The Rise of Non-Bank Mortgage Servicers, and a Discussion of New Compensation Structures

by

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Abstract

Mortgage Servicing Rights play a large role in the American Real Estate market by facilitating the process in which mortgage investors interact with the borrower. These rights arise when a mortgage is created and has been traditionally been held by the banks that originated the loan. Yet, in recent years, we have seen a shift in the MSR market dynamics as more non-banks, and mostly unregulated servicers are holding these rights. In light of these recent market dynamics, this paper aims to examine the characteristics of the mortgage servicing rights and how they are valued. My focus then turns to the non-bank servicers and I study the growing risk they have taken on in the wake of their explosive growth in the last few years. In order to do so, this paper will examine the current capital structure, the liquidity problems that may arise due to increasing delinquency rates, and the sensitivity of equity value to changes in interest rates. Following an analysis on risk, this paper will go on to discuss the current quality of service of non-bank service providers in the face of the aforementioned risks. Finally, the paper proposes regulatory changes for the non-bank servicers, in an effort to address the inherent risks involved with the shift in market dynamics of mortgage servicers.

Content

I. Thesis and Importance of the Issue

I.I Introduction

Since the creation of the first modern, residential mortgage backed security in 1970, securitization has become the gem of modern finance, and in the recent financial crisis gave unlimited access to funding for even those, whose credit scores rated them as sub-prime. Though the recent crisis shed light on the malpractices of lending and the securitization of asset backed securities, mortgage servicing rights, another component that arises in the origination of a mortgage, have fallen through the cracks of scrutiny in the midst of pending regulation changes to the broader financial industry.

In the meantime, Mortgage Servicing Rights have become increasingly concentrated in the hands of a few non-bank servicers. The increased concentration could pose risks to the average mortgage borrower, as non-bank servicers remain loosely regulated. Traditionally, MSRs have been held by banks, who originated the mortgage loans. However, over the last 3 years MSRs have moved from bank to non-bank balance sheets. By early 2014, four of the top ten mortgage servicers were non-banks, with Ocwen being the fourth largest servicer, behind Wells Fargo, JP Morgan Chase, and Bank of America. Other non-bank servicers in the top ten include Nationstar Mortgage Holdings, PHH Mortgage, and Walter Investment Management.

This shift in industry dynamics is not simply due to the ‘invisible hand’ making the industry more efficient, but rather it is a combination of regulation changes that has spurred a sell-off in these assets by banks and an artificially low interest rate environment that makes them the perfect hedge against any future rises in interest rates. Given these factors, the distortion in industry dynamics has matriculated into a low price tag for

Mortgage Servicing Rights. The Servicing Release Premium, or simply the price for MSRs, has historically been 4x to 5x yearly MSR payments, yet, in the post financial crisis world, that price had reached historic lows of 1x to 2x the yearly payment. The premium has since returned to higher levels now, but remains below the historic average.

Until recent months, the shift in MSRs from banks to non-bank entities has gone relatively unnoticed following the financial crisis of 2008 by regulating authorities. However, in recent months the Consumer Financial Protection Bureau has launched a probe into Ocwen, the largest non-bank servicer, citing the servicer with a litany of administrative errors and deceptive practices that pushed borrowers into foreclosure. The result of the probe was a $2.2 billion fine. In addition, as a result of these accusations and doubts about Ocwen's ability to handle additional mortgage servicing rights, Benjamin Lawsky, the superintendent of New York's Department of Financial Services, has halted the planned sale of Wells Fargo's MSRs pertaining to $39 billion of total principal balance to Ocwen.

Motivated by the change in industry dynamics since the financial crisis, and the recent attention the non-bank servicers have received from regulatory authorities, this paper seeks to document the risk residing in the non-bank servicing sector so as to provide evidence for why further regulation may be necessary for this increasingly risky business.

I.II Hypothesis

My hypothesis is that due to recent industry dynamic shifts in the Mortgage Servicing Industry, mainly the distortion in Mortgage Servicing Release Premium, the non-bank servicers have increased their market share, and in doing so have made their business models risky for the following reasons: 1) use of excessive leverage to fund acquisitions of MSRs, 2) which also intensifies the sensitivity of equity to interest rate shifts, and 3) increases the costs of operating as a servicer, due to advancement obligations. As a result of the increased risk, and portfolio of MSRs, non-bank servicers are in need of new compensation structures/regulation to curtail the increased risk.

In order to substantiate this hypothesis, this paper will begin by analyzing mortgage servicing rights, and howthey are valued. Then, this paper will go on to observe the growing use of leverage in non-bank servicers, post-financial crisis, and analyze how sensitive non-bank servicers' equity is to interest rate shifts. Afterwards, this paper will estimate the amount of advances that Ocwen will need in a given period, assuming that Ocwen will reach the $1 trillion in unpaid principal balance, to gage the liquidity risk that is inherent in the servicing industry. Then, this paper will go onto bring up the quality issues that have been the cause for probes by the New York Department of Financial Services as well as the Consumer Finance Protection Bureau. Finally, this paper will go on to propose alternative servicing fee structures as well as regulatory considerations that may eradicate some of the issues that have arisen since the financial crisis.

I.III Importance of the Issue

The U.S. housing market is $20 trillion industry[1]. Of the $20 trillion industry, the U.S. Mortgage market is $10 trillion industry that is the focal point of the American dream, and a large part of the economy, as exhibited by the effects that a crash in the housing market has had on both the financial systems and the American economy as a whole.

In this broad industry, the mortgage servicing industry plays a pivotal role in maintaining the industry, and in the most basic sense, it serves as the middle man between the investors and banks who supply the capital, and the borrowers. By owning a Mortgage Servicing Right, the servicer has the right to service the loans in which the

[1] Source: Urban land Institute Housing Finance Policy Center

MSR pertains to. In doing so, the servicer collects payments of principal, interest, taxes, insurance bills, and other payments and remits them to the investor who owns the mortgages. In the process, the mortgage servicer earns revenue through the net servicing fee, which could command 25-40 bps of the underlying loan, the float on these payments, between the time that it is collected and remitted to the ultimate loan holder, and can also earn ancillary fees such as late fees. If, the loan that the servicer was servicing were to be delinquent, the servicer also has the duty to make the loan current, by getting in contact with the borrower, and if need be perform foreclosure activities.

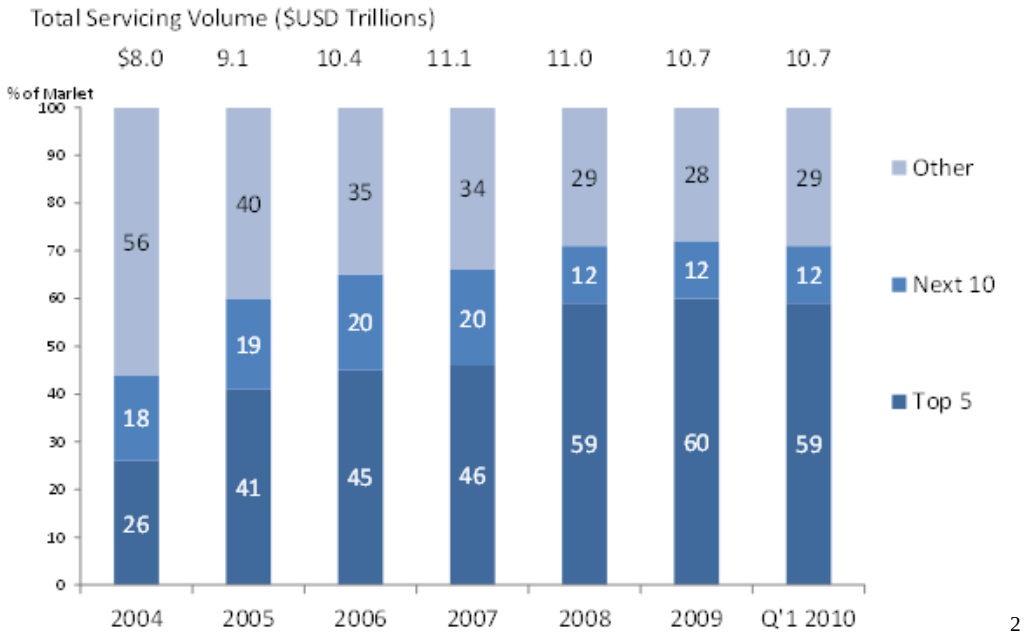
Historically, servicing was done by banks who originated the loans. In doing so, the banks could maintain contact with the borrower, as well as sell them other loans, and mitigate their financial risk, as Mortgage Servicing Rights tend to be a good compliment to the origination business. Yet since the financial crisis, the servicing industry has become unattractive to banks due to regulation changes and record low mortgage rates, and due to these factors, the servicing business has increasingly been taken on by non-bank mortgage servicers such as Ocwen, and Nationstar, who have taken the post-financial world as an opportunity, which has led to a consolidation in the industry.

