Credit Risk Trends in the COVID Era

Early risk indicators and best practices

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Executive Summary

Early in the pandemic, the world saw significant tightening of lending across the board as lenders responded to sky-high unemployment and an uncertain financial future for their customers. However, due to factors like the government stimulus and a deluge of deferral programs, we did not see the broadly expected uptick in delinquencies. This led to a rapid return to pre-pandemic lending standards as the first year of the pandemic drew to a close. Recently most lenders have became increasingly comfortable, loosening lending standards back to pre-COVID levels.

This paper covers trends and early risk indicators we've recently seen, with a focus on two:

- **Steeper rise in delinquencies in more recent vintages**
  - The industry-wide relaxation of lending hard-cuts has allowed considerably more originations of subprime customers than in normal periods
  - We see customers with inflated risk scores due to deferrals, COVID-related behavioural changes and data degradation
- **Some subpopulations are increasingly prone to higher risk than their peers**
  - We have seen evidence of higher score inflation for new to credit & thin file customers (especially younger borrowers), one of the major reasons being the large number of student loan deferrals
  - Historically, student loans have a relatively high delinquency rate and the majority of them have been muted because of deferral programs. This has caused lenders to put more young customers on their books than ever before
  - Surveys show that a majority of students face financial hardship once deferrals end in May 2022; we are already seeing signs of stress in young cohorts at many of our partner banks

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Overall State of Credit

The COVID-19 pandemic has considerably changed the market dynamics for virtually every facet of lending and credit. The industry has nimbly adapted to uncertainty brought about by pandemic conditions, and that quick adaptation has led to a loss-suppressed environment where current lending standards have reached an expansionary level approaching or (in the case of online lenders specifically) exceeding pre-pandemic levels.

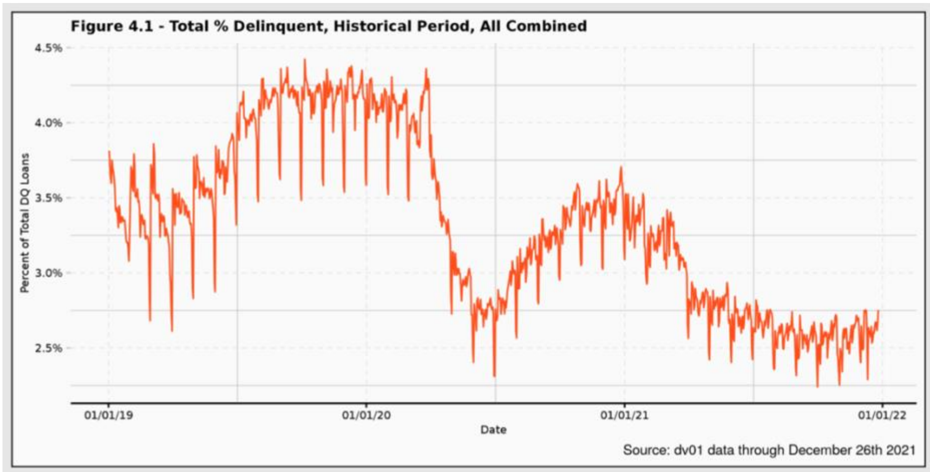

Exhibit 1 *Overall delinquencies remain lower than pre-pandemic levels. Data is tabulated on 2.3 million active loans with a total balance of $23 billion originated through Dec 26 2021* [1]

Here are a handful of high-level trends we've seen across the lending spectrum:

- Overall, delinquencies remain near their all-time low. This is despite the fact that the majority of the deferral programs are trending towards pre-pandemic levels (**Exhibit 8** & **Exhibit 9**) with student loans being a clear exception, remaining in abnormally high deferral volumes[2] (**Exhibit 7**)

- Virtually every lender has considerably relaxed origination standards in recent vintages to take advantage of the abnormally low-risk period the unsecured lending market experienced in 2021; this means higher origination volumes and more subprime customers

- Although the overall delinquencies remain low, we are starting to see a steeper ramp up in short-term DQ status in more recent vintages across a number of clients; large US banks and a few online lenders have seen indicators imply a coming reversion in some small subsections of their population

[1] dv01 COVID-19 Performance Report, Volume 31, https://resources.dv01.co/insights-covid-19-performance-report-volume-31/ The

[2] https://studentaid.gov/data-center/student/portfolio

Increasing Subprime Concentration

Due to the all-time low status of overall delinquencies and the relaxed origination standards, virtually every lender has ramped up their subprime originations during the pandemic. This has (generally) coincided with a minimal increase in actual credit risk, as indicated by the lack of increased aggregate DQ. However, de-averaging current delinquency trends reveals several early risk indicators that imply potential issues going forward. We've found that when analyzing the makeup of the origination volumes of our clients, we see an increasing ratio of subprime to upmarket accounts; this is supported by publicly available data, such as those seen in (**Exhibit 2** and **Exhibit 12**)

