months from the performance date. For more details on methodology, see appendix.

Delinquencies for recent vintages are in line with previous vintages after adjusting for origination risk score



Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
Vantage bucket is captured at the time of origination.

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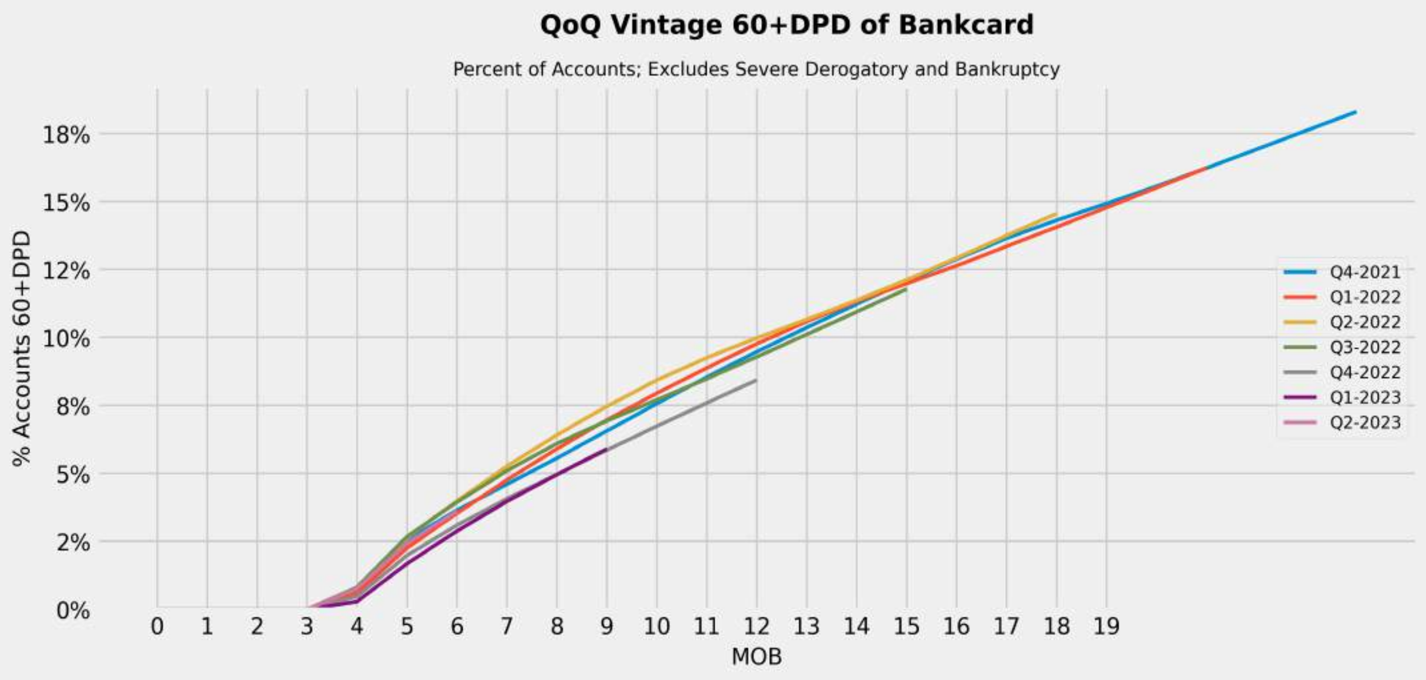
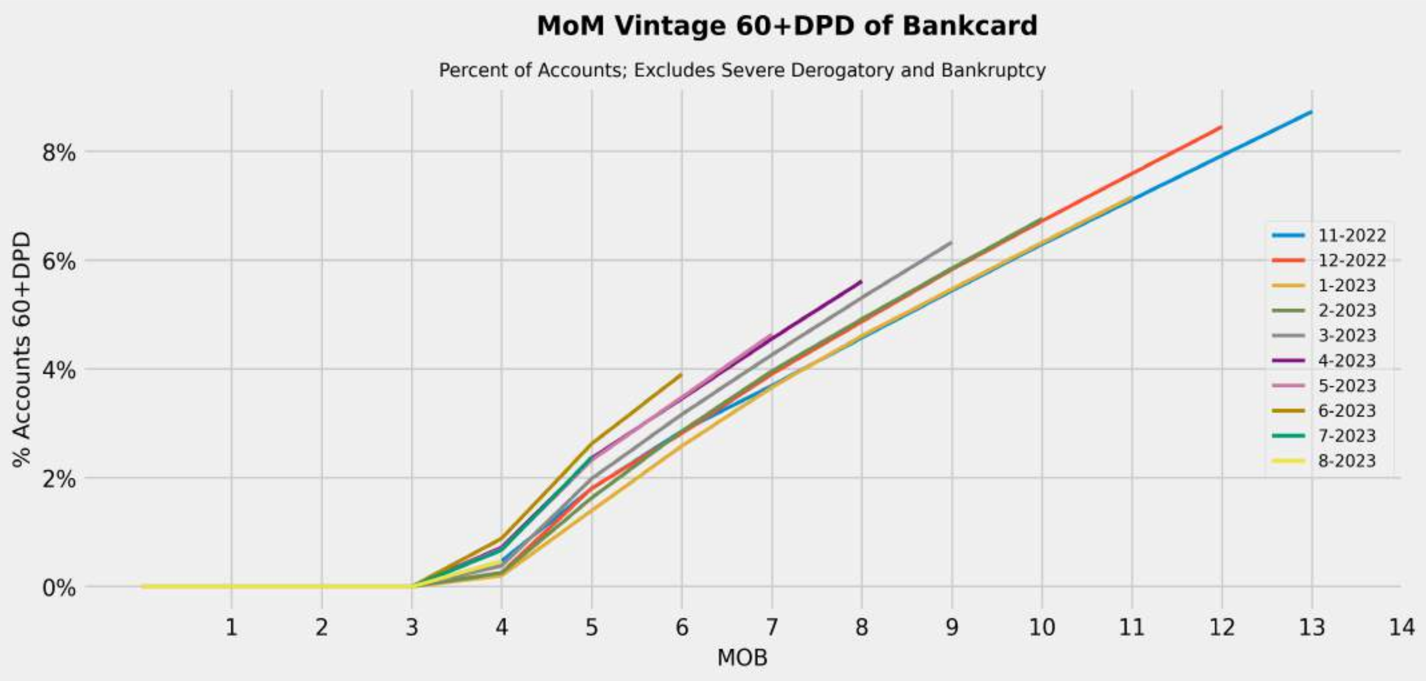
2023 vintages seem to be doing better than 2022

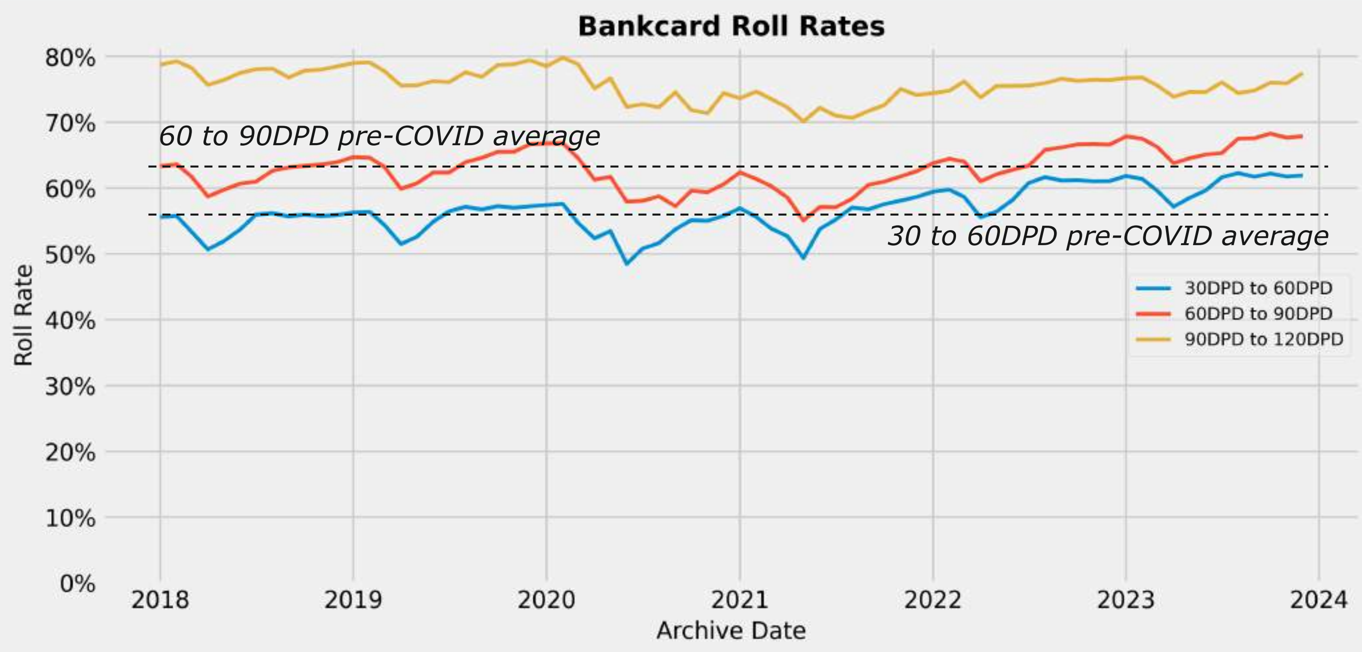
However, the more recent 2023 monthly vintages are performing worse than vintages from early in the year

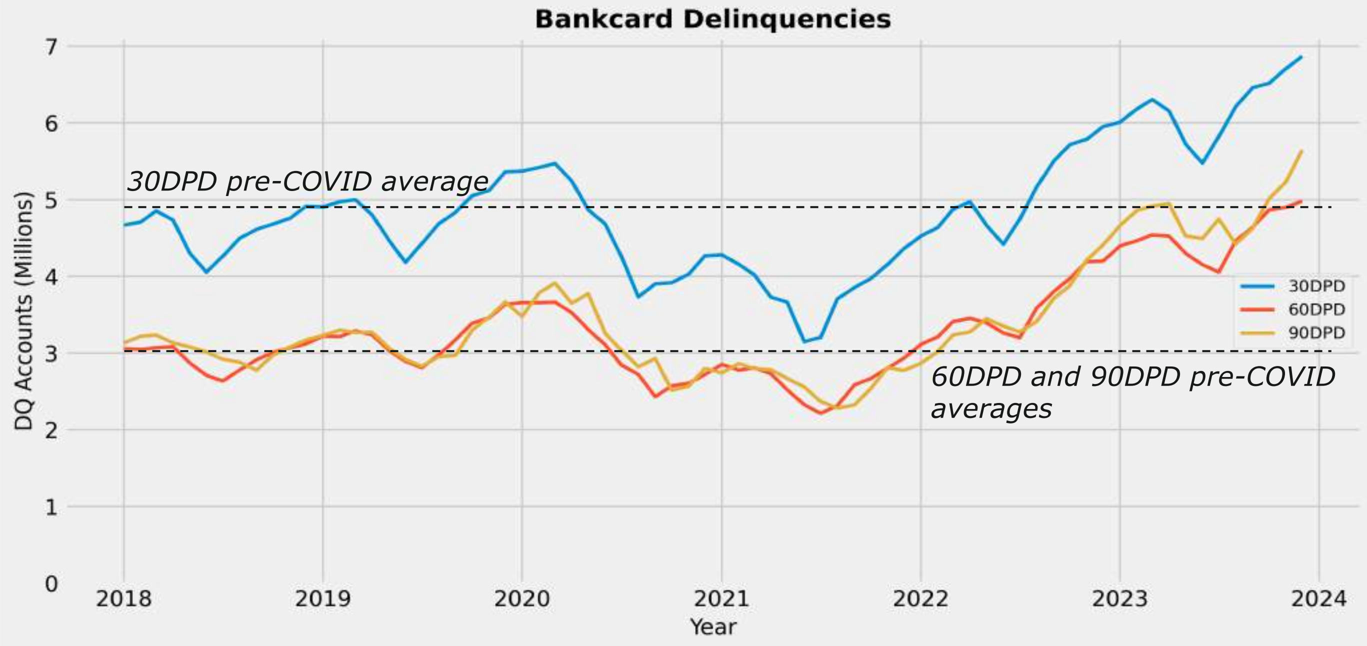




Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

Credit Card roll rates elevated compared to pre-pandemic

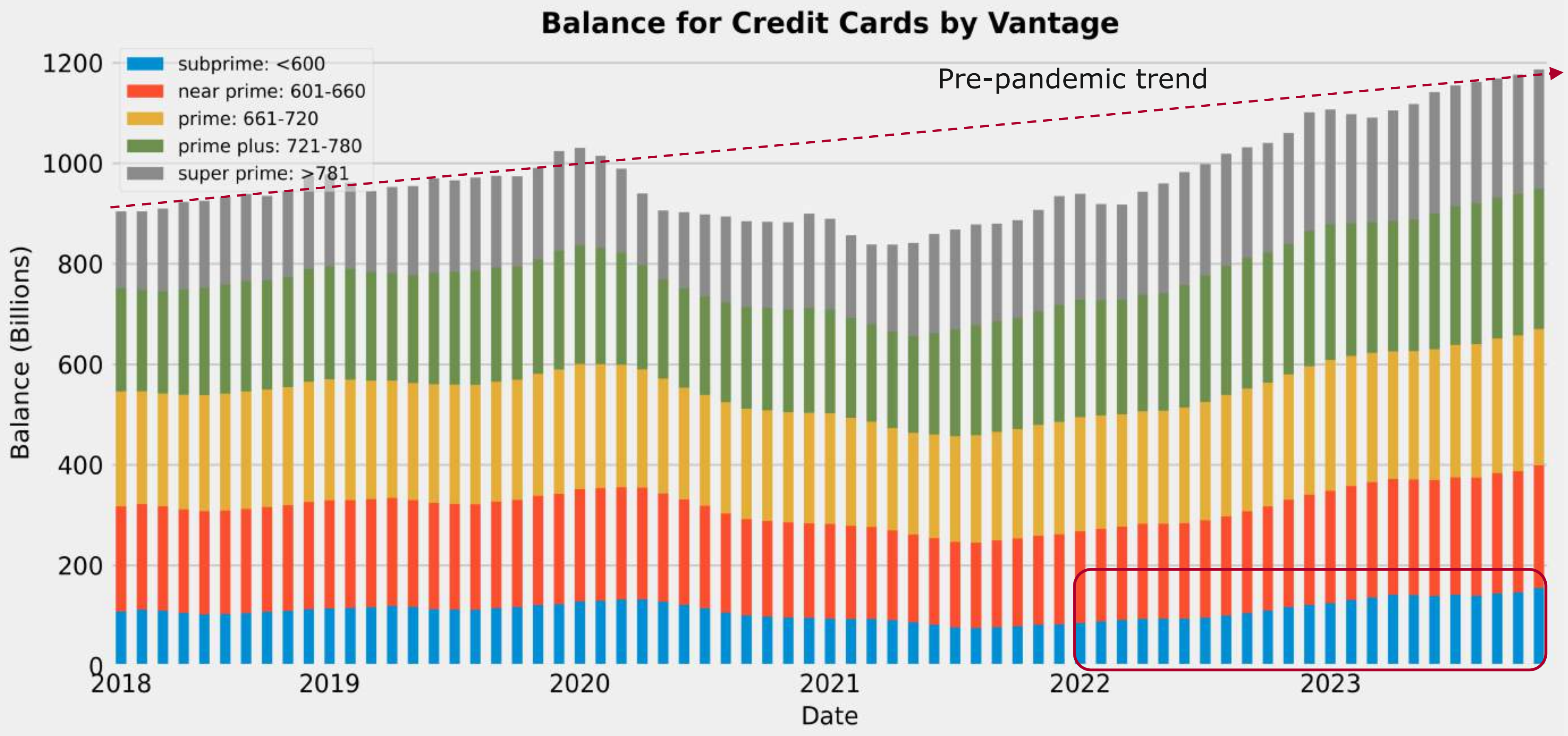




Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
For more information on methodology, refer to appendix.

