

Global Credit Strategy

UBS Evidence Lab: Why are US consumer defaults rising?

Credit Strategy

Global

The key questions

In Q1 bank NPLs increased for the first time in the post-crisis cycle, and there are some signs of stress spreading from corporate to consumer sectors. In this piece, we address several pivotal questions around the US household default outlook: 1) What role does consumer inequality play in assessing potential default risk? 2) How much have US household finances improved in recent quarters? 3) Have consumer lending standards eased in this cycle and how much? 4) What are the tea leaves telling us about future household defaults? 5) What structural changes will impact consumer delinquencies this cycle?

Consumer inequality poses upside risks to delinquencies

The post-crisis improvement in US household finances masks substantial inequality, which built up in prior decades and persists post-crisis. Income and wealth was decimated for many during the financial crisis, and challenges persist, with a small majority of lower income and large minority of middle income consumers struggling to meet expenses. Too much concentrated capital is chasing too few creditworthy borrowers, particularly in a low rate environment where non-banks drive loan growth.

Non-bank lenders have eased consumer credit standards significantly

We document a significant easing in lending conditions to US households post-crisis, driven predominantly by the surge in lower quality, non-bank lending. In consumer loans, we outline clear signs of performance deterioration across loan categories by vintage, credit tier and lender type – and energy is not the principal cause. However, in residential real estate – while lending standards have eased more than many believe – the delinquency outlook looks more benign. Further easing of lending standards for riskier loans, principally FHA originations, will be pivotal to the broader credit outlook.

The rise in consumer delinquencies is broad-based and looks poised to persist

We have previously argued that the corporate credit cycle may equal or exceed the severity of the late 1990s cycle in terms of peak credit spreads and defaults. And our analysis on the household credit cycle suggests upside risks to delinquencies relative to the shallow experience witnessed in the late 1990s. A majority of macro and credit investors we speak with compare this credit cycle to that of the late 1990s, suggesting expectations may be somewhat complacent. The near term upside case is that easier monetary policy and a further loosening of credit standards, principally in residential real estate loans, depresses the NPL cycle (albeit heightens longer term risks). The downside case is tighter policy and more broad-based tightening in lending standards ignites the rise in NPLs, perhaps concurrent with an exogenous shock.

Recommendations for portfolio positioning

Rising consumer delinquencies are another structural headwind that we believe should place a floor on credit spread tightening and a cap on government bond yields rising. We remain tactically neutral US credit with an up-in-quality bias. Our core US credit allocation is long duration, high grade bonds for total return investors. Within the financial sector, our analysis supports favouring bank over non-bank financial bonds. Finally, we continue to recommend owning the S&P 500 versus the Russell 2K as small cap benchmarks have an elevated concentration in non-bank financials.

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***UBS Evidence Lab** provides our research analysts with rigorous primary research. The team conducts representative surveys of key sector decision-makers, mines the Internet, systematically collects observable data, and pulls information from other innovative sources. They apply a variety of advanced analytic techniques to derive insights from the data collected. This valuable resource supplies UBS analysts with differentiated information to support their forecasts and recommendations—in turn enhancing our ability to serve the needs of our clients.

UBS Evidence Lab conducted online study among adult US population to better understand consumer sentiments around their current financial situation, future expectations, and intentions to buy/rent/sell a home etc. To contrast the differences in the intentions and motivations among different key demographic segments, the survey was spread over population sub segments like age, gender, income, ethnicity in line with their population proportions in a large representative sample of over 2,000 adults who speak English.

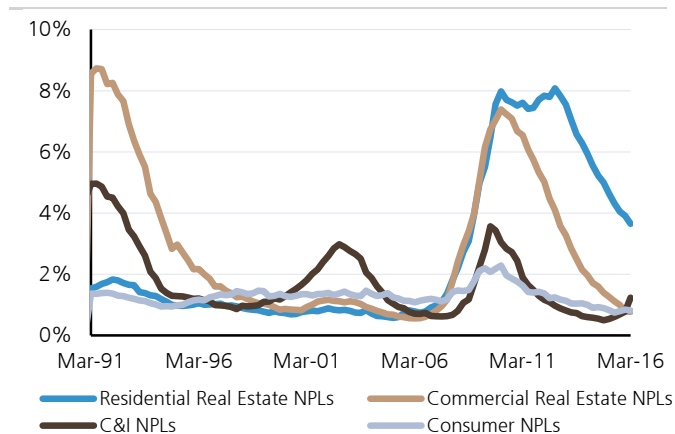
Key questions to gauge the US consumer delinquency outlook

The evolution of lending conditions and non-performing loan trends is a key input in our understanding of credit cycles¹. In Q1 2016 aggregate bank NPLs increased for the first time in the post-crisis cycle, driven by an uptick in C&I delinquencies (Figure 1). And signs of spreading credit stress are emerging not only in corporate and energy-related loans, but in select consumer loan segments. Disappointing NPL guidance from a large consumer finance firm last week is a case in point.