The non-bank servicing industry has grown by acquiring underpriced MSRs, mostly funded with debt, and due to this, non-bank servicers have seen their rankings propel. Non- bank servicers in aggregate serviced $1.136 trillion of securitized mortgages in the beginning of 2010, but at the end of 2013, that number has increased to $1.906 billion; an increase of 68% within the span of three years. This growth has not slowed down in 2014, as in just the first three months of 2014, MSRs pertaining to $98 billion in

unpaid principal has been sold, compared to $146 billion in the whole twelve months of 2013.

This acquisition frenzy has also propelled the rankings of non-bank servicers into the top ten largest MSR holders. In a 2012 Q4 report by Mortgage Daily, Ocwen and Nationstar were ranked the fifth and sixth largest MSR holders with $204 billion and $203 billion MSRs, respectively, and PHH was ranked ninth on the list. This trend that has continued into 2014.

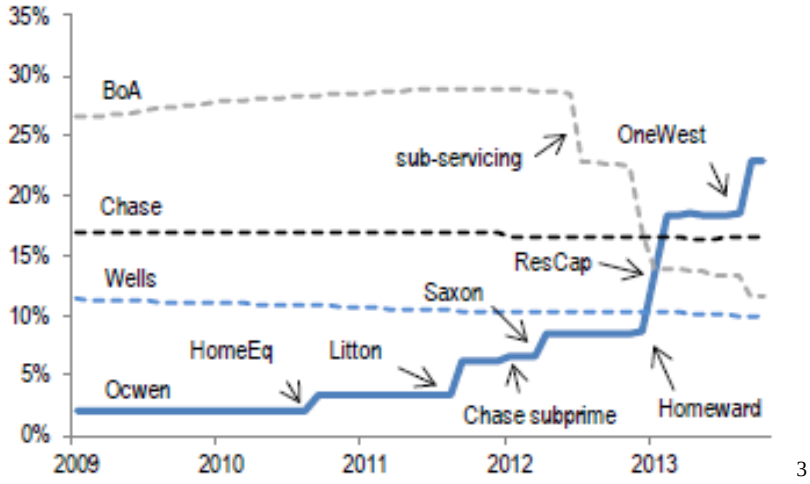
The growth in the prominence of non-bank servicers that has been created from bank regulation and low interest rates has created a more fragile system that is heavily concentrated. As shown in the chart below, the top five players held 26% market share in 2004, with the majority of the servicing volume held by smaller players. Yet, in 2010, these figures have reversed, with the top five players now holding a majority of the servicing volume.



[2]

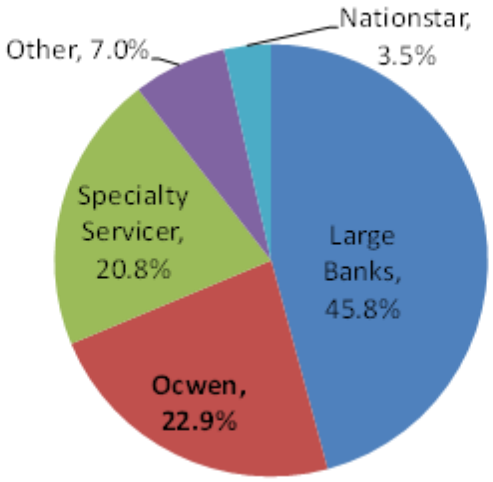
For example, when comparing Ocwen's servicing volume with the larger players before the financial crisis (Bank of America, Chase, and Wells Fargo), it is easily noticeable that although Ocwen's portfolio has grown drastically, several bank servicers have seen a sharp decline in servicing volume. This trend still holds true when looking at Ocwen's portfolio volume with all the players as well. Ocwen currently holds 22.9% of the servicing rights on non-agency loans, which makes it the largest, single servicer in the non-prime servicing industry. In essence, while trying to regulate the "too big to fail" banks, and trying to revive the economy, regulators have created another big financial institution, whose role is to be the fair and efficient moderator between mortgage investors and borrowers.

[2] Source: J.P. Morgan – 2014 Securitized Products Outlook



[3]

Distribution of Non-Agency Loans



The new dynamics of non-bank servicers holding larger market share has placed greater responsibility on non-bank firms without huge-volume experience. For example, Green Tree, a subsidiary of Nationstar, failed eight metric tests, that tested for: accuracy of the stated amount due for borrowers in bankruptcy, whether mortgages were delinquent at the time of a foreclosure was initiated, issues with notifications prior to foreclosure, required waivers of certain fees, oversight of third-party vendors, adequate

[3] Source: J.P. Morgan – 2014 Securitized Products Outlook

responses to complaints from borrowers and quick notification for the borrower when documents are missing from a loan modification application. Although, other non-bank servicers have passed the test, the example still highlights the challenges facing non-bank servicers to provide service to a larger number of mortgages than it previously had. Since such is the case, this paper examines whether the explosive growth and industry consolidation towards non-bank servicers has placed increased risk on the mortgage industry, and also goes on to examine the quality of service of non-bank service providers.

II. Characteristics and Valuation of Mortgage Servicing Rights

II.I Characteristics of Mortgage Servicing Rights

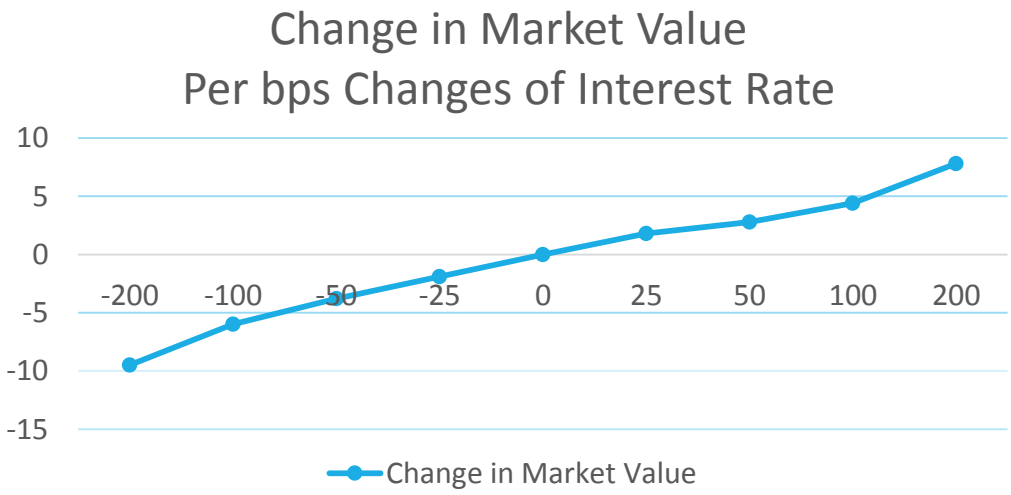
At the basis, a Mortgage Servicing Right is the contractual agreement, where the servicer agrees to perform certain acts, in return for a payment. These acts include collecting and forwarding payments on current mortgages (master servicing), as well as modifying troubled or delinquent loans to make them current again (special servicing). The servicer also has the responsibility to perform any foreclosures, if it is necessary. Owning an MSR gives the servicers the right to receive and to pay certain cash flows that arise from the underlying loan. In analyzing the characteristics of an MSR, I will borrow upon the works of "A Capital Markets View of Mortgage Servicing Rights," by Simon Aldrich, William Greenberg, and Brook Payner to better illustrate the components that make up an MSR. The cash flows that pertain to an MSR are the following: the servicing fee, the net cost to service, the float on taxes and insurance, the float on principal and interest, the gain from prepayments, and the loss due to compensating interest.

1) The mortgage servicer will receive the gross servicing fee, but in the end retains only the net servicing fee. The net servicing fee is the amount left from the gross servicing fee after paying the GSE's guarantee fees and other fees. Typically, the net servicing fee is about 25 basis points of the balance of the underlying loan, but this fee amount may differ, where a higher servicing fee corresponds to a higher mortgage rate, and thus a greater chance that the loans are paid off faster than other mortgages and the servicing fee would decline over time. In the securities market, this part of the MSR is considered to be similar to a weighted average coupon IO.