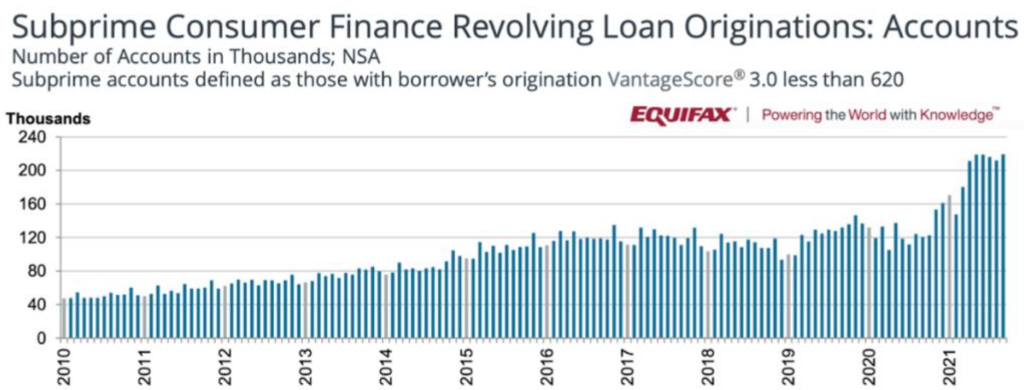

***Exhibit 2** Significant increase in Subprime Revolving Loans after the pandemic dip. Data as of Oct 2021, Equifax* [3]

Looking at anonymized DQ trends, what we have seen when looking at recent vintage curves is summarized in the chart shown to the right (**Exhibit 3**). Delinquencies have remained low despite somewhat concerning increases in short-term risk for subprime customers that directly coincide with decreases in short-term risk for upmarket.

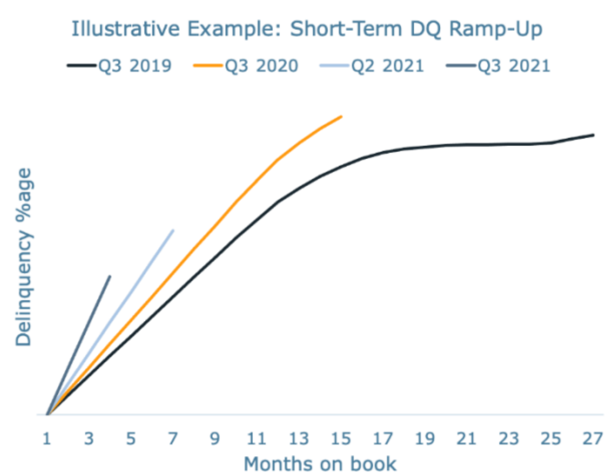

***Exhibit 3** Steeper ramp up in delinquencies in more recent vintages*

This matches our general intuition about the broader customer experience right now; as work-from-home and travel restrictions have decreased the necessity for upmarket customers to utilize their cards, subprime customers with new originations are often finding their newly originated cards (as of mid-to-late 2021) are considerably higher in overall credit line than cards they

[3] https://www.equifax.com/resource/-/asset/consumer-report/monthly-us-national-consumer-credit-trends-report-dec-2021-originations/

booked prior to the pandemic. For many lenders, these newly originated subprime customers are experiencing increased second order risk[4] aligning with their larger-than-expected credit lines.

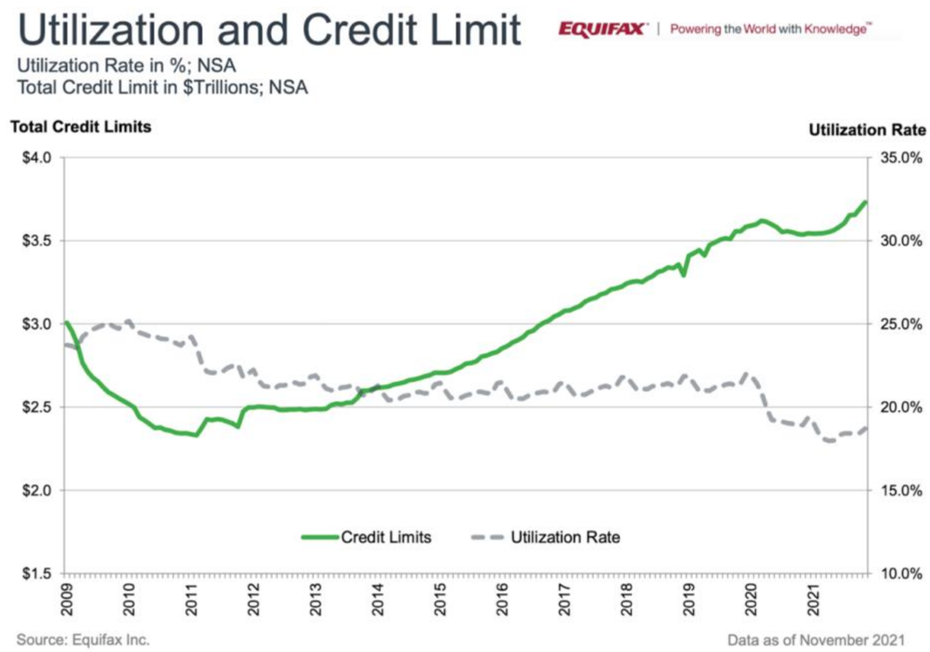

***Exhibit 4** Total Credit Limits continue to rise after a dip during the pandemic, with utilization remaining at historic lows. Data as of Nov 2021, Equifax[5]*

