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LienIQ Research

A Primer on Non-Performing Residential Second Liens

Lien IQ

Compelling Opportunity

Why NPL second liens may pique your interest.

In this late-cycle credit environment, several factors suggest **off-the-run, short-duration, high-yielding assets may be the sweet spot** in the credit investment space as these types of assets may outperform through a much overdue downturn. One asset class that fits this profile are **Non-Performing Loans (NPL's) in the second lien mortgage space**. NPL's present a unique opportunity because they are rising in volume, can be sourced effectively, and traditional funds tend to avoid them because are smaller in size and carry headline risk. Furthermore, they are **buttressed by home prices, which may continue to rise through the next downturn**. As such, investors may consider second liens as part of their credit allocation, if they are selected, evaluated, and worked-out intelligently.

In this piece, we discuss the investment thesis laid out above, highlight supporting factors, and provide more details on NPL second liens. Our sole purpose is to **educate potential market participants** on the asset class. This is not a solicitation for investment.

The Sweet Spot for Assets in the Current Market Environment

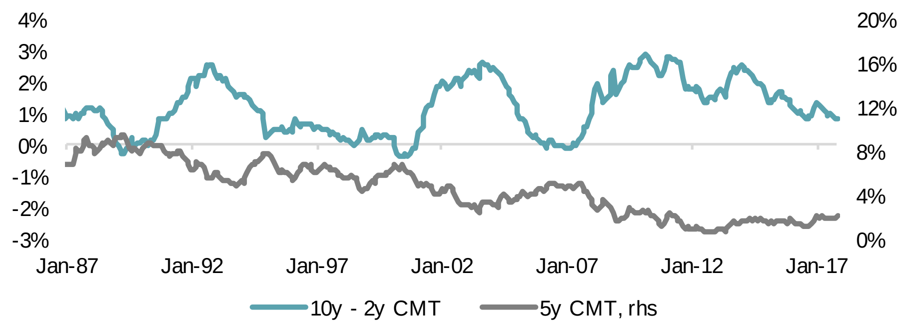
The current environment favors short-duration, high-yielding assets due to…

As mentioned above, several factors suggest off-the-run, short-duration, high-yielding assets may be the sweet spot in the credit investment space. Here we highlight a few prominent ones including: (1) **low rates and flat yield curves**, indicating the market may not be compensating investors for moving out the maturity spectrum, (2) **an abnormally long expansionary cycle phase** that may end soon, (3) **a re-levered consumer base** that may become distressed, and (4) **punitive regulations** instituted after the last financial crisis potentially making originators, mainly banks, less apt to hold distressed assets on balance sheet. We delve into each below.

…low interest rates that do not compensate investors for longer maturities,…

Exhibit 1

Interest Rates are Low, While Yield Curve is Flattening



Notes: CMT means Constant Maturity Treasury rate.
Source: St. Louis Federal Reserve (FRED).

First, expansionary monetary policy post-2008 has kept interest rates low and curves relatively flat. The latter may reflect concerns over the ability for the economy to sustain its low, but positive, growth trajectory as monetary policy tightens and the

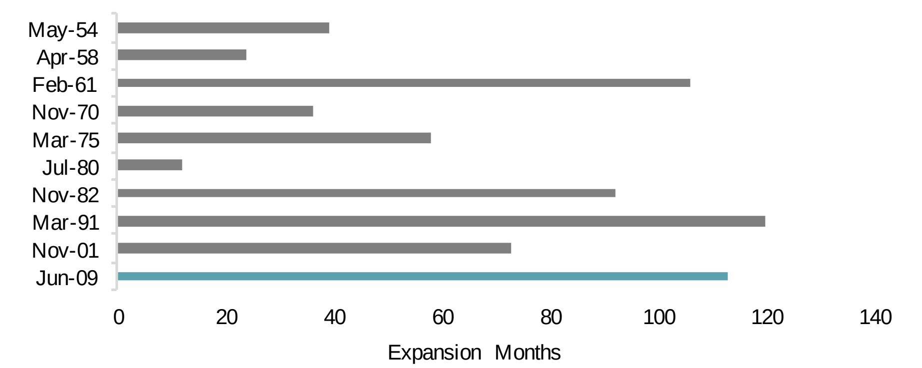
Fed starts to sell assets. In any case, the risk premium investors receive for purchasing longer-term assets has fallen while yields are historically low. This suggests that investors may find it difficult to reach their yield bogeys using traditional fixed income asset classes. In which case, the time may be ripe to expand horizons and search for assets that are either shorter term or have steep discounts that can be monetized relatively quickly.