Credit card balances are rising but are within the pre-pandemic trendline

Subprime balances have increased since H2-2022

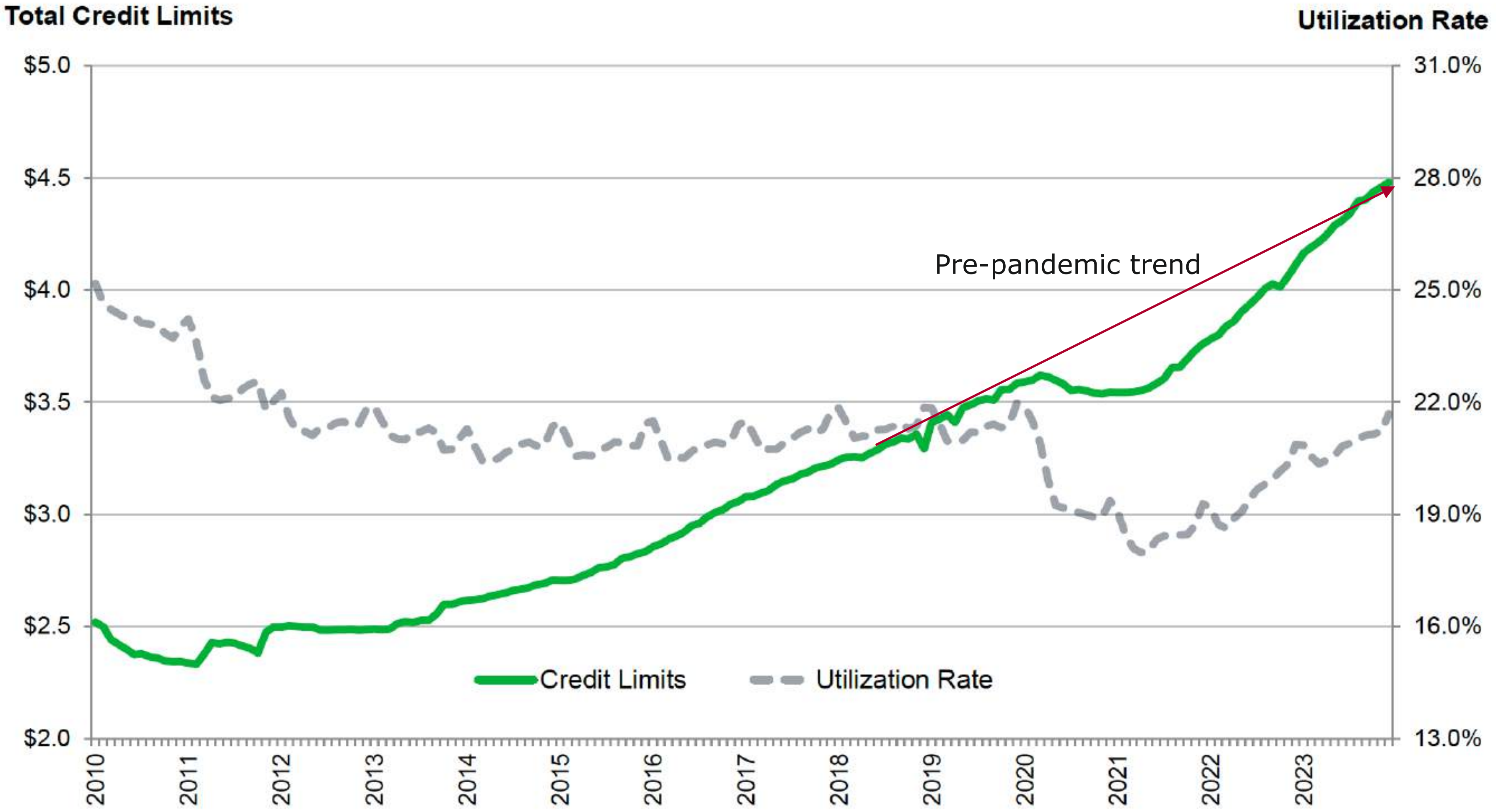


Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
Vantage buckets at time of origination.

The utilization rate is back to pre-pandemic levels, and credit limit is within the pre-COVID trendline

Utilization and Credit Limit

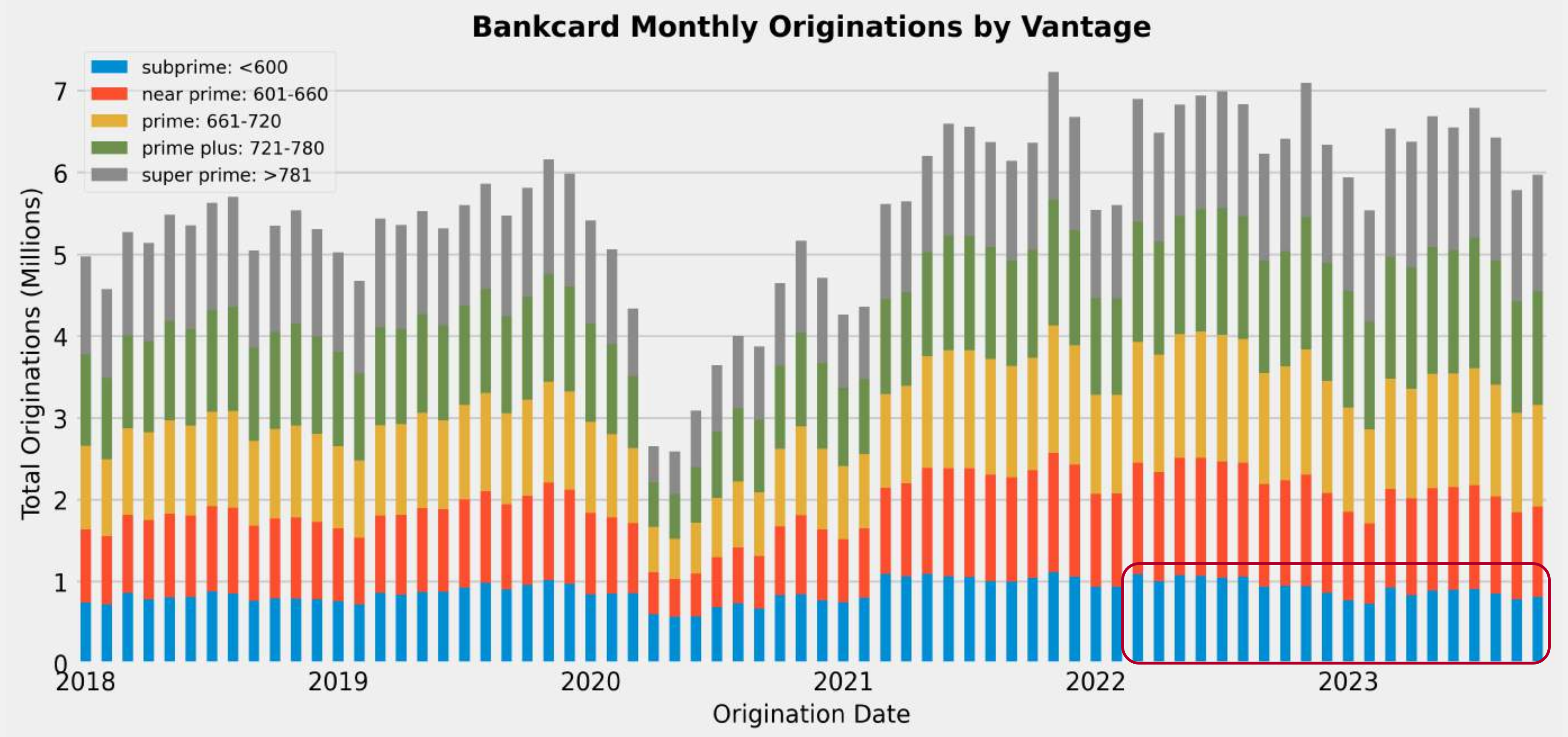
Utilization Rate in %; NSA
Total Credit Limit in $Trillions; NSA



Source: Equifax Inc.

Data as of December 2023

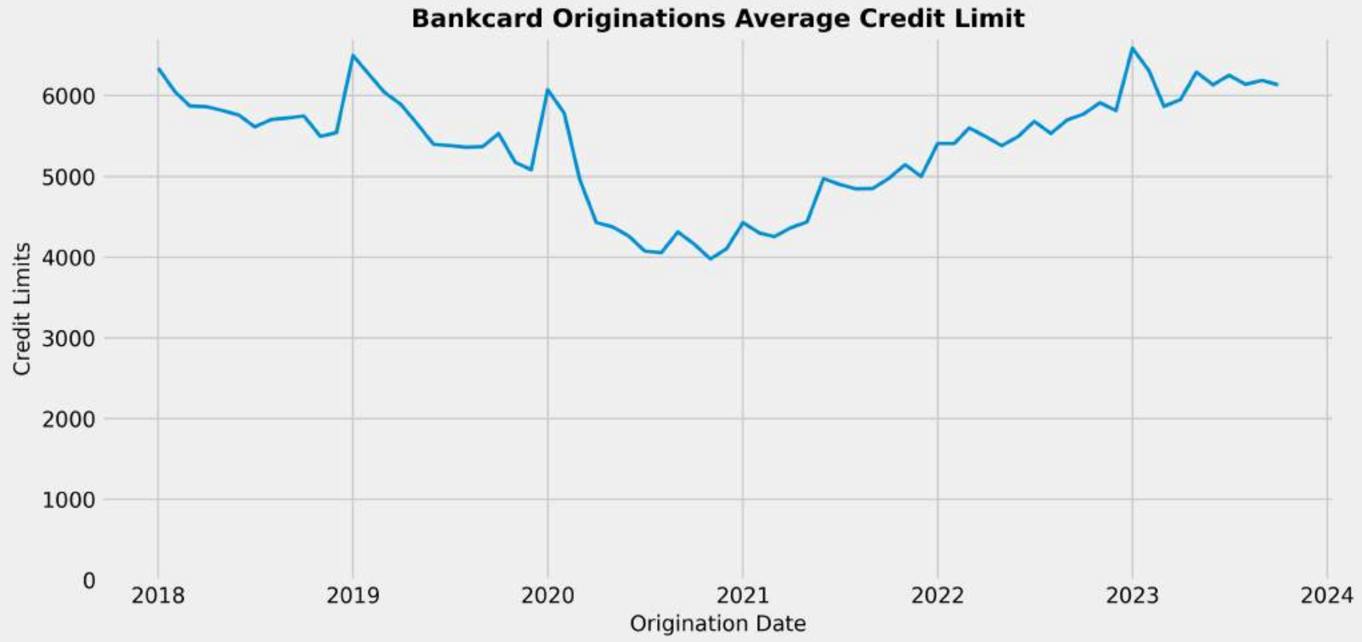
Credit card issuers continue to tighten subprime originations

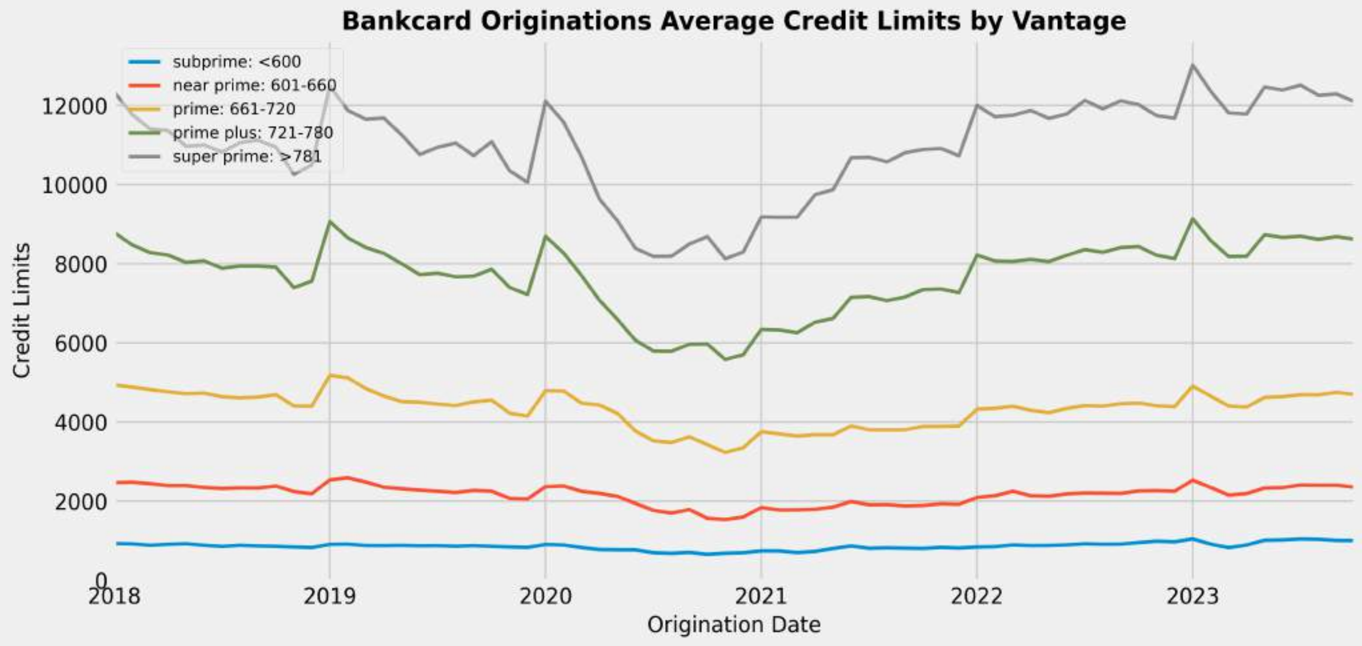


Decrease in subprime originations compared to 2022 levels

Source: 2OS, Equifax Ignite. Originations through July 31, reported as of September 30, 2023.
Vantage buckets at time of origination.

Origination credit limits continue to increase and are back to near pre-pandemic averages





Source: 2OS, Equifax Ignite. Data as of October 31, 2023.
Vantage buckets are lagged 3 months from the performance date. For more details on methodology, see appendix.