2) In order to receive the net servicing fee, a MSR owner needs to spend money to go out and manage the mortgages. In this regard, the servicer will incur net costs to service. The net costs to service refers to the cost associated with labor and infrastructure costs to service the loans, and the potential gains arising from ancillary income that the servicer can retain, which include late charges.
3) The servicer is entitled to the float on taxes and insurance. The servicer collects the taxes and insurance from the home owners and forwards them to the appropriate entities. During the time gap between when the taxes and insurance payments are received to when it is sent out to the corresponding entities, the servicer generally makes LIBOR on those payments. A benefit of this character is that as long as homeowners own the property, taxes and insurance will always be coming into the servicer, regardless of the principal balance outstanding.
4) The servicer handles payments of principal and interest the same way. Typically the timeline of the servicing keeping the payments range from 0 to 45 days.
5) The servicer also handles prepayments in the same way. From the time the prepayment is received to when it is sent out to the investors, the servicer can earn a float income on the prepayment.
6) Finally, the servicer may be required to remit to the agencies a full month of interest on each underlying loan, regardless of when a loan may have paid off during that month. This aspect of the MSR is known as compensating interest.

II.II Valuation of Mortgage Servicing Rights

In the most basic sense, Mortgage Servicing Rights increase in value as interest rates rise. This is mainly caused by the lower prepayment risk that comes from a higher interest rate, as borrowers are less likely to refinance their homes. In addition, the interest rate increase will increase the incremental cash flows arising from the increased revenue from the float aspect of MSRs. In addition, considering a fixed mortgage, as interest rates rise, the risk of prepayment also falls, thereby increasing the value of the MSR. The figure below illustrates the change in market value as interest rates change (bps). As interest rates rise, the value of MSR increases and falls when interest rates fall as well.



In more specificity, the MSR's value is affected by interest rates, because of two factors: the duration, and convexity. A small amount of MSRs can have the same amount of duration and convexity risk as 5 to 20 times as much in mortgage pass-through securities, and because of this aspect, MSRs are highly volatile. The duration refers to how quickly the price of an MSR changes as interest rates change, and the convexity refers to how quickly the duration risk of the MSR changes as interest rates change. The duration of an MSR is negative, unlike most fixed-income securities that have a positive

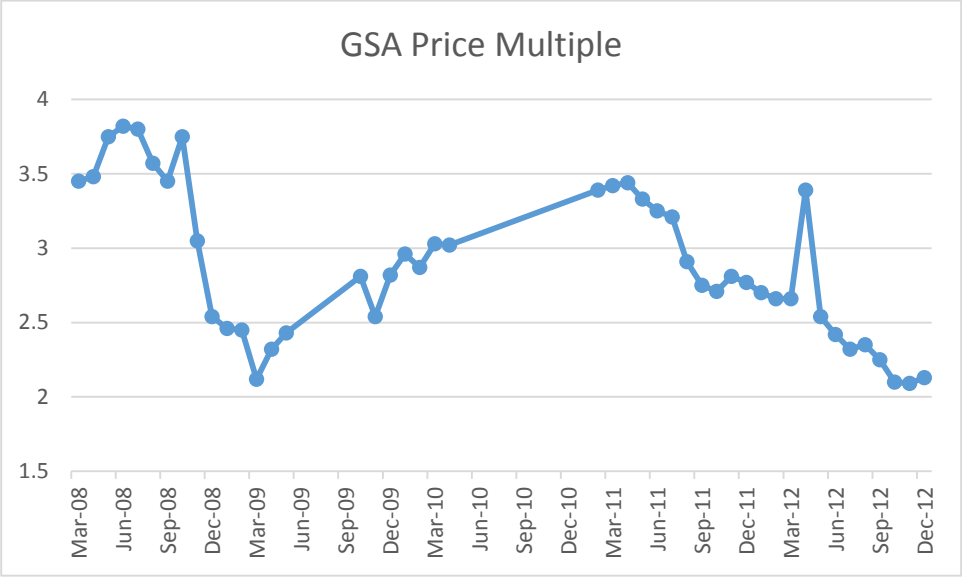
duration. Because of this aspect of MSRs, they are usually a good hedge against principal only bonds, and are a good hedge against rising interest rates. In addition, the convexity of an MSR is also negative. A negative convexity makes the MSRs fall heavily in value as interest rates fall, and rise at a slower rate given the same absolute increase in interest rates. Since such is the case, MSRs carry significant downside in the case of an interest rate fall, and limited upside, as interest rates rise.

These factors heavily influence the mortgage servicing industry. For example, in recent years, in addition to pending regulation changes, as prepayment risk rose and interest rates fell, the MSRs fell in value, and non-bank service providers have been able to acquire MSRs at a record low price. These factors in conjunction with regulation changes have propelled non-bank servicers to be the largest mortgage servicers, and as they try to climb in rankings, the servicers have not hesitated to use leverage to acquire more MSRs. Since such is the case, the inherent risks and how a MSR is valued has brought about the shift in recent dynamics.

III. Current Landscape of the Mortgage Servicing Industry

III.I Industry Landscape Following the Financial Crisis

The most notable change that has occurred in the servicing industry is the decline in the servicing release premium. This premium/price-tag is the sales price of an MSR. Previously, before the financial crisis, the servicing release premium on average was 5x the yearly MSR payment, but in recent years, the premium has been driven down to 2x the yearly payment. As shown in the chart below, the price multiple of servicing rights remains significantly below pre-crisis levels[4].



The downward pressure of the price of MSRs is mostly due to pending regulation changes. First, As Basel III is scheduled to come into effect, big banks will only be allowed to include 10% of mortgage servicing rights in their regulatory capital measurements, and any MSRs above 15% will be deducted from their capital. Before Basel III, banks were allowed to hold 50% of MSRs as Tier 1 Capital, and the MSRs

[4] MIAC Analytics: Generic servicing assets, derived from MIAC's hypothetical auction process which represents high to mid-tier servicers, who submit MSR market values to MIAC

were risk-weighted 100%, a number that has grown to 250%. Thus, these new initiatives provide banks with a strong incentive to de-risk and increase capital by selling portfolios of MSRs, mostly subprime.

In addition, under GAAP, banks need to value their MSRs to market, and due to record low interest rates, MSRs do not hold much value. Compiled with the fact that subprime servicing has become unprofitable, big banks have huge incentives to offload MSRs at below average market prices. Recently, Wells Fargo has announced that they will be selling MSRs pertaining to $39 billion of loans to Ocwen Financial, which the New York State's Department of Financial Services has halted indefinitely, due to concerns that Ocwen may not have the capacity to handle these loans. Even with the recent halt to the transaction, it is evident that big banks have been trying to sell off MSRs in response to upcoming regulation changes. The low interest rate market conditions since the financial crisis has further decreased the profitability and attractiveness of holding an MSR to big banks. On the other hand, smaller banks have also been selling MSRs for two main reasons: 1) they do not have the resources to build a servicing platform, and 2) need the servicing release premiums to originate more loans now, rather than having to wait for the cash flows to add up to originate another loan.

In additions to these factors that have led banks to sell of their assets, the CFPB, Consumer Finance Protection Bureau has recently added even more compliance/ rules regarding servicing rights. The new rules have created requirements for infrastructure to improve communications between borrowers and servicers, thus increasing compliance costs to the industry. As a result, many, including Ken Adler of Citi Mortgage, foresee

that the added compliance costs may encourage smaller firms to exit the industry and eventually sell off their assets to the larger servicers.

The obstacles banks face in holding MSRs have led to a rush into the markets by non-bank mortgage service providers, and other investors who see MSRs as an opportunistic investment that could not have come at a better time. To non-bank servicers, the cheap and abundant availability of MSRs has led to tremendous growth in revenues and for other investors the fall in MSR prices has coincided with low-interest rate market conditions that make it a perfect investment. 1) In the post-crisis world, loan origination quality has drastically improved, leading to lower default rates in the future. 2) Low interest rates have lowered prepayment risk on existing and future origination, which has lengthened the duration of MSRs. Finally, the MSRs have become a perfect hedge for rising interest rates, going forward, as MSRs typically increase in value as interest rates rise.

With these changes in the servicing industry, the servicing industry has in recent months come under heavy scrutiny as more borrowers have complained about instances, where there have been service interruptions, or failures in honoring loan modifications by the new servicer because of lost documents. As exhibited by the Consumer Financial Protection Bureau's probe into Ocwen's servicing practices, which accused the servicer of a litany of administrative errors and deceptive practices that pushed borrowers into foreclosure, which has led to a $2.2 billion fine. In addition, as a result of these accusations, and doubts on Ocwen's ability to handle additional mortgage servicing rights, Benjamin Lawsky, the superintendent of New York's Department of Financial Services,

has halted the planned sale of Wells Fargo's MSRs pertaining to $39 billion of total principal balance to Ocwen.