...an overdue economic downturn,...

Secondly, some indicators project an economic downturn in the near-term. We have already touched on low growth projections suggested by the rates market, but there are others that imply a very late-cycle environment on the verge of transition. For example, defaults are rising and access to credit is tightening in the high-yield corporate credit market. North American defaults rose to $89Bn in 2016 from $25Bn in 2010[1] and primary market bond refinancings are projected to fall to ~$150Bn in 2017 from $166Bn in 2016[2]. Meanwhile, more traditional indicators concur as equity market valuations are expensive (S&P 500 P/E ratio is 25x versus a historical average of ~16x) and labor markets are tight (unemployment rate of 4.1% versus a historical average of 5.8% since 1948)[3].

Exhibit 2

Current Expansionary Period is Historically Long



Source: National Bureau of Economic Research.

Historically speaking, we are overdue for a downturn. The average expansionary period is approximately 50 months and we are currently at 113 (as of December 2017) and counting. Since 1950, only one expansionary period was longer than the current one. These signs suggest that investors should start to consider non-

[1] Ou, Sharon and Kumar Kanthan. *Annual Default Study: Corporate Default and Recovery Rates, 1920-2016.* Moody's Investor Service, Feb 15, 2017.

[2] Rupp, Heather. *High Yield Default Rate: 2016 Review and 2017 Outlook*. Dec 21, 2016. http://www.peritusasset.com/2017/01/high-yield-market-upcoming-maturities/

[3] US Bureau of Labor Statistics. https://www.bls.gov/data/#unemployment

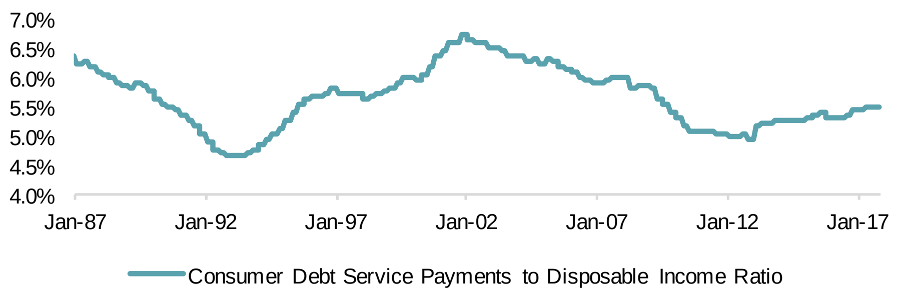
traditional asset classes that properly compensate them for the increased macroeconomic risk.

...a re-levered consumer base,...

During the near decade-long period since the financial crisis, consumers have increased their debt loads in a low-growth environment. Consumer debt (excluding mortgage payments) relative to disposable income rose 0.6% since its post-crisis low of 4.9% in 2012. Near-prime and sub-prime borrower auto and student loans have spearheaded this increase. For example, auto loan volumes issued to borrowers with FICO scores less than 660 rose from $19Bn in 2009 Q2 (28% of auto loans originated) to $48Bn in 2017 Q3 (32%)[4]. This suggests that a rise in subprime and near-prime NPL's non-performing loans may occur during a period of economic distress.

Exhibit 3

Consumer Debt to Income Ratio is Rising Again



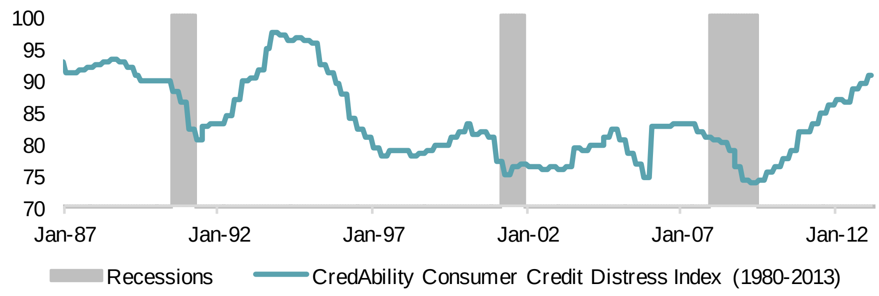
Notes: Consumer debt service payments includes consumer payments for revolving and non-revolving debt ex mortgages.
Source: St. Louis Federal Reserve (FRED).