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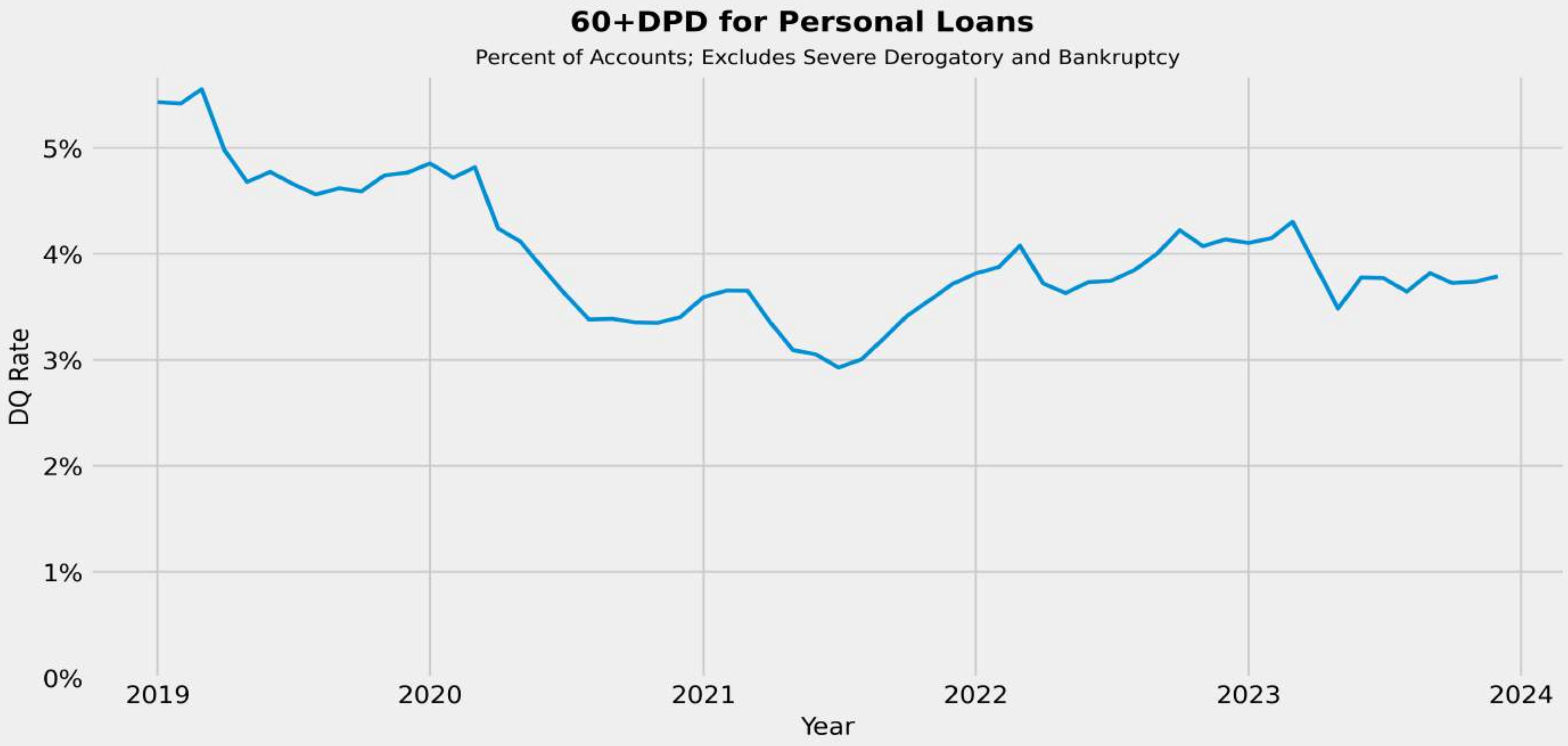
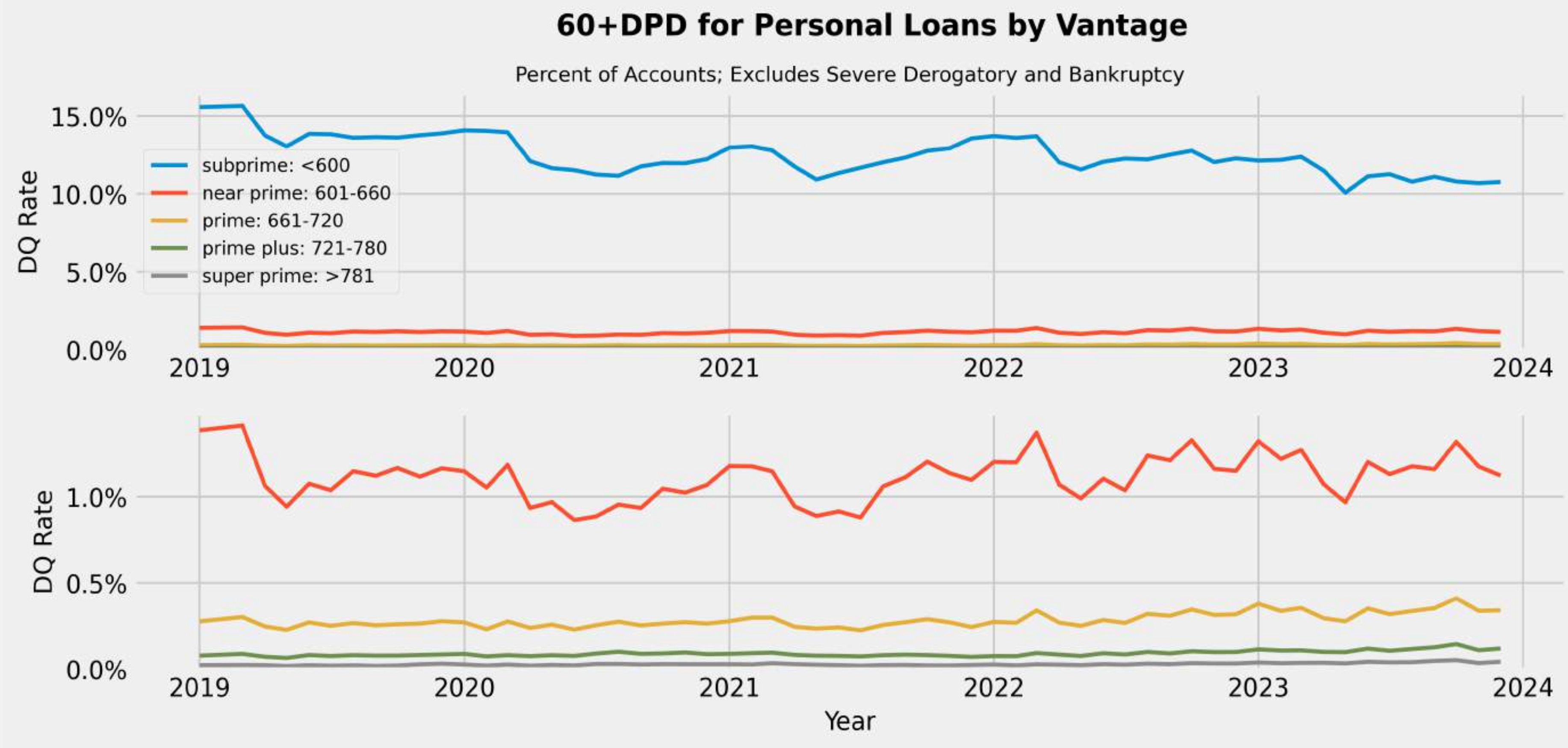
Delinquencies have flattened in the past couple of months



Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

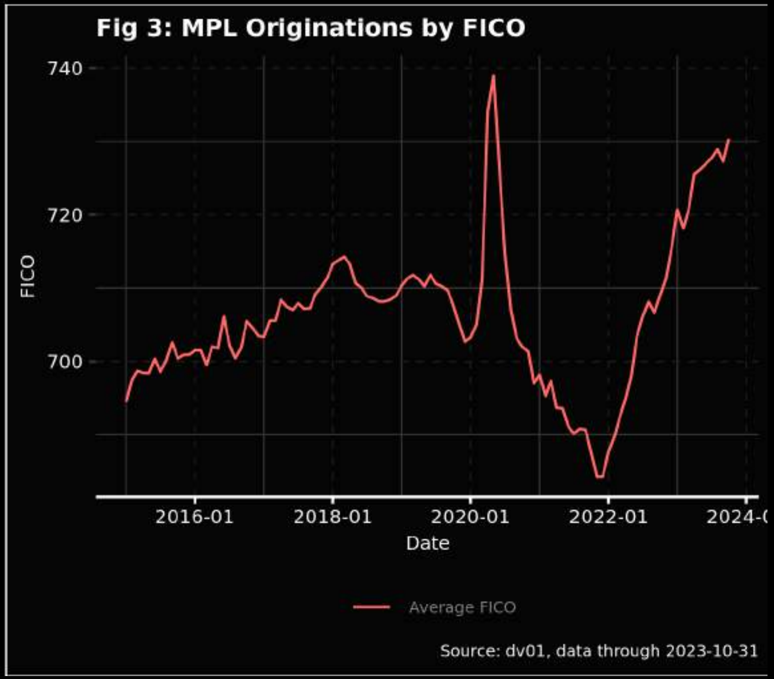
Delinquencies have flattened across risk bands

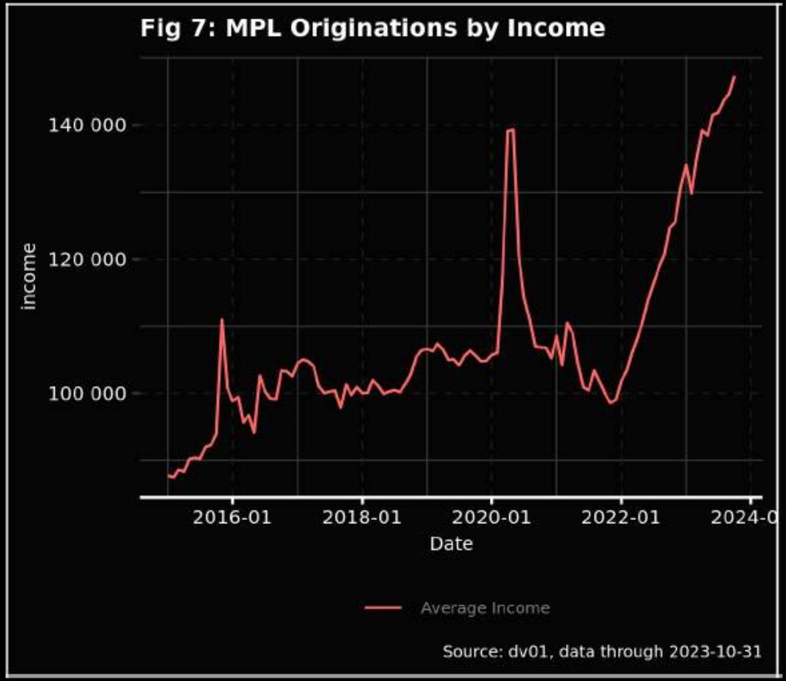


Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
Vantage buckets are lagged 3 months from the performance date. For more details on methodology, see appendix.

Underwriting continues to tighten significantly

Average FICO and income at origination continue to increase





Source: dv01, data as of November 30, 2023

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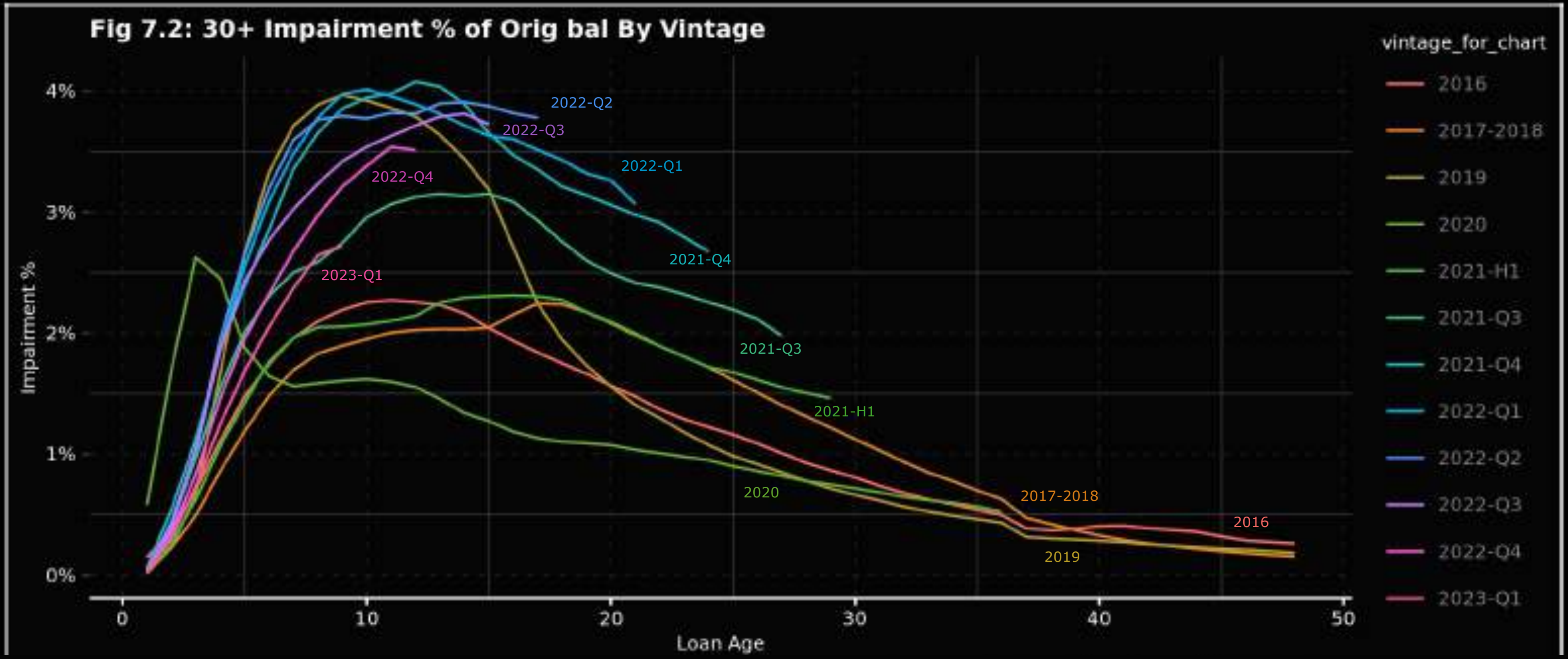
Recent PL vintages are performing better, partially due to significant tightening in underwriting

Impairment = DQ + Modification



Source: dv01, data as of December 31, 2023

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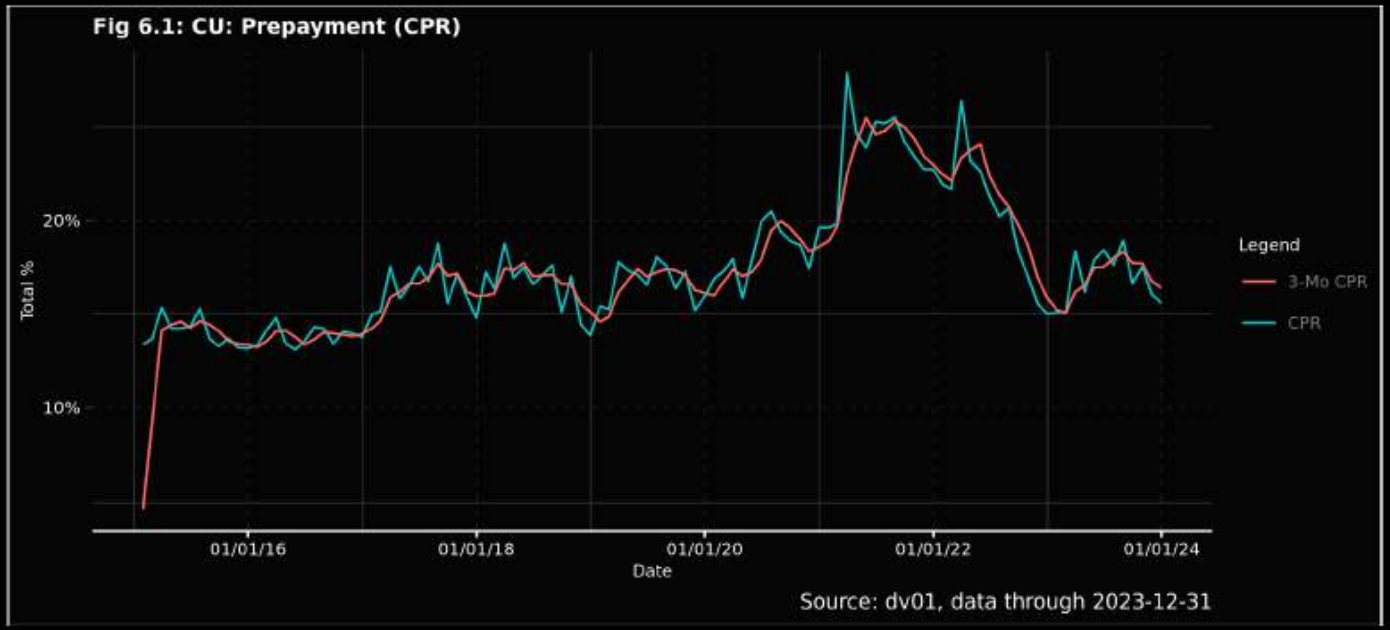
Prepayments fell slightly in December, in line with seasonal trends. Levels are near pre-COVID averages.