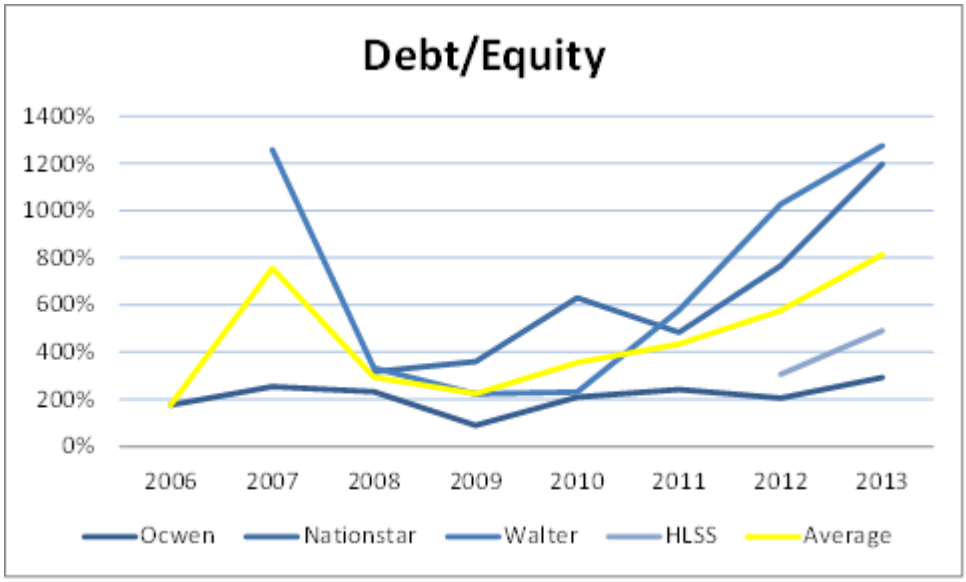
With these distortions and changes to the servicing industry, this paper seeks to analyze whether or not these artificial changes have jolted the industry into an accelerated growth phase that may have occurred too fast.

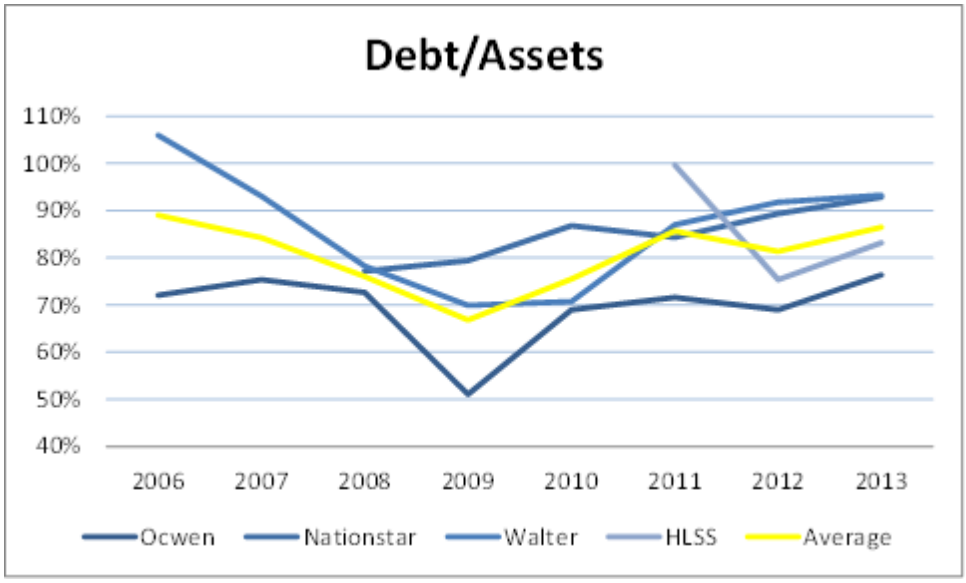
IV. Risks of Non-Bank Mortgage Servicers

IV.I Capital Structure of Non-Bank Mortgage Servicers

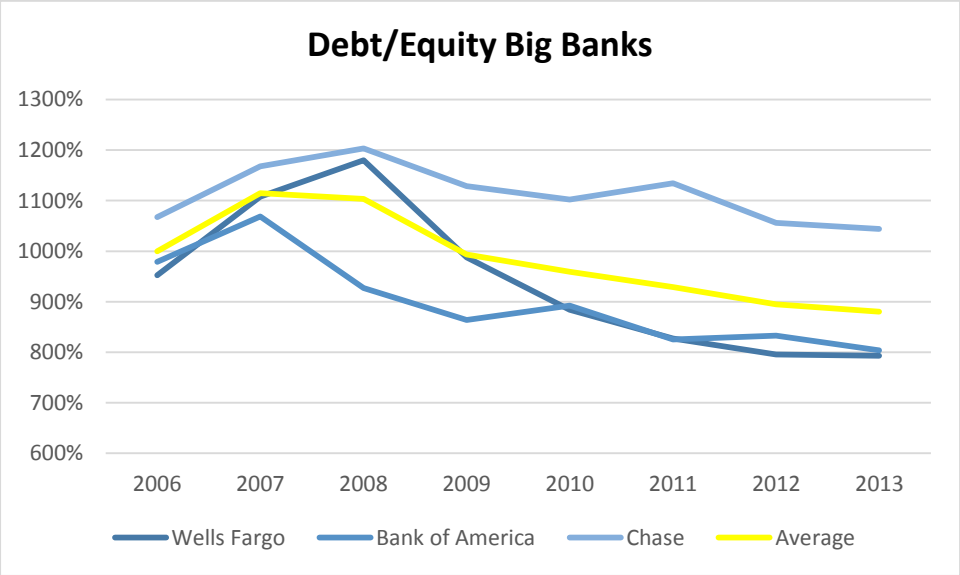
In order to finance the tremendous opportunity to grow their business in front of them, non-bank mortgage servicers have chosen to finance their opportunity with leverage. This paper will analyze the capital structure of Ocwen, Nationstar, Walter Investment Management, and Home Loan Servicing Solutions, and investigate the change in leverage. From the fiscal year 2007 to 2013, the non-bank mortgage servicing industry has seen tremendous revenue growth, as a result of a growing MSR balance, arising from the regulation changes that banks are going through.

To fuel the increasing growth in earnings and MSR portfolios, the firms have highly levered their businesses. . In some cases, the leverage ratios are higher than that of pre-crisis levels. As the charts below illustrate, firms have been using additional leverage to acquire more MSRs in recent years. Especially from 2012, non-bank servicers have relied on debt to finance their MSR acquisitions, and as a result, we observe a spike in their Debt/Equity, but a relatively stable Debt/Asset ratio. For example, Ocwen had a Debt/Equity ratio of 89% immediately following the crisis; however, in the most recent annual filing, Ocwen reported a Debt/Equity ratio of 292%. On the more extreme side, Nationstar increased its Debt/Equity ratio from 360% to close to 1200%. Most of this increased use of leverage has been contributed to the servicing industry's explosive growth through acquisition of MSR portfolios. As evident through the Debt/Assets ratio that remains relatively constant, unlike the large spike in Debt/Equity, the Debt/Assets ratio illustrates that the industry has been using mostly debt-financing to finance their large MSR portfolio purchases.