It is hard to tease out the exact root causes of this increase in short term delinquency for lenders in the aggregate, as every lender's book is composed differently and every risk trend requires caveats based on the product we're examining. But we believe there are three key contributing factors that lenders need to keep an eye out for:

- Due to the higher portion of origination volumes comprising subprime customers, a higher proportion of originations exist with negative credit attributes – lower average FICO, more inquiries on book, et cetera. Simply having more subprime customers is not a death knell in and of itself, but the corresponding risk tradeoff in a benign environment is something that needs to be properly valued in forward-looking valuations of your book; it is important to align expectations to de-averaged views rather than the overall, as contrary trends in superprime vs subprime are leading to cases where overall averages remain stable while the underlying trends show risk flips and broad composition changes in a lender's front book.

[4] When we say second order risk, we are referring to the measurable risk increase related solely to a customer having a larger line, exogenous to the explicit risk profile of the customer.
[5] https://www.equifax.com/resource/-/asset/consumer-report/monthly-us-national-consumer-credit-trends-report-dec-2021-originations/

- Risk scores and other credit attributes throughout the pandemic have been considerably inflated due to the nature of pandemic deferrals and government assistance. This inflation is more pronounced within subprime, where customers that would normally have missed payments were able to cover them through deferred loans and/or souped-up unemployment benefits. (**Exhibit 15**) 2OS has done extensive work and simulation studies for clients in tackling risk score inflation due to both pandemic related behavioral changes and data degradation; we recommend reading our white paper from 2021 regarding COVID score inflation. [6]

- In addition to the aforementioned risk score inflation, we anticipate that the decades-high mark in the U.S. inflation rate will have a compounding effect on lower-income subprime borrowers. The December report on the Consumer Price Index from the U.S. Bureau of Labor Statistics demonstrated that inflation (while universally high) is currently highest on fuel, heavily impacting subprime customers whose jobs largely do not enable them to work remotely.[7]

In addition to these core factors, some subpopulations are considerably more at-risk of financial stress in the post-COVID world – specifically, customers with student loans.

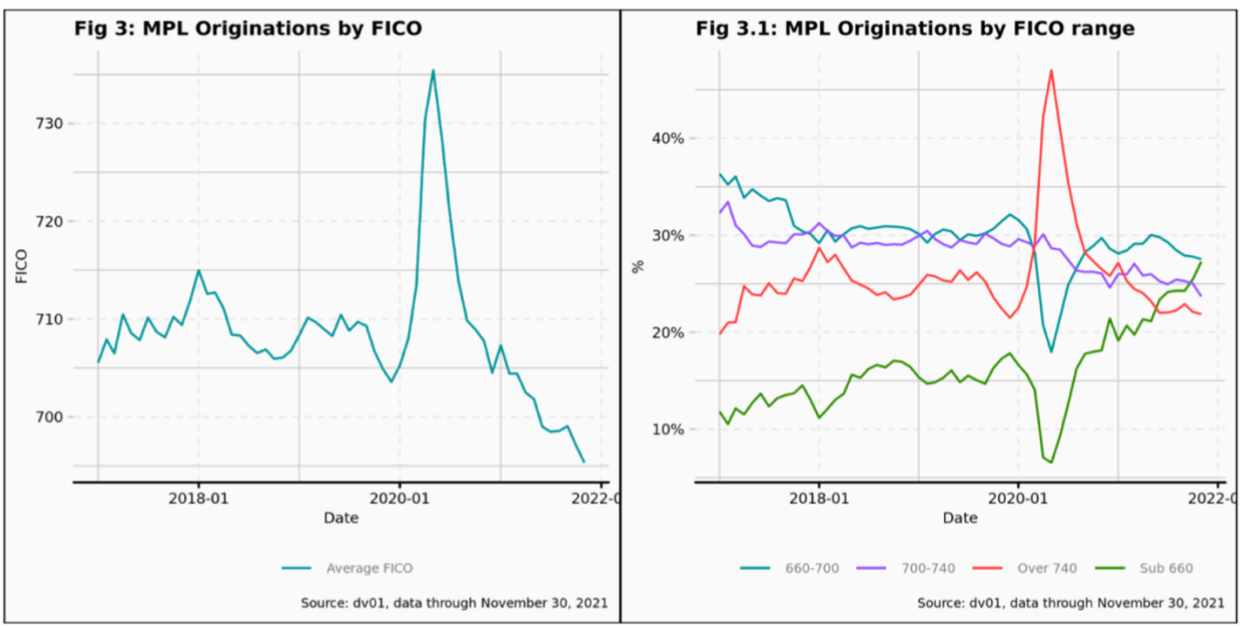

Exhibit 5 *Avg FICO of originations has dropped for recent vintages with the proportion of sub-660 FICO rising. This is even more concerning if you also consider that FICO scores are inflated by ~5-10 points. Originations data through Nov 30 2021 by dv01*[8]