So what is driving the increase in defaults, how widespread is the phenomenon and what is the severity? And critically, will these trends persist or ease? In our view, there are several pivotal questions:

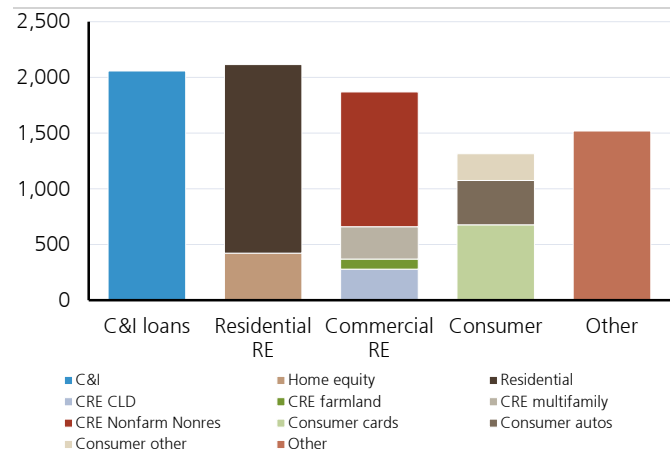
- *What role does consumer inequality play in assessing potential default risk?*
- *How much have US household finances improved in recent quarters?*
- *Have consumer lending standards eased in this cycle and how much?*
- *What are the tea leaves telling about future household defaults?*
- *What structural changes could impact consumer delinquencies this cycle?*

Figure 1: NPL trends by major asset categories



Source: FDIC, UBS

Figure 2: US bank loans by category (\$ bn)



Source: Federal Reserve

Consumer inequality poses upside risks to delinquencies

In corporate credit markets, we have argued vehemently that focusing on aggregate measures of creditworthiness masks significant heterogeneity at the sector and single name level and potentially understates default risks^{2,3}. In our view, credit portfolio managers need to focus as much on individual and sector risk exposures as the aggregates when borrower pools are more heterogeneous; i.e., investors need to separate creditworthiness of the FANGs from that of speculative grade energy firms rather than evaluate the amalgamation of the two⁴. And the

¹ [Bank vs nonbank lending signals: the plot thickens](#), M. Mish, May 17, 2016.

² [Corporate Inequality? The concentrations of cash and debt](#), M. Mish, 24-Jun-2015

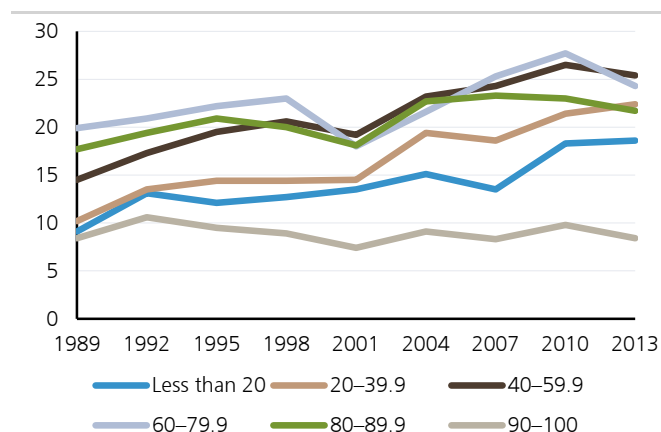
³ [Corporate leverage: more than meets the eye](#), M. Mish, 15-Jul-2015

⁴ [Is there a US corporate credit bubble?](#), M. Mish, 11-Apr-2016

trends in inequality observed in corporate America mirror those observed among US households. Academic research has increasingly highlighted greater financial fragility due to income inequality, not only in the US but the broader Anglosaxon world⁵. The overall mosaic is, in an environment characterized by substantial inequality, higher income earners are inclined to save and invest, rather than spend. Ultimately their funds translate into capital or loans provided to the rest of the private sector: the higher the concentration of income and wealth, the more asymmetry between savers and borrowers – in terms of numbers and creditworthiness. Too much capital may be chasing too few creditworthy borrowers, particularly in an environment of abnormally low interest rates and where non-bank loan growth has been aggressive.

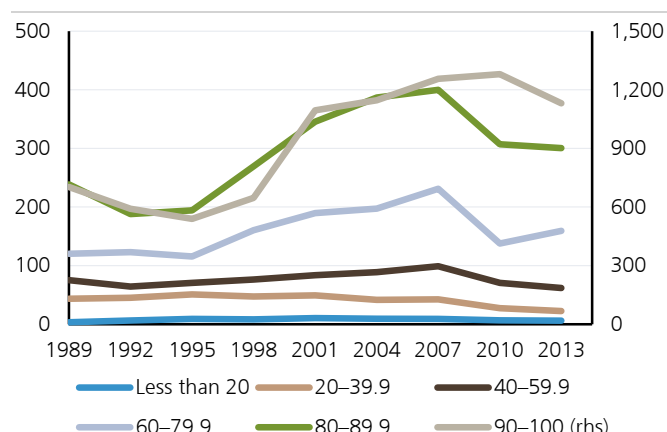
The structural rise in US household indebtedness in the pre-crisis decades is well documented, driven primarily by rising credit supply due to financial deregulation and the reduction in interest rates⁶. And, in the initial post-crisis years, the consumer recovery has been similarly uneven. Indeed, from 2007-2012 income and wealth gains were highly concentrated among the highest income households, in part due to the lack of sustained government tax/transfer policies to redistribute income⁷. Much of the literature references the Fed's Survey of Consumer Finances (SCF), one of the more comprehensive consumer data sets publicly available. Unfortunately, the frequency is triennial. According to the SCF, US household leverage and net worth metrics diverged substantially between the upper quintiles and the rest. For example, the leverage ratio for the 0 – 20th, 20th – 40th and 40th – 60th percentiles increased further to record highs over the period 2007 – 2013, and the trends in net worth followed a similar pattern of deterioration (Figures 3, 4).

