Two Essays on the Stability of the Auto Lending Market

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Two Essays on the Stability of the Auto Lending Market

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To my parents, for teaching me the value of hard work.
To my advisor, Professor Tcherneva, for reminding me what that is.
To my brother and friends, for everything else.
Abstract:
This project is composed of two essays examining the credit markets for the finance of automobiles. In particular, both chapters focus on subprime loans for the purchase of used cars, often financed by independent finance companies. In the first chapter, I review Hyman P. Minsky’s writing on credit and securitization to create a theoretical framework that explains how auto finance has evolved. This chapter’s analysis primarily compares the current period of subprime auto finance with short boom and bust cycle experienced by the auto finance sector in the 1990s.

The second chapter reviews various evidence of discrimination in subprime auto lending, and explains how this could create instability in returns to the securitized assets these loans back. Lastly, this chapter sets out three proposals of effective regulation: the strengthening of the CFPB, expansion of relationship banking initiatives, and “skin in the game” regulations for auto ABS issuers.
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Chapter 1: Historical Comparisons of the Stability of Subprime Auto Finance

1.1 - Introduction

As the economy moves further away from past crises, it also approaches new ones. This paper sets out to examine this reality, and in particular, the stability of the auto lending market. Budding from this question came the realization and concern that the process of automobile finance has radically changed. Looking deeper into the matter, it seemed that the processes of auto finance resembled the same ones that led to a global financial crisis less than a decade ago. This paper’s first main obstacle was getting past the idea that the auto finance sector would be impervious to major fluctuations due to the car not being an appreciating asset. This paper’s main issue lies with the evolution of lending practices. In order to better understand how financial and credit-providing systems have changed and led to financial instability, this paper uses the theoretical framework of Hyman P. Minsky, a man who died in 1996, more than ten years before the global financial crisis.

Minsky became known in mainstream economics for his 1986 opus, Stabilizing an Unstable Economy. His work spans a variety of topics, but his posthumous fame is primarily derived from his theories on economic stability and fragility, which have been used to understand the financial crisis of 2008. In Minsky’s own words, Stabilizing an Unstable Economy tries to explain why our economy is so prone to volatility and how this clear instability has been “contained” (Minsky 1986, ix). Minsky’s writing dissents from neoclassical theory, which does not answer the question of why the economy is so unstable (Minsky, 109). Minsky found that neoclassical economic analysis neither acknowledges endogenous instability nor does it make any attempt to explain it (ibid.), and thus, is inapplicable to an economic system that displays such characteristics.
The basis on which Minsky describes such stability is found in his Financial Instability Hypothesis, or FIH, which centers around the various methods in which firms go about raising the cash needed to finance position making assets (id, 80). Units can employ one of three financing regimes that compose this hypothesis: hedge, speculative, and Ponzi finance. In the first regime, the hedge unit’s expected and actual cash flows are enough to meet payment commitments on the debt used to finance position making assets. The payment commitments are comprised of the principal and the interest of the debt. The speculative borrower’s cash flows are not enough to meet the entirety of a payment commitment, and must increase, or “roll over” their debt (230). Lastly, Ponzi finance describes a process in which cash flows are not enough to meet neither interest nor principal, so the firm finances previous debt with the issuance of new debt, or by liquidating their position in order to make position on the asset being financed. These means of financing are far from fixed, however, as “A hedge unit can become a speculative unit if there is a shortfall of income, and a speculative unit a hedge unit if there is a surge of income or if debts are ‘funded’ (231). The movement of financial actors between these various means of financing explains how the financial economy fluctuates between periods of stable financing regimes and unstable ones.

In Stabilizing an Unstable Economy, Minsky also outlines plans for price stability, government intervention as a lender of last resort, fiscal policy, monetary theory, and many other topics. Simply put, Hyman Minsky was not simply a ‘crisis economist’, and it is a disservice to distill his theory into a brief analysis of “Minsky Moments”, or hedge, speculative, and Ponzi. I particularly employ Minsky’s explanation not just of crises at the exact point that they fall, but rather, how U.S. credit institutions changed in the decades
leading up to the subprime mortgage boom and bust. I also use the financial instability hypothesis to determine the historical stability of auto finance companies.

This paper’s study of auto lending and securitization was initially inspired by Minsky’s handout issued to his graduate class in 1987 simply titled “Securitization” (2008\(^1\)). Like much of the writing from *Stabilizing an Unstable Economy*, Minsky’s evaluation of growing trends remain prescient to this day. In this brief note, he wrote that securitization, only a recent development at the time of writing, reflected two phenomena. First, securitization allowed for the creation of globally accepted financial paper. This first development, while not particularly applicable to securitized auto, led to the global financial crisis of 2008, as U.S. mortgage debt could be bought and sold internationally (Minsky, and Wray 2008, 3). Second, he wrote that “Securitization reflects a change in the weight of market and bank funding capabilities: market funding capabilities have increased relative to the funding abilities of banks and depository financial intermediaries” (ibid).

This change, according to Minsky, was due to the ‘monetarist experiment’ put forward by the Federal Reserve Chair Paul Volcker from 1979-1982. In this period, the Federal Reserve set their policy sights on controlling the money supply, causing a sharp increase in interest rates (Minsky 1986, 73). The newly constrained money supply also created a sudden scarcity of reserves and the resulting contraction of credit from banks. Minsky, in “Securitization” wrote that these developments led to a rise in financial innovation and the rise of markets, instead of traditional lending institutions. Markets, not banks, began to aid in the financing of capital assets needed to make position, while securitization removed the

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\(^1\) This handout has been reproduced in 2008 by the Levy Economics Institute at Bard College, with an added preface from Randall Wray. It appears as a product of both authors and dated 2008 in this paper’s references.
constraint on lending volume. He explains that “Securitization implies that there is no limit to bank initiative in creating credits for there is no recourse to bank capital, and because the credits do not absorb high-powered money [bank reserves]” (Minsky & Wray 2008, 3). Securitization began in the mortgage market, but securitized auto loans quickly grew in popularity, becoming “the most important way of selling vehicles” (Fabozzi & Kothari 2008, 162) during some economic phases.

As banks began to give way to unconstrained markets and non-bank lenders, these institutions, as Wray notes, “operate with less liquidity and even higher capital leverage ratios so that they can undercut bank fees” (Wray 2015, 16). Given the likely application of these same phenomena to the auto lending market, Minsky’s explanation of dynamics in credit markets helps to examine the level of stability in the auto finance sector.

U.S. auto debt balances have recently exceeded $1 trillion (NYFED, 2016), and securitized products have grown in issuance as well. Minsky’s theoretical framework dictates that the economy trends towards periods of instability following periods of financial robustness. Given the growth of auto debt so soon after a financial crisis, this paper examines the stability of this growth by seeking to understand the long-term financial developments that have led to this point. By using a Minskyian theoretical framework, this paper hopes to demonstrate the willingness of financial actors to quickly revert to risky behavior. Secondly, this paper contributes to the forecasts of this market by examining the long-term capital processes that began in the 80s with the advent of securitization and the evolution of credit institutions, instead of a chartist or econometric-based forecast. This paper shares the opinion of Minsky that “The structural models of the economist cannot be compared with the models that aeronautical engineers test in wind tunnels or by computer
simulations. They are not miniature replications of what goes on in the economy; the structural models of the forecasters are disaggregations of the larger aggregates used in simple, Hansenian theory” (142). The comparative analysis of previous business cycles that this paper uses, in concert with the Minskyian framework of financial evolution allowed me to get around the lack of data in this market. Unlike the mortgage market, which is subject to legislation mandating public disclosure of more comprehensive loan level data, loan level data only exists for auto ABS issued in 2017.

Moving forward, this essay’s next section will discuss Minsky (1959) and Wray (2015) to introduce the concept of the originate-to-distribute model of lending. As these two papers describe what prudent lending practices should look like, I attribute the decline of these standards to securitization. As a brief aside, this paper provides a technical explanation of an asset-backed security, and the off-balance sheet entity that holds them, showing how this innovation allowed for the justification of poor risk assessment.

The second section begins to apply the focus to the auto lending market, providing stylized facts about the size of auto loans and originations. After questions of size in the primary market are answered, we look at the makeup of the auto finance market, which shows a movement away from traditional lending institutions, and towards auto finance companies. At this point, the dynamics described previously by Minsky and others begin to appear in this market. Lastly, this section provides stylized facts profiling the size and growth of auto ABS since the recession, and reviews the relevant market literature.

The third section contains this papers analysis. While Minsky focuses on the possibility of systemic risk, he continually examines small boom and bust cycles as theoretical teaching points, citing the REIT crisis, instances of commodity market manipulation, and
various credit cycles for instance. This analysis does the same. This paper applies its theoretical framework to a previous boom and bust cycle in subprime auto finance, which transpired in the mid to late 1990s. This analysis shows that subprime auto finance sectors, both then and now, exhibit the Minskyian dynamics that the first section describes. In particular, the mention of money-manager capitalism proves useful in understanding the entrance of small independent subprime auto finance companies backed by private equity.

As Minsky describes, finance companies and other non-bank financial entities “are highly-levered profit-seeking organizations. They supply finance in response to profit opportunities” (Minsky 1986, 274). The current economic period is one of increased demand for credit, and thus, profit seeking from auto financiers. Randall Wray, in describing money-manager capitalist firms, writes that such firms with high leverage ratios seek “maximum total returns in an environment that systematically underprices risk” (15). Next, we see more specifically how securitization leads the evolution of credit issuance.
1.2 Theoretical Framework

1.2.1 Originate-to-hold vs. Originate-to-distribute

As lenders became less constrained by the quantity of reserves, the constraints on the quantity of credit were effectively removed. This section discusses how this ability to originate more loans led to the decline of prudent lending practices. In his 2015 working paper that expands on Minsky’s (1957) early work, Randall Wray fleshes out Minsky’s definition of originate-to-distribute banking (Wray 2015). The intentions of the banker in the originate-to-hold model are self-explanatory: the banker, or loan officer originates payments with the intent to hold them until maturity. In this model, since the borrower’s income streams and their reliability to pay dictates the banker’s cash inflow, the loan officer has to be skeptical about the characteristics of the borrower. Minsky encapsulates the motives of this loan officer through the use of a theoretical concept; the “prudent banker”.