...and regulations that discourage banks from retaining distressed assets.

At the same time, regulation, specifically capital charges detailed in Dodd-Frank, may cause banks to favor higher credit quality borrowers and liquid, simplified product exposures on balance sheet. Conversely, banks may be less inclined to keep loans when the credit quality of borrowers deteriorate. Historically speaking, downturns are usually accompanied by higher delinquencies and average borrower credit quality decreases. As a result, the supply of and discounts on distressed assets available for sale may rise.

[4] Federal Reserve Bank of New York. *Quarterly Report on Household Debt and Credit*, Federal Reserve Bank of New York. 2017 Q3.

Exhibit 4
Consumer Credit Distress Precede Downturns



Notes: Financial distress is calculated on a scale of 100 with a score of <80 at-risk. Responsible use of credit creates more borrowing options and lower costs. The index incorporates data from credit scores, trade line utilization, delinquencies, and per capita bankruptcies. Series ends in 2013.
Source: St. Louis Federal Reserve (FRED), National Credit Bureau.

Non-Performing Second Liens Fit the Bill

Distressed asset supplies increase during a credit-cycle downturn, which may be close. In this scenario, we think yield-hungry, duration-averse investors may seek out nicely packaged ways of investing in second liens if they can be comfortable with their risk profiles. So here we shine a light on an oft-overlooked portion of the mortgage space. In this section, we present background on the second lien market, which includes: (1) recounting the evolution of this market, (2) describing the second lien products and features, (3) their claim on and the strength of the collateralized assets, (4) noteworthy regulations, and (5) their historical return bear case using a rhetorical question format. We close by elucidating the reasons investors should consider this asset for their investment portfolio.

What are second liens?

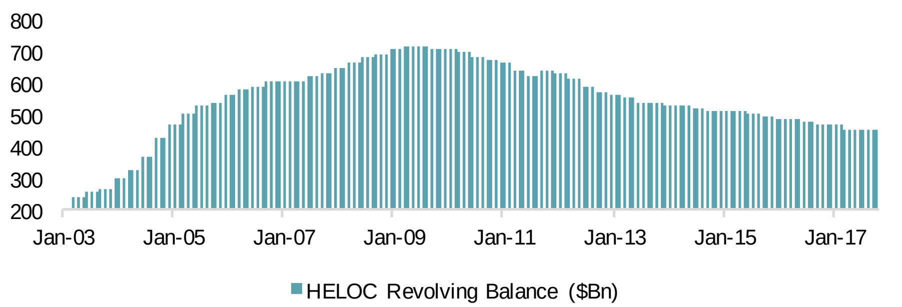
For our purposes, second liens refer to junior mortgage debt on residential real estate. They typically come in two product categories. The first are Home Equity Lines of Credit (HELOC's), which make up approximately two-thirds of the market. These typically have a period where borrowers can withdraw funds for use and pay interest only on the loan. After the draw period is a repayment period, where borrowers are responsible for both interest and principal payments. A typical structure for a pre-crisis HELOC is one that has a 10-year draw period and 20-year repayment period. Since HELOC's have relatively long draw periods (no principal repayment), borrowers generally are higher quality (from a FICO and LTV perspective) than borrowers for other products.

The second type are Closed-End Second-liens (CES's), which typically are fixed-rate, term, amount, and (therefore) payment loans. CES products may vary other features and come in different flavors. Two of the most common are Home Equity Loans (HEL's) and home improvement loans. We describe these in more detail below.

What is the history of the second lien market?

Investor interest in this market has ebbed and flowed over the last twenty years. Before 2001, HELOC's were somewhat rare with annual issuance never exceeding $50Bn quarterly. They were issued by banks, who, for the most part, retained the risk on their balance sheet. However, after 2001 until before the financial crisis, issuance volumes tripled and reached ~$160Bn quarterly by 2005 and 2006, which caused revolving balances to rise precipitously[5].