Figure 3: US household leverage ratio by income percentile (1983 – 2013)



Source: Federal Reserve SCF, UBS

Figure 4: US household net worth by income percentile (1983 – 2013)



Source: Federal Reserve SCF, UBS

⁵ Inequality, Leverage and Crises: The Case of Endogenous Default, M. Kumhof et al, Nov 2013

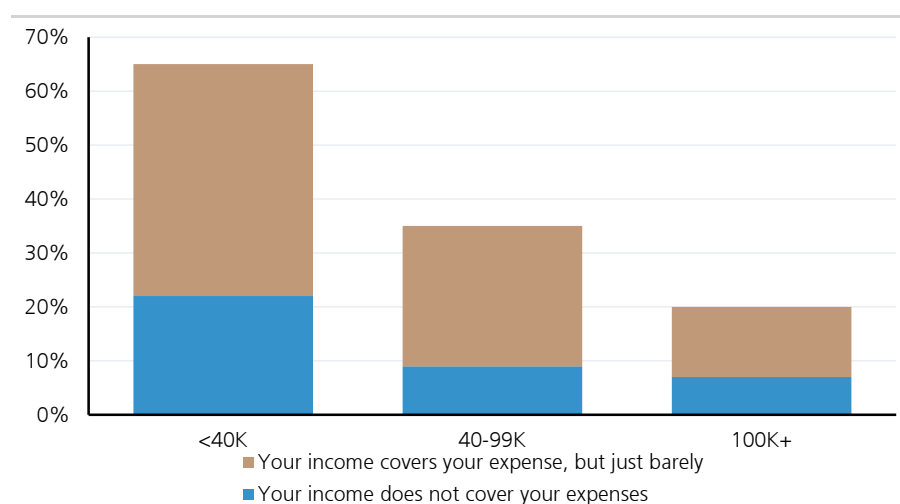
⁶ Household debt and the Macroeconomy, G. Debelle, Mar 2004

⁷ See, for example, Income inequality and redistribution in the aftermath of the 2007 – 2008 crisis: the US case", V. Almeida, Apr 13, 2015

Our proprietary survey data illustrates lingering stress on middle income consumers

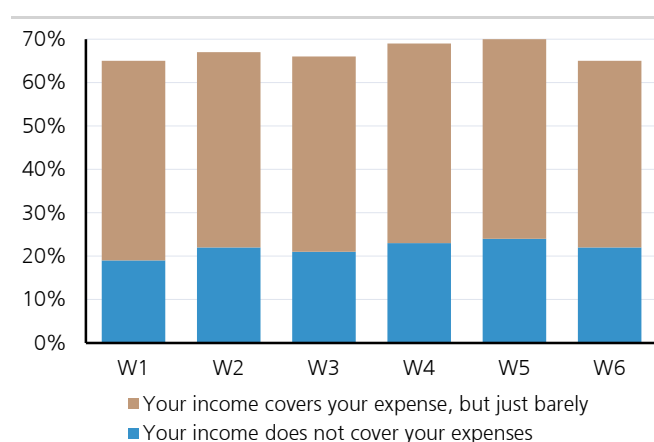
To build a mosaic on the dynamic of US consumer inequality post – 2013 we utilized data from multiple sources, beginning with UBS Evidence Lab and responses from its US Housing Intentions Study. Our focus was on responses to questions related to US household finances by income category, with our findings split into roughly equal terciles (30%, 40%, and 30% of the sample population across three income brackets: 1) under 40K, 2) 40-99K, and 3) 100K+). A few key observations emerge. First, persistent cost of living pressures relative to income gains are evident particularly for lower and middle income consumers. Specifically, roughly two-thirds of lower income and one-third of middle income consumers in the latest survey suggest their income either barely covers or does not cover expenses. And the responses have been remarkably stable over the prior six quarters for both cohorts, with little improvement or deterioration (Figures 5, 6, 7).

Figure 5: Which statement best describes your financial situation? Q1 2016 survey



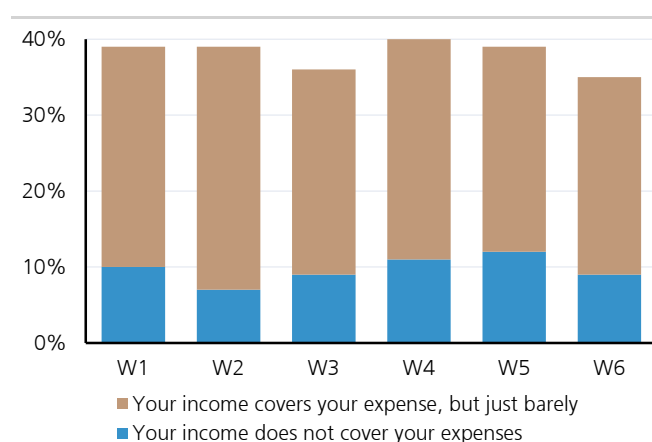
Source: UBS Evidence Lab. Waves 1-6 represent quarterly surveys from Q4 '14 to Q1 '16

Figure 6: Which statement best describes your financial condition? Under \$40K responses over time



Source: UBS Evidence Lab. Waves 1-6 represent quarterly surveys from Q4 '14 to Q1 '16.