This banker is not a uniform model for every lending officer: Minsky writes that what constitutes playing it safe differs between individuals. However, given the “liquidity and solvency constraints” (Minsky 1957, 4) of any banker, the prudent banker serves as a general average of solid lending practices at the time of his writing.

The prudent banker is portrayed to be, on average, the typical banker of the originate-to-hold era. This banker holds enough reserves to cover their demand liabilities on deposits, does not get swept up in the speculative whims of the markets, and understands that they will issue bad loans. Skipping ahead 60 years, we can safely assume that the prudent banker would have shuddered at the activity of a mortgage lender in the 2000s. The prudent banker would never issue loans with no documentation of income, wealth, or employment like loan officers did leading up to the financial crisis (Wray 2007, 11).
Here, Minsky’s preference to relationship banking is constructed, as he mentions that the prudent banker has a relationship with the borrower. Wray and Papadimitriou write in their preface to *Stabilizing an Unstable Economy* that “Minsky always argued that a skeptical loan officer is required to assess the character of each individual borrower. A relationship should be developed so that the borrower’s performance today is understood to have an impact on tomorrow’s access to credit” (xxxii). The succeeding processes of the economy that relate to the sale and resale that rely on that asset are based on the assumption that the loan officer is rational.

The change in lending motivation represents the servicing of a demand for loans. This demand was created by the advent of securitization, as described in the previous section. Banks then took to more and more risky behavior, as Wray and Papadimitriou note in their preface to *Stabilizing an Unstable Economy*: “Relationship banking was replaced by ‘originate and distribute’ brokerage business, in which all kinds of loans were packaged into securities that were sliced and diced into ever riskier tranches” (xxxi). Current lending policies have moved away from this ideal, and the objective of these firms is now to originate as many loans as possible, as there always seems to be a buyer for these loans. Lewis Ranieri, the man who helped to issue the first mortgage bond with Salomon Brothers in the 1970s, was quoted as saying that securitization allowed for the investor not to need any information on the quality of the loans, rather that “the only decisions that had to be made were investment decisions. No credit decisions were necessary” (Ranieri, 2000, Quoted in Kregel 2008, p 6). Additionally, while commercial and investment banking functions were legally separate, commercial banks were more than complicit in investment
banking activity. At this point, the prudent banker became a faint memory, and the financial system begins its movement towards the events of 2008, and even present.

The originate-to-distribute model, as proven above, creates incentives for poor credit underwriting and lending standards. Wray (2015) summarizes the application of this change to the most recent financial crisis, as OTD lending “is not a legitimate activity for a commercial bank as it reduces the incentive to do good underwriting; rather it is an investment banking activity in which the main criteria for purchasing an asset is the price at which it can be sold (12). This concern does apply to the auto loan sales market, in the forms of both loan securitization and arbitrage. In fact, a common saying in the loan arbitrage business is that there are no bad loans, only bad prices. The concern of eroding underwriting standards is not a merely theoretical one. The transfer of the loans creates an insensitivity to risk (Tymoigne 2009a, 18), as well as a prevention of important information transfer.

Purnanandam (2011) further explores the latter idea, but writing after the crash and examining the effect of OTD banking specifically on screening processes and how they affected the quality and volume of mortgage loans originated. Other literature considering OTD and the mortgage crisis includes Rosen (2010), who concluded that securitization aided the OTD model. Loeser (2016) found that moral hazard issues were greater when security issuers would purchase whole auto loan packages instead of securitizing auto loans they issued themselves, resulting in greater pool losses in the case of the former. Additionally, he writes that originate-to-distribute banking models “created multiple points of asymmetric information and distorted incentives” (1).
Purnanandam (2011) also hypothesizes that increased use of OTD as a banking model led to lower incentives to screen borrower’s risk, particularly looking at how the original lenders evaluated soft information, defined as information that could only be verified by the originator. As OTD grows and resale become the mode of income, and the “OTD model allowed them to benefit from the origination fees without bearing the ultimate credit risk of the borrowers (1890). This study also uses empirical analysis to examine this hypothesis, as it tests by selecting two groups of banks at random that are similar except in their levels of OTD, attempting to control for borrower characteristics. The study concluded that more aggressive OTD behavior lead to greater origination of poor quality loans, stating that a possible means of regulating this behavior would be to enforce larger capital bases and higher fractions of demand deposits (1912). Securitization and the model of origination with the intention of distribution represents the movement of the financial sector from the capital development of the real economy to using it as a profit center.

Purnanandam (2011) describes how the essential principles of relationship banking dissolve as the process of lending becomes delegated between separate firms. As Minsky (1987) notes, securitization became a way for banks to compete in with financial markets not subject to reserve constraints. In order to alleviate these pressures, banks created bankruptcy-remote trusts, which collected the loan payments from borrowers and issued notes to investors in these securitizations.

1.2.2 Actors in the Securitization Process

Relationship banking, as described by Minsky became replaced by the compartmentalization of the securitization process. As George E. French describes in his 1994 paper titled “Banking In Transition”, the auto loan process of the early 80s bore little
resemblance to the financial structures of today. He notes that when he went into his bank to pay his auto loan, there was a great reliance on face-to-face relationships and the use of “unsophisticated loan-servicing technology” (1). Additionally, the bank as a “financial supermarket” (ibid) is no more, as we see from the previous chapter. The roles of rating, underwriting, origination, securitization, and sale are delegated to independent parties.

There are four essential parties in the securitization process: obligor/investors, originators, SPE/trustees, and finally, the security buyer. The security buyer is often called the investor, but Tymoigne (2009a) defines the initial borrower of the auto loan as the investor. The obligor/investor borrows from a bank or auto finance company, which in turn holds the promissory note of the loan. He notes, however, that, this loan has “high credit risk and so it has a 100% weight attached to it when calculating the required capital” (2009a, 4). This weight is dictated by the Basel I capital requirements for banks, and do not apply to auto finance companies. As banks began to lose market share to non-bank creditors who were not subject to these capital requirements, securitization and off-balance sheet holding companies allowed banks to remain profitable.

In order to insulate themselves of credit risk and to improve their balance sheets, at least superficially, banks created the SPE or SPV, which stands for special purpose entity or vehicle, respectively. The SPE is an off-balance sheet, bankruptcy remote entity (GM Financial Brief), meaning that its activities do not affect the balance sheet of its parent company. Without the SPE, the parent company would still hold the credit risk of the loans, and its purpose would be negated. The SPE, with nothing on its balance sheet, needs to acquire the loans from the parent company. It finances this purchase by issuing its own promissory note, made available for public purchase. This note is tradeable because it has
been ruled an auto-backed security, or a Certificate for Auto Receivables (CAR). The SPE uses the funds raised by the creation of the auto-backed security to purchase the auto loan (Tymoigne 2009a 4-5). As previously noted, this paper will focus mainly on the auto finance sector, which is comprised of non-bank entities. These financial institutions still follow the same securitization process as detailed above, but have slightly different objectives. The finance company, GM Financial, for example, uses the payments from the loans, both principal and interest, to pay off their bonds. In an infographic distributed by GM Financial, they describe that the interest paid by the obligor/ investor goes to pay the interest rate on the bond held by the saver/ security buyer (GM Financial). The finance company then receives the net interest premium, which is the difference between the interest rate paid by the obligor and the rate that they pay on the auto securities.

Tymoigne points out that as the banking sector progressed, the purpose of securitization evolved. Even though the benefits of lower interest rates and improving balance sheets, securitization moved from the purpose of changing balance sheet liquidity to “making portfolio arbitrages based on existing financial claims” (7). The banks saw risk-management processes as a way to legitimize non-investment grade securities. This marks another development in the timeline of financial evolution. As low-yield, high-credit mortgage loans ran out, financial institutions began to look for assets elsewhere. While early securitization practices allowed for banks to make more loans, banks began to use the senior-subordinated structure of mortgage-backed securities as a way to make worse loans.

1.2.3 ABS/MBS Structure as a Substitute for Risk Assessment

Mortgage-backed, or any asset-backed security often has a ‘waterfall’ structure, in which servicing fees and accrued fees are paid first. Then, the interest on the senior or class A
notes is paid, followed by the principal needed to “reduce the Class A note principal balance to the pool balance” (Presale: CarNow Auto Receivables Trust 2016-1, page 7), followed by the rest of the principal balance of Class A. The payment made after the interest payment is critical, and will be evident as the structure continues. This same waterfall plan continues down each subordinate class of notes. As previously noted, the junior tranches absorb losses from the senior tranche, which is where the second step comes in. For the notes of Class B, the rest of principal balance of classes A and B are paid to reduce the principal balance to the pool balance. This structure, of the juniors paying off the seniors, is the source of securitization and the asset-backed security as a tool of risk management.

Wray (2007) points out that Minsky was ahead of his time in understanding that securitization, through the processes above, would increase demand for higher-risk contracts, as this structures above would allow them to be considered investment-grade. The senior subordinated structure of the asset-backed security “has relied on a number of different risk classes of liabilities, based on overcollateralization of senior securities” (Papadimitriou, Preface to Kregel 2008, page 6). This means that instead of appropriately managing risk (if possible), securitizing firms were relying too heavily on the credit features of the highest-rated loans, hoping for them to prop up the rest of the junior securities, like subprime loans. As Ranieri said, these are investment decisions, not credit decisions. These innovations in the financial sector sum up the state of consumer credit issuance today, including the market for auto loans.

To sum up so far, originate-to-distribute practices are essentially characterized by the objective of creating loans with no regard to the actual quality of the loan. Securitization
provides the best way to resell these loans. Under the guise of “risk diversification” the processes usually performed either by the government, like rating the bonds and evaluating credit were taken over by private agencies. Additionally, other functions such as underwriting and holding were separated, so that the credit information would not be transferred. In the following sections, I will analyze how these changes, and not exogenous forces, have shaped auto finance.
1.3 Stylized Facts of Auto Finance

This paper now narrows its focus on auto lending, and the asset class of auto ABS. First, we look at auto debt and sales, then a description of the different types of lending entities, and lastly, the composition of the auto ABS market.