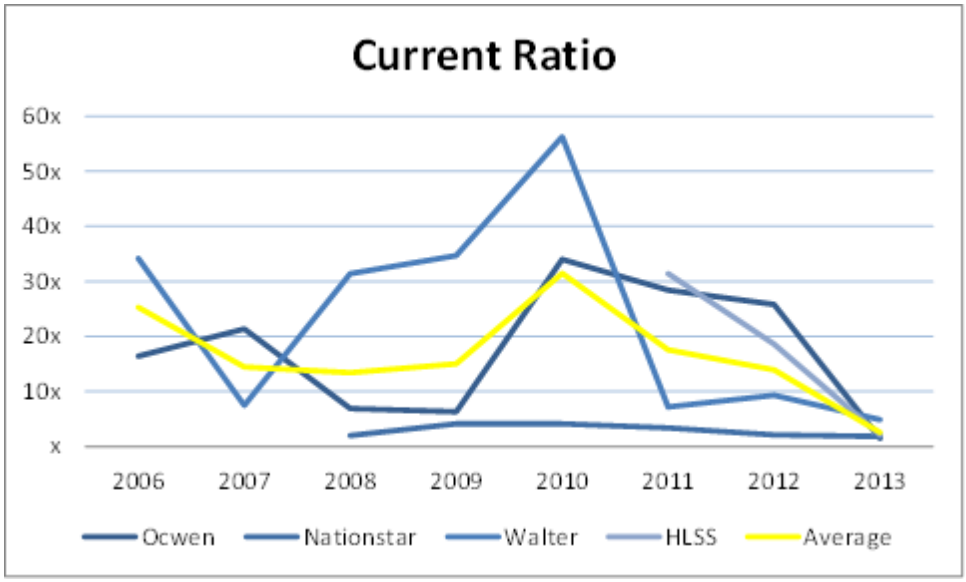


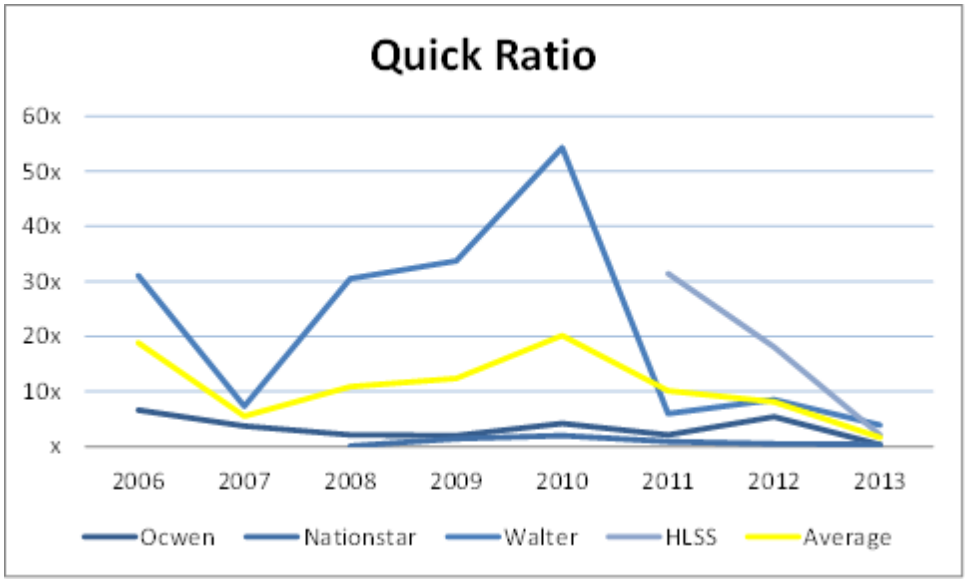


Compared to larger banks, who have been the traditional mortgage servicers, the trend that is reflected in the Debt/Equity ratio of non-bank servicers seems to be the opposite to that of the big banks. In the chart below, it is evident that since the financial crisis, bigger banks have been trying to decrease their Debt/Equity ratios. The industry average that hovered around ~1100% is now 880%. The chart maybe exhibiting the effects of regulator's efforts to make big banks safer; however, in their efforts to do so, regulators have increased the leverage risk of non-bank servicers.



Even in the short term, the non-bank servicing industry's trends illustrate signs of significant use of leverage. The non-bank servicers have all seen their current ratios and quick ratios deteriorate over time to levels that are on average, below the level during 2008. The current ratio and the quick ratio both are measurements of a company's ability to meet its short-term obligations, with its most liquid assets. As shown in the charts below, the industry is converging to lower ratios. As a whole, on average, the four companies had a current ratio and quick ratio of 17.6x, and 10.1x, respectively; however, in 2013, the most recent annual filings, the industry had a current ratio and a quick ratio of 2.6x, and 1.7x, respectively. In both ratios, we see a deterioration of the ratios as the firms increase their leverage ratio to acquire more MSRs, while decreasing the firm's ability to meet its short-term obligations.





With excessive long term debt and a short supply of short term liquidity, the non-bank servicers, who unlike their bank counterparts do not have capital requirements, have taken enormous risks to increase the payoff to their shareholders.

IV.II Liquidity Problems Arising from Advances

With so much debt and little cash, the industry could face liquidity issues in dire circumstances. In a MSR contract, the servicer needs to advance cash payments, if the

loan is ever to be delinquent, meaning that either payment of principal or interest has not been made for over 60 days. If such is the case, the servicer is required to advance the payments that the borrower would have paid to the mortgage holder, up to the amount that is deemed redeemable, until the loan 1) becomes current, or 2) the assets are liquidated. During this period, a servicer loses all float income that it had made by passing through cash flows. In addition, the servicer may have to fund its advances with additional debt, which piles on additional interest that the servicer needs to bear.

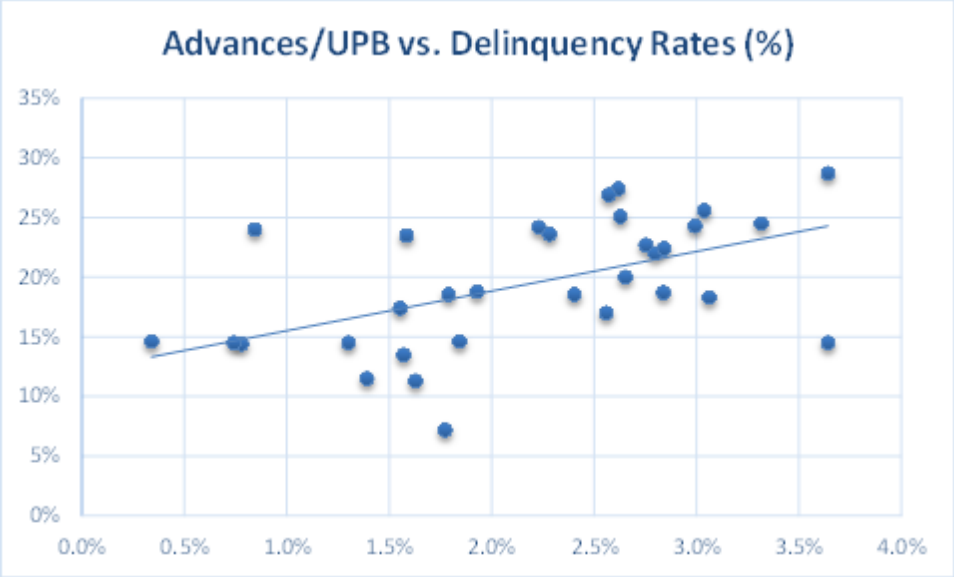
In the first scenario, the borrower would have made all the payments that he or she should have, and since the servicer has already advanced what the borrower missed, the servicer is repaid the advancements. In the second scenario, however, the servicer may recoup its advances much later than it would like. For example, if the borrower goes into default and the house needs to be foreclosed, the servicer would never regain its advanced payments, until the house has been liquidated. However, once the house has become liquidated, the servicer would have the most senior claim to the advancements that it has previously made. In judicial states, the process of foreclosure may take a long time, as the court must rule that the homeowner did default and that the debt is valid. In most cases, the servicer ends up becoming the highest bidder for the property, in which case the property is called real estate owned. Due to this lengthy process, properties in judicial states tend to be liquidated much slower than that of non-judicial states. In non-judicial states, the servicer follows given procedures, and can sell the property, after a prescribed period of time, in which the borrower can make the loan current. The timeline for judicial and non-judicial states can vary drastically. In the case of New York City, the number of days from the last paid installment to the foreclosure sale date may be up to

990 days, as opposed to 240 days in Alabama, or Missouri, which are both non-judicial states. During those days, the servicer will not be able to recover the advances that it made to the loan holders. Thus, the length of the foreclosure process creates a significant need for cash during that 240 to 990 day period.

Given the high level of debt in the non-bank servicing industry, I hypothesize that servicers are at a risk of going into default themselves, if the economy was to undergo a 2008 financial crisis-like situation, in which many lenders fail to stay current with their mortgage payment. In addition, due to the fact that non-agency loans make up 90% of Ocwen's UPB, I hypothesize that Ocwen is subject to a higher potential for a significant increase in delinquency rates than those that hold a larger UPB of agency loans.

In order to test the hypothesis, this paper will first estimate the amount of advances that a servicer needs to set aside at a point in time. This paper will focus on the effect that these advances have on Ocwen Financial, who, unlike other servicing firms, relies on mortgage servicing as the main business line. Ocwen reports the amount of advances that it has made every quarter, and records it on its balance sheet as an asset with similar properties to an accounts receivable. However, because of the lengthy process that is involved with liquidating assets, Ocwen holds a large advance balance. As of December 31st, it held $3.4 billion in advances, which made 79% of current assets, and over 19x its cash balance. By using quarterly 'Total Advances' to get advances/UPB (Unpaid Principal Balance), and running a regression on Delinquency rates that Ocwen sees in its portfolio, this paper estimates the amount of advances that Ocwen would have given certain delinquency rates, and a UPB of $1 trillion, which Ocwen has articulated is their target UPB in two to three years, compared to $465 billion, as of year-end 2013.