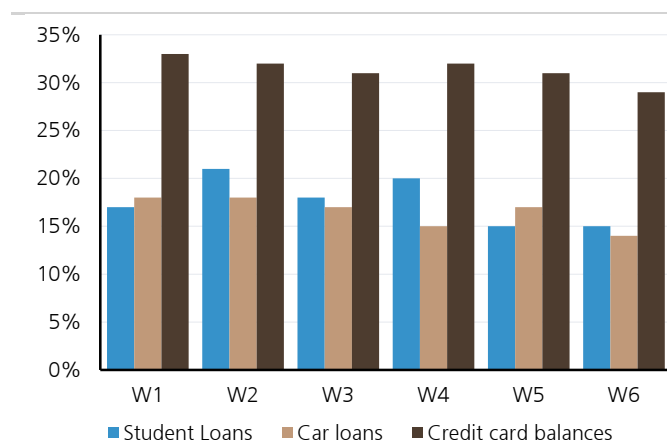
Figure 7: Which statement best describes your financial condition? \$40K-\$99K responses over time



Source: UBS Evidence Lab. Waves 1-6 represent quarterly surveys from Q4 '14 to Q1 '16

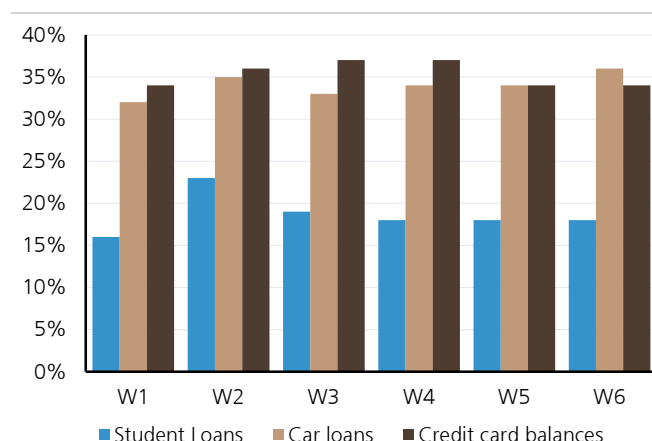
Second, trends in debt utilization and amounts outstanding suggest some diverging trends for lower versus middle income buckets. For the lower income cohort, the use of debt by type – including car loans, bank loans, credit card, medical balances, and other types – has consistently declined, in particular for car loans and credit cards (Figure 8). In addition, lower incomes report lower mortgage debt balances and stable debt levels excluding mortgage debt over the past six quarters. Conversely, the middle income group responses suggest stable overall debt utilization by type, but rising usage of auto and car loans (offset by declining utilization of bank loans (which likely represents home equity lines, Figure 9)). More broadly, middle incomes report higher mortgage debt balances and lower non – mortgage debt. In short, the survey responses suggest a majority of lower income and a considerable minority of middle income consumers struggle to meet expenses with wages, even in spite of broader improvement in household finances since 2013. And this phenomenon persists despite consistent declines in debt levels for lower income households – while for middle income households debt reduction is not evident.

Figure 8: Which of the following kinds of debt do you currently have? Under \$40K responses



Source: UBS Evidence Lab. Waves 1-6 represent quarterly surveys from Q4 '14 to Q1 '16.

Figure 9: Which of the following kinds of debt do you currently have? \$40-99K responses



Source: UBS Evidence Lab. Waves 1-6 represent quarterly surveys from Q4 '14 to Q1 '16

Non-bank lenders have eased consumer credit standards significantly

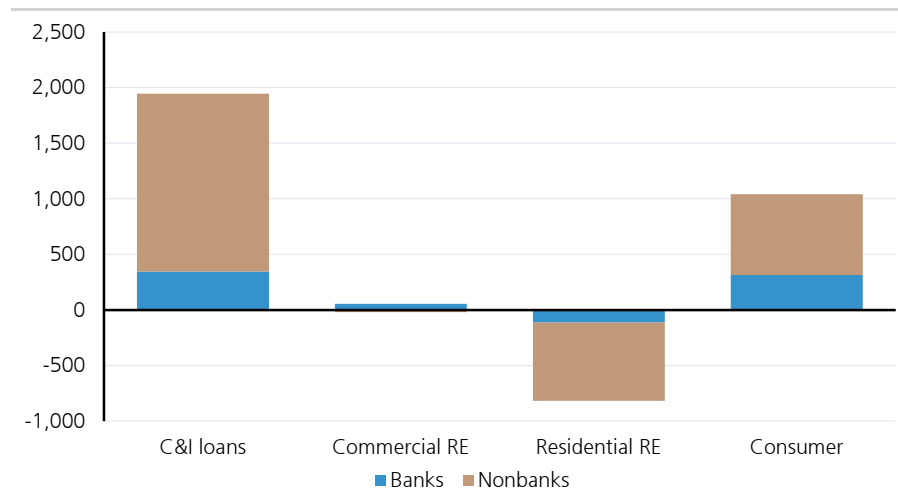
The survey results suggest lending conditions for lower income consumers have been constrained, while those of middle incomes less so. Do other data sources support this notion? In terms of bank lending, we believe the OCC's annual Survey of Credit Underwriting Practices is an objective starting point to evaluate shifts in consumer lending standards. In brief, the results of the OCC's 2015 survey showed easing in bank lending standards for the third year in a row, driven by the pursuit of loan growth in a highly competitive, low yielding environment. Concerns were greater in commercial than in consumer loan products⁸, but examiners noted significant easing in standards for indirect consumer loans and credit cards. That said, examiners reported the level of credit risk increased marginally for retail loan products (16% of the total).