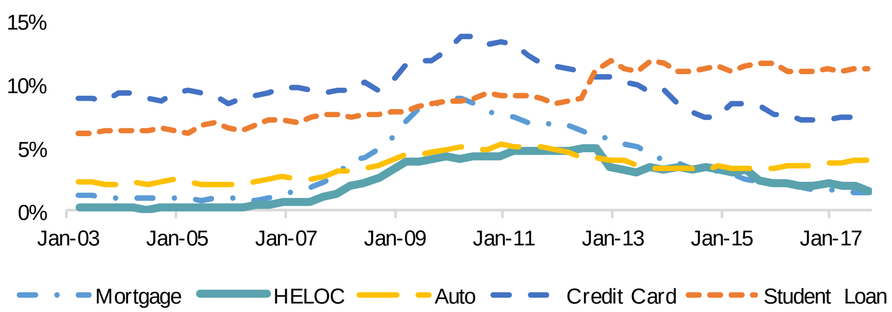
Exhibit 5
Home Equity Line Revolving Balance



Source: Federal Reserve 2017 Q3 Report on Household Debt and Credit.

During the subsequent 2007-2008 period, defaults and delinquencies rose quickly. Balance-weighted HELOC 90+ day delinquencies reached 4%, while CES's (not pictured below) rose past 14% behaving like credit card receivables.

Exhibit 6
Consumer Credit 90+ Days Delinquency Rates



Source: Federal Reserve 2017 Q3 Report on Household Debt and Credit.

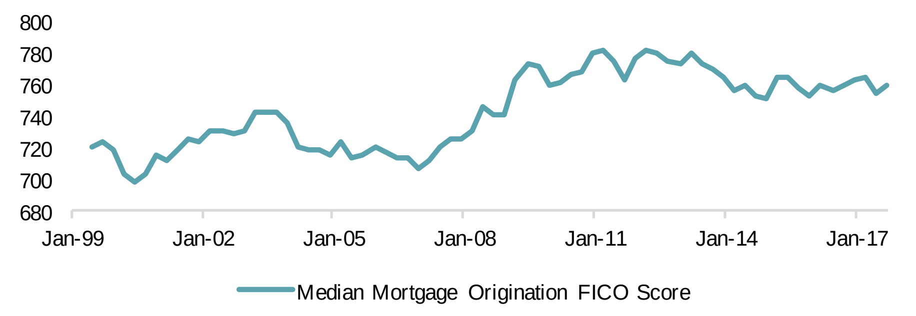
In the post-crisis period, investor interest in the asset class fell off as consumers de-levered. Second lien issuance and balances tapered off as HELOC revolving

[5] Lee, Donghoon, Christopher Mayer, and Joseph Tracy. *A New Look at Second Liens.* Federal Reserve Bank of New York, 2012.

balances fell from its quarterly peak of $714Bn in 2009 Q1 to $448Bn in 2017 Q3. At the same time, borrower credit quality rose considerably with the median borrower FICO for mortgage originations rising from 707 in 2006 Q4 to 760 in 2017 Q3.

Exhibit 7

Mortgage Borrower Median FICO Score



Source: SIFMA 2017 Q3 Report on Household Debt and Credit.

How big is the current addressable market?

Of the over ~$675Bn of second liens outstanding we conservatively estimate that 2% (the current delinquency rate for similar assets) or ~$13.5Bn are distressed (90+ days delinquent). We think purchasing and working-out a $50MM slice (<1%) of the market over time is eminently reasonable and possible.

What is the bear case scenario for these assets? Determining the historical performance of this asset class is difficult. Pre-crisis some second liens were aggregated, securitized, and sold off to investors in the form of bonds backed by the loan cash-flows. One way we can provide insight into the bear case scenario is by examining payouts from firms tasked with insuring those securitizations.

Before the financial crisis, firms like MBIA sold insurance contracts for structured credit instruments such as second lien securitizations. Its insurance payouts (as a percentage of the original securitization amount) immediately after the crisis may provide us with a worse-case default guideline. As of the end of 2010, the firm allocated 15.6% in net claims and Loss Adjustment Expense (LAE) to its portfolio of $22Bn in second lien securitizations. The split was 12.5% and 20.9% for the HELOC and CES securitizations. At the end of 2012, these percentages were 19.5% overall and 15.8% and 25.8% for the HELOC and CES securitizations. Since then, MBIA has wound down its second lien exposure considerably to $121MM for the end of 2016[6].

Keep in mind, a 25% downside for these assets is not entirely relevant. Those default percentages were for pools of unseasoned second liens. Investors typically pursue smaller portfolios of second liens that are already distressed and may be purchased after at a steep discount to par. In addition, investors may be selective in

[6] *MBIA Annual Reports*. SEC Edgar, 2008-2012. https://www.sec.gov/edgar/searchedgar/companysearch.html

the liens we purchase and choose only those in which they think borrowers may reinitiate payments or have a sizeable equity stake that can be foreclosed upon to pay off the lien. Regardless, we bring up the unseasoned insurance percentages to demonstrate the volatility inherent in the asset class given its subordination and sensitivity to home appreciation, which also fell ~25% from peak to trough during the crisis period.