[6] Contact 2OS for the white paper regarding COVID score inflation
[7] Read the BLS CPI report here: https://www.bls.gov/news.release/pdf/cpi.pdf
[8] https://resources.dv01.co/insights-covid-19-loan-issuance-report-vol-8/

Mean Reversion in Customers with Student Loans

In unsecured lending, one of the most important things in any analytical exercise is to apply proper de-averaging to your data. From transactors to revolvers, online to in-person, homeowners to renters, and many others, every small subcategory of your book features different broad quirks that can lead to erroneous conclusions if not explicitly separated and analyzed in their own context. By analyzing the data of our clients alongside publicly available sources, 2OS has found considerable evidence indicating that during the COVID-19 pandemic, cohorts of younger customers have (after an initial suppression) manifested higher credit risk than expected as they revert to their pre-pandemic mean.

While this is perhaps a surprising initial read, the overarching trend makes a lot of sense as one digs deeper into the context behind student and young adult lending. Historically, the credit profile of the average student borrower reads as considerably riskier than their older counterparts due to (relatively) higher delinquency rate on student loans, which (for obvious reasons) are highly concentrated in the younger credit cohort. This fact has been one of the key drivers across recent generations for lower FICO and higher general risk indicators on students and young adults alike.

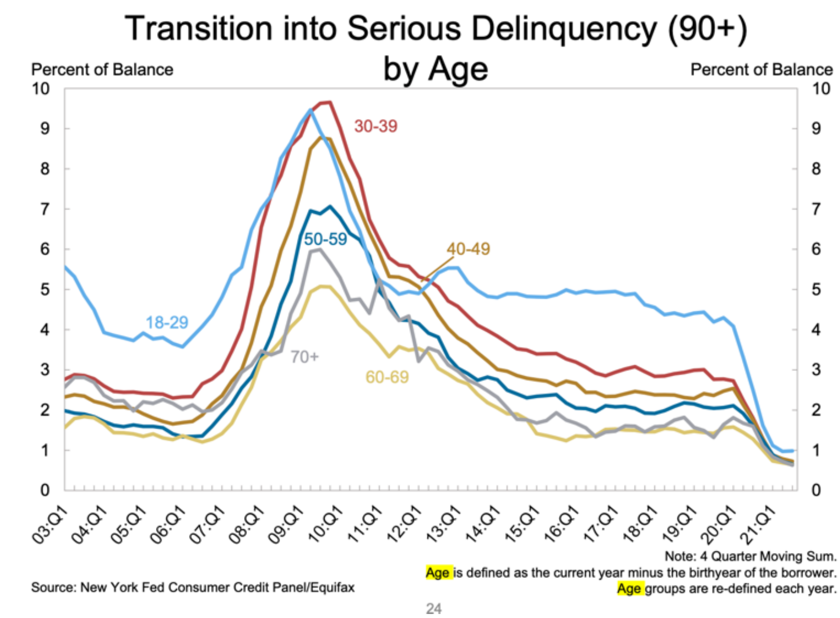

***Exhibit 6** Data from the New York Fed regarding DQ transition by age; note the decreasing differential that is beginning to expand again even by early last year*

However, COVID-19 has changed the picture; due to the CARES act & the aggressive banking response to the pandemic, a majority of these student loans that would in benign periods show late payments or delinquency instead demonstrate current and/or deferred behavior, which leads to score & attribute inflation. Around 43 million student borrowers are in debt, at an average of $39k each. The outstanding Federal Loan Portfolio - which makes up 92% of student loans - is over $1.59 trillion. More than 35 million (over 4 in 5) of these borrowers qualified for general student debt relief under the CARES Act of 2020. While many private lenders offered suspension in payments of up to 3 months, few (if any) deferred interest – this doubles down on the issue, as these borrowers are both accumulating interest that makes them a higher credit risk in the future while having artificially inflated risk scores due to the current deferral of their student loan debt. [9]

Although the deferral program has been extended to May 2022, surveys show that a majority of students face significant financial hardship once deferrals end. A survey by BestColleges.com and BankRate estimates nearly seven in 10 borrowers with federal student loans will need to take additional action to be able to afford resuming the monthly payment on their loans, and 37% will have difficulty paying down other debt once the deferrals end [10]. For these customers, this could mean a deluge of delinquencies once the deferrals end. In the data of clients that have rudimentary parsing for student loan debt, we have seen indications of this already for borrowers that have attempted to leave deferral status, who are experiencing sloppy payment behavior and rolling into DQ status earlier than expected on booking.