The problem is that to properly gauge the degree of easing in lending standards overall, one needs to consider data which incorporates bank and non-bank lending. In the consumer and residential real estate sectors, depository institutions

⁸ [Non-bank lending: the tip of the iceberg?](#), M. Mish, 10-Mar-2016

hold only a fraction of total stock of loans (50% and 28%, respectively, according to Fed data). Moreover, the flow or growth in consumer and residential loans in this cycle has been largely driven by non-banks (Figure 10). Bottom line, we continue to believe early warning signals with respect to shifts in lending conditions and changes in delinquency trends will come from the non-bank rather than the bank sectors.

Figure 10: Nominal growth in bank versus non-bank loans outstanding by segment (Q1 2010 – Q4 2015) (\$, bn)



Source: Federal Reserve, UBS

Rise in consumer delinquencies is broad-based and looks poised to climb

For consumer credit, loans outstanding total \$3.5tn comprised primarily of student loans (\$1.35tn), auto loans (\$1.05tn) and credit cards (\$0.9tn). For bank held loans, consumer NPLs were reportedly 82bp last quarter, down 2bp Y/Y. However, broader data sets – inclusive of non-banks – suggest consumer NPLs have started rising, and some of the details underlying this trend are disconcerting.

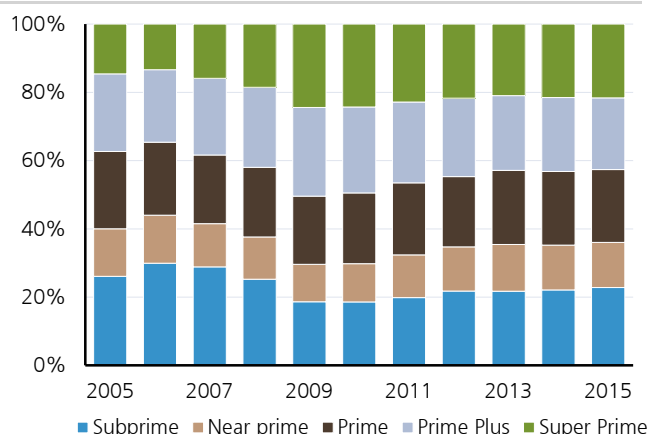
The trends in student loans have been well flagged, with delinquencies running at about 11% and ranging from 11 – 12% since 2013 according to NY Fed data. Interestingly, based on our US Housing Intentions Survey, we find roughly 15%, 18% and 18% of consumers in lower, middle and higher income buckets carry student loan debt. For the former two cohorts, the amount of student debt is fairly similar and quite stark: about 30% report balances greater than \$30K, 30% report balances of \$10 – 30K, and the remainder report balances below \$10K. This illustrates the sizeable debt burden for lower and many middle income consumers in the context of prior responses regarding their ability to cover expenses with income.

However, our focus is on auto loans and credit cards. For auto loans, the rise in lower quality loan originations back towards pre-crisis levels has been well documented (Figure 11). However, according to Transunion, market share by lender type has shifted increasingly to non-banks, specifically independent lenders, captive finance and credit unions (comprising 72% outstanding balances in Q1 2016 versus 66% in Q1 2010). In 2015 non-bank lenders originated the bulk of riskier loans, led by independent lenders (over 60% of 2015 originations were subprime⁹), and delinquencies by vintage have been rising every year since 2010

⁹ Q1 2016 Industry Insights Report, N. Verma, Jun 2016

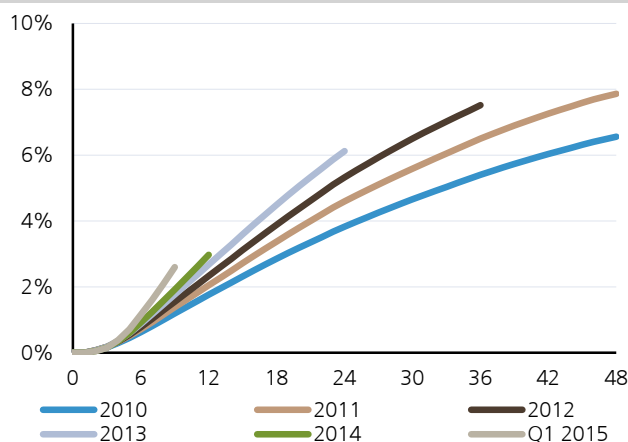
(Figures 12, 13). To tie together the prior discussion on inequality, one cannot map (higher) income to (higher) credit scores. But the distribution of credit scores for the US population is similar proportionally to the breakdown of US consumers by income buckets presented earlier: roughly one-third is subprime, one-third near prime/ prime, and one-third prime plus/ super prime according to VantageScore¹⁰ (Figure 14).

Figure 11: Auto Loan Origination by Credit Quality (%)



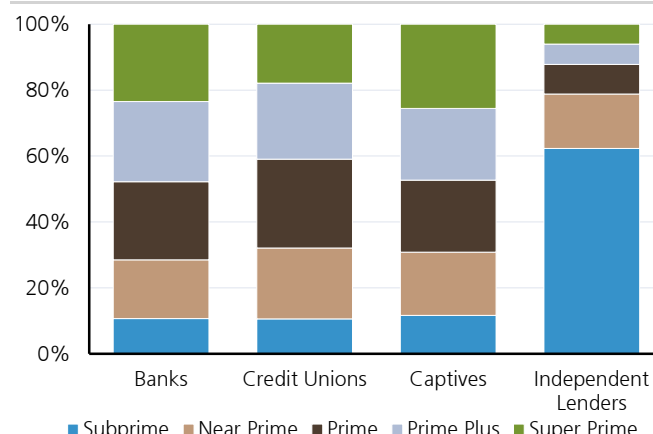
Source: NY Fed Consumer Credit Panel/ Equifax. UBS; Note labels are indicative only as Riskscores were reclassified as VantageScore 3.0 Risk Ranges.