Prepayments on subprime loans are still below pre-COVID trends



Source: dv01, data as of December 31, 2023

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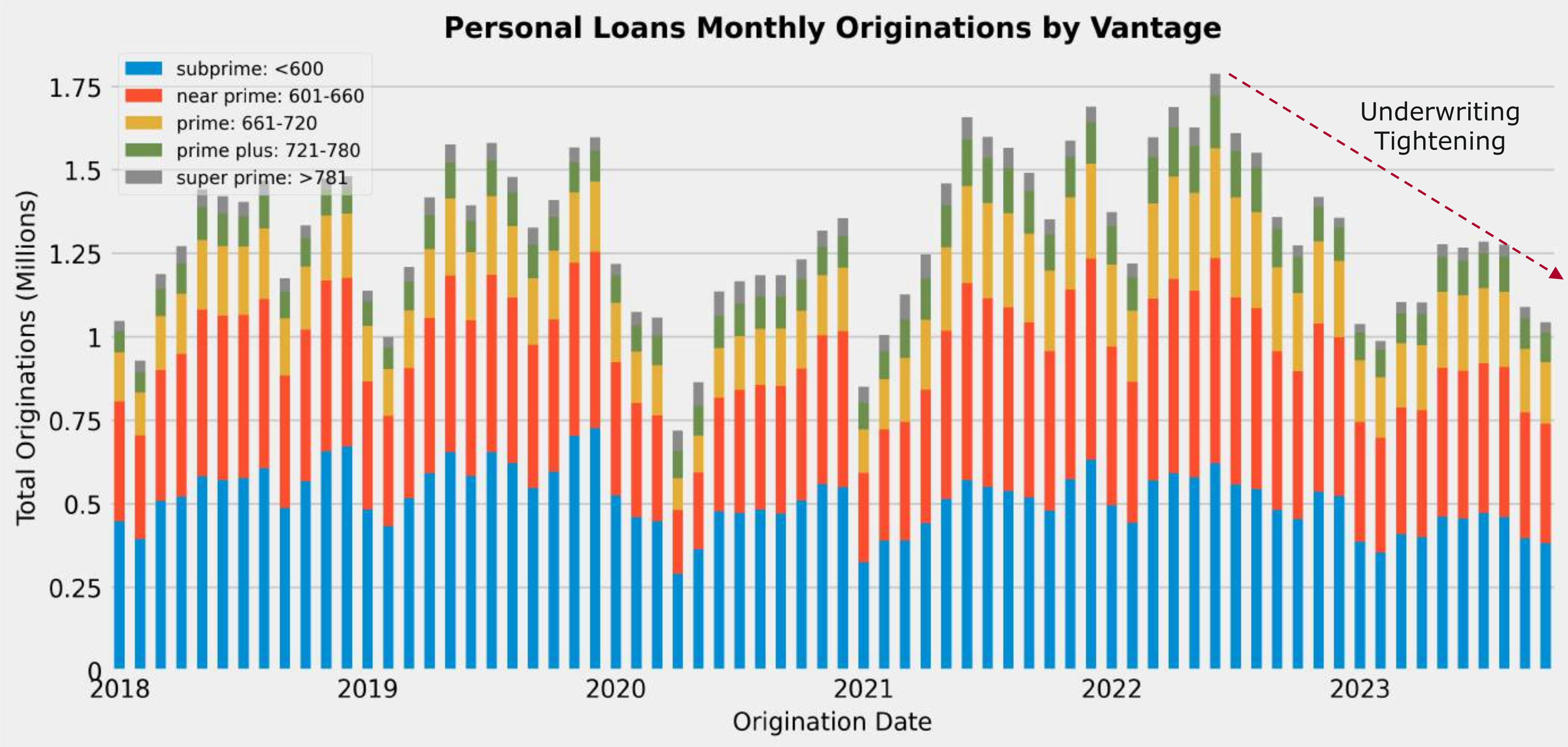
A significant tightening in underwriting continues compared to last year



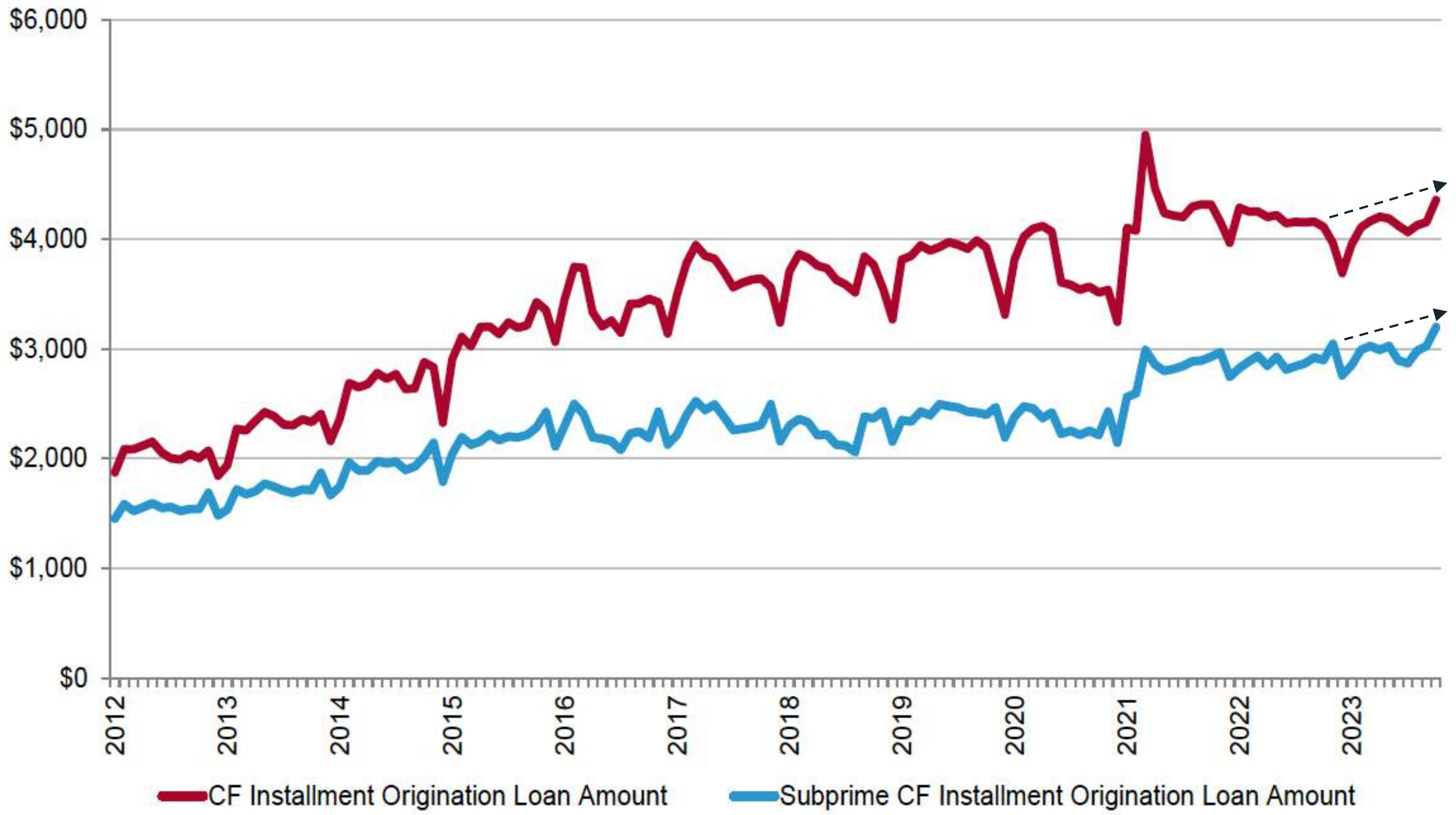
Source: 2OS, Equifax Ignite. Originations through October 31, reported as of December 31, 2023.
Vantage buckets are lagged 3 months from the performance date. For more details on methodology, see appendix.

Average origination balances have increased in the last year

Subprime customers have also seen a 10% YoY increase

CF Installment Loan Average Origination Balance

Average Origination Balance Over Time; NSA
Subprime accounts defined as those with borrower's origination VantageScore® 3.0 credit score less than 620



Source: 2OS, Equifax Ignite. Originations through October 31, 2023 reported as of December 31, 2023.

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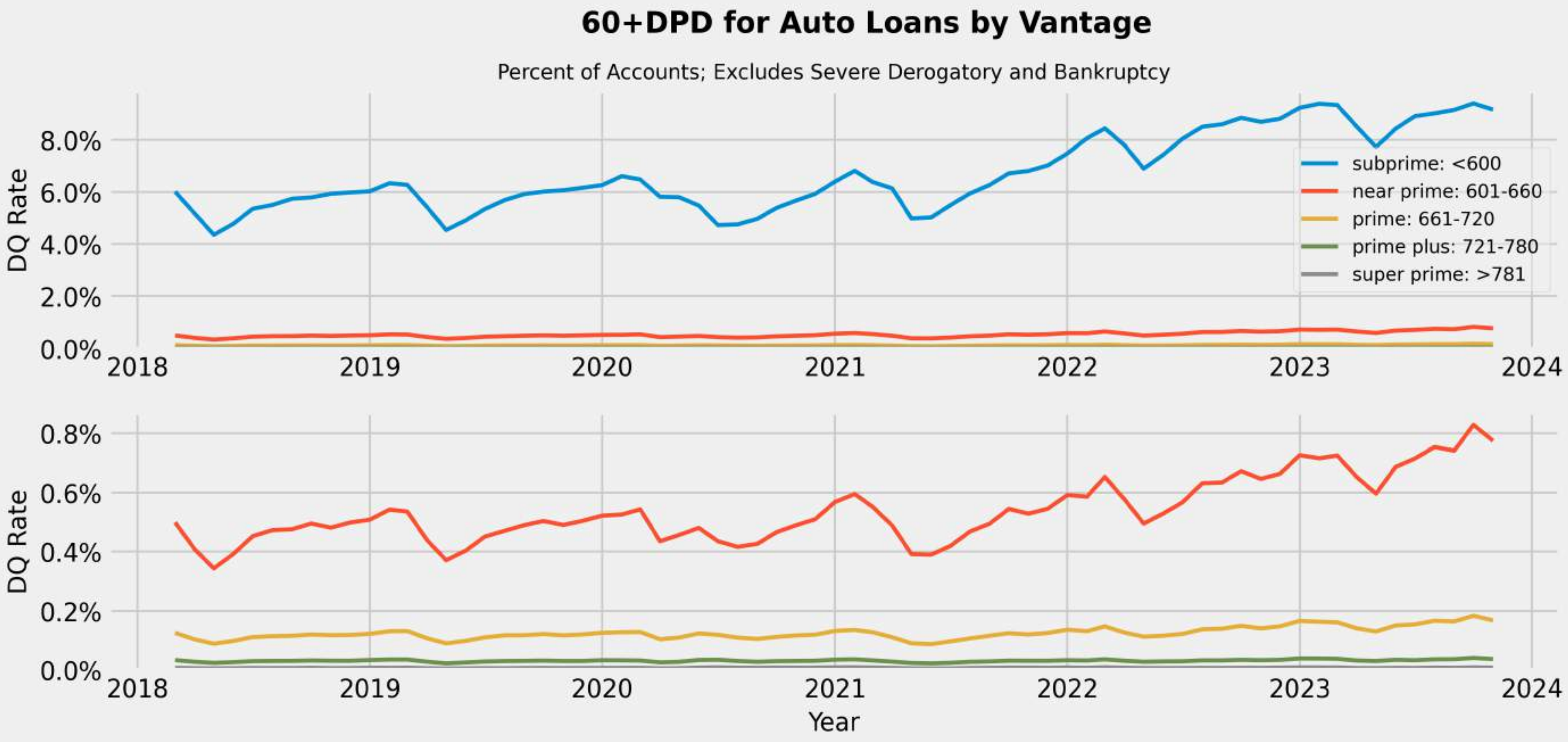
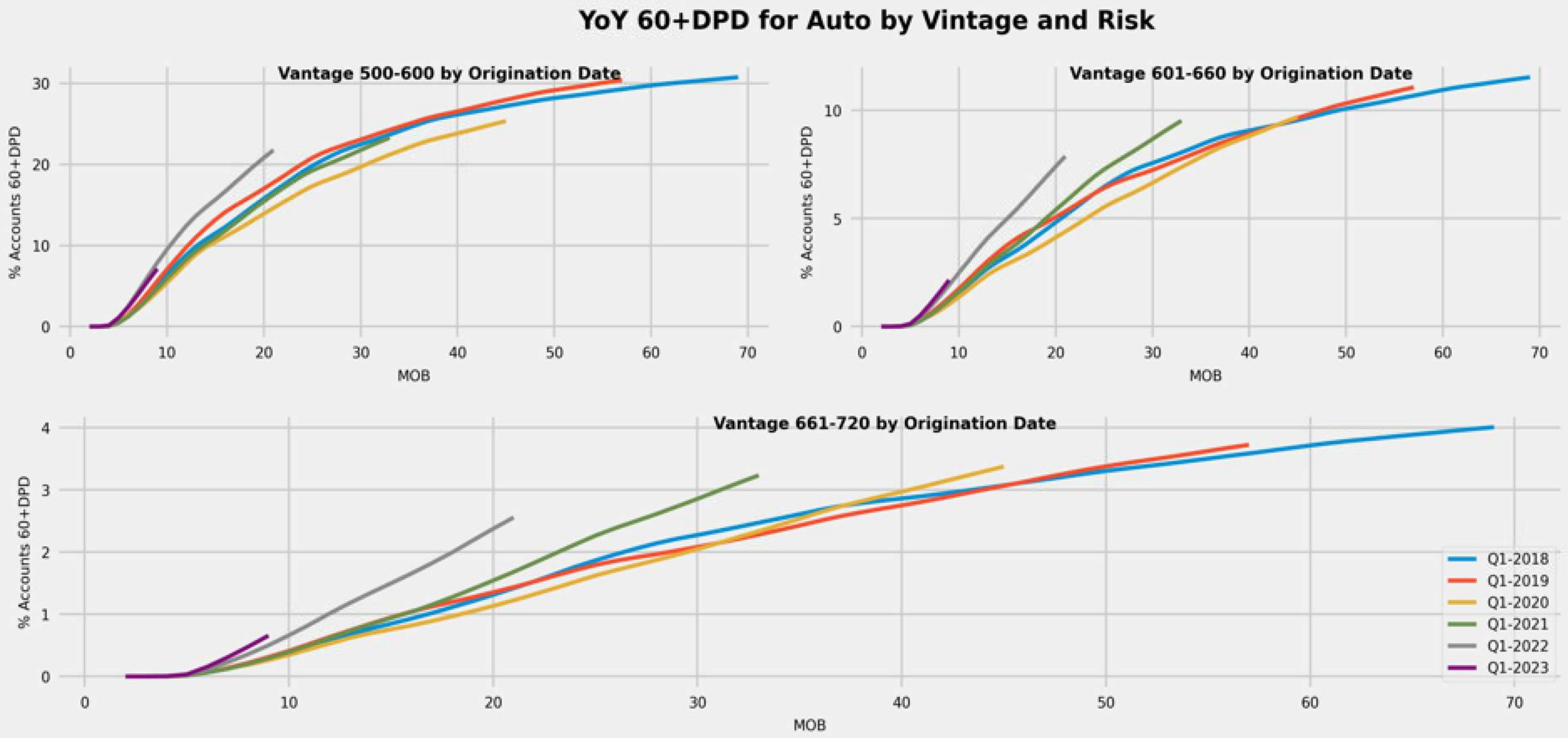
Delinquencies are elevated across risk bands



Source: 2OS, Equifax Ignite. Data as of December 31, 2023.
Vantage buckets are lagged 3 months from the performance date. For more details on methodology, see appendix.

Recent vintages are in line or slightly worse than previous ones, adjusting for origination risk scores



Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

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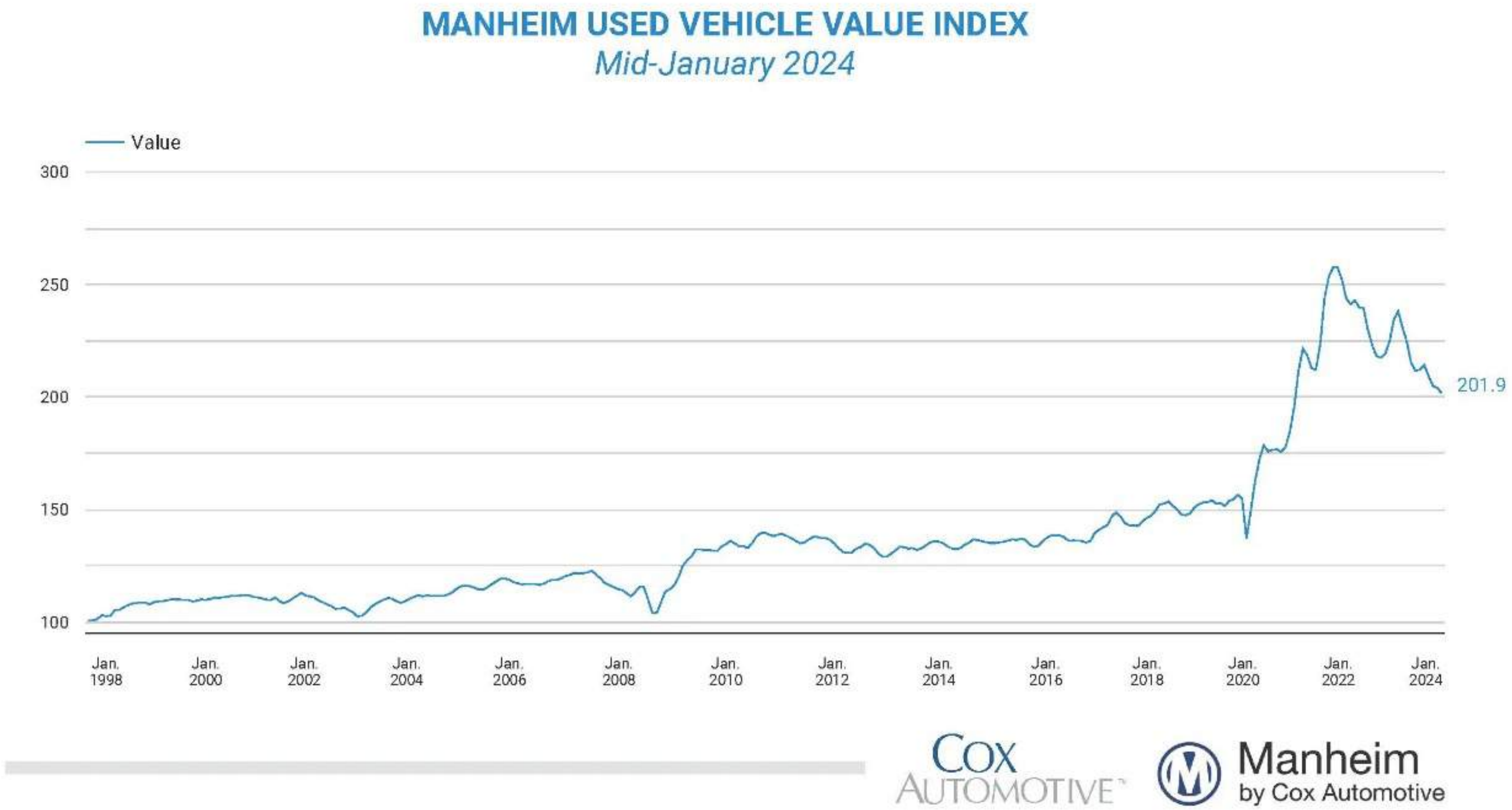
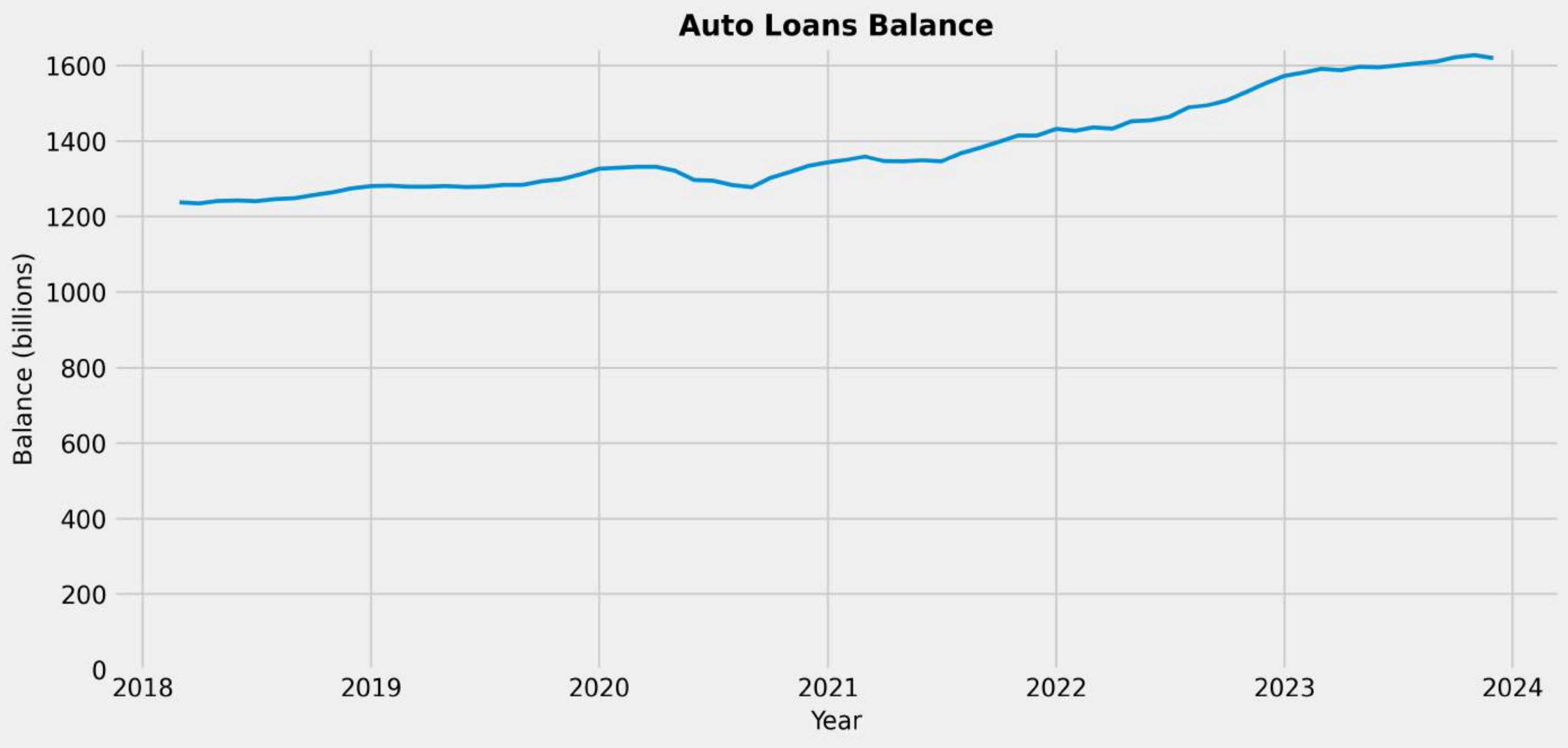
Wholesale used-vehicle prices have decreased since H2-2023 but remain historically elevated



Auto balances remain elevated due to high prices and interest rates

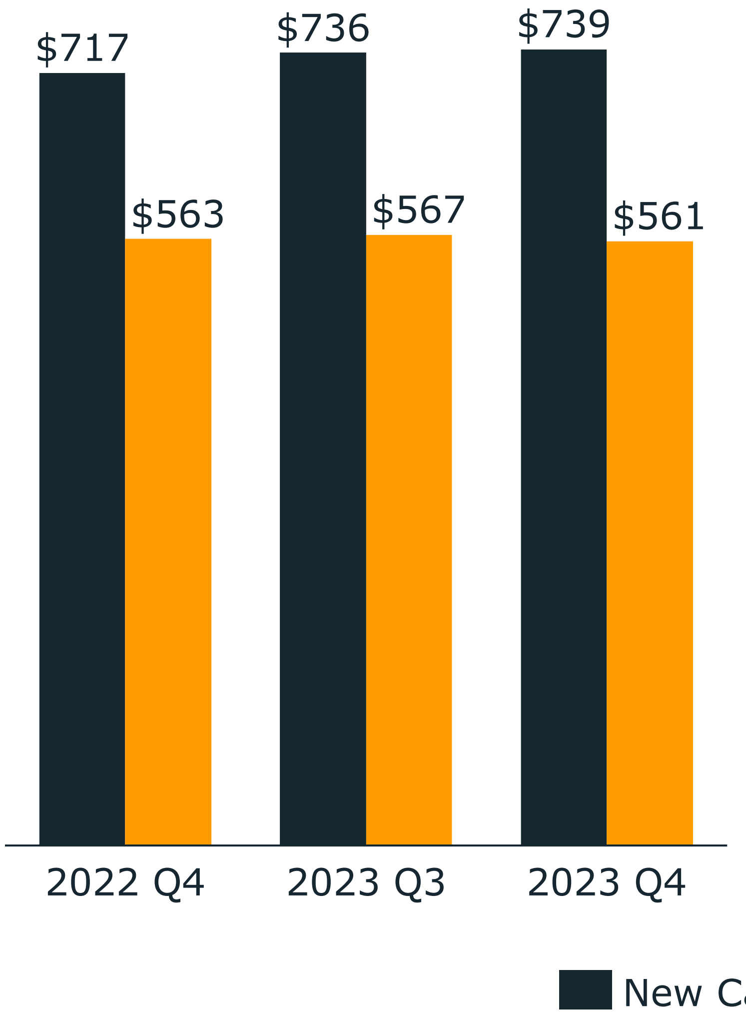


Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

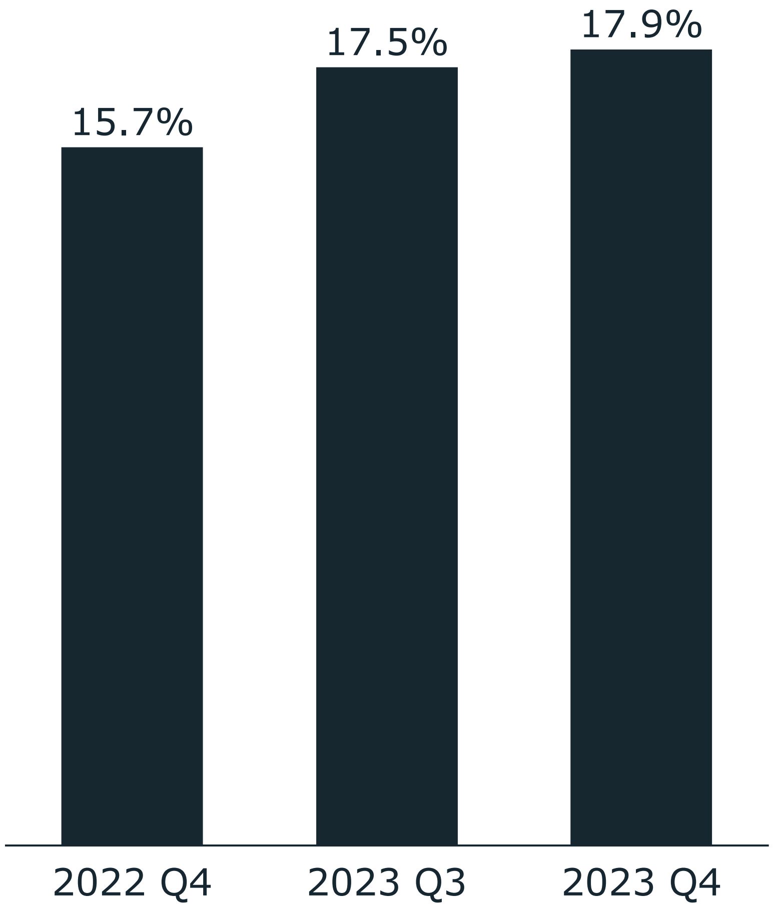
Higher interest rates and vehicle prices are driving high monthly payments

The share of consumers with $1,000+ monthly payments reached record highs

Average monthly payment on new and used cars

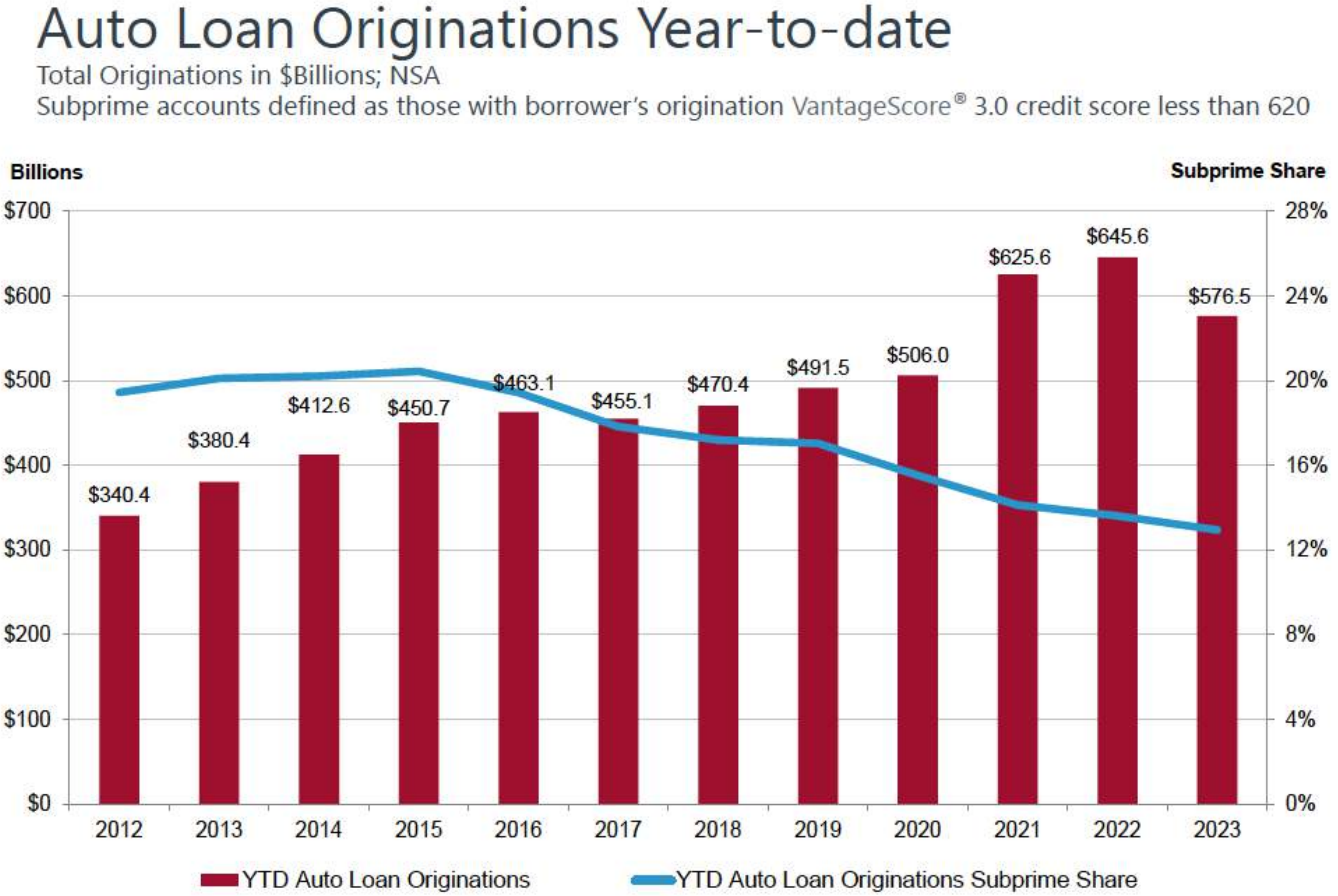


Share of consumers with $1,000+ monthly payment



Source: Edmunds, data as of January 3, 2023

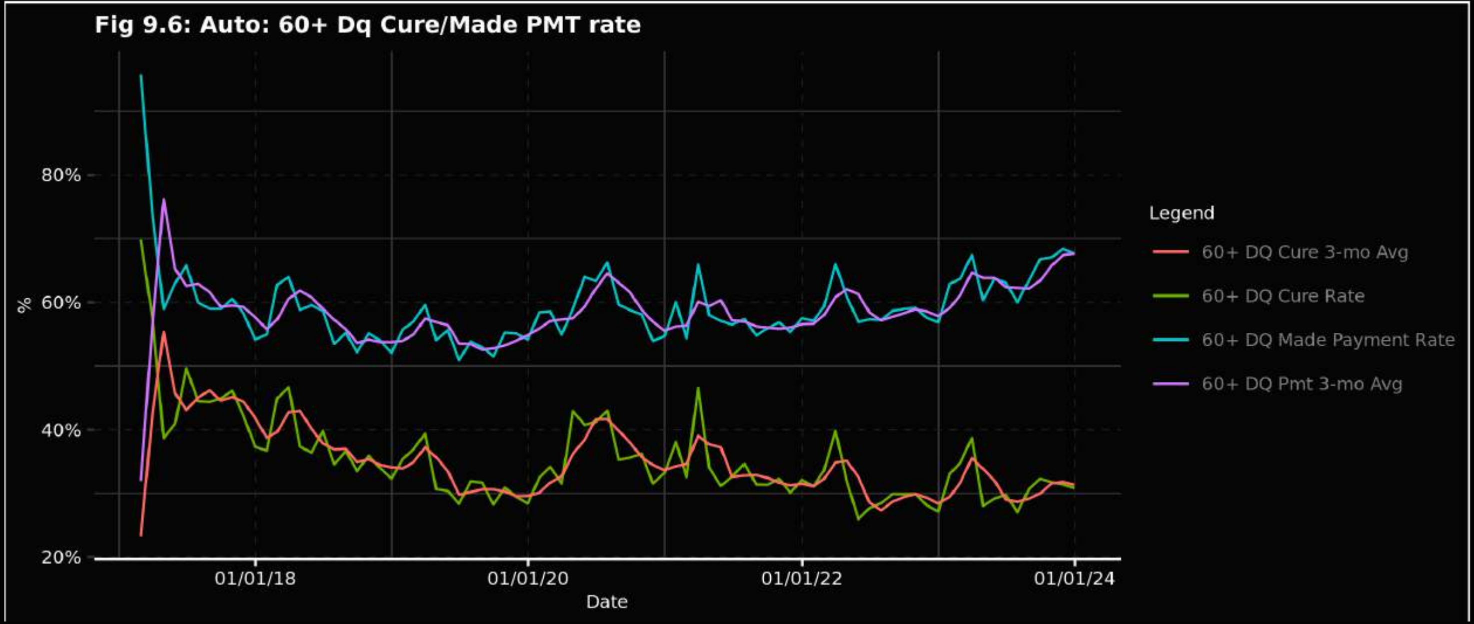
The subprime share of auto originations reaches decade level lows as lenders tightened underwriting