As the economy recovers from the financial crisis of 2008, consumer debt has begun rise to pre-crisis levels. As evidenced by Figure 1, mortgage lending was the largest source of consumer debt leading up to the crisis, while other unique debt classes like auto loans, credit cards, and student loans grew at much slower rates. Debt levels are the main focus, and not prices of each asset class, simply because the discrete qualities of each asset mean that the chances of “bubbles” forming are not comparable. While other classes of debt are growing as well, such as student loans, we focus on auto loans, as auto loans are a collateralized loan, and are a produced commodity. Unlike student loans or credit cards, the auto sector has been viewed as a bright spot in the United States’ economic recovery.

Figure 1

![Debt Balance and Composition](chart.png)

Source: New York Fed Consumer Credit Panel/Equifax
Returning to the current period of recovery, the trends of the time prior appear to be reversed. Mortgage debt immediately declined and has grown very little, but other debt sectors have grown rapidly in proportion. So, it takes little imagination to understand why many Americans feel that the rise in credit card and auto loan debt is a redux of the crisis that so recently transpired. However, forecasting institutions seem unshaken by these larger debt levels. According to the 2016 Manheim Report, which is most notable for its annual analysis of auto prices and value, commented on outstanding auto loans larger than $1 Trillion, saying, “Traditionally, that would suggest consumers are becoming overextended and/or auto dealer are becoming overly aggressive, but neither is the case today” (Manheim 2016).

Sales have been a source of optimism for dealers and large auto institutions. Figure 2 compares new and used auto sales. While the recent growth may not look remarkable, both 2015 and 2016 have been record years for new auto sales (Gensler 2017). Used sales have also risen considerably since the recession and the nadir of auto consumption in 2010, up from 36 million to 38.5 million. Edmunds.com’s annual report attributed this used sale growth to historically lower interest rates and longer loan terms, which stretch the principal, diminishing each monthly payment.
Not all sales indicate full ownership, however, as both used and new vehicle sales are approximately 30% leases, according to Edmunds (2016). This paper does not focus greatly on leases, despite their recent growth, as they make up too small of a portion of the auto ABS market to warrant an explanation.

The concerns of the current market, reflected by headlines such as “Is There a Subprime Auto Loan Bubble” (Holbrook, USA Today, 2014), “In a Subprime Bubble for Used Cars, Borrowers Pay ‘Sky-High Rates” (Silver-Greenberg and Corkery, NYT, 2014), and “Subprime Loans are Back” (Olen, Slate, 2016), are not just based on rising levels of debt, or an inflated car market, but rather the concern that the financial system has returned to its old ways- allowing for subprime borrowers to once again take out loans they cannot pay. Silver-Greenberg and Corkery (2015a) investigate the possibility not of a price bubble, but rather that cheaper cars are driving auto debt, particularly in subprime sectors. Error! Reference source not found., reproduced from Experian’s 2015 Automotive Finance Report (Zabritski 2015), shows that used cars have only increased in their levels of financing since 1990. Since the crisis, not just subprime borrowers, but all borrowers of used vehicles have needed more help paying for their loans.
The New York Federal Reserve’s group of Andrew Haughwout, Donghoon Lee, Joelle Scally, and Wilbert van der Klaauw have written annual reports on the state of auto lending every year since 2013, with a focus placed on the subprime lending market. Subprime loan originations have grown greatly since 2010, as shown by the figure below. Prime loans have grown as well, which somewhat confounds any early conclusion of a subprime credit explosion. In the adjacent figure depicting auto loan originations broken down by credit score, subprime loan originations have grown the most since the recession’s lowest point for lending, in 2009.
While the subprime segment has grown considerably since 2010, some economists, like Mike Schenk of the Credit Union National Association, believes that the crisis depressed credit standards, and that now, consumer credit is rebounding. He believes that “If you sat down with a lot of these people now [subprime borrowers], you’d find that they are back on track” (Holbrook, 2014). What is more likely, is that many non-bank finance companies are meeting increased demand. Instead of new borrower conditions, this paper hypothesizes that finance companies are responding to “profit opportunities”, as Minsky wrote (1986, 274).

As seen in Figure 5, while prime borrowers are more likely to use a direct lender like a bank, subprime borrowers are much more likely to pursue vehicle financing through an auto finance company. This could simply mean that auto finance dealers are
supplementing the traditional credit process by making cars more available to many who need it. There is more than just that however. Since the mortgage crisis, many banks have been very cautious to explicitly go down the same path as before.

*Figure 5*

Outstanding Balances by Credit Score and Lender Type
2016:Q3

![Graph showing outstanding balances by credit score and lender type]

Source: New York Fed Consumer Credit Panel / Equifax
Note: Credit score is Equifax Risk score 3.0 at time of origination.

Most prominent of these worries has come from Jamie Dimon, chief executive officer of JPMorgan Chase, who went on record in 2016 saying that "Auto is clearly a little stretched, in my opinion”, and that “Someone is going to get hurt… We don’t do much of that” (Marino, CNBC, 2016). With the subprime crisis of 2008 still looming, many large banks are not yet willing to tolerate that level of risk once again. As finance grows, so does the concern that securitization is driving the auto market. Dimon’s comments, backed by the figures presented by the New York Federal Reserve research group, indicates that banks and credit unions are not very interested in lending to
subprime borrowers, and thus, not heavily involved in the resale of these loans. But subprime auto financiers are, and the market for securitized auto loans is rapidly growing.

While auto is fairly small as an asset class, and relatively small in terms of the terms of one loan, Auto ABS originations are rapidly outpacing the issuance of all other securitized products since the recession. The below figure demonstrates that volume, not total size, and since a car loan is on average far smaller than a mortgage or student loan, total size will be relatively deflated compared to larger assets, regardless of the amount of originations. Although not pictured, RMBS issuance has been outpaced by auto ABS since 2010. In 2016, auto ABS issuances made up 39.1% of all ABS issuances that year, while RMBS comprised on 16% of this market (Finsight.com).

This growth in auto ABS issuance has given way to a number of concerns that the market for these securitizations are approaching the levels experienced pre-crisis. Most prominent in the voicing of these claims are Culp and Forrester (2015), who expand on their (2013) study on the demand for asset-backed securities and other structured financial products. Culp & Forrester write that while demand for structured products like auto ABS
has risen in the current low-yield environment, they conclude that “renewed investor interest in many structured products was likely not irrational yield-chasing, owing in part to the post-crisis changes in the design and documentation of many structured products, together with heightened investor awareness and better access to information about the underlying collateral” (id, 10). Aside from basic macroeconomic trends like employment and interest rates, they use Office of the Comptroller of the Currency data taken from a survey of bank examiners. This survey reported a massive trend in the easing of underwriting standards for indirect consumer lending. Indirect lending refers to loans obtained from non-traditional banking entities. Other concerns cited by the authors include increasingly longer loan terms, growth in loans, and an increase in delinquencies, particularly in subprime.

Finally, Culp and Forrester suggest that while subprime auto lending has become increasingly risky since the recession, investors in the assets backed by subprime auto are not seeing commensurate amounts of risk, citing “the C/E [credit enhancement] inherent for investors in senior auto ABS tranches” (id, 22). However, Kregel (2008a) writes that although credit enhancement can dampen the effects of default to the investor, it does little to evaluate the creditworthiness of the borrower. The authors acknowledge this point, but argue that their data indicates that this factor is not significant enough to cause concern. Lastly, Culp & Forrester (2015) introduce a trend in analysis that is quite common throughout the literature: the use of the 2008 financial crash as a yardstick for crisis. While the authors examine whether risk in auto markets has risen to pre-crisis levels, they overlook the fact that the decrease in auto lending was not at the center of the 2008 recession. It was a symptom, not a cause.
As shown by Figure 6, subprime auto ABS issuance is only growing, both in size and as a percentage of total issuance.

Figure 6

Subprime Dollar Issuance
% Of Total Retail Auto ABS

This increase, both in proportional and nominal size shows a willingness and perhaps a dependence on subprime securitization, as we will see how many new lenders have entered the market sustaining themselves through the use of subprime securitization. It also supports the point made by Culp and Forrester (2015) that demand and tolerance for risky products has begun to return.

While some institutional auto market forecasts have recently become more pessimistic, most ratings of structured auto products remain largely positive. Amy Martin’s June 2016 Auto ABS report for S&P Global Ratings forecasted a slight rise in auto loan ABS issuance, citing a “3% expected rise in auto sales to 18mn units”, coupled with predictions of increased cumulative net losses (Martin 2016, 2). Interestingly, this report
also expects stable ratings, with “non-investment grade ratings on subprime auto loan ABS” possibly being vulnerable to downgrades, although there have been no downgrades in long term ratings on subprime auto loan ABS in all of the years shown, from 2004 to the present. Fitch’s April, 2017 auto ABS report predicts “gradual credit deterioration”, particularly in subprime finance. The report addresses higher net losses, which they attribute to “the seasoning of more recent loan vintages underwritten with looser standards, including lower credit scores, higher loan-to-value ratios and extended terms” (Fitch 2017). However, they upgraded the subordinate bonds from the only two auto ABS platforms they rate, provided by GM Financial and Santander Consumer USA, and rate the outlook of prime and subprime US auto ABS as “prime and subprime, respectively”. The Kroll Bond Rating Agency’s 2017 report cites low interest rates, “improved vehicle durability”, and longer loan terms as factors lowering the cost of auto finance for the consumer since the recession. They forecast a slight decrease in auto loan performance, but refute any claims of instability, pointing to “favorable economic conditions, consistent underwriting standards from rational competitors, and diligent servicing practices and structural protections” (Business Wire 2017). This report takes the position that these safeguards protect ABS holders from poor performance in auto lending. Their claim of stronger underwriting standards are shared by Locquasto (2015) of Equifax, who argues that firms have been using better statistical algorithms to find the differences between borrowers in the same credit level. However, this optimism is confounded by the recent uptick in auto delinquencies, which has been driven by delinquency from the subprime sector:
From a perspective devoid of historical context, Figure 7 shows the cyclicality that exists in the repayment habits of the auto consumer. On that note, delinquencies have risen since the financial crisis at an even faster rate than they did leading up to late 2008/early 2009. In periods not even characteristic of a financial crisis, like the early-to-mid 2000s, spikes in delinquencies appear from quarter to quarter, showing another sign of volatility. While not completely indicative of instability in the sector, this figure shows that payments of auto loans are not as consistent as believed, regardless of the economic period. In regards to the recent uptick in delinquencies from the first quarter of 2012 to the present, skepticism is still present among many analysts, like Melinda Zabritski, senior product direction of automotive finance at Experian. In a February 2017 opinion piece in American Banker, she wrote “If you only look at delinquency rates you’ll miss the big picture” (Zabritski 2017).
This report, arguing many of the same points as previous Experian forecasts, cites decreased credit quality and the contraction of credit markets during the recession. During this period, only the highest credit classes were loaned funds, but as the economy recovers, she argues, more inclusive lending practices arise. While Zabritski makes these arguments to downplay the significance of rising delinquency rates, such a sentiment fits perfectly with Minsky’s predictions on the matter. As the economy moves to a more stable period, many economic actors return to the belief that the market equilibrates and learns, which Zabritski, and others do, citing a tightening of underwriting standards in recent periods that is largely unfounded. Not only that, the prospects of the economy as it moves further past downturn and towards recovery begin to become more optimistic, and the cycle of financial prudence and safety begins again. If delinquencies are not the “big picture”, then the instruments these payments finance and the returns to these holders are.