Figure 13: Auto loan delinquencies by vintage (% 60+ rate)



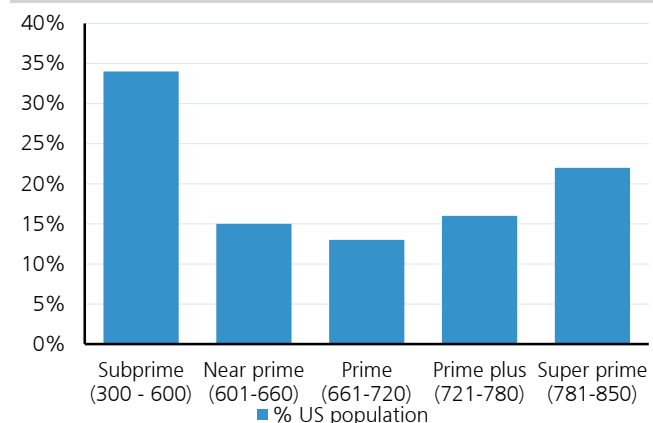
Source: Transunion consumer credit database

Figure 12: 2015 originations by lender type and risk tier



Source: Transunion consumer credit database

Figure 14: US Population Score Distribution (Vantage Score 3.0)



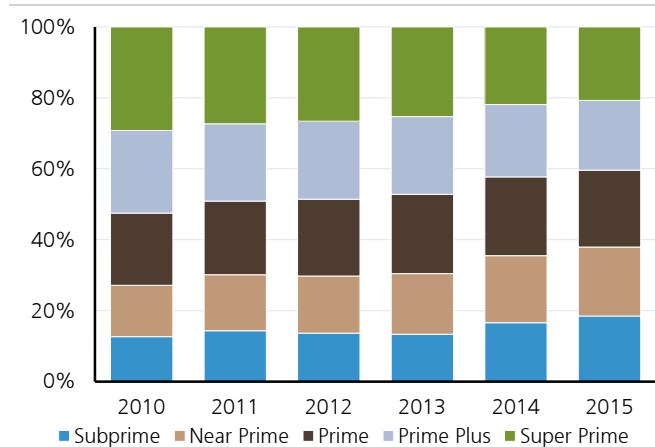
Source: UBS, VantageScore

Credit card originations – bank card and private label – have also involved a rising share of riskier borrowers based on credit scores. Delinquencies by vintage are rising as defaults by credit tier increase (Figure 15, 16). Finally, a similar pattern is also evident in personal (unsecured) loans, where the number of lenders has grown from 70 to 121 since 2010 – primarily driven by fintech; more striking, while non-banks dominate market share in higher risk loans, delinquency rates for subprime and near prime personal loans originated by fintech and finance companies were as much as double those originated by banks for recent vintages. This illustrates the point that non-banks are making riskier loans, even when one normalizes for credit scores, relative to banks.

¹⁰ Across the three income tiers in our US Housing Intentions Survey: 30% under 40K (lower income), 40% 40 – 99K (middle income), 30% above 100K (higher income).

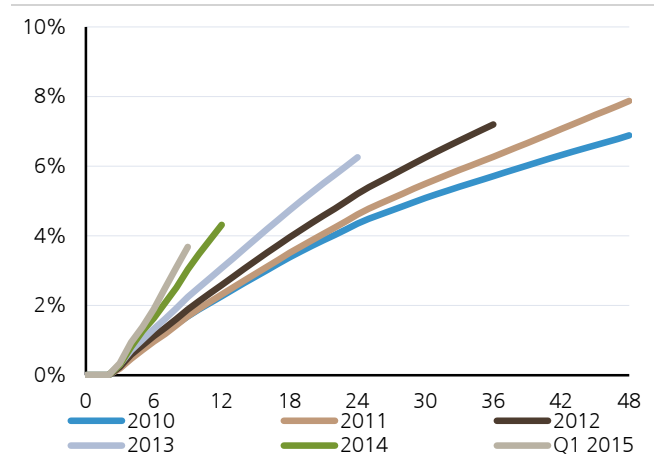
Is the NPL increase merely an energy story? In our opinion, the answer is no. State level data suggests that while consumer NPLs are generally higher for oil-dependent states (e.g., OK, TX, WY, ND, AL, LA), auto and credit card delinquencies are rising Y/Y in over 90% of the 50 states as per Transunion.

Figure 15: Credit card (bankcard) originations by credit quality



Source: Transunion consumer credit database

Figure 16: Credit card (bankcard) delinquencies by vintage



Source: Transunion consumer credit database

Residential real estate default outlook remains fairly benign

For bank held residential loans, NPLs last quarter were reportedly 365bp, down 99bp Y/Y. State level delinquency rates were down in Q1 across nearly all 50 states, excluding North Dakota. Energy-dependent states clearly witnessed less significant declines than the average, but the broader trends are encouraging. This is consistent with the thesis that overall lending in residential real estate has not been as loose as that witnessed in consumer loans. That said, the overarching mosaic we outlined earlier is evident in residential real estate.¹¹ That is to say non-bank lenders have expanded their market share significantly, particularly in higher risk originations, with government policy support aiding a significant easing of lending standards in some segments (e.g., FHA loans).