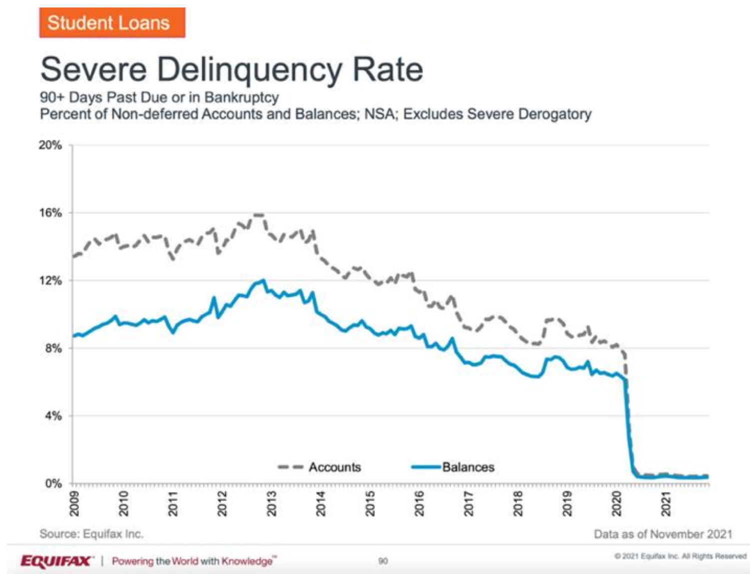

Exhibit 7 Data from Equifax showing the suppression of DQ due to deferral programs

Moreover, we have seen a higher score inflation for younger customers. Surveys show that 31% of people on student loan deferrals used the extra money to pay off their other debts, further muting the expected risk signal by ensuring that the young lender's bureau reads are off across products, not *just* in the student loan space. We also see a higher proportion of originations with a shorter credit history (**Exhibit 10**) pointing towards more younger customers being booked in the recent originations which is already contributing towards the higher delinquency rates in recent vintages.

It is important to note that the reads we have seen so far largely rely on short-term data – overall DQ rates are (as previously discussed) extremely suppressed due to COVID-19, which is true in most public data. But even on highly-aggregated data that has been rudimentarily de-averaged, the trend is reasonably clear – the pandemic flattened the risk differential between young borrowers and old, but young borrowers are beginning to revert to pre-pandemic behavior, as seen in (**Exhibit 6**). This may not be manifesting on your book, yet, but performance of young borrowers (and whether your recent originations

[9] https://educationdata.org/student-loan-debt-statistics

[10] Survey by BestColleges.com and Bankrate

are skewed higher in their direction than pre-COVID numbers) deserves special attention as you plan out your risk strategy in the years to come.

Conclusion & Next Steps

There are concrete, effective steps that lenders can do to prepare themselves for risk differential on their newly originated accounts:

- **IMPROVED MONITORING:** More robust monitoring and de-averaging of data to identify subpopulations of interest - especially for the more recent vintages to pick up on early risk indicators. We have seen the best lenders shift from monthly snapshots to weekly monitoring of key metrics and variables.

- **CREDIT TIGHTENING FOR SOME SUBPOPULATIONS:** Be wary of subpopulations that were heavily altered by the COVID environment, especially the ones with high score inflation where the true risk signal is being muted. By leveraging sophisticated modeling, 2OS has helped clients identify pockets of customers that are being under (or over) suppressed on risk.

- **ALTERNATE DATA:** As a number of traditional risk attributes have been muted/degraded due to COVID - it has become even more important to leverage additional data sources to get a ‘true’ risk read of the customer.

    - We have seen customer data like Savings and Deposits balances - and their trends - as powerful risk indicators. Not all lenders have this data available, and we have seen some partner with third-party services to attain them.

    - Another high-valued data source that has been successfully leveraged by some of our clients is transaction level data on existing customers that are applying for new products.

- **MODEL OVERLAYS/REFITTING:** Understanding that some attributes like DQ history, bankruptcy etc in risk models are not as predictive as they used to be.

    - 2OS has helped a number of clients with analyzing the degradation of models due to COVID through custom stress testing and devolping model overlays.

    - One solution is to rely a bit more on customer management strategies for expansion, where you can successfully leverage internal data.

Acknowledgements

This report was prepared by Syed Raza, Aaron McGuire, and Scott Barton.

- **Syed Raza, PhD** is a Senior Data Scientist at 2nd Order Solutions; he has built a number of credit risk models across multiple financial institutions and specializes in COVID's impact on unsecured lending.
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- **Scott Barton** is the Founder and Managing Partner at 2nd Order Solutions; he has led a hundreds of major initiatives for major banks and fintechs, including overhauls of Collection strategies, overarching model redesigns, and major architectural changes to organizational credit risk assessment. He previously was one of a handful of Senior Credit Officers at Capital One and led several business units, including Partnerships, Collections, Recoveries, and Fraud.