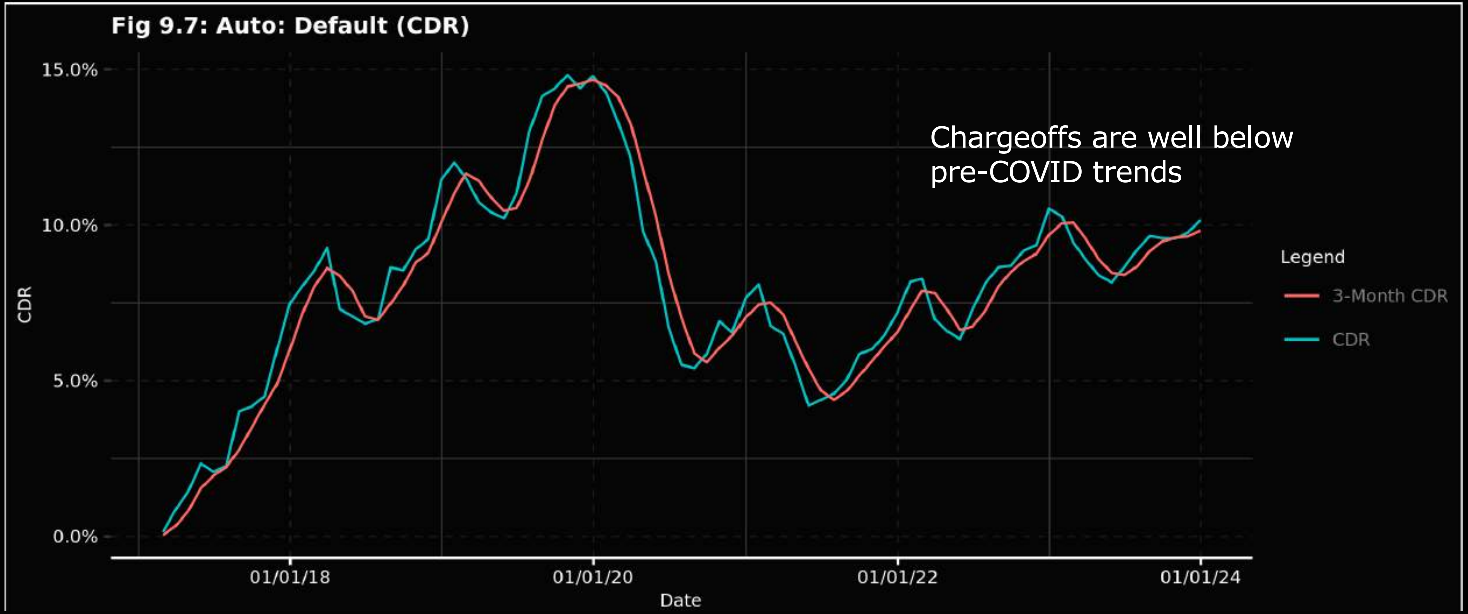


Source: 2OS, Equifax Ignite. Originations through October 31, reported as of December 31, 2023.

Payment-made rates in subprime auto are at an all time high, while cure rates are still below pre-pandemic

Elevated car prices incentivize subprime consumers to maintain some level of payment to avoid chargeoffs and repos





Source: dv01, data as of December 31, 2023

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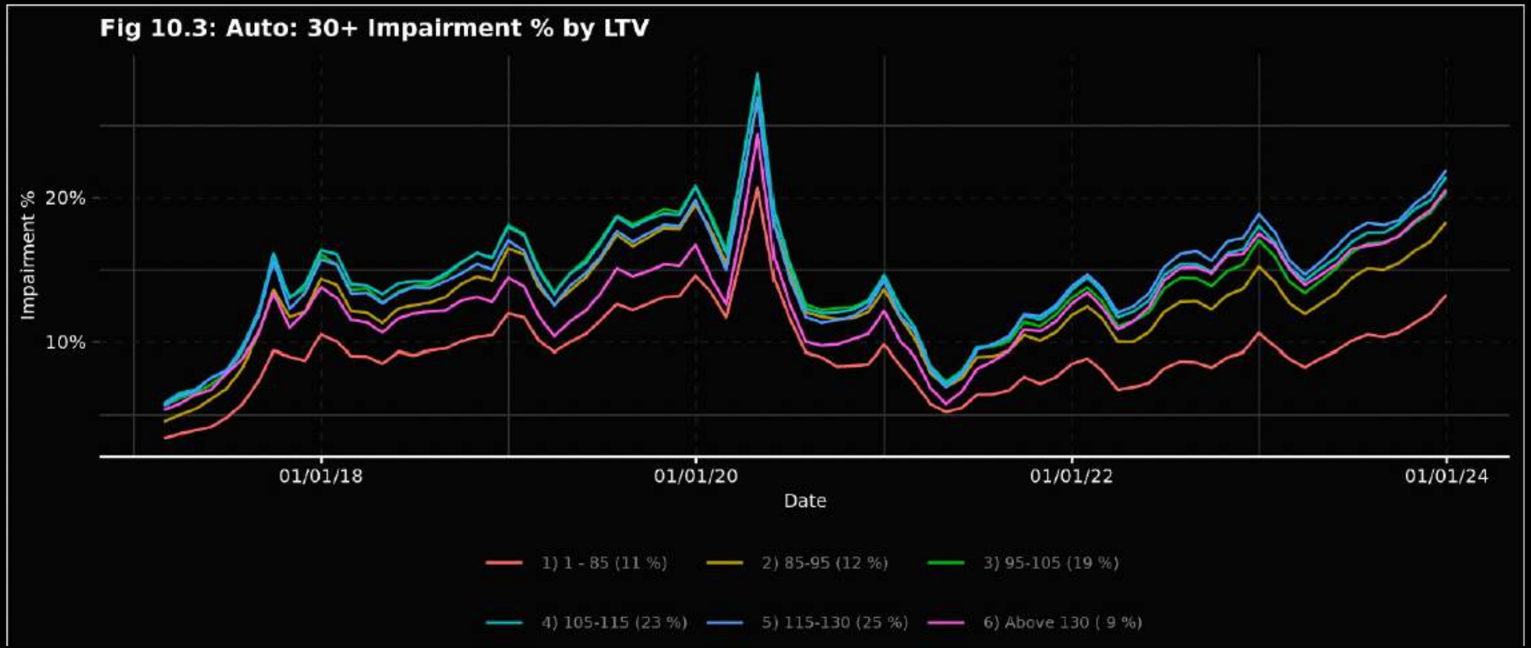
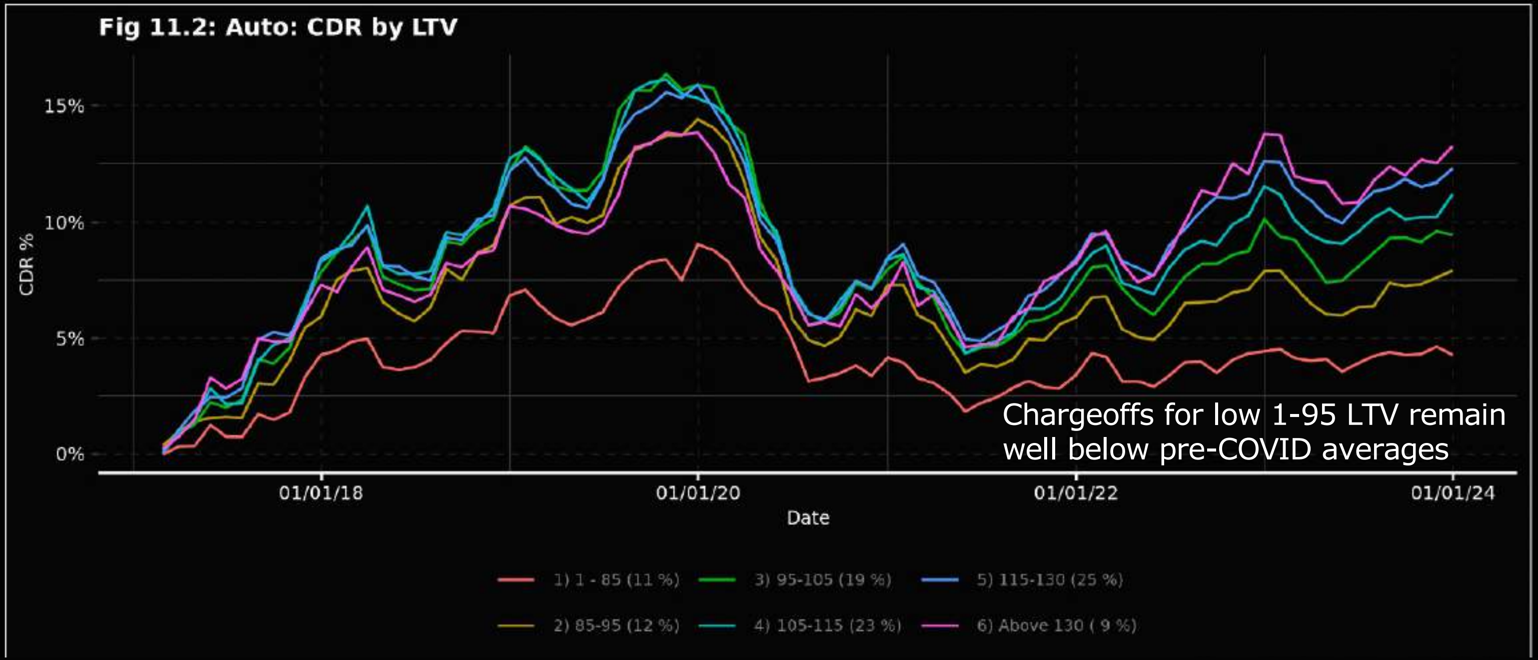
LTV continues to be a key differentiator in impairment and chargeoffs





Source: dv01, data as of December 31, 2023

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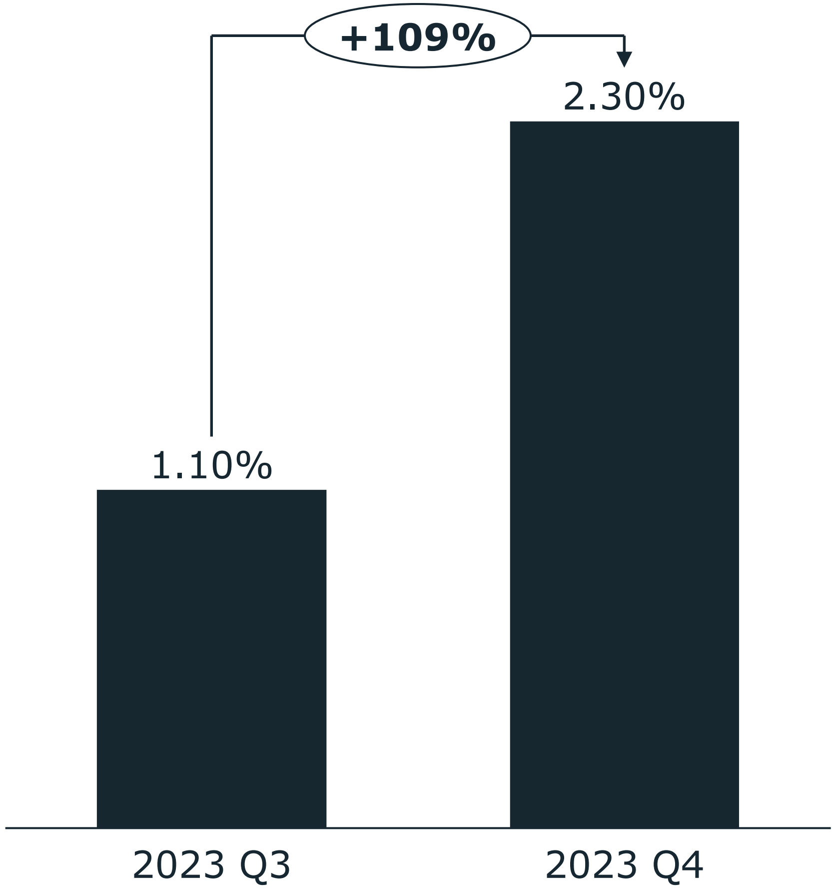
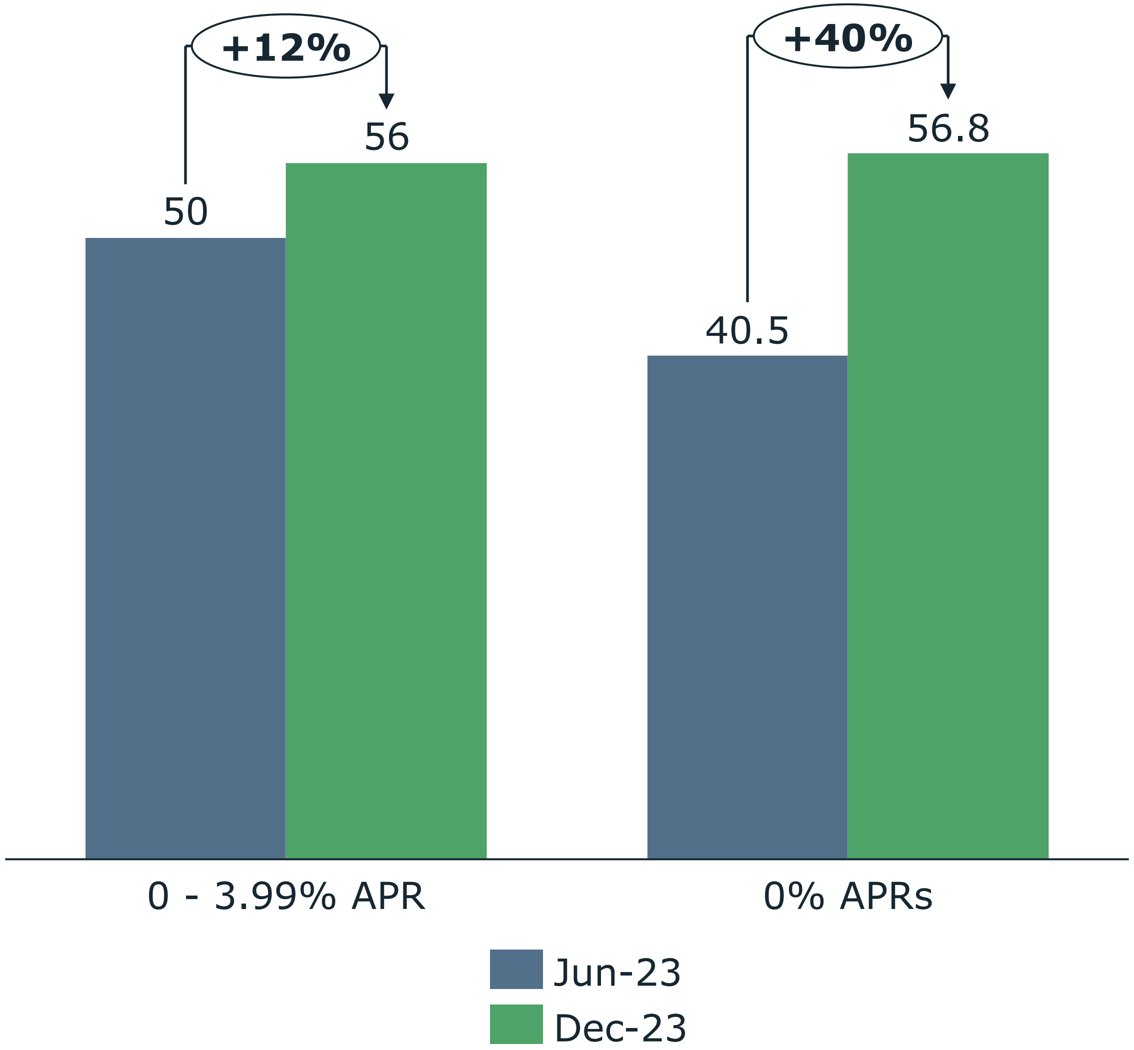
Lenders are offering better deals on new cars in Q4 with lower interest rates and longer-term lengths