*Table 1 - Reproduced from S&P 2017 Auto ABS Outlook*

<table>
<thead>
<tr>
<th></th>
<th>Dec-10</th>
<th>Dec-11</th>
<th>Dec-12</th>
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<th>Dec-15</th>
<th>Nov-16</th>
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<td>Prime (%)</td>
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<td>0.60</td>
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<tr>
<td>Subprime (%)</td>
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<td>5.35</td>
<td>7.17</td>
<td>6.77</td>
<td>7.76</td>
<td>8.44</td>
<td>8.52</td>
</tr>
<tr>
<td>Subprime modified%</td>
<td>-</td>
<td>-</td>
<td>5.12</td>
<td>6.68</td>
<td>6.28</td>
<td>6.74</td>
<td>6.61</td>
<td>7.00</td>
</tr>
</tbody>
</table>

(i) Represents monthly annualized.

Reproduced from the S&P’s 2017 auto ABS outlook, we refer to the subprime net loss percentage, not subprime modified losses, which excludes deep subprime issuers like Santander’s DRIVE, American Credit Acceptance Corp, and Exeter’s Auto Receivables Trust. At the peak of the crisis, 2008 marked the worst year for subprime auto ABS, with peak losses for both credit classes between 12% and 14% (S&P 2017). From there, and in each consecutive year, from 2009-2011, these products began to perform better and better. 2012, however, resulted in a reversal of this trend, followed by increasing cumulative net
losses. From the evidence provided, it seems that the performance of auto ABS is quite
cyclical.

1.3.1 The Possibility of Short Positions in Auto ABS

Mary E. Kane, head of Global Securitized Products Research at Citigroup published
an afternoon note in January of 2016 addressing market skepticism of auto ABS (Gara
2016). The note’s impetus came from many “jazzed-up” hedge fund managers who were
apparently inspired by the positions glorified in the film “The Big Short”, which portrays
the stories of a number of characters based upon real financial players who took massive
short positions on the mortgage bonds credited with the contribution to the global financial
crisis. She rebukes the idea that securitized auto loans are the next source of crash with the
following points: first, that there is no massive offshoot of synthetics derived from the basic
securities, as there were in the mortgage crisis. As previously discussed, auto ABS are the
full extent of the secondary market of auto loans. At this point, there are no credit-default
swaps on these bonds, which were used during the mortgage boom as a means of taking
position against positive performance by auto ABS. Secondly, Kane points to the fact that
“subprime auto ABS net losses have historically ranged from 9.4% to 16%”, “well below”
the same rates for MBS. The figure reproduced from the S&P’s 2017 auto ABS outlook
shows that since the crisis, and even in the short period before, subprime net losses have
only once gone above 8%, in the most recent period of reporting, and even the mid-crisis
highs stay within those bounds. While her point is that these losses are traditionally lower
than mortgages, additionally, as addressed in this paper, Kane argues that stronger credit
enhancement protects investors. She also posits that unlike mortgage bonds, the auto loan
market is not propped up by securitized loans, and rather that now that the economy is back
on its feet, credit markets are once again ready to satisfy consumer auto demand. Lastly, she makes a strong confounding point to this study, that the most new auto securities are issued by captive auto finance companies, and that these bonds remain on their balance sheets because they are not driven by an originate-to-distribute motive.

While Kane tries to assuage fears of another “Big Short” in auto, some who participated in the original “Big Short” remain worried about auto finance. Steven Eisman, profiled as one of main buyers of credit-default swaps opposing mortgage-backed securities, recently stated that at the current moment, credit quality is as good as it has ever been, “with the exception of subprime auto” (Kumar 2017). He continues to say that while there will be no systemic risk, the asset class of subprime auto is currently bad and will get worse (Ibid.). To that end, Kane’s skepticism from that 2016 note about auto ABS short positions did not foresee the developments of the 2017. In fact, according to a recent JP Morgan statement, there has been “a resurgence in calls from equity, macro strategy, and high yield corporate accounts looking to short subprime auto ABS” (Alloway 2017). While they note that the liquidity of such theoretical positions would make profiting off of a short difficult, not to mention the fact that no such shorts have been placed, the continuing short interest in the market runs counter to the market optimism of Kane and Citi. Far removed from the ‘Big Short’, these bearish perspectives are not simply daydreams anymore, but rather reactions to the recent developments in the market.

Between the bulls and bears of the auto finance market, nothing is clear. However, as Eisman (Kumar 2017), Culp and Forrester (2015), and others argue, the auto finance market is nowhere close to what the mortgage-backed security market was in the 2000s in terms of size of the asset class. Yet despite these differences, comparisons between the two
markets are overly relied upon as the benchmark for risk. A lack of systemic risk does not warrant overlooking the flaws within the asset class.

In the analysis section that follows, I will compare the current auto finance market to a previous boom-bust cycle concentrated in subprime auto finance in the early 1990s. Using a Minskyian theoretical framework, this analysis will provide context for the recent developments in the sector.
1.4 Historical Comparative Analysis

Before comparing the similarities between the RMBS market and the auto ABS market, I must outline the significant differences between the car and the home as assets, as loans, and how their markets are unique. First, the home is an appreciating asset, or at least one that is expected to appreciate. It was not a common expectation that the value of real estate can depreciate, as there is a fixed supply, and with a growing population, constantly increasing demand for homes. In the case of cars, however, the real price of one car, over its life is constantly depreciating, with the exception of a few high-end luxury vehicles. So, while auto prices can rise over time, as they did slowly from the 80s to the 00s, at which time they remained stagnant through the present day, units do not take long positions on the car as an asset. Used and new cars have different depreciation curves as well. Once a new car is driven off the lot, it receives the immediate downgrade of becoming a used vehicle. Once used, it begins a slow and steady depreciation, with the overall curve resembling an inverse logarithmic shape.

How these two assets, the home and the car are paid off are fundamentally different as well. First, the home comes with a larger price tag, and a longer life. This means a number of things for the home market. It is assumed that the home is of greater significance than the car is, so a mortgage bill should be the first payment commitment to be met by a household. However, this also has a converse effect in that the inability to pay this commitment has drastic effects on the real economy as well, as a borrower would have incurred greater debt as well as the burden of temporary homelessness. The car as an asset would have a separate effect, as many argue that an “auto crash” would have less significant effects on the economy as a whole.
One significant financing trend of the residential mortgage boom was the adjustable rate mortgage. These mortgages would come with a low interest rate in the first few years, and after this fixed period of 2-3 years the adjustable rate would kick in, often rising to much higher market levels that borrowers were unable to meet (Kregel 2008, 14). Very few auto loans come with adjustable rates, likely due in part to the duration of an auto loan’s maturity (Henry 2007). Secondly, more people refinance home mortgages than cars, due to the size and duration of the loan. Over the course of a 30 year mortgage, interest rates have much more potential to change, which makes refinancing or adjustable rate mortgages attractive, whereas an adjustable rate that kicked in 3 years into the maturity of a car loan would mean that the lender is giving up nearly half of the possible interest earnings that they could make.

Upon default, recovery takes on two very different courses in the cases of homes and autos. While the car was seen as more difficult to repossess in the 90s, as the borrower could skip town with the collateral in tow, recent technological innovations like GPS tracking technology and starter-interrupt devices (SIDs) make it easier for the dealer to locate and repossess the car. Homes do not move, but the sale of a repossessed home takes far longer than the sale of a repossessed car, making defaulted home loans more difficult to recoup. However, auto dealers must take into account the depreciation of the car more than mortgage lenders, as homes are not expected to lose a great deal of value. This is evident in loan-to-value ratios, as the highest recent loan-to-value for subprime auto was 121% in 2008 (Martin 2016, S&P Auto ABS Conference), while the highest recent home loan-to-value ratio for subprime mortgages was only 86.09 in 2006 (Freddie Mac, from
IMF cited by Kregel 2008\textsuperscript{2}). More so, loan-to-value ratios for subprime autos are almost always greater than one, meaning that the borrower is paying more than the value of the car throughout its term.

The size of the auto securitization market is much smaller than the RMBS market was at its apogee, and a smaller percentage of auto loans are securitized compared to mortgages were. Lastly, the possibility of a “big short” event would be difficult to carry out with auto ABS, as there are no further derivatives than senior-subordinated auto backed securities. In the case of the RMBS market, there existed a number of complex financial instruments like CDO squares and synthetic CDOs which allowed for the transformation of junk mortgages into investment-grade securities which then received good credit ratings despite containing all subprime bonds. Auto-backed securitizations, at this current point in the market, are fairly basic, and not very derivative. There can be no direct shorting of securitized auto ABS because no such instruments, such as a credit-default swap, exist against auto ABS.