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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.

Appendix

Data Timelines

Data	Source	Latest Data Available
Consumer Credit Trends	dv01	Dec 26, 2021
	Equifax	Nov, 2021
	Experian	Nov 27, 2021
	New York Fed	Q3 2021
Credit Origination	dv01	Nov 30, 2021
	Equifax	Sep, 2021

Extra Graphs: State of Credit

Exhibit 8 *Overall delinquencies remain at pre-pandemic lows across tradelines. Source: Experian Economic and Credit Trends as of November 2021*

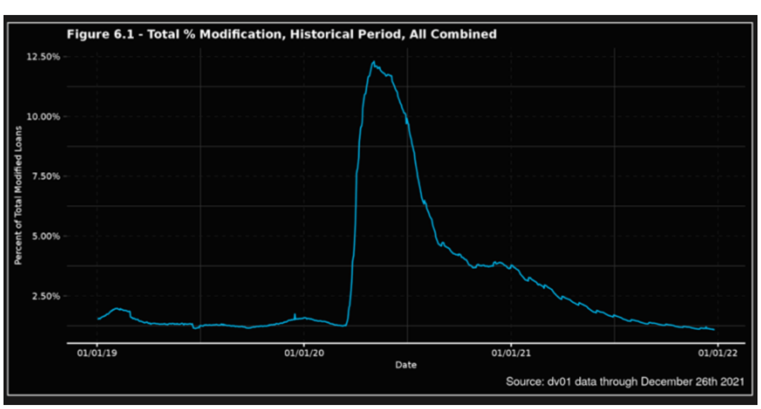

Exhibit 9 *Loan modifications (deferrals and delinquencies) remain close to pre-pandemic lows. Data through Dec 26 2021, aggregated by dv01 from online lenders*

Extra Graphs: Subprime Risk

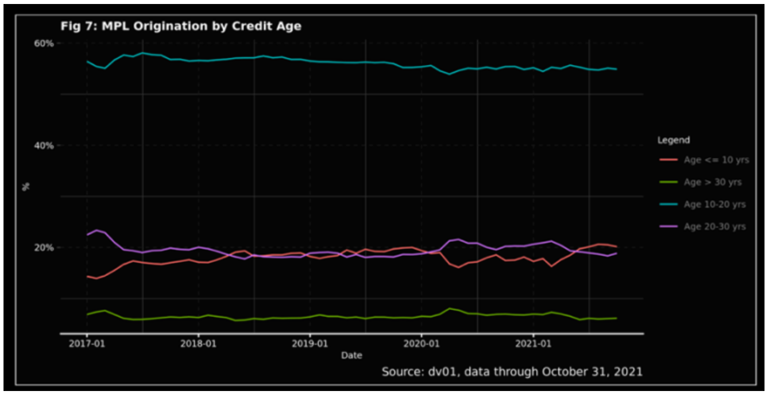

Exhibit 10 Increase in proportion of originations with a shorter credit age (<=10yrs). Originations data through Oct 31 2021, aggregated by dv01 from online lenders

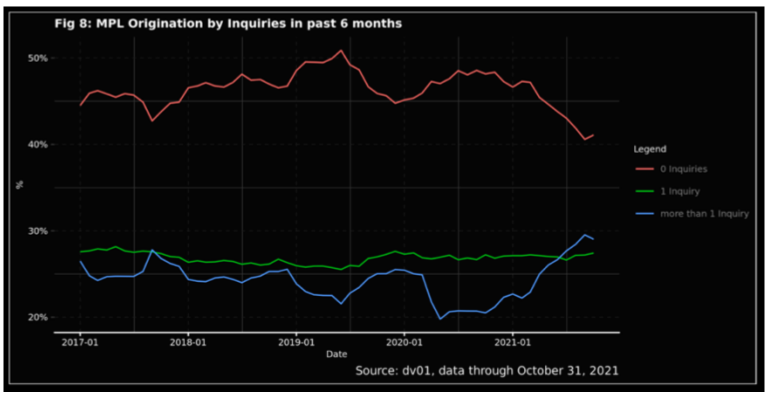

Exhibit 11 Proportion of originations with >1 inquiries in the last 6 months have increased. Originations data through Oct 31 2021, aggregated by dv01 from online lenders