Share of new-vehicles sales with 0% APR



Average term lengths for low APR, June vs Dec 2023



Source: Edmunds, data as of January 3, 2023

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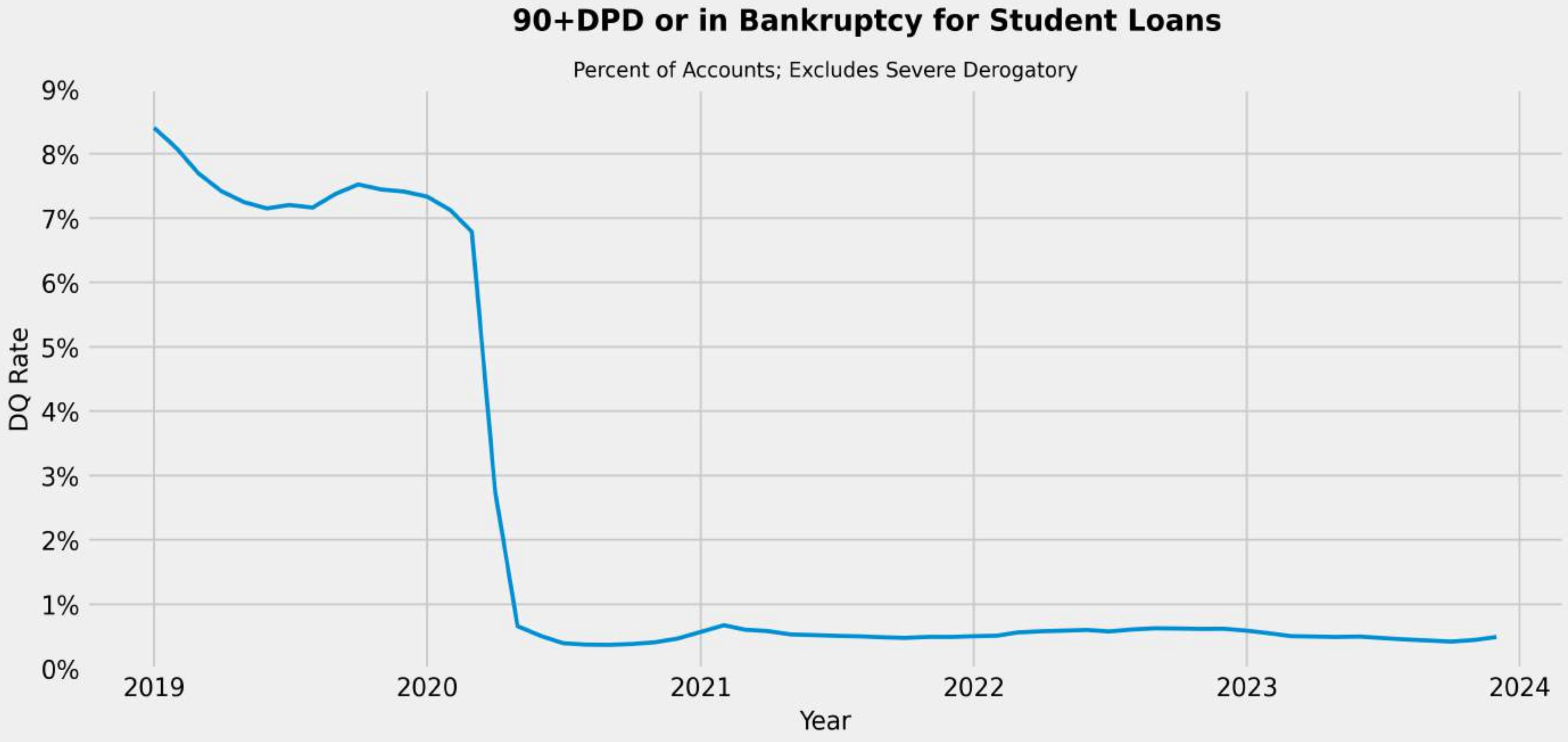
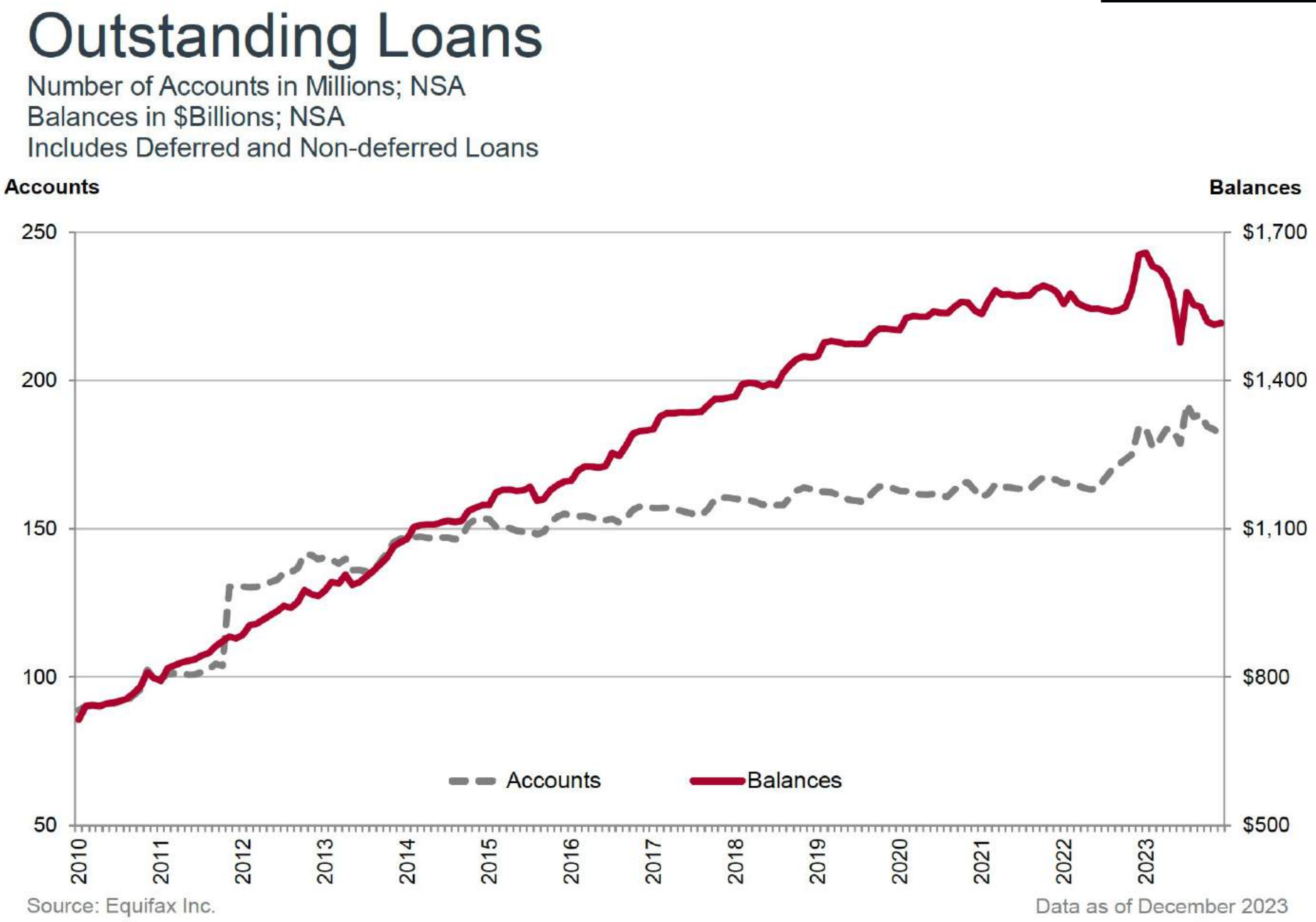
Federal SLs resumed payments in September 2023. However, servicers will not start reporting delinquencies to bureaus until September 2024.



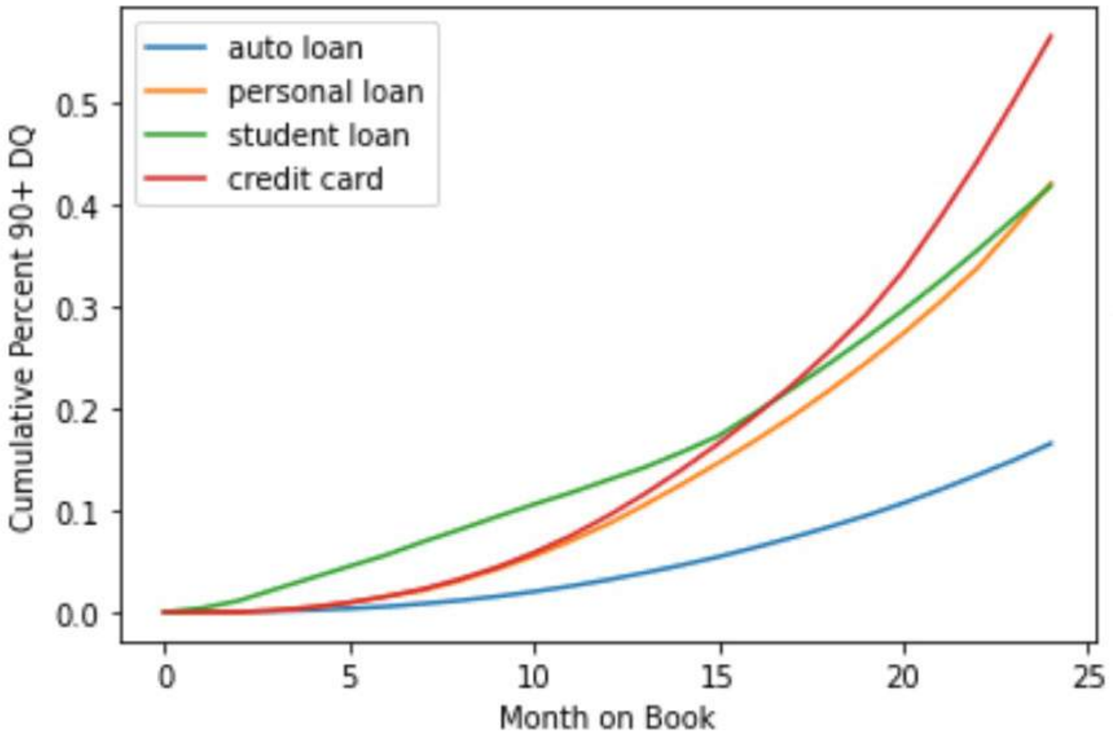
Source: 2OS, Equifax Ignite. Data as of December 31, 2023.

SL balance decreased in 2023, as more consumers are paying off their loans after the end of forbearance



Student Loans are ahead of credit cards in payment hierarchy, suggesting the end of Student Loan forbearance will most affect credit card repayment

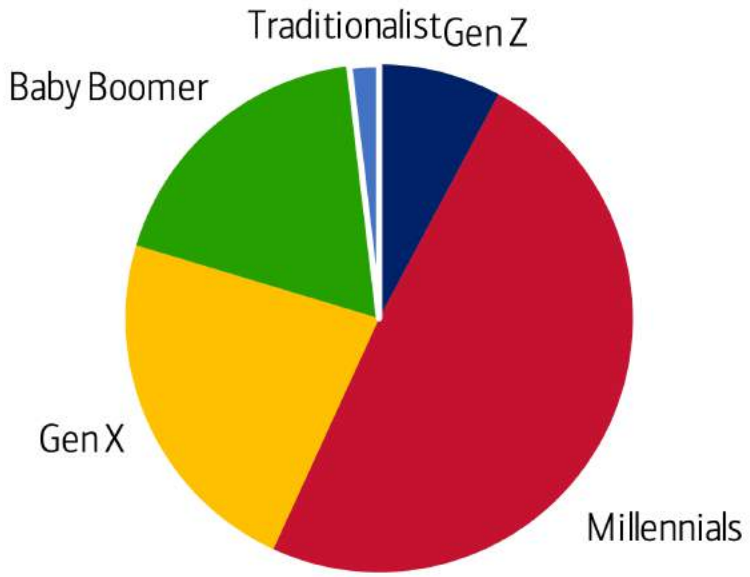
Serious Delinquency for borrowers with many asset types Across Asset Types: February 2018-2020



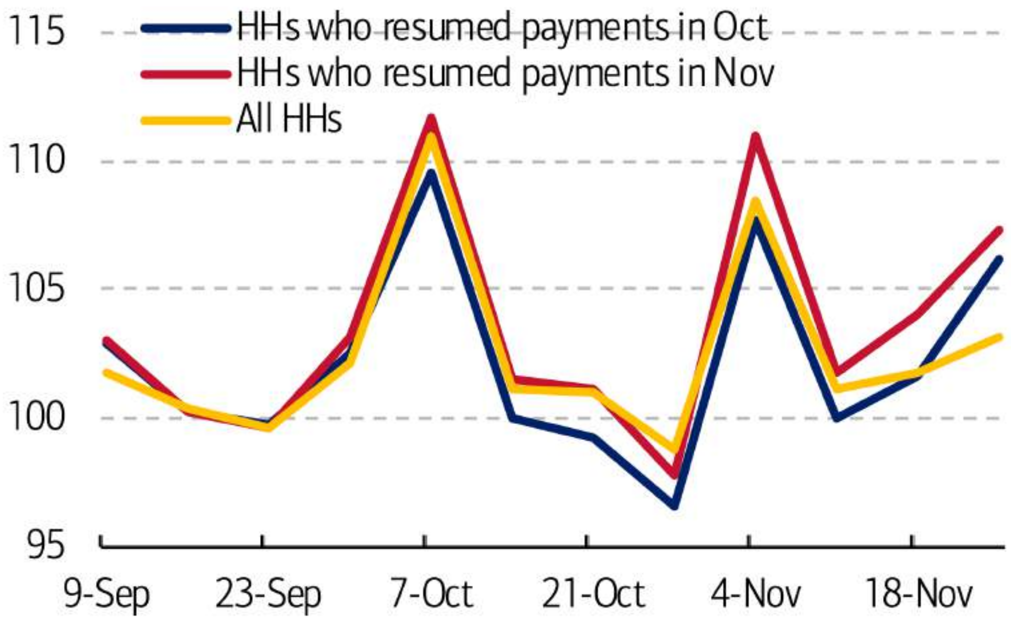
Source: 2OS, Equifax Ignite
Cohort includes a random sample of borrowers who had all 4 displayed loan types open in February 2018 and were current on their payments.

Millennials are disproportionately impacted by the resumption of SL repayments

Share of households making student loan repayments by generation*



Total card spending per household by group (index, Sep 23 average = 100)



SL repayments don't show adverse impact to spending yet for those that have resumed, likely because of the "on ramp" period

Source: BOA internal data. Data as of November 30, 2023.
*Over 70% of SL outstanding is held by those aged 25-49.

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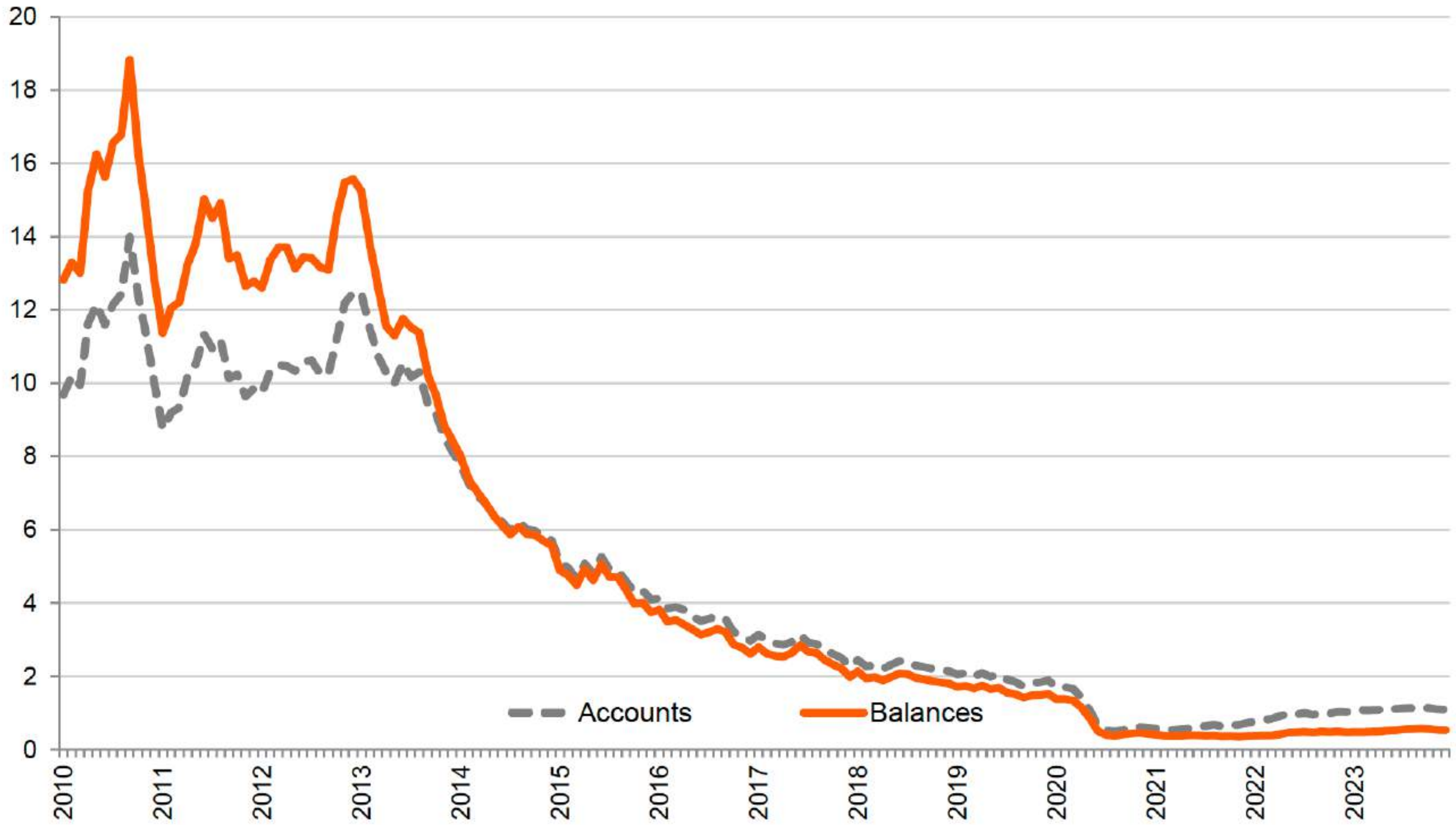
Write-off rates are increasing but are well below pre-pandemic averages