The guiding question of this study, and many others like it, such as Culp and Forrester (2015) and Atta-Krah (2016) was whether a collapse in the auto lending section will happen. Some ask whether there is another “auto bubble” (Holbrook 2016), whether auto will be the next fraudulent subprime boom (Robinson, Mulholland, and Shenn 2014), or in general, that the rising delinquencies and increased subprime shares of auto loans are too similar to the crisis (Andriotis & Glazer 2016). However, trying to just draw parallels to the subprime mortgage crisis will not be a like-for-like comparison, due to the differences in the nature of the two assets. The real value of the comparison of the two is

that the RMBS crash shows what happens when a subprime crash gets large enough to affect the entire economy. This paper’s purpose is to determine if a crash will happen, and how large will the effects be. To better answer the first question, this analysis will also compare the current problems in the auto finance market to the failure of subprime auto in 1997.

1.4.1 An Introduction to the Auto Finance Failures of 1997

In 1986, Valley National out-offered Marine Midland to issue the second ever auto loan securitization, composed of $100 million in receivables. This was significant because they “had found a way to remove millions of dollars in assets from its books. From a strategic viewpoint, the bank had been able to tap the capital markets, rather than local deposits, for funding” (ABA Banking Journal, 1997). Four years later, in the early 90s, subprime auto became a favorite of Wall Street. From 1994-1997, “at least 20 subprime automobile finance IPOs were issued” (Feder, NYT, 97’). Additionally, at the end of 1997, there were nearly 170 subprime used-car finance companies, from a previous amount of 25 (Morgenson & Rosner 2011). This period characterized a mini boom and bust cycle, yet is largely unrecognized in periodical and journal articles on the topic. In the 1980s, there was rapid growth in the auto finance sector, but only until independent financiers like Mercury Finance went public in 1989 did their popularity in mainstream finance grow (Feder, 97). In 1997, the rapid expansion of this growing sector came to a halt. That year, 24 of 27 publicly traded subprime auto finance companies experienced declines in stock price. Of those companies, 9 saw declines of over 80% (Buenzow et al. 1998). The symptoms of this decline were not uniform throughout the auto finance industry. Most notable was the case of Mercury Financial, who were embroiled in a massive accounting fraud scheme. In 1996,
they reported “a profit of $120 million, when in fact it had lost $30 million” (Bush 2007). Many other finance companies simply went bankrupt or moved out of subprime auto. Interestingly enough, Feder (1997) cited analysts who said that “investors are bound to be more cautious about the entire subprime world, at least for a while”. While one could dismiss these as independent events, especially in the case of Mercury Financial, the underlying developments leading up to this dive in performance bear a striking similarity to the events of the subprime RMBS crash and the resulting global financial meltdown.

The American Bankruptcy Institute’s 1998 report by Buenzow, Carter Pate, and Sadarangani describes a number of causes, with the first being a decline in underwriting due to an increase in competition, as well as the inexperience of the new competitors entering the market. Feder (1997) echoes this point, writing that “Everybody [was] looking for a niche and everybody has relaxed their credit quality because of the competition”. The other usual suspects were present as well, as dealer fraud, consumer defaults, and poor risk management and loss assessment helped to worsen the effects of these lending practices.

Most significant was the originate-to-distribute model lending that, enabled by securitization, allowed firms to manipulate their figures predicting losses. Feder writes that the public expansion into Wall Street provided ample funds and investor demand that in turn incentivized this behavior:

It is easy to see why Wall Street fell in love with the finance companies. Investment banks generated healthy fees taking more than 25 sub-prime lenders public in recent years. Stockbrokers had a new story to sell. Intermediaries sprang up to package the loans into securities and banks provided revolving credits to help the new businesses expand. Once securities were sold, the lenders booked profits based on the spread between the cost of the money used to buy the auto dealers’ loans and the interest rate on the securities. The fly in the ointment: Many finance companies have had to expand their loan portfolios rapidly because, over time, the number of defaults in a group
of loans rises. The easiest way to keep earnings from being hurt by the rising loss rates is to swamp them in newer loans. (Feder 1997).

In summation: as these finance companies originated and securitized more and more poor loans through the easing of risk-assessment standards and the increase in efficiency of loan approvals, they diluted the loss rates of the bad loans that eventually came to fail. As many of these financiers were both small and inexperienced, they turned to the rolling over of more debt to pay off previous debt, instead of focusing more on collection and recovery. While this practice does not fit within the exact definition of Minsky’s Ponzi finance, these increased losses made it so payments to investors became more difficult to meet, and the firms in question attempted to pay off debt with more debt, which is an unstable means of finance.

As these loans were securitized, instability began to spread even more, as financiers would use securitized assets to increase their leverage. For example, many of these finance companies would issue auto loan securities, forming auto-backed ABS, which they would then use as collateral for “warehouse lines of credit” (Buenzow et. al 1998). Using this new line of credit, the financier would buy more loans. The value of these ABS were determined by expected loss algorithms that were simply incorrect, and underestimated losses. So, when these losses grew higher than financiers were prepared for, the companies had less collateral value on the credit lines than was agreed on. This is an example of a more systemic risk. The risks of the mortgage market did not only lie in the size of outstanding mortgage debt, but also in the fact that losses on these assets were far reaching. In the auto loan bankruptcies of 1997, creditors and insurers of auto ABS were also harmed as losses grew, not just subprime financiers. However, the small bust was ultimately contained, as
subprime loan volumes were smaller than they are now, and many of the ABS were backed by insurers in order to mitigate loss.

The best way to regulate risk, Minsky would argue, is simply to issue good loans, instead of trying to minimize risk while in the midst of risky practices. In the case of these leveraged loans, losses began to pile up beyond expectation. These losses began to have a ripple effect throughout the entire subprime securitized market, similar to the debt deflation and unloading of toxic mortgage-backed securities in 2008. Regardless of performance of each asset, “headline risk” began to spread, “in which negative news regarding an originator, a collateral type, or some other aspect of a securitization causes a dramatic and sudden drop in demand” (Fabozzi, 1998, p89). As a result, yield spreads on all auto ABS “dropped significantly” across the board, regardless of the firm’s financial performance.

1.4.2 Competition in Subprime Auto Finance

The rapid growth of the subprime auto sector in the 90s was spearheaded by competition. In the late 80s and early 90s, rising demand for yield flooded the subprime auto market with smaller independent finance companies. The rapid entrance of these new inexperienced actors forced many to relax “their credit quality because of the competition” (Feder 1997). The initial growth of this sector lead to many public offerings by auto finance companies, and the subsequent entry into the market by “everyone from the biggest banks and giant credit companies like GE capital to ambitious entrepreneurs” (Ibid). This phenomena was shared by the RMBS sector only a few years later as it began to grow. Simkovic (2013) writes that as more private mortgage securitizers and originators entered the market and took market share away from government sponsored entities like Fannie Mae and Freddie Mac, underwriting standards steadily decreased from 2004-2007. The auto market’s crash occurred far earlier than that of RMBS, so in 1997, many of the firms
who were in the business of financing and securitizing subprime began to consolidate. The below graph reproduced from Amy Martin’s S&P Global Ratings ABS conference in 2016 shows the trends of the market.

**Figure 8**

Since 2008, a drastic reformation has occurred in the market for subprime ABS. First, the giants still remain, as Santander and GM Financial have issued the most subprime auto ABS every year since 2010. It is also worth noting that the second largest issuer in 2010, AmeriCredit was absorbed by GM Financial. Secondly, and more importantly, is the growing diversity in the market. Culp & Forrester (2015) is especially significant in this context. While they argue that the market is stable, consumer demand for auto ABS has risen significantly, and through their graphical representations of surveyed bank examiners, they show trends in underwriting standards over the past 10 years. Since 2005, and
especially since the recession of 2009, underwriting standards for indirect consumer lending, like auto finance companies, have eased a great deal.

*Figure 9*

![Changes in Underwriting Standards for Indirect Consumer Lending](image)

Figure 9 shows how underwriting standards for indirect consumer lending has gradually loosened since 2010, using OCC bank examiner census data. Viewed together with the figure above depicting market share, there seems to be a relationship in market dilution and the easing of underwriting throughout the non-bank credit market.

Both the current period and the span of bankruptcies in 1997 saw surges in demand for structured auto products, due in large part to generally low yields throughout the financial economy. Figure 10 shows the yields of 6 month and 30 year Treasury Bonds over time. As the difference between the two begins to shrink, that represents a flattening of the yield curve.
In addition to this seemingly upcoming convergence of the two, 30 year treasury bonds have been slowly decreasing in yield while 6 month bond yields have been less than one since the financial crisis. The same is true for the 90s, in which yields converged and demand for yield led investors to the subprime, high-yield junk bonds originated in the auto finance sector.

This demand has led to the entry of new, smaller firms like the ones described by Whack (2016) such as Skopos Financial and Exeter Finance Corp. The concern is that these smaller, younger companies “will lower their underwriting standards as they fight for market share in an effort to produce relatively quick returns” (Alloway 2016). Analysts from J.P. Morgan, cited by Alloway share this concern, but argue that these smaller firm’s performance is more difficult to predict as there is a “lack of historical performance data through a prior full economic cycle”. This assertion seems flawed, however, as the previous evidence from 1997 shows a very similar process of smaller, inexperienced lenders filing into the auto sector and lowering their underwriting standards, leading to the issuance of
poorer loans. The RMBS crash differed from prior subprime auto fiasco and the current subprime auto market, as residential mortgage securities were far more widely accepted and held than auto products.

1.4.3 OTD Practices in Auto Lending

Lastly, this increased competition and its effects on underwriting standards help to finally clear up whether or not the auto finance industry has, or currently is using an originate-to-distribute model. While the originate-to-distribute model has already taken root in the lending sector at large for some time now, some are still skeptical that it exists in the auto finance market. Referring back to Mary E. Kane’s comments describing a lack of OTD banking in auto finance, the historical evidence provided tells a different story.

First, once a loan has been securitized, it is distributed. As seen from Tymoigne’s primer on securitization, and from GM Financial’s infographic on the same topic, securitized loan bonds are held by the bankruptcy remote ABS trust, which is by definition an off-balance sheet entity. While the overall company still holds the loans, investors in the parent company can no longer know of these risks just by looking at the company financials. Evaluating only this claim, given the private nature of data in the auto loan and securities market is very difficult. Perhaps the most useful measurement of “originate-to-distribute” levels comes from Purnandam (2011), using mortgage data made available through the Home Mortgage Disclosure Act, or HDMA. That study concluded that not only were OTD practices very prevalent in the mortgage industry, but also that firms that originated more mortgages with the intention of immediately selling them had more lenient underwriting standards for mortgages.