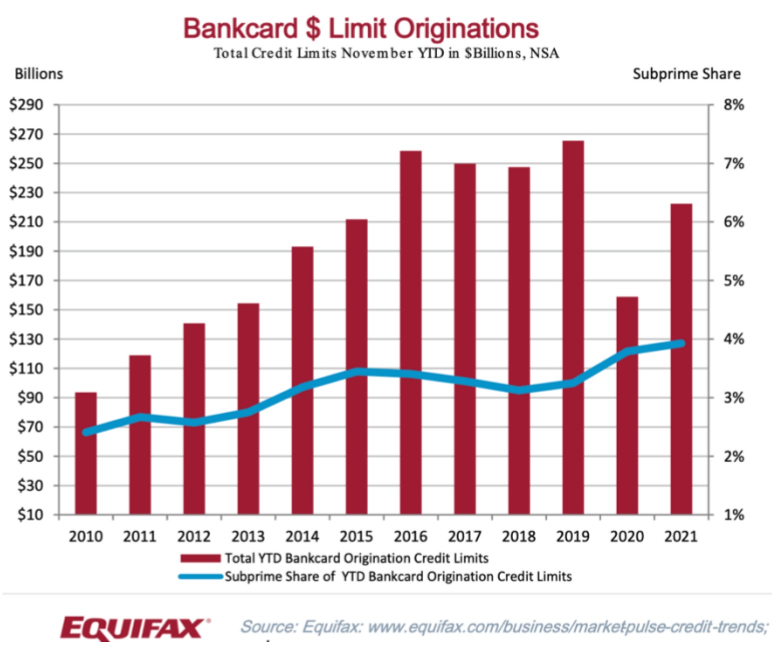

Exhibit 12 The proportion of subprime originations has been increasing

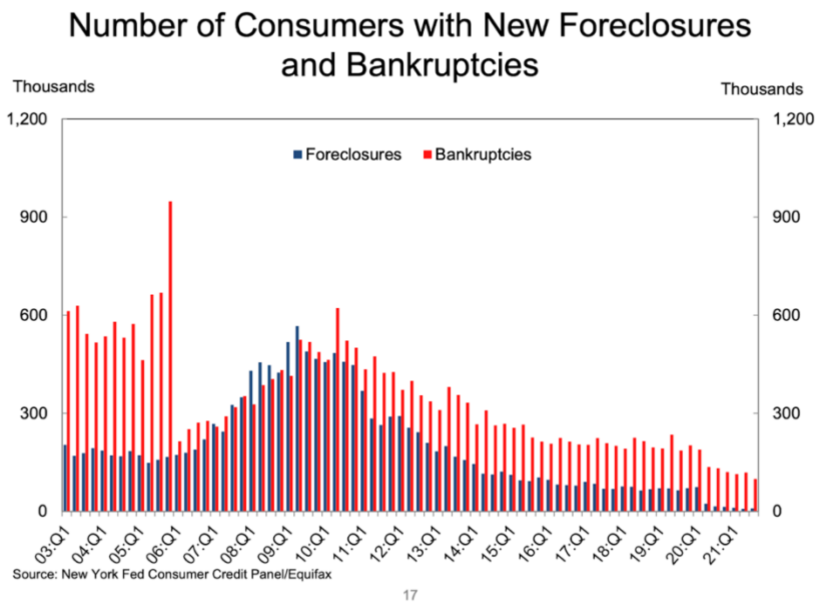

***Exhibit 13** The number of foreclosures and bankruptcies are still much lower than pre-pandemic levels - further muting the risk signal for some of the customers*