The regression results are as follows.



Coefficients	Estimate	Std. Error	T value	P Value
Delinquency Rates (%)	0.000839	0.000247	3.40	0.002
Intercept	0.005523	0.004978	1.11	0.28
Multiple R: 0.528, Adjusted R Square: 0.254				

Assuming Ocwen hits the $1 trillion UPB, the equation can be simplified as:

$$\text{Advances} = 0.839 * \textit{Deliquency Rate } (\%) + 5.5523$$

Following the above equation, Ocwen would have the following advances in its assets.

Delinquency Rates (%)	Total Advances (USD Bns)
10%	$13.9 Billion
15	18.1
20	22.3
25	26.5
28.7	29.6
30	30.7

During the peak of the financial crisis, Ocwen hit a delinquency rate of 28.7%. If Ocwen was to hit that level again, Ocwen would be due $28.6 billion from the mortgage holders, and would only receive the amount once the assets have become liquidated or the loan becomes current again. Assuming that Ocwen would hit this level in a recession, the housing market would not have enough trading volume for Ocwen to recoup most of the advances quickly.

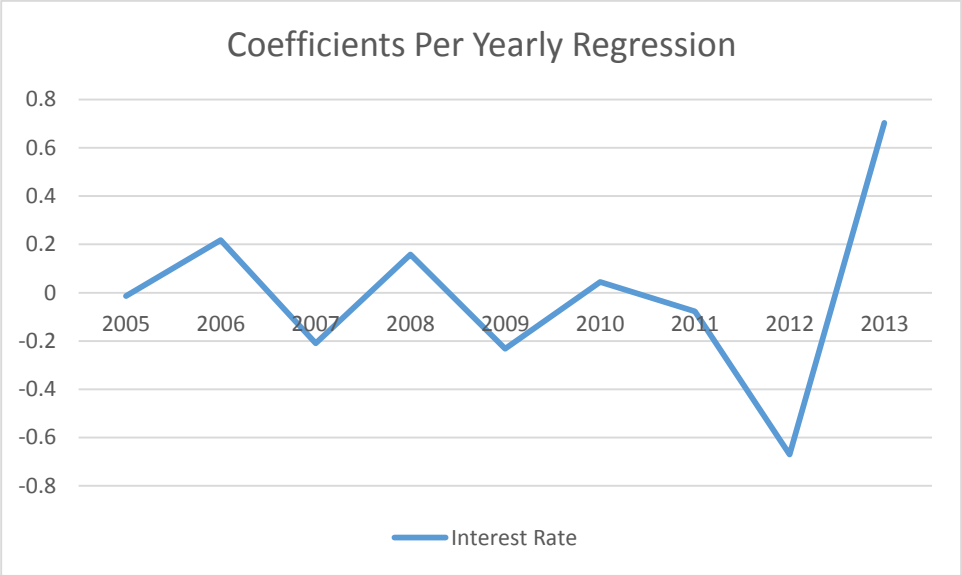
Under the assumption that the servicing business continues to incur costs at the historic annual average over the last two years as a percentage of UPB, and generate revenues at the historic annual average over the last two years as a percentage of UPB, on a $1 trillion UPB, Ocwen will generate $4.0 billion in revenues and incur $1.5 billion in costs in a given fiscal year. In addition, under the aggressive assumption that Ocwen can continue to finance the advances at its current cost of debt (10.6%), Ocwen will incur $3.14 billion in interest expense to cover its advances. Therefore, Ocwen, assuming that it does not reinvest its proceeds will have a cash outflow of $600 million. Considering the

fact that Ocwen's current cash balance is $178.5 million, if delinquency rates were to spike, Ocwen would see a negative cash balance.

IV.III Sensitivity of Equity to Interest Rates

Given a mortgage servicing right's sensitivity to interest rates in its valuation; non-bank servicer's equity value should also be dependent upon interest rate fluctuation. Given the increased leverage, and the potential liquidity problems that a servicer may face with advancements, non-bank servicers could potentially be adversely impacted even further as their share price could drop, regardless of the advancements, but simply from shifts in interest rates. Therefore, I hypothesize that Ocwen's equity value is susceptible to the same fluctuation in price from changes in interest rates.

In order to assess the sensitivity of Ocwen's equity value, I regressed Ocwen's share price against the 10 year treasury rate, and controlled for the level of the S&P 500. I ran these regressions for every year, to determine whether the increase in Ocwen's UPB increases the magnitude of the coefficient for interest rate shifts. The regressions are based upon the daily changes in share price, treasury rate, and S&P 500.
The regression's coefficients per a given year are plotted on the below graph. Individual regression results per year are located in the Appendix.



The regression shows that Ocwen's equity value is highly sensitive to interest rates, although they do not exhibit the initial perceived track that as interest rates fall, Ocwen's share price would also fall; however, the regression nonetheless illustrates the sensitivity to changes in interest rates. It is important to note that the increased absolute value of the coefficient of change in interest rates magnifies after 2011. Coincidentally, Ocwen first reached over $200billion in UPB in 2012, and is almost at $500 billion at year end 2013. Compared to 2012, and 2013, Ocwen had UPB balances around $100 billion through the periods leading up to 2012, which explains the sudden increase in the absolute value of the coefficient.

Since such is the case, I believe that the sensitivity of Ocwen's share price to interest rate shifts adds another inherent risk to non-bank mortgage servicers. If, Ocwen were to reach a UPB of $1 trillion as it has mentioned in management discussions, Ocwen's share price will increasingly be affected by changes in interest rates. Due to this, I believe that the increased sensitivity of share prices to changes in interest rates should

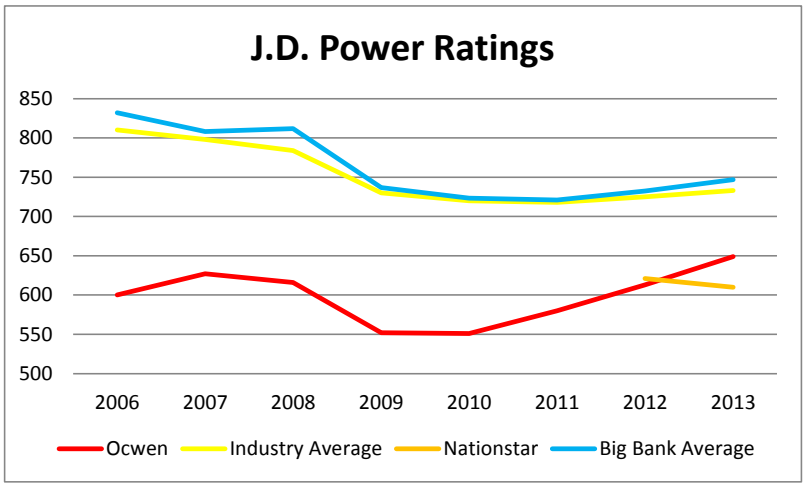
be evaluated in regulatory discussions in along with the inherent volatile nature of mortgage servicing rights.

V. Non- Bank Mortgage Servicers' Quality of Service

V.I. Quality of Service: Industry Overview

Recent probes into Ocwen's servicing are a result of questions regarding Ocwen's capability to handle additional servicing rights. Before the financial crisis, Ocwen held approximately a UPB of $50 billion, a number that has grown to $465 billion in its most recent annual filing, growth of 830%. Yet, pre-crisis, Ocwen reported a total SG&A of $179 million, as opposed to its most recent number of $812 million, a growth of only 354%. Although servicing is a business that benefits tremendously from economies of scale, it still seems that Ocwen may not be investing enough to maintain or better its quality in the face of an increasing UPB.