Can you provide more details on the types of second liens?

As mentioned above, the two most popular product categories are HELOC's and CES's. Within the CES universe, popular types include Home Equity Loans (HEL's) and home improvement loans (amongst others). Below we compare these three products structure and claim on assets.

- **Home Equity Line of Credit (HELOC's):** HELOC's allow for a great deal of flexibility in structure. They are typically lines of credit, but can be amortizing loans (with fixed rates, terms, and payments), or loans that require balloon payments at the end of a draw period. They are long-dated, with terms of 5 to 20 years and their size is dependent upon the home value and borrower equity. They are typically variable rate instruments and payments can be designed to be interest only upfront. HELOC's are secured by real property claims and are typically non-recourse with respect to a borrower's personal finances. They are subordinated to the primary mortgage in a bankruptcy and liquidation process. The interest paid on these loans are typically tax deductible.

- **Home Equity loans (HEL's):** Home equity loans are less configurable than HELOC's although they share some characteristics. Like HELOC's, these loans are secured by a borrower's home equity. Therefore, their size depends on the home's fair market value at origination and borrower equity amount. They are variable or fixed rate, typically 10-15 years in maturity, and subordinated to the primary mortgage holder's claim. The interest paid is typically tax deductible. Unlike HELOC's, these are generally amortizing installment loans, with constant monthly coupon payments.

- **Home improvement loans:** Home improvement loans may have the least flexible structures of the bunch. These loans are issued for the express purpose of financing home improvement projects. The originator may require contractor estimates and home appraisals as inputs to the underwriting process. The originator may also hold back a portion of the loan disbursement until the project is complete or pre-determined project milestones are reached. The loans typically are less than 7 years in term. In some instances, the loans are secured by liens on property or the lender will have recourse to the borrower's personal finances.

What are these products claim on collateral?

A key difference between HELOC's / HEL's and home improvement loans is the relative claim on real property. As mentioned in the last section, HELOC's and HEL's are secured by the property value, while home improvement loans may result in an unsecured property lien, which is a weaker claim.

In a foreclosure, the value received from the auction sale will be used to pay off claimants in the order of the strength of their claims. After fees, the first lien (typically the first mortgage's unpaid principal balance plus arrears will be paid off first) and then the second lien's and so forth until the value received is exhausted.

What are the important regulations for second liens?

Second mortgage origination, secondary trading, and resolution must abide by a complex combination of regulations listed in federal (e.g. CFPB, SEC, FHA, FHFA, and HUD) and state registers (e.g. California Department of Business Oversight, California Civil Code). All aspects of that regulation will not be covered in full here, but we will summarize some important parts that pertain to different stages of the loan's lifecycle.

- **Origination:** If secured by real estate, second lien origination regulatory treatment share characteristics with treatment of firsts. Originators must be registered with state and federal bodies, the requirements of which are spelled out in the Secure and Fair Enforcement for Mortgage Licensing Act of 2008 (and individual state regulation). Newly issued mortgages must follow Regulation Z in the Truth in Lending Act of 1968, which defines mandatory lending product disclosures and deceptive practices. Borrowers for high-cost mortgages have extra protections to ensure they are not exploited. Once originated, banks must post capital relative to the level of risk of those loans as stated in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 if kept on balance sheet.

- **Secondary trading:** The sale of second liens is also regulated by the Helping Families Save Their Homes Act 2009 amongst other laws. Upon purchase, the new lender transfers the note and associated documents to a new trustee and chooses a new servicer. Then, the new lender notifies the borrower of the sale (through the servicer) as he or she must be identified within 30 days of the transaction.

- **Resolution:** Resolution regulations differ based on the borrower's actions. To help keep them in residences, lenders must first notify and work with borrowers to reinstate or modify the loans to make them more affordable. If the borrower does not respond to the notification or misses payments on the modified payment plan, lenders may foreclose on the property.

  For some borrowers, a repayment plan may not be a viable option and they will file for bankruptcy in the court system. If the bankruptcy petition is approved, the court prescribes a payment plan to resolve debts. Once on the plan, if the borrower misses payments then he or she is in default and the claimant can foreclose on the property.