Morgenson and Rosner’s (2011) explains the 1997 surge in auto finance while factoring in how commitments between dealer and financier add to this process. Referring
back to Simkovic’s analysis of competition in the RMBS crash, he explains how, as the credit bubble grew, “the securitization market became far less concentrated, origination became more concentrated, and buyer power of GSEs declined relative to supplier power of originators” (224). While GSEs are not in the picture when it comes to auto loans, the power certainly shifted to the originator when demand for auto loans increased. Morgenson and Rosner write that used car dealers were losing sales because the credit approval period took some time after the sale, so used car finance companies began to use credit scoring models and underwriting technology borrowed from the mortgage industry. As previously established, used car finance companies increased from 25 to 170 and the demand for securitized auto loans was high; they needed greater volume. Then, the power shifted to the original holders of the quantity in vogue: the loan itself. As they recognized this demand, and resulting leniency, “car dealers grew increasingly willing to risk letting a car roll off the lot before they had a firm commitment from a lender; with so many lenders looking for loans to package; it would only be a matter of days before they were able to get finance approval. In the meantime they had made a sale” (99). As high-profile lenders like Wells Fargo and JP Morgan have either withdrawn or never entered the subprime market, it leaves exactly the same type of lenders in the market as before; many small, inexperienced, and often private firms. Played out over a grand scale, these processes become a financial game of hot potato. In the subprime auto crisis, the most likely holders of these bad loans were still subprime auto finance companies.

In the case of residential mortgages, the game simply got larger, with more mortgages, more money, more transactions, and eventually, bigger losers. The RMBS crash showed what such a practice can result in when played out on a large scale, and the
events before it in 1997, while having a more muted effect, show that there is a precedent of this kind of behavior in the subprime used auto finance sector. This historical evidence, coupled with the increase in issuance of subprime loans and securitization, as well as increased competition mirroring 1997, this paper concludes that the auto finance sector, particularly those dealing in subprime used vehicles, are operating using the paradigm of originate-to-distribute. The evidence from both the RMBS market as well as the subprime auto finance market reconciles with Minsky’s writing on the evolution of banking. As securitization became a way for firms to generate income from the sale of assets, in this case loans, it makes sense that the prudent banker, and in this case, the auto finance officer would become less and less prudent.

1.4.4 Risk Assessment

While competition and changing motives of the banking sector were contributing factors to poor performance of auto and mortgage ABS, respectively, poor credit assessment practices existed at the height of the crash as well. Kregel (2008) writes that profitability of banks began to rely on the volume of loans, and more importantly, became separated from their actual ability to make good loans. Here lies a fundamental problem with the banking, and nonbank financial structure: while many point to advanced credit assessment techniques and repossession technology, these innovations are not in place to measure whether a good loan can or should be made, but rather to maximize the aggregate level of bad loans a lender can make and sell without failing. While many proponents of securitization would argue that the distribution and repackaging of loans effectively distributes risk, Kregel writes that “if there is no efficient means of evaluating risk, it cannot be distributed efficiently” (21). Kregel describes how poor risk-management procedures
led to more residential mortgage defaults and failures of their securities than expected. If credit risk-pricing models were faulty, then the risk evaluations made by ratings agencies were even worse. Wray (2007) goes into detail as he describes how

Risk raters and economic modelers essentially served as credit enhancers, certifying that prospective defaults on subprimes would be little different from those on conventional mortgages—so that the subprime-backed securities could receive the investment-grade rating required by insurance and pension funds. Later, other “credit enhancements” were added to the securities, such as large penalties for early payment and buy-back guarantees in the event of capital losses due to unexpectedly high delinquencies and foreclosures. (9). While the subprime auto boom of the 90s did not display such collusion from the ratings agencies and security issuers, the risk-pricing tactics from the mortgage market were adapted to the market for subprime auto loans. In hindsight, it is clear that these methods were validated by a completely faulty system, in the 90s, as securitization grew, they were deemed reliable enough to be used in the approval of auto credit (Morgenson and Rosner, 2011). With an unrealistic expectation of future defaults and the ability to earn yield without holding much capital through securitization, many companies were unprepared when losses began to climb.

In the current auto finance market, it is clear that not many lessons have been learned. As the rash of subprime auto bankruptcies were fairly contained by the small relative size of the market, many of the same techniques, like over-collateralization and credit enhancement are still used today. While Culp & Forrester cite increased credit enhancement as a boon to investor safety, it is merely a band-aid. The SID, or starter-interrupt device profiled by Attah-Krah (2016) has recently been used as a proxy for credit screening. This device is a new addition to the credit-enhancement or risk-minimization processes used by auto lenders, but is exactly that: enhancement. It can help to recover the asset, but it does nothing to stop the risk of default. The issue here is a fairly Minskyan
one. Subprime auto lenders, and most lenders in general, as we have previously seen, quickly forget the lessons learned from previous crises. They ignore the tendencies of the economy to trend toward instability, and blame failure on isolated processes.

1.4.5 Fraud Encouraged by Competition

Morgenson and Rosner (2011) paint a strong picture of how much power the dealer had in the time leading up to 1997. They write that “if the finance company asked to see the due diligence the dealer had performed on the borrower, it could take the loan application elsewhere” (99). The same was true for residential mortgages. As the economy boomed, lenders from each level were afraid to miss out on massive returns. While lowering lending standards in order to compete with other firms is legal, this competition, and the power it gave to the dealer, both tacitly allowed and incentivized fraud.

During the housing and mortgage boom in the 2000s, a widespread practice was the dubious reporting of income by the loan officer. These came to be known as the NINJA loans profiled earlier. These NINJA loans, as Wray (2008) writes, were the last in an evolution of mortgages with less than sufficient documentation. First came “low-doc”, or low-documentation mortgages, then those without any documentation. Then, as competition and demand driven dynamics similar to the 1997 auto industry began to develop, fraud in the mortgage lending industry began to worsen. Loan officers began to encourage the practice of falsifying information necessary to the lending process, like income. These became known as “liar loans”. Lastly came the NINJA loans, as any façade of strict standards evaporated. William K. Black (2012) cites Duffield and Grabovsky’s theory that fraud can be explained like any other crime, in that it “can best be explained by three factors: a supply of motivated offenders, the availability of suitable targets and the
absence of capable guardians-control systems or someone 'to mind the store’” (Black, 2012, 2). In the cases of both the auto and mortgage markets, the motivated offenders are dealers motivated by fee-generated profit and the knowledge of demand for loans by securitizers. In the auto loan market, “the availability of suitable targets” is mostly represented by low-income borrowers desperate for an automobile, whereas some mortgage borrowers were driven by speculation. Lastly, both markets were and are subject to lax regulation. In the case of autos, only the largest finance companies are and can be regulated by the CFPB (Atta-Krah 2016), and since they are non-bank entities, they are largely immune from regulation from many other bodies. Black continues, writing that:

If unregulated, institutions that take in deposits and make loans can guarantee paper profits. Financial institutions report every loan made as an "asset" on their balance sheets, and the higher the initial fees and interest rates, the more profitable the loan appears to be. “Used car salesmen financing car sales to desperate borrowers, for example, report the highest profit margins on car loans of anyone in the lending business” (3). These add on fees by the dealer are just another example of originate-to-distribute banking and its incentives throughout the market. Given the circumstances stated previously, fraud is possible, and even likely.

There is a great deal of anecdotal evidence regarding auto loan dealer fraud today. The New York Times’s Jessica Silver-Greenberg and Michael Corkery (2014) have published a number of articles on the topic of fraudulent auto loans made by a number of dealers and their connection to the subprime auto security market. They too suggest that increased demand for auto ABS encourages finance companies to lower underwriting standards and turn a blind eye to credit record manipulation by lenders. Some include First Investors Financial Services Group, who paid a $2.75 million penalty for tarnishing credit reports and submitting them to private ratings agencies such as Experian and Moody’s
(2014). ‘Tarnishing’ refers to the group’s false reporting of damaging credit events for certain borrowers even though there was none. This, and other ‘errors’, committed by a software system that the group used, were overlooked and then taken advantage of, as auto borrowers were charged higher interest rates based on these fictional events that dented their credit. This tarnishing is only one example. On a larger scale, Silver-Greenberg and Corkery (2014) write that the safeguards insulating lenders from dealer fraud has begun to erode with growing demand for the loans. Typically, lenders pay dealers what is effectively a down payment for the loans, withholding the rest of the payment for the loans until “a few months have passed”, which is the time in which fraud becomes most apparent to lenders. However, due to the demand for these loans, lenders are more and more willing to pay for the loans upfront, meaning less, or no insulation from such fraud.

1.4.6 Table of Summary Results

The following table organizes the results of this analysis with regards to the period that the practice in question occurred.
<table>
<thead>
<tr>
<th>Practice</th>
<th>Examples from RMBS in 2008</th>
<th>Examples from auto ABS in 1997</th>
<th>Application to Today’s Auto Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originate-to-distribute model banking</td>
<td>Originate-to-distribute model banking began in the 1980s, and flourished with the advent of the securitized mortgage. Rosen (2010) and Purnanandam (2011) show OTD’s negative effects on underwriting standards and risk management.</td>
<td>Demand for mortgages and the newly created auto loan security made subprime auto debt into a feasible investment. Buenzow et. al (1998)</td>
<td>Given that dealers and financiers are separate entities, financiers incentive loose practices, but do not directly implement them. Loeser (2016) describes the moral hazard issues that stem from whole-loan sales resulting in securitizations.</td>
</tr>
<tr>
<td>Increased competition driving down underwriting standards</td>
<td>Simkovic (2013) shows that increased competition lead to a decrease in underwriting standards for mortgages, from 2004-2007</td>
<td>Buenzow et. al (1998), Feder (1997), and Morgenson and Rosner (2011) describe how the competing demand for loans to make assets grew to where underwriting standards had be lowered in order to originate more loans.</td>
<td>A dilution of market share (Martin 2016) coincides with OCC bank examiner census data shows a steady loosening of indirect consumer lending standards from 2009.</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>As Wray (2008) writes, the use of advanced credit scoring models and default projects developed in the home lending market, but they were validated by no comparable period of defaults and a colluding ratings sector. Kregel (2008) writes that credit enhancement</td>
<td>Morgenson &amp; Rosner (2011) and Buenzow et. al (1998) describe how these technologies were adapted in order to speed up the approval process. With no comparable historical period, losses quickly exceeded the acceptable thresholds.</td>
<td>As OTD banking became commonplace and technologies from the subprime mortgage sector were adapted, these models are commonplace, with each rating agency and each security issuer often having their own proprietary scoring algorithm.</td>
</tr>
</tbody>
</table>
Techniques and other measures were largely ineffective in true credit evaluation.