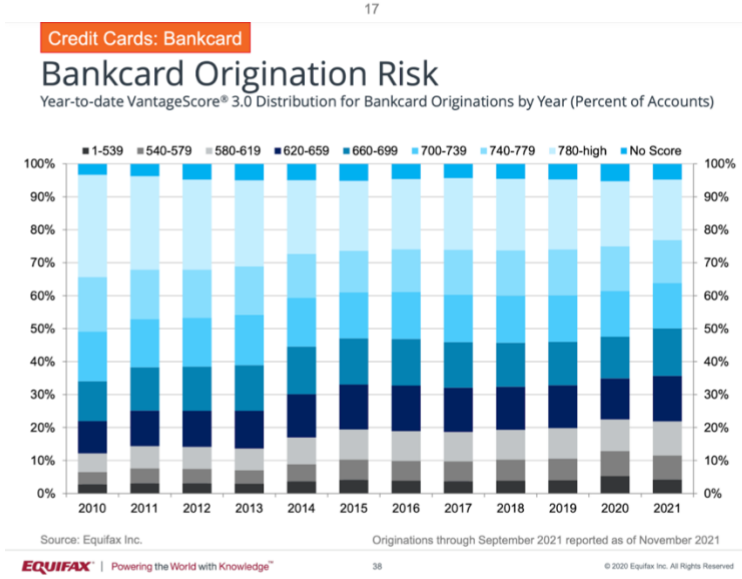

***Exhibit 14** Originations in 2021 have the proportion of sub-660 risk scores in the last decade*

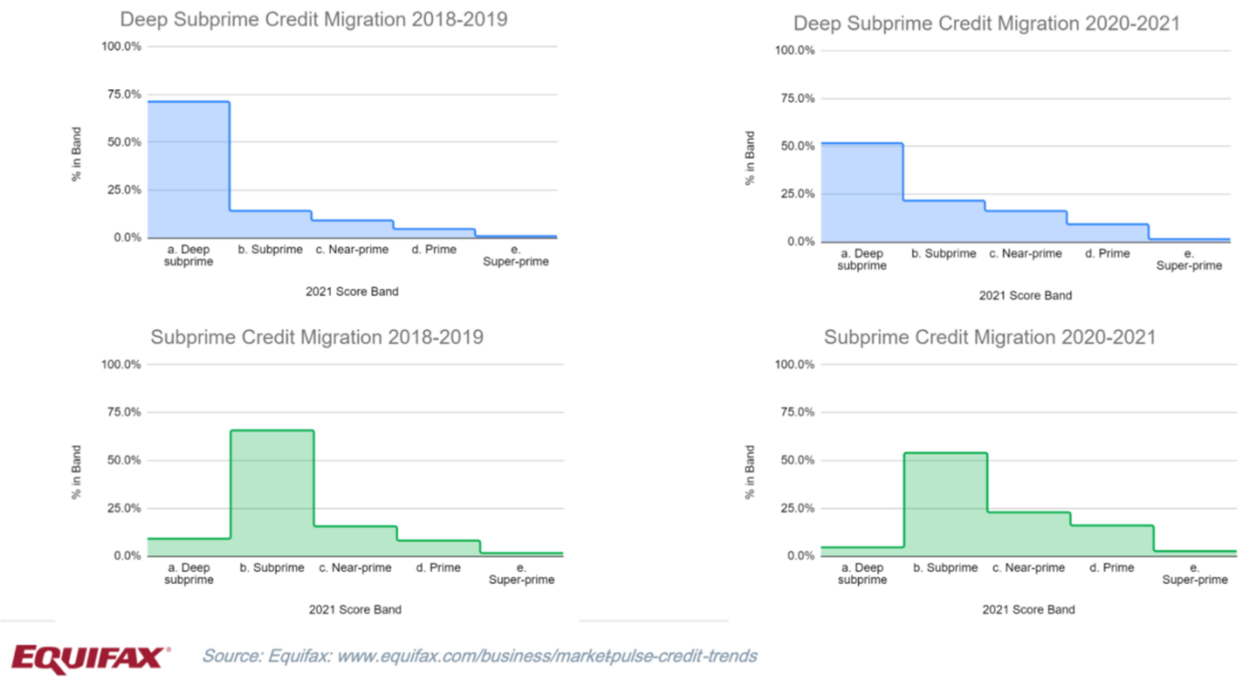

Exhibit 15 *Comparison between Pre and Post COVID originations showing inflation of scores. An additional 20%/16% of Consumers that were previously Deep-Subprime/Subprime originated at a higher band*[11]

Extra Graphs: Reversion to the Mean for Customers with Student Loans

Average FICO® Score by Generation		
Generation	**2019**	**2020**
Generation Z (18-23)	667	674
Millennials (24-39)	668	680
Generation X (40-55)	688	699
Baby boomers (56-74)	731	736
Silent generation (75+)	757	758

Source: Experian. Table compares annually representative samples from 2019 and October 2020.

Exhibit 16 *FICO score inflation especially for younger adults*

[11] https://assets.equifax.com/marketing/US/assets/market-pulse-planning-the-future-webinar-slides.pdf. Originations data as of Nov 2021

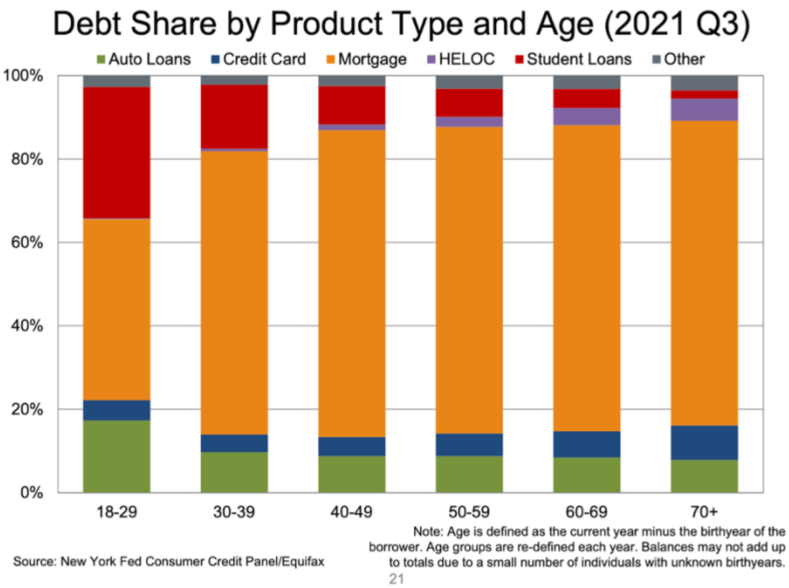

Exhibit 17 Student debt makes up a large portion of overall debt and especially a major chunk for young adults