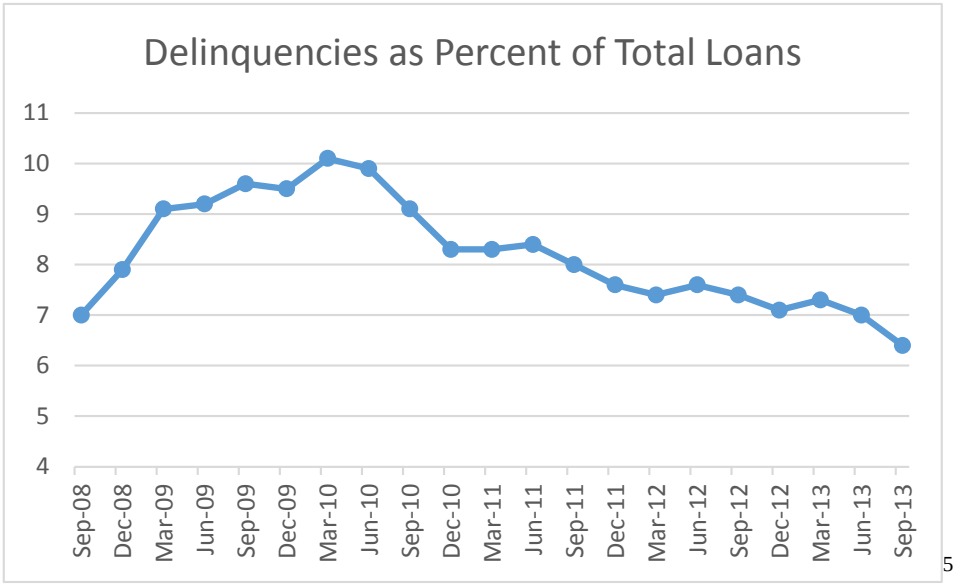
Observing another concrete metric of service based upon customer reviews, the J.D. Power & Associates' rating of mortgage servicer, it is evident that the industry may be heading in a direction that is unfavorable to the average mortgage borrower. In order to reach these ratings, J.D. Power & Associates analyzes many aspects of the customer experience, and identifies multiple drivers of customer experience to measure the individual ratings. Therefore, the ratings of non-bank service providers are based upon customer reviews, and serve as a customer satisfaction measurement. With the top quality servicers looking to exit the market and Ocwen and Nationstar gaining market share, as a mortgage borrower it is a critical signal to see Ocwen and Nationstar rated as the perennial bottom scorer.



All the servicers on the J.D. Power's ratings saw a decrease in their ratings after the financial crisis, which takes into account the general sentiment of the average mortgage borrower. Since then, the industry has gained back some lost ground. In the case of the Ocwen and Nationstar, the two continue to be significantly below the average, with Ocwen increasing its ratings since 2010. The 'Big Bank Average,' includes that of Wells Fargo, Bank of America, and Chase, the previous largest players in mortgage servicing prior to the shift in the industry dynamics.

Although the gap between the best servicers in the industry and the non-bank servicers are decreasing as of late, these ratings provide two insights that may be valuable for regulation considerations. 1) The obvious gap between Ocwen and Nationstar as opposed to the traditional servicers, such as the larger banks, show significant concerns as most of these larger banks have been offloading their MSR portfolios to Ocwen and Nationstar. Since such is the case, as a whole, the industry is seeing a decline in service provided to the mortgage borrower, which raises arguments for quality-control supervision by regulators. 2) The ratings illustrate a bias for and against servicers based on the borrower's conditions. For example, in the years leading up to the financial crisis,

borrowers were very satisfied with the servicers and gave them an average rating over 800; however, after the financial crisis, the average dropped well below the previous average of 800. I hypothesize that this is attributable to the fact that most borrowers are not satisfied with their mortgage situation, regardless of the actual quality of service.



[5]

In fact, when observing the ratings chart jointly with the above chart on average delinquencies as a percent of total loans, when delinquencies are at their highest, in 2009 and 2010, J.D. Power Ratings are at their lowest. This could be a possible explanation for the recent, slow hike that we have seen in the servicing industry's ratings. Therefore, I conclude that in broad terms, the recent trends do not illustrate a significant sign that larger banks are undergoing diminishing quality of service and that non-bank servicers, such as Ocwen has been improving in quality of service, but rather the ratings illustrate that in general, non-bank servicers are yet severely lacking in quality as opposed to the traditional servicers, and that some of the recent trends may be attributable to increased overall loan and market conditions.

[5] Source: Mortgage Bankers Association National Delinquency Survey

VI. Proposal for New Compensation Structure Changes

VI.I Current Compensation Structure

Historically, as mortgage servicing rights have been held by the loan originators, the current compensation structure reflects the idea that the value created or lost from mortgage servicing is hedged by the origination costs and the mortgage rate at which the mortgage was set. In addition, the servicer's performance or quality of service is monitored by the guarantor/investor/trustee against performance measures that are listed in the related servicing guidelines, at the point of origination. If the performance does not follow with those stated within the guidelines, the investors are free to choose another servicer. Thus, servicing compensation is based upon the fact that banks will originate and service the loan for the lifetime, with the investors serving as an oversight to monitor performance and quality for the servicers.

In this traditional fee structure, the mortgage servicer will receive a flat basis point amount (usually 25bps) in mortgage servicing fee, which effectively grants the servicer an interest only strip. The following is called the minimum servicing fee, and servicers may receive additional compensation in the form of an excess IO. Servicers will receive excess IOs in anticipation of costs of servicing that may exceed initial anticipation, or as an investment choice. However, because of the volatile, and capital intensive nature of IO instruments, servicers tend to see the volatile nature of IOs reflected in their earnings. Therefore, servicing firms invest heavily in strong risk management expertise to do their best in hedging the MSRs. The need to focus on the volatile earnings and risk management expertise creates a fundamental problem with quality of service, as "financial risk management skills and capital required for the IO

investment component are not core competencies for providing quality servicing." In essence, the earnings volatility caused by the inherent volatile nature of an MSR has created complexities that have little to do with actual loan-servicing, which is more about the operational process that depends upon a labor and resource intensive process for nonperforming loans.

The problem of this traditional fee structure became evident in the recent financial crisis. Even with the benefits of a large spread between servicing fees and costs to service, in the face of an increasing delinquency rate, many servicers failed to provide their essential service: to act as the intermediary between borrowers and investors. Because of increasing costs to invest in the appropriate infrastructure, mostly human capital, servicers failed to process the increased volume of nonperforming loans, and defaults. Servicers became unresponsive to borrowers, guarantors, and investor needs, essentially failing to adhere to their basic duties. Although, proper regulation and oversight may have prevented the issue from arising, after the financial crisis, it is evident that a new servicing compensation model that eliminates financial risk, and improves the quality of service through incentives is necessary.

VI.II Alternative Proposals Set by FHFA

With the recent shifts in the industry, which has led to consolidation and offloading of MSRs by larger banks, who have been the traditional servicers, the traditional servicing based upon the assumption that origination and servicing go together has become outdated. As a response the Federal Housing Finance Agency has initiated a

discussion into alternative methods for mortgage servicing compensation and has come up with two ideas: 1) Reserve Account, and 2) Fee for Service

Reserve account, as the name suggests, would create a different fee structure in the form of a reserve account. The principle of the idea is to continue with the current method by granting the servicers the mortgage servicing fee but at a reduced rate (12.5 to 20 bps). However, in doing so, the investors would set up a reserve account (3 to 5 bps) to cover non-performing loan servicing costs. As the cost to service a performing loan is significantly less ($4/month) than that of a nonperforming loan, which could have annual costs of up to $900 per loan. Specifically, the reserve account would be refunded in full or partially if certain performance targets are met, and would be transferred if the servicing agreement was transferred to another servicer.

The benefits of this plan include the fact that future changes in the compensation structures can be drawn up, as this proposal is a slight modification to the current compensation structure. In addition, by creating a reserve account, servicers can reduce their capital exposure to nonperforming loans. Also, the proposal aligns itself with the voices of investors, who would like servicers to align their incentives with that of investors by forcing servicers to have “skin in the game.” However, the proposal does not adequately address the volatile nature of MSRs or provide sufficient guarantees that servicers will adhere to a higher quality of service.

In the second scenario, fee for service, the excess IO strips, a form of additional compensation in the current structure, will follow either one of the two outcomes, which is to either tie the excess IO to the MSR or to separate them from the MSR, which will result in the excessive IO interest to be a part of the servicing compensation or separate.

By allowing the excess IO to be separated, the FHFA will be providing flexibility and liquidity to the originator or seller of the MBS, as servicers can choose to liquidate the excess IO immediately to cover any liquidity issues that they may face in a given point in time. In this case, the IOs will be accounted for as investment in retained interest and cash flows will not be factored into compensation. In the second case, in which the excess IO is tied to the MSR, the IO strips will be capitalized with the MSR, as is in current regulation, and will considered a part of the total servicing compensation. Since such is the case, servicers may not sell or transfer the IO strips if it is tied to the MSR, but in the case that it is not tied, the IO interest can be freely sold or pledged as collateral.