<table>
<thead>
<tr>
<th>Fraud</th>
<th>Screening standards moved from low docs, to no docs, to Liar Loans or NINJA loans (Kregel 2008, Wray 2008), Black (2012)</th>
<th>Subprime auto finance companies like Mercury used gain-on-sale accounting and outright fraud to dupe investors. Morgenson and Rosner (2011) show that competition granted market power to dealers, allowing them to utilize shoddy lending practices. Corkery and Silver-Greenberg (2014) write that fraudulent practices like tampering with income statements on applications are being willfully overlooked by secondary purchasers of auto loans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing Methods</td>
<td>The mortgage market never moved from hedge to speculative to Ponzi, as constant legal transgressions were present, but the real estate bubble encouraging increased exposure is consistent with Minsky’s Ponzi finance.</td>
<td>When inexperienced lenders faced losses, instead of buying back bad loans, they upped the volume to dilute their loss ratios. They also used these securitized loans as collateral for credit lines to buy more loans (Buenzow 1998). While many investors seem to be overly confident regarding the possibility of a wave of defaults, this paper cannot yet make conclusions as to the financial stability of auto financiers.</td>
</tr>
</tbody>
</table>

1.4.7 Cash Flow Expectations of Auto Lending Units

Financing regimes, as described by Minsky, move from hedge to speculative as a firm’s cash flow, or “quasi-rent” from an asset can cover the debt commitments it has used to finance that asset. My interpretation of the subprime auto market, using the past two crises, as well as Minsky’s hypothesis is as such: as defaults continue to rise, a trend that is supported by the falling of underwriting standards, and increased fraud and predatory
lending, lenders will no longer be able to meet all of their commitments from each tranche of loans. If the events of 1997 repeat themselves, this sector will move quickly from hedge to speculative, as they keep upping volumes to dilute losses, or take out debt in order to pay off the receivables on the debt. While asset prices will not rise like homes, Corkery and Silver-Greenberg describe the assumption of one auto investor: that people are more dependent on their cars than their homes, “or in the words of a Santander Consumer investor, you can sleep in your car, but you can’t drive your house to work” (Silver-Greenberg and Corkery 2015a). This assumption indicates two unstable possibilities in the characteristics of the subprime borrower. First, this shows that many issuers underestimate the possibility of default, even in the high-risk subprime sector. Secondly, these assumptions center on the dubious possibility that many subprime borrowers are stably employed, or at least have a stable stream of income. While forecasting software may give an idea of acceptable and manageable levels of default, it does not weight the significance of a rapid asset depreciation.

Let us recall the observations of Minsky; that financial actors are very quick to forget about the crises that they swore to learn from. The very reasons pointed to as positives in the auto market, such as the fact that a car does not carry the same influence in the economy as a house, are immediately discarded in favor of ones that support rapid growth and yield. It is quite possible that at the moment, the poor consumer depends on the auto loan for two reasons: they need to work, and are afraid to miss out in this time of touted recovery, and like the couple profiled in a video accompanying Silver-Greenberg and Corkery’s article, they want to raise their credit score after the events of the recession
left them financially inept. In either case, the auto finance industry is essentially using the recovery and the low interest rates of the period to create another credit bubble.

And, as this paper has always maintained, a purely data-driven analysis based on traditional indicators or expected losses is ineffective because the ‘model of the model’ can make errors as well. The models used by the mortgage and auto finance sector attempt to predict future outputs were based on historical values from a unique financial period. This analysis situates the current subprime auto growth as one similar to that of 1997, but instead of a moderate downturn preceding it, triggering a demand for any marginal yield, this auto growth is spurred by attempts to recover from the worst and largest financial crisis in 90 years.

The clear-cut, anecdotal evidence provided by Silver- Greenberg and Corkery’s work gives a clearer picture of what exactly incentivizes fraud and why fraudulent practices would be profitable. The base assumption that you need a car to drive to work conveniently supports the idea that securitization helps to democratize credit, and revitalize the economy, but will a consumer still pay off the car as a means of getting to work if he has no job? Such assumptions about the intrinsic properties of the real estate market were made as well.

At the time of this writing, with a recent hike in interest rate, this paper believes that the auto market, and the market for its securities is due for a downturn that will most likely come in the form of contraction by private-equity securitizers of used subprime. As seen by the figure in section 3 depicting cumulative net losses on subprime Auto Loan ABS, losses are clearly going up but more importantly, the auto ABS market is quite cyclical: during the height of the recession, in 2008, net losses were highest, and are at their
lowest in 2011, at which point they rise back up again. It is for this reason, as well as the number of similarities between today and the subprime auto crash of 1997 that I am quite skeptical of the auto market’s capacity to adapt and learn from poor financial practice.

Since 1997, two significant developments have come about in the sector. First, as previously noted, auto ABS are no longer backed by insurers. In 1997, “Financial Security Assurance Inc. insure[d] $6.7 billion worth of subprime auto securities, according to Fitch Investors Service, or about 75% of the market” (Elstein 1997).

The second development in this market is a technological one, as the use of starter interrupt devices (SIDs) and GPS tracking devices are employed by lenders in order to make the repossession and recovery of the vehicle and its capital efficient. Atta-Krah (2016) outlines this method of repossession, examining how it has recently become a tool of risk management. SIDs are installed in used cars usually purchased by deep subprime borrowers, and it allows the car’s ignition to be remotely shut off by the lender as a method of repossession. He argues that this process does not evaluate the credit worthiness of the borrower, and should not be used as a proxy.

Citing the ‘boom’ in subprime lending in the past 6 years since the auto lending nadir of 2010, he writes that the process of using repossession techniques in lieu of proper lending standards has supported this increase in lending. He points out that these faults in the credit screening process can have ripple effects through the financial economy, citing the securitization and bundling of such loans, as previously described in this paper.
1.5 Conclusions

The application of the boom and bust cycle of 1997 and its relationship with competition is shared only by a Moody’s Investors Service report from June 2012, and a March 2016 article in American Banker, by Kevin Wack. The Moody’s report cites many of the same phenomena as this paper, such as increased competition in the subprime auto finance sector, poor underwriting standards, and a demand for yield, all of which led to a group of subprime auto finance bankruptcies. Lastly, the analysts cite a jump in subprime auto net losses during this period in the 1990s, in which losses went from “under 3% in early 1995 to over 10% in December 1997 (Moody’s, 2012). They continue to write that subprime net losses have remained fairly stable, with net losses below 4% at the time of writing. In January of 2017, however, subprime net losses were 9.1% annualized (Scully 2017). Wack (2017) cites this report, and briefly reviews the period of subprime auto finance bankruptcy in more depth.

While clearly a serious event, the cycle of the 1990s goes largely unrecognized by forecasters analyzing the stability of the auto finance market. Not only is it significant as a model for today’s market, but it also describes how subprime auto finance grew. Lastly, it further proves the point that subprime failure and even a small threat of instability did nothing to deter the deeper dynamics at work. This omission is most likely due to its relative isolation compared to the RMBS crash that triggered the global financial crisis. Due to the relative size of the subprime auto market, the effects of this crisis did not spread to other sectors of the financial economy, and many companies merged or quietly faded away. Additionally, some argue that effects were limited as compared to the RMBS crash due to the economic strength of the mid-to late 90s.
In order for a subprime auto finance debt deflation to trigger serious consequences in the financial and possibly real economy, the trends in collateral and credit evaluation would have to continue to mirror those of 1997, and the size of the market would need to approach similar levels of RMBS. Perhaps the largest distinction in circumstance that the subprime auto and overall auto finance sector faces now is the current economic period. The 2000s came on the heels of extreme growth, and while it succeeded small crises like the dot-com bubble, and the subprime auto bankruptcies, the general stability of the time relaxed standards leading to financial stability.

Lastly, the sheer size limits the subprime auto market from spreading into the rest of the economy in the form of securitized products. Data reproduced by Kregel (2008) shows that at its peak in 2005, while the subprime share of securities was only 20%, 80% of all subprime loans were securitized. In the auto sector, as shown in section 2, subprime issuance of total retail ABS is approaching 40%. The auto sector, specifically evidenced by its difficulties in 1997, will most likely be unable to have a long, drawn-out build up to a crisis quite like that of residential mortgages, simply based on the time to maturity. Given the event of a downturn, the real question is who suffers. On the side of investment, the eventual holders of toxic auto loan ABS would not receive payment on their investment. However, small, inexperienced private equity financiers who deal in subprime securities are most likely to feel the brunt of a bust in the credit cycle. For example, Skopos and Exeter Financial are two lenders of this type. But, if the subprime mortgage crisis can be applied once more, it demonstrates that even in the event of a massive systemic financial failure, with fraud and oversight throughout, the average, everyday consumer will suffer most. While poor quality securitization may leave investors with losses, the system of
origination and distribution of loans creates incentives to lure borrowers into auto loans that in many cases they cannot afford.
Chapter 2: Evaluating Race-Based Discriminatory Lending as a Source of Instability

2.1 Introduction

Just as an economic theory that does not account for crisis proves inapplicable to an unstable economy, we cannot find out who suffers at the dealership without accounting for the race of the borrower. Dymski (2010) reevaluates Minsky’s theories on financial instability relating to the mortgage boom, arguing that while valuable, adjustments for the evolutions in the financial system need to be made, particularly adjusting for deregulation in the financial sector after Minsky’s time of writing, the inclusion and exploitation of minorities in the credit market, and the U.S. current account deficit, which became negative after the time of Minsky’s writing. This is no fault of Minsky, as minorities were largely excluded from credit markets at the time of Minsky’s writing of Stabilizing an Unstable Economy (1986) and Securitization (2008).