Write-Off Rates

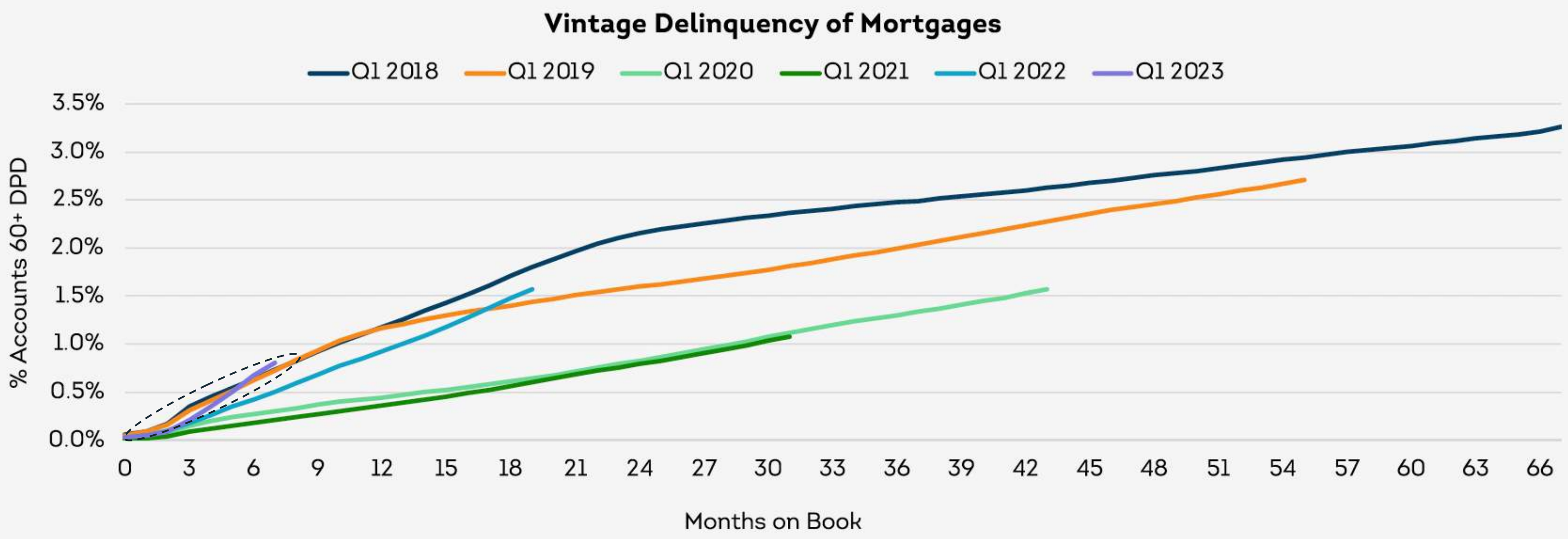
Accounts terminated in Severe Derogatory status
Share of Accounts and Balances in Basis Points; 3-Month Moving Average, NSA, Not Annualized
Excludes Bankruptcy



Source: Equifax Inc.

Data as of December 2023

Newer vintages are experiencing higher delinquencies

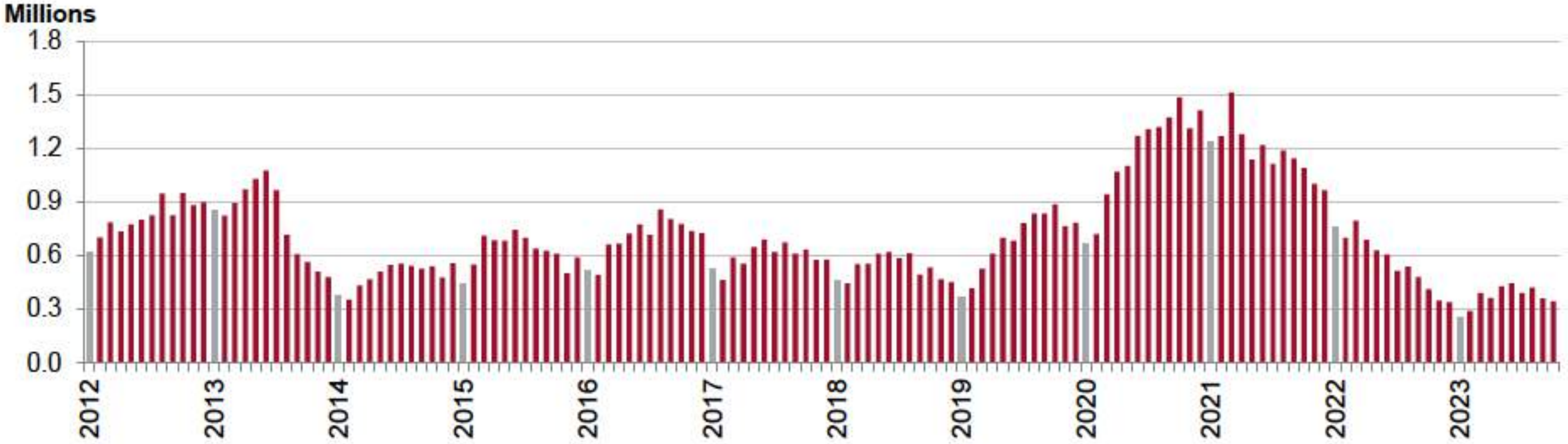


Source: Transunion. Data as of December 31, 2023.

High home prices and interest rates are leading to low mortgage originations

First Mortgage Originations: Accounts

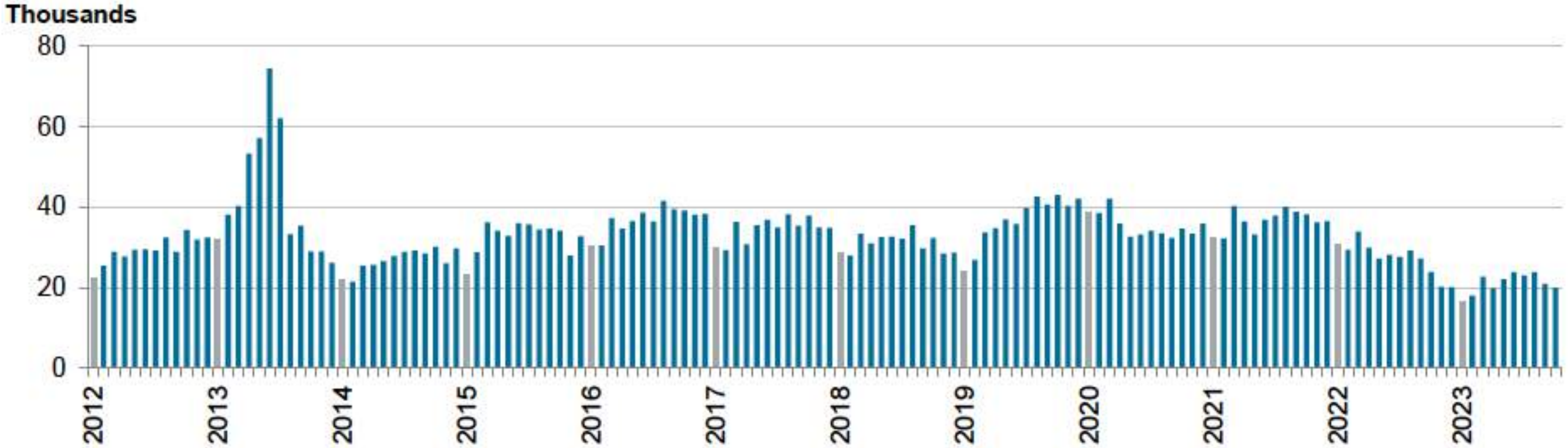
Number of Accounts in Millions; NSA



Subprime FM Originations: Accounts

Number of Accounts in Thousands; NSA

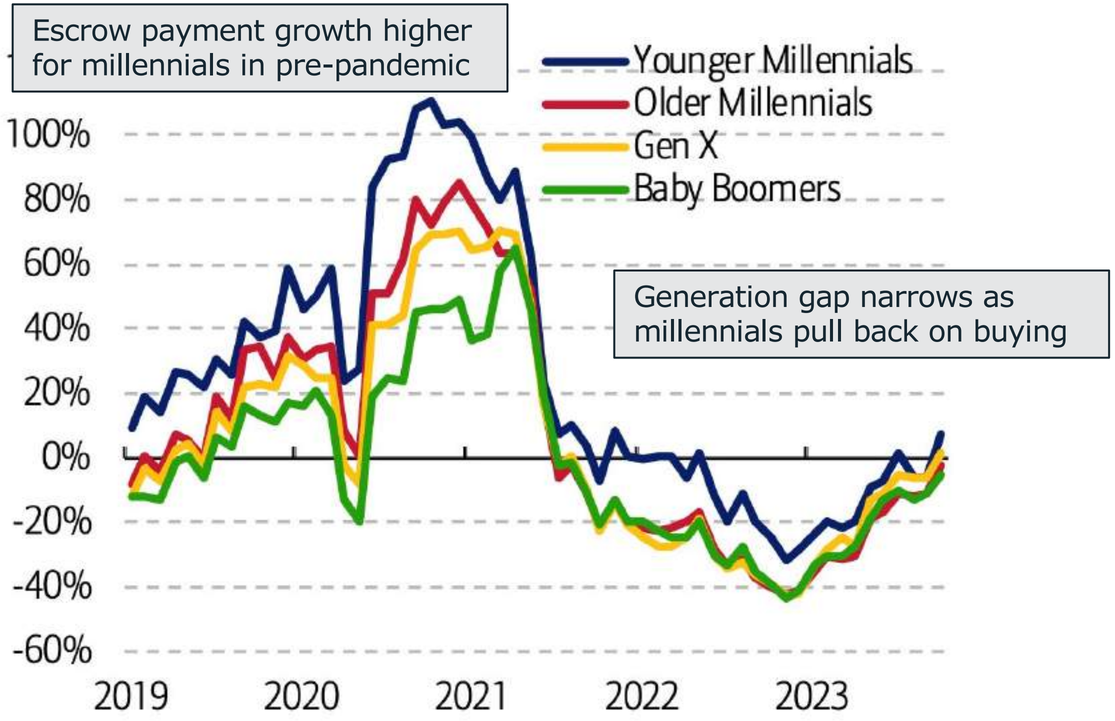
Subprime accounts defined as those with borrower's origination VantageScore® 3.0 less than 620



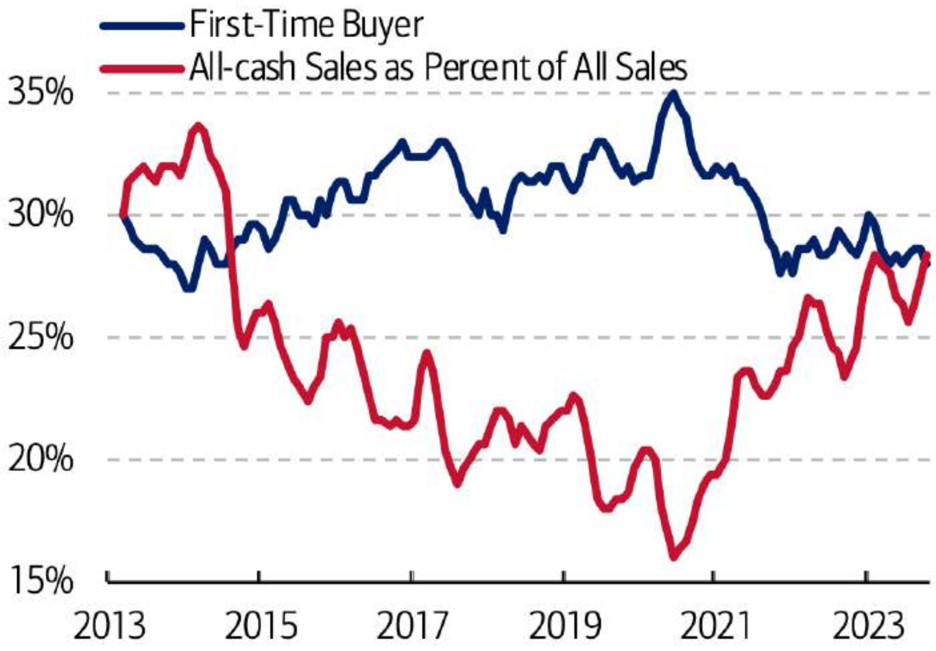
Source: Equifax. Originations through October 2023 reported as of December 31, 2023.

Millennials are experiencing a bigger originations slowdown than older generations

YoY growth on number of households with an escrow payment, by generation*



Share of first-time home buyers and all cash sales among all buyers



Home sales to younger generations decreased. The share of all-cash sales, which skews toward an older population, increased.

Source: BOA internal data. Data as of November 30, 2023.
*Escrow payments is a proxy for existing home sales.

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High equity values and favorable rates for HELOCs compared to CCs and PLs drove HELOC originations to pre-COVID averages

The subprime share of origination CL has reached decade highs

YTD HELOC Origination Credit Limits

Year-to-Date Total Credit Limits in $Billions; Subprime Share of Total Origination Credit Limits (%); NSA
Subprime accounts defined as those with borrower's origination VantageScore® 3.0 less than 620

Source: Equifax Inc.

Originations through October 2023 reported as of December 2023

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About 2OS

2nd Order Solutions (2OS) is a boutique credit risk advisory firm that specializes in solving the world's most challenging credit problems. 2OS was founded 12 years ago and consults to a wide range of banks, card issuers, fintechs, and specialty finance companies in the US and abroad.

2OS has deep experience with lending businesses across Card, Auto, Small Business, and Personal Loans, at all points in the credit lifecycle. 2OS partners have vast expertise in all aspects of Collections, both as operating executives and as consultants.

For more insights and commentary on the lending industry, visit us at https://2os.com/insights/

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Equifax Ignite Definitions

Active Accounts: This includes all accounts that have a reported status in the most recent three months. Accounts categorized as closed or delinquent were included in the month in which the status is first reported and are excluded from active accounts thereafter. For student loans, we only considered those non-deferred accounts. A deferred student loan refers to no payment being required and generally pertains to students still in school up until 6 months after graduation. Non-deferred student loans relate to students that have already graduated where a payment is required.

Definition of delinquency: For credit cards, auto loans, and personal loans, we considered accounts as delinquent if they were 60+ days past due. Specifically, we included accounts in 60-90 DPD, 90-120 DPD, and 120+ DPD buckets; we excluded charged off and bankrupt accounts. For student loans, we considered accounts as delinquent if they were 90+ days past due. We included accounts in 90-120 DPD, 120+ DPD, and bankruptcy buckets; we excluded charged off accounts.

Definition of Personal Loans: We define personal loans as those accounts labeled as personal finance and installment loan.

Vantage bucket timing: To better observe movements within Vantage 3.0 buckets (and reduce the effect of re-classification of accounts across buckets), we lagged the date when the vantage bucket is observed by 3 months from the current archive date when looking at performance charts.

Origination timing: Originations are lagged by 2 months from the current archive date. Hence, the most recent origination datapoint is from October 31, 2023.

Roll Rate Methodology: Roll rates are calculated as the percentage of accounts that transition into a higher delinquency bucket in the next month. 30DPD bucket refers to those customers that transitioned into 30-59 days delinquent. Similarly, 60DPD refers to those customers 60-89 days delinquent; 90DPD are those customers 90-119 days delinquent; 120DPD are those customers 120+ days delinquent that have not charged off.

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