According to the AEI's International Center on Housing Risk FHA/RHS originations, which comprise about 29% of all agency purchase loans, these are nearly twice as risky as the average origination based on AEI's National Mortgage Risk Index (which takes into account not only credit scores, but loan-to-value, debt-to-income and a variety of other risk factors; Figure 17)¹². Put into context, roughly 75% of FHA purchase loans carried FICO scores below the US median score of approximately 713, and nearly 40% of these loans have debt-to-income ratios above 43%¹³. Non-bank lenders are originating over 70% of FHA purchase loans (Figure 18) – with an average risk score that is about 30% above FHA purchase loans originated by banks. In short, the pattern is similar but the magnitudes are more moderate – and with the important caveat that the FHA is currently facilitating the loosening in credit standards, in part to meet political objectives. Given this dynamic and with delinquency trends appearing more benign at present, we believe the proverbial music could play for a quite a while longer. That said, lending conditions and credit risk in recent years, while not as risky as over

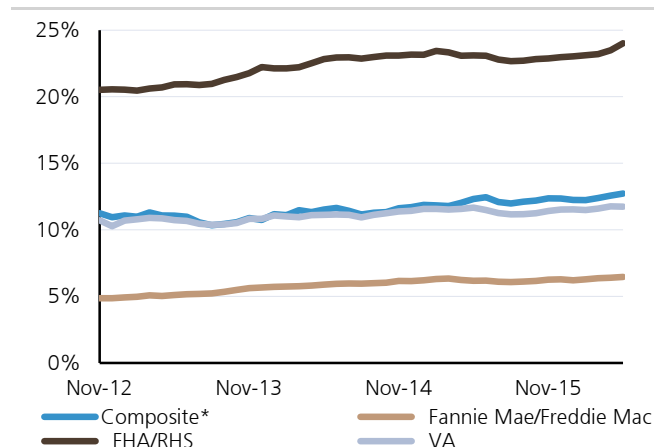
¹¹ [Non-bank lending: the tip of the iceberg?](#), M. Mish, 10-Mar-2016

¹² <http://www.housingrisk.org/category/mortgage-risk/>

¹³ The limit imposed by Qualified Mortgage (QM) regulation, but federal agencies are exempt.

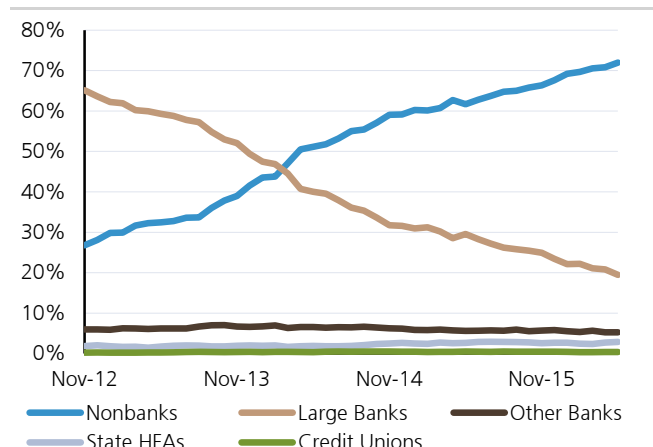
2005 – 07, still appear riskier than those in the 1990s and are becoming riskier based on loan attributes (e.g., loan-to-value, debt-to-income, credit scores, et cetera¹⁴).

Figure 17: AEI's National Mortgage Risk Index for Purchase Loans (%)



Source: AEI International Center on Housing Risk, www.HousingRisk.org, UBS

Figure 18: FHA Purchase Loans – Origination Shares by Lender Type (%)



Source: AEI International Center on Housing Risk, www.HousingRisk.org, UBS

The drivers of consumer defaults are dynamic and not easily calibrated

Consumer bankruptcy models have evolved over time¹⁵, but many relate back to the concepts of 'precautionary savings' to smooth consumption through 'expense shocks' related to employment, family or medical events. Absent savings, households depend on access to credit to sustain consumption. In our view, this is the key reason why US consumer inequality – and the lack of a post-crisis rebound in income and net worth for a majority of consumers – is concerning. In addition, setting aside the models for a moment, personal bankruptcies – principally on unsecured debt – have been structurally rising for decades. The literature posits multiple explanations, but ultimately points toward changes in market structure; one more recent study attributes 30% of the rise to 'democratization of credit', or more lower quality borrowers gaining access to unsecured credit, and the remaining 70% to greater borrower propensity to default, or lower costs and stigma associated with bankruptcy (rather than greater debt burdens)¹⁶.

In our view, there are two key takeaways. First, the democratization of credit theory is largely consistent with the mosaic we outlined earlier of too much credit chasing too few (creditworthy) borrowers. This phenomenon ultimately leads to higher future defaults, which is what we are observing. In such an environment, investors should not rely on credit scores alone to determine creditworthiness. The last cycle and recent literature underscore several pitfalls related to excess dependence on credit scoring models, including gaming of the system, predatory lending, adverse selection, agency problems, and omitted variables (e.g., loan type, geography, loan-to-value, income, wealth¹⁷). For example, credit scores for loan originations last cycle perversely rose while overall creditworthiness deteriorated as

¹⁴ See AEI's National Mortgage Market Monitor, E. Pinto, May 2016 for details.