There are two types of foreclosure procedures: judicial and non-judicial. Judicial foreclosures occur when the borrower has a mortgage (the legal instrument that creates the lien on the property) and a note (a promise of repayment from the borrower). If the borrower defaults, the lender may start the foreclosure process through the court system. This process may result in a trustee selling the property at public auction.

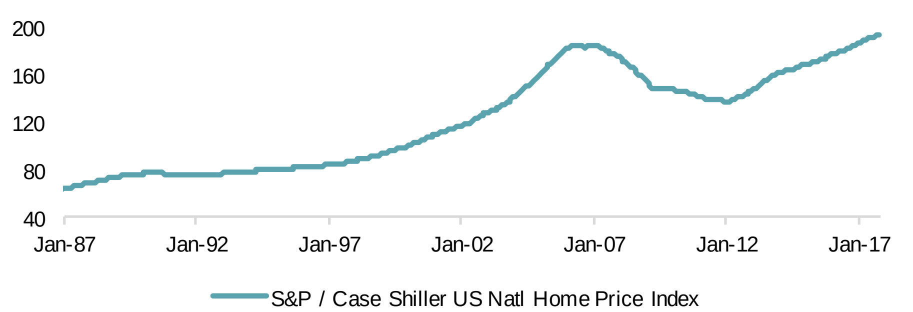
A non-judicial foreclosure occurs when the borrower has a deed of trust with a power of sale clause. When this is the case, the lender may bypass the court system and sell the property at auction if the borrower does not respond to the lender's notices. Since non-judicial foreclosures do not have to engage the court system, they typically resolve faster and are cheaper for the lender to execute.

What makes distressed second liens an attractive investment opportunity?

Distressed second liens may be an attractive investment opportunity for several reasons. We have already covered the favorable supply and demand dynamics. Additionally, the real estate collateral may continue to appreciate through a downturn thereby expanding equity cushions. The competitive landscape is favorable as well, since large institutional asset managers may deliberately avoid this space and smaller investors are not taking the same quanta-mental investment approach. Furthermore, the asset class is advantageous for investors as they may gain exposure to appreciating real estate without being stuck with the hard assets and all the maintenance costs they entail.

Exhibit 8

Home Prices Above Their Pre-Crisis Peak



Source: St. Louis Federal Reserve (FRED).

Going forward, the residential home price appreciation trend may continue. Overall, aggregate US home prices have exceeded their pre-crisis peak even though housing transactions are down and credit standards are tighter. So how are prices up if less people can obtain a mortgage? The answer, in part, may be due to the infusion of demand from previously uninterested institutional funds. These institutions increasingly view assets like single-family homes as rentals and a potential investment opportunity. In fact, some estimate that private equity investment in this space has grown ten-fold since 2011 to ~$10Bn and may continue to grow in leaps and bounds in the future[7].

On the demand side, large institutional investors may eschew purchasing distressed second liens for a variety of reasons. Second lien portfolios are typically smaller than firsts because they are issued less frequently and the lien sellers are more fragmented. Large asset managers may be less inclined to purchase seconds because scale-able opportunities to deploy capital (>$100MM in one trade) are difficult to find, so many only access the market through the purchase of securitization bonds (whose issuance has dried up). Some asset managers already tried this route up through the crisis and were snake-bitten by poorly performing securitization notes backed by second-liens for their troubles. Since then, they have ignored the sector and may not willing to develop the capability to invest and resolve what are essentially subordinated claims. In addition, many of these institutions are heavily regulated and are hyper-aware of the headline risk associated with foreclosures. Other institutions do play in the space and use work-outs to offset fines and penalties imposed for prior bad acts. They typically deal with larger portfolios that do not make economic sense for smaller firms to pursue anyways.

On the other hand, smaller investors generally do not have the expertise or capability to build out a scale-able quantitative approach to evaluating liens. They use fundamental real estate and capital structure analysis to determine pricing. We think that approach is lacking and there is an opportunity to develop a similar framework that large asset managers use to evaluate distressed first mortgage portfolios.

Furthermore, many investors want exposure to appreciating real estate without the hassle of maintaining physical property. Typically, purchasing and working out second liens allows investors to avoid owning real property. Owning real estate has a cost of carry that may be expensive and volatile. Many investors do not want to be in the property management business and while in some cases this is unavoidable (e.g. foreclosure REO), it can be deliberately avoided. It is much simpler to enter and exit paper transactions.