In allowing the two scenarios, the FHFA has in essence allowed servicers to limit their IO strip exposure, and focus on the quality of their service. While allowing at the same time to decide whether or not they would like 1) to receive higher proceeds upon taking on the MSR by liquidating the excess IO strip, or 2) to hold an excess IO strip; thus increasing financial risk, and the ability for future gains. In addition, as investors are now free to negotiate an adequate compensation, through the excess IO and the bps of the servicing fee, the FHFA would be opening up the industry to competition, through investor selection, the industry would hopefully strive to achieve a higher performance level.

VI.III Discussion of Alternative Proposals

In examining the two proposals, the FHFA has proposed two ideas, one that mostly stays the course and another that drastically changes the compensation analysis. In light of my previous analysis of the state of the servicing industry, I recall that the

FHFA's new proposals are driven by the need to reduce GAAP MSR capitalization in light of Basel III, which will only allow 10% of MSR value to count towards Tier 1 Capital and any MSR value above the threshold will be deducted from the bank's regulatory capital. In addition, with the industry shifting towards non-bank service providers, which are inherently different business models than that of big banks, I propose that there should be a separate servicing compensation structure for non-bank service providers.

As the analysis in this paper suggests, MSRs require a significant amount of capital to counter the volatile nature of its cash flows in extreme situations. This is exhibited by the advancements that a given servicer needs to have in a high-delinquency rate environment, and to make matters worse, recent shifts in the industry have dried up liquidity, increased the leverage ratios of servicers, and have further sensitized share prices to interest rate shifts. In order to address the inherent risks of the MSRs and the increased risk placed onto these firms that is a result of aggressive acquisition of MSRs through debt financing, I believe that the need for discussion into servicing compensation for non-bank servicers has increased.

The most important distinction between banks and non-bank servicers is that non-bank servicers do not hold regulatory capital. In this regard, the non-bank servicers have been able to take advantage of the price distortions in MSRs, by piling on risk to their balance sheets. Since such is the case, I believe that there is a need for reserve accounts. Second, with the recent shifts in industry dynamics, and the volatile nature of IO strips, the industry has become increasingly consolidated, which may be solved by eliminating the need to have IO strip exposure in becoming a servicer. In doing so, the non-banks

servicing industry will become less capital intensive then it has been, and hopefully open up competition to force non-bank servicers to improve their quality of service.

To achieve a 1) reserve account, and 2) make it unnecessary to have significant IO strip exposure, I propose that non-bank servicers follow the 'Fee for Service' approach in conjunction with a reserve account. First, instead of creating a reserve account that comes from a reduction in the minimum servicing fee, the non-bank services will be required to hold reserve capital to hold enough liquidity to cover a portion of operating costs. The rationale for this is that the ongoing industry consolidation has resulted in a few non-bank servicers holding a significant portion of MSRs and if these larger players were to run out of cash, the servicers could fail to serve the investors and borrowers, or see an increase in borrowing costs that have already risen due to excessive use of leverage. By creating a requirement to hold a portion of operating costs, even if a servicer was to experience a difficult situation, it could at least continue its operations as it explores options to restructure, or raise funds at a cheaper rate, than what it would have borrowed without a reserve account.

Second, I believe that the idea of reducing the fee to a dollar amount for performing loans and raising it for nonperforming loans will generate a healthy compensation structure as it allows freedom between investors and the servicers to negotiate a 'right' fee for a given pool of mortgages. However, the reduction in fees for performing loans need to include a control to limit servicer flexibility in choosing which portfolios to service, as servicers will be more likely to service the mortgage portfolios which are more likely to have a slower prepayment level. In addition, by increasing the fee for nonperforming loans, the servicers may have an inclination to let loans slide

further into delinquency to receive a higher fee for serving the nonperforming loan. Since such is the case, the investors must set careful guidelines to encourage servicers to best represent the investors. In conjunction with these concerns, servicers should be allowed the option to choose whether or not the excess IO compensation will be tied together or separated from the MSR at the time of entering the contract to service. This proposal will encourage the increase of new industry participants by reducing the need to have IO strip exposure, and thus reduce the need for financial risk management expertise. In addition, for servicers who would still like to maintain the current structure of a 25 bps of minimum servicing fee, with a tied excess IO strip, they would still have the option to do so.

Ocwen has showed a small glimpse of the industry's need for a reserve account, and the desire to offload some of its financial risk by implementing OASIS. Ocwen Asset Servicing Income Series offloads some of Ocwen's prepayment risk, by offering investors an IO strip that pays a monthly share of 21 basis points relating to $11.8 billion in UPB of a pool of mortgages. By doing so, Ocwen raised $123.5 million and plans to use the proceeds to purchase further MSRs. In addition, Ocwen has said that it may sell as much as $1 billion of OASIS bonds. This new offering could be a signal that non-bank servicers have either 1) exhausted other methods of financing their growth, or 2) that they are holding too much IO strips and would like to offload the prepayment risk. In either case, the need for a reserve account and the 'fee for service' compensation structure has been demonstrated. If, Ocwen felt that it cannot raise additional funds through a traditional debt offering, Ocwen could be in financial trouble, if delinquencies were to spike, and consequently advances, highlighting the need for a reserve account to

address potential future liquidity problems. Second, if Ocwen implemented OASIS to reduce IO strip exposure and prepayment risk, Ocwen is exhibiting the non-bank servicers' desire to have the optionality of either retaining or removing the excess IO strip as additional compensation. Since such is the case, the non-bank service industry is in need of an alternative compensation structure, and I believe that by implementing a 'fee for service' approach together with a reserve account will mitigate the overall leverage risk as well as any financial risks arising from excess IO strips.

VII. Conclusion

The recent shift in industry dynamics in the Mortgage Servicing industry has brought about many changes. First and foremost, as banks try to exit the servicing industry, non-bank servicers have propelled themselves to be larger than they were before the financial crisis. In addition, as the non-bank servicers took advantage of record low servicing release premiums, they have used leverage to fund their growth and this has increased the risk profile of the servicers in the following ways: 1) liquidity problems arising from delinquencies and advances, and 2) increasing sensitivity of share price to interest rate shifts.

Due to these factors, I believe that the servicing industry has gone through an immense change and is in need of a new compensation structure, one that reduces the financial risks to the servicers, and increases competition. In order to achieve this, I propose that a reserve account be created in conjunction with a 'fee for service' structure. In essence, regulators must resolve the issue that stemmed from regulators' desire to make banks safer.

Appendix

Regression Statistics by Year to measure sensitivity of share price to changes in interest rate and changes in the S&P 500.

2005

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	-0.0029	0.0044	-0.66	0.51
Interest Rate	-0.014	0.097	-0.14	0.886
S&P 500	0.0047	0.00057	8.331	5.65E-15
Multiple R: 0.47 Adjusted R Square: 0.214				

2006

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.013	0.0083	1.55	0.123
Interest Rate	0.22	0.222	0.98	0.329
S&P 500	0.007	0.001	6.86	5.52E-11
Multiple R: 0.4 Adjusted R Square: 0.154				

2007

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	-0.026	0.01	-2.42	0.016
Interest Rate	-0.21	0.232	0.91	0.366
S&P 500	0.0063	0.0008	7.56	7.73E-13
Multiple R: 0.46 Adjusted R Square: 0.205				

2008

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.017	0.0097	1.744	0.082
Interest Rate	0.158	0.128	1.24	0.216
S&P 500	0.0027	0.00042	6.56	3.06E-10
Multiple R: 0.47 Adjusted R Square: 0.218				

2009

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.014	0.015	0.96	0.34
Interest Rate	-0.23	0.18	-1.31	0.19
S&P 500	0.005	0.001	4.99	1.11E-06
Multiple R: 0.30 Adjusted R Square: 0.085				

2010

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	-0.0057	0.014	-0.41	0.68
Interest Rate	0.045	0.24	0.18	0.85
S&P 500	0.009	0.0013	7.22	6.36E-12
Multiple R: 0.47 Adjusted R Square: 0.215				

2011

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.02	0.013	1.47	0.14
Interest Rate	-0.077	0.26	-0.3	0.76
S&P 500	0.011	0.00094	11.3	5.78E-24
Multiple R: 0.67 Adjusted R Square: 0.45				

2012

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.072	0.04	1.83	0.07
Interest Rate	-0.68	1.09	-0.68	0.54
S&P 500	0.014	0.0045	3.14	0.002
Multiple R: 0.22 Adjusted R Square: 0.04				

2013

Coefficients	Estimate	Std. Error	T Value	P Value
Intercept	0.02	0.05	0.31	0.76
Interest Rate	0.7	1.03	0.68	0.49
S&P 500	0.039	0.004	8.75	3.36E-16
Multiple R: 0.5 Adjusted R Square: 0.24				

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