¹⁵ For a detailed study, see Recent Developments in Consumer Credit and Default Literature, I. Livshits, Oct 28, 2014

¹⁶ The Democratization of Credit and the Rise in Consumer Bankruptcies, I. Livshits et al, 2014

¹⁷ For example see Consumer and Corporate Credit Ratings and the Subprime Crisis in the U.S. with Some Lessons for Germany, A. Rona-Tas, Sept 2008

lenders relaxed other origination attributes. And second, not only ability but also willingness to pay should also be appreciated. The evidence suggests consumers have become more willing to not repay debts over the years, and the extent of consumer inequality in this cycle – in the wake of the financial crisis – should at least heighten uncertainty around modelling consumers' willingness to default.

What's priced in? What are the upside and downside cases?

A majority – albeit not all – of macro and credit investors we speak with are comparing this credit cycle to that of the late 1990s and presume a similar cycle evolves in the next few years. Market participants largely believe this cycle will not look like the last cycle, and – perhaps due to anchoring or availability bias – the late 1990s has some similarities with this cycle such that it seems to have become the default reference point. In our humble opinion, the risk symmetry is to the downside for investors anticipating a late 1990s credit cycle. Overall NPL trends across assets were extremely shallow in that cycle; the majority of the losses were concentrated in C&I loans and, within C&I loans, they were siloed largely in the telecom/media/technology sectors. Losses were mitigated by resilient consumer spending and aggressive central bank easing, resulting in very limited fallout in terms of losses across other segments, in particular real estate.

We have previously argued that the corporate credit cycle may equal or exceed the severity of the late 1990s with respect to peak credit spreads and defaults¹⁸. And our analysis on the household credit cycle suggests upside risks to delinquencies relative to the shallow experience witnessed in the late 1990s (Figure 1). We believe the near term upside case is that a combination of easier monetary policy and a further loosening of credit standards, principally in residential real estate loans, depresses the NPL cycle. But we struggle to envision how such a scenario does not elevate longer term risks. The downside case is tighter Fed policy and more widespread and severe tightening in lending standards that exacerbates rising NPLs, perhaps in conjunction with an exogenous shock.

How to position portfolios?


Rising consumer NPLs are another structural headwind that we believe should place a floor on credit spread tightening and a cap on increases in government bond yields. We remain tactically neutral US credit with an up-in-quality bias. Our core structural holding is long duration, high grade bonds within the US credit universe. Within the financial sector, our analysis supports favouring bank bonds over non-bank financial bonds (e.g., finance, REITs). Finally, we continue to recommend owning the S&P 500 versus the Russell 2K as small cap benchmarks have an elevated concentration in non-bank financials.

Survey Methodology Detail

UBS evidence Lab surveyed ~2,100 US adults age 21+ in every wave of this study that started in Nov '14 and has been repeated in Feb '15, May '15, Aug '15, Nov '15 and Mar '16. The main sample was weighted to be representative of the English-speaking population on age, gender, income, Census region, race, and Hispanic origin. All of the surveys were fielded using an Internet methodology. Date of Fieldwork: First 3 weeks of the month of data collection. Margin of error: Conclusions based on the total sample of adults have a potential sampling error of 1.8% percentage points, at a 90% confidence level.

¹⁸ [US corporate default wave: Rogue wave, or the start of a tsunami?](#), M. Mish, Jun 1 2016

****UBS Evidence Lab** provides our research analysts with rigorous primary research. The team conducts representative surveys of key sector decision-makers, mines the Internet, systematically collects observable data, and pulls information from other innovative sources. They apply a variety of advanced analytic techniques to derive insights from the data collected. This valuable resource supplies UBS analysts with differentiated information to support their forecasts and recommendations—in turn enhancing our ability to serve the needs of our clients.*



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UBS Global Credit Strategy and Research: Rating Definitions

UBS ranks potential investment opportunities within non-government fixed income markets and sectors.

Issuer Ratings						
	UBS Terminology	Rating Category ¹	Time Horizon	Definition	Coverage ²	IB Services ³
Credit Outlook	Positive	Buy	Up to 6 months	UBS' expected trend in a company's creditworthiness	3%	44%
	Stable	Hold			70%	40%
	Negative	Sell			27%	33%
	UBS Terminology	Time Horizon		Definition		
Credit Rating	AAA, AA, A (+/-)	Up to 12 months		UBS' assessment of a company's creditworthiness. Credit Ratings are only used in the evaluation of Swiss corporates.		
	BBB, BB, B (+/-)					
	CCC, CC, C (+/-)					
Security Recommendations						
	UBS Terminology	Time Horizon		Definition		
Bond Recommendation	Outperform	Up to 3 months		A corporate bond's expected relative performance versus a defined reference		
	Marketperform					
	Underperform					
	UBS Terminology	Time Horizon		Definition		
CDS Recommendation	Buy Protection	Up to 3 months		Recommendation to hedge a company's creditworthiness		
	Sell Protection					

Note: Bond recommendations may be defined as 'Tactical', as in Tactical Outperform or Tactical Underperform, where there is a near term catalyst(s) taken into account.

The UBS credit rating may be modified by the addition of a plus (+) or minus (-) sign where applicable to show relative standing within the major categories.

Source: UBS. Rating allocations are as of 31 March 2016.

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2. Percentage of companies under coverage globally within this rating category.

3. Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

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