To provide liquidity, there exists a network of retail investors looking for assets that fit the second lien profile. Some firms have a rolodex of accredited investors looking to acquire small amounts (<5) of second liens at a clip. This sea of potential buyers allows an investor to offload liens from portfolios that do not fit his or her desired return profile. As such, he or she can greatly shorten investment horizons and turnover assets quickly.

[7] Chang, Oliver. *SRC Housing Perspectives: Rentership Revisited*. Sylvan Road Capital. Sept 22, 2015. https://www.sylvanroad.com/wp-content/uploads/Rentership-Revisited.pdf

What are some of the major challenges for small investors entering the space?

Retail investors may not have the resources to participate in the space immediately. The typical second lien retail investor has a day job and is looking to acquire a few second liens. Their appetite is too limited for brokers of even smaller portfolios. And given the time and effort it takes to contact trustees and banks to source them, it is uneconomic for them at small capital amounts. At the same time, serious investors need to develop an intelligent way to project returns. Modelling lien cash-flows or the borrower's changing order of payments when he or she is financially distressed is difficult and requires expertise. However, this capability is important because it allows investors to accurately price portfolios and avoid liens that generate negative returns.

What is a simple example of a distressed second lien work-out?

Here we provide two basic scenarios to help elucidate the process. Let's say we have a hypothetical borrower who owns a $100 fair market value house with a $50 first mortgage UPB and a $15 second mortgage UPB (with $35 in equity). The borrower has defaulted on the second and the first and is unwilling to renegotiate. We can purchase the second lien for $10. In this instance, we can file for foreclosure, sell the home at auction for $90 (assuming a 10% haircut) and recover at par for a 50% return over the course of 6 months.

Exhibit 9

Simple Hypothetical Second Lien Return

Balance Sheet			
Assets		Liabilities	
Home FMV	$100	Sr. Mortgage UPB	$50
		Distressed Jr. Lien UPB	$15
		Equity	$35

2nd Lien Economics	
Jr. Lien Purchase Price	$10
ROI	**-50%**

Foreclosure Payouts	
(+) Foreclosure Sale	$90
(-) Sr. Mortgage Payoff	$50
(-) Jr. Mortgage Payoff	$15
(-) Foreclosure Costs	$5
Leftover Owner Equity	$20

Notes: In this example, we purchase the distressed Jr. Mortgage for $10 when its unpaid principal balance is $15. The foreclosure process allows us to collect the full UPB of the Jr. Mortgage because the homeowner has a sizeable equity cushion to absorb the cost of foreclosure and the loss on sale of the home. In this case, the homeowner receives $20 of his equity back at the end of the foreclosure process.
Source: LienIQ.

This second scenario is more complex. Let's say our hypothetical borrower's second lien's original interest rate is 7% and the remaining term is 3 years. He agrees to reinstate if we can reduce the payment. So here we reduce the interest rate to 5%, while keeping the other parameters the same. We modify the lien after 2 months of purchasing it and collect another 2 months of payments. A retail investor looking for real estate-linked assets is interested in acquiring this lien if he can achieve a 10% Internal Rate of Return (IRR) annually. We use our quanta-mental model to estimate future losses, which indicates the borrower may have a constant 5% probability of default over the life of the loan. This implies we sell the lien to him at a price of ~$13 resulting in a ~30% return over a 4-month period.

Exhibit 10

Complex Hypothetical Second Lien Return

Balance Sheet			
Assets		Liabilities	
Home FMV	$100.00	Sr. Mortgage UPB	$50.00
		Distressed Jr. Lien UPB	$15.00
		Equity	$35.00

2nd Lien Economics	
Jr. Lien Purchase Price	$10.00
ROI	**33%**

Reinstatement Payouts	
(+) 2m Coupon @ 5%	$0.57
(+) Sale @ IRR of 10%	$13.01
(-) Reinstatement Costs	$0.25
Total Proceeds	$13.32

Notes: In this example, we purchase the distressed Jr. Mortgage for $10 when its UPB is $15. We renegotiate the interest rate down to 5% from 7% and keep the term at 60 months. We collect 2 payments and sell off the remaining CF's, adjusted for a 5% constant probability of default, of the lien at a 10% IRR to a retail investor.
Source: LienIQ.

We stress that the two examples above are **hypothetical** and **do not constitute a guarantee of return**. These instruments are risky and there are scenarios where the returns are lower and negative. It is feasible that the investor can lose part or all of his or her investment.

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