Dymski, Hernandez, and Mohanty (2011) expand on Dymski (2010), using a “mesoanalysis”, which attempts to explain the subprime housing crash by accounting for discriminatory lending practices based on the race and ethnicity. They define mesoanalysis as a study in which attention is paid to:

the social construction of the institutional mechanisms whereby subprime loans were created and distributed, or to the mechanisms that govern foreclosure processes. Bringing in this level of analysis permits an investigation of how market power was attained and used in the long history of the social exclusion of minorities from equal access to housing and mortgage credit (Dymski, Hernandez, and Mohanty 2011, 3)

This paper will attempt to do just that, using the developments of lending to explain current discriminatory practices at the auto dealership and in the finance market. Other literature such as Culp and Forrester (2015), or market forecasts make no mention of race as a factor
in the pricing of the loan. The closest mention of such a factor came in a recent UBS outlook which highlighted growing income inequality as a cause of rising auto defaults (Srivastava 2017). This paper acknowledges that this omission is most likely because of the difficulty facing researchers to accurately quantify such qualitative information. While the Home Mortgage Disclosure Act was passed in 1975 making mortgage data available to the public, including the race of the borrower, loan level data for auto lending is scarce.

Dymski, Hernandez, and Mohanty (2011) write that in times leading up to the 1980s, minority home borrowers were discriminated against by lenders in two primary ways: redlining and exclusion. The former means that lenders would not approve loans to any homes in certain neighborhoods, often those with a high concentration of minority residents. The latter simply describes the practice of turning down loans to minorities solely based on their color or background. As time passed, lenders reversed these practices, predatorily lending to and targeting minority borrowers and those in minority communities, based on such characteristics. As outlined in the first chapter, fraudulent processes in mortgage lending leading up to the recession like “liar loans” were incentivized by a deregulated financial system system. In the same way that the first section analyzes capital dynamics that lead to endogenous instability instead of exogenous shocks, I do not only attribute racial discrimination in finance to pure bigotry, but rather, that institutional developments allow for such malpractice.

Dymski, Hernandez, and Mohanty (2011) write that “advances in information and securitization technology, which fueled the growth of upscale retail banking, led in the 1990s to the transformation of ‘fringe banking’3” (18). At this point, banks had low market

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3 They cite Barr (2004) on this point.
share in low income and minority credit markets, but as evidenced previously non-bank lenders began to provide credit to this group. Then, “banks began to compete for fringe banking business, directly and indirectly” (19), buying and franchising check-cashing stores and other small financial institutions. The evolutions in the finance sector and first developed in the mortgage market allowed for the apparent ability of lenders to accept more risk and transfer it to off-balance sheet holders, like SIVs. Upon this foundation, Dymski, Hernandez, and Mohanty make their point; that the mortgage market began to predatorily lend and manipulate minority borrowers en route to the real estate bubble that triggered the financial crisis. The financial systems and models for lending that began in the mortgage market soon made their way over to subprime auto finance, leading to the massive entry of lenders into this market in the early-to-mid 1990s. The following section provides a quantitative review of evidence of auto lending discrimination.
2.2 Discrimination

To clarify, when discussing racial and other forms of discrimination, this paper is describing the lender’s behavior that is disproportionately detrimental to the borrower. Outright fraud by a lender in instances mentioned in the previous paper, like tarnishing credit histories more broadly affects large groups of consumers. While the intention to harm these borrowers and increase revenue exists, it is not targeted enough to warrant its own discussion, and its motives are not nearly as complex.

On a small scale, Ayres (1991) and (1995) provides two of the first empirical studies to examine effects of the consumer’s race on their borrowing experience. Both studies, which employed testers of various races and sexes in Chicago-area dealerships found that black and female testers faced higher markups in vehicle price than white male testers. In his explanation of the 1991 study, Ayres posits explanations based in racial animus as well as profit-maximization motives of the dealers in question, but writes that pure the racist or sexist biases of dealers do not account for all of the mark ups. That is not to say however, that psychology has a negligible impact on lending.

Additionally, both studies find that dealer competition does little to negate these discriminatory price increases experienced by female and minority borrowers. Ayres’ two studies however, examine the effects on markups in prices of cars, not interest rate, and in both cases, the testers made it clear to the dealer that they did not need financing for the vehicles they were interested in. Cohen (2006) builds on Ayres’ findings relating to competition as an equilibrating mechanism, writing too that competition of dealers is negated by a lack of information available to the borrower. Dymski, Hernandez, and Mohanty’s compare the perfect theoretical case of market competition in mortgage lending
to the realistic one. In theory, they write that high information costs force profit-maximizing creditors to use race as a proxy variable for risk assessment (13-14). However, in a realistic lending market, “the riskiness of borrowers differs for numerous reasons no matter their race or ethnicity. Thus, applicants will be more accurately served if they can be sorted more finely into different sorts of contracts” (14). Minsky would likely argue however, that this latter perspective is quite short sighted. It assumes that financial innovation allows borrowers with worse credit into markets, which is true, but overlooks the fact that risk is continuously overpriced. The idea that markets and lenders can accurately regulate risk is not based in any economic theory that accounts for business cycles. As seen in the evidence from the previous section, credit risk in a financial system comprised greatly of securitization and transfer is more aptly referred to as credit tolerance, as the originating party’s intentions are not to hold on to the risk that they initially accept. As Minsky indicates from the sentiment that “stability is destabilizing”, credit tolerance and general optimism fluctuates with the macroeconomic conditions of the larger system. Thus, as seen from the small-scale cycle of auto in the 90s and the systemic debt deflation cycle of the 2000s, economic actors can rarely be entrusted to find yield and safely measure risk. Its implications for racial discrimination are fairly straightforward, in that over time, and given a low-yield environment, more risky and volatile opportunities presented by low income and often minority borrowers can become subject to oversight and manipulation.

Most important to this paper, Cohen takes into account the financing of the vehicle, as he writes that “Auto dealers in this market act as agents of both consumers (identifying suitable auto lenders) and lenders (identifying prospective borrowers)” (21). This position of the lender explains the lack of information made available to the borrower, as consumers
often rely on the dealer to provide them the best financing rate. As shown in the previous paper, while vehicle financing was quite popular during the 90s, when Ayres conducted his study, more vehicles have required financing have continued to grow since then.

Aside from price of the vehicle, Cohen describes how annual percentage rates (APRs), are composed of two rates: the buy rate, which is paid to the auto financier, and the dealer markup, which is priced at the dealer’s discretion. Not only are markups unfavorable to the borrowers, but Cohen suggests that lenders dislike this practice as well (26), citing the possibility that these pricier loans with no added revenue to the lender can increase default.

Davis (2014)\(^4\), concludes that Black and Latino buyers negotiate just as much as whites yet they receive higher interest rates, and Charles (2008) writes that black people obtain vehicle financing from finance companies far more than white people, while receiving less benefit from going to these companies for a loan. At the same time, the data showed that there were no differences explained by race when borrowers would visit a bank or credit union. Avery, Brevoort, and Canner (2007) suggest that more Black and Latino mortgage borrowers also received their loans from mortgage brokers than from regulated lending institutions like banks or credit unions. These processes seem to be only beneficial to the dealer, but as the previous paper has shown, originate-to-distribute model lending, especially during low-yield periods shift market power towards those generating loans.

Charles’ points on the lending facilities available to subprime black borrowers reconciles with the analysis from the previous section. Lower credit borrowers are seen as

\(^4\) Davis’ (2014) data was obtained via phone survey, conducted in English and Spanish.
higher-risk across the board, and are lent to by the most financially unstable and yield-hungry firms that exist in the consumer finance sphere. Then, Charles poses the question of why black borrowers even go to finance companies at all, “given that they pay higher rates of interest there. Might racial differences in financial literacy, such as those documented by Annamaria Lusardi and Olivia S. Mitchell (2006), explain this behavior? Or, do blacks face a differential probability of rejection at the lower-interest-rate traditional banks and credit union” (319). The neoliberal view of lending is simply that there are no bad loans, only bad prices for them. However, in an inherently biased market, the traditional institutions and phenomena that are expected to clear credit markets ultimately fail poor, minority, and female borrowers much more so than rich, white, male borrowers seeking loans.

Once again, the evolution of the banking sector has a great deal to do with how and where minority and poor borrowers get their loans from, and because of that, why they are subject to the abused well described by Ayres, Davis, Cohen, and Charles.

Minsky’s analysis established in the previous section still applies, and shows that the financial system is prone towards instability, and because of that, is inherently poor at pricing risk. With that in mind, Davis and Frank (2011) make the most comprehensive connection between abuses at the dealership and risk to investors in auto ABS. This concept is only brought up in theory by Stuart Rossman, director of litigation at the National Consumer Law Center. He has headed up investigations on discriminatory markups issued by dealers. Most recently, published in 2015, the NCLC provided data denominated by region and dealer that showed that black consumer borrowers receive much higher markups on average than other consumers. In a quote given to Kevin Wack (2016), Rossman shared
the concern of this paper: that if borrowers are being charged a certain rate, which increases their odds of delinquency and default, but investors in the securitized loan only receive a fraction of this rate and are unaware of the risk, then there exists a clear informational asymmetry.
2.3 Investment Effects of Race-Based Moral Hazard

Using a synthesis of survey data from auto finance companies regarding dealer markups, Davis and Frank (2011) examine the effects of these dealer markups on auto ABS pool performance. While Davis writes on race and lending in (2014), this paper makes little explicit mention of the fact that these markups are given out to minority borrowers at a troubling rate. However, the study shows a number of significant findings. First, they found that the dealers showed a tendency to issue mark ups to borrowers with worse credit. In their regression, they measured the change in amount of rate markup given a change in loan conditions, assuming a change of one standard deviation in these conditions. While longer terms and lower borrower scores had significant effects, loans made by subprime finance companies were observed to correlate with a 5.04% increase in rate markup.

Given these markups, the authors then found that “rate markups are a strong driver of default and repossession among subprime borrowers. Using the same regression techniques, the data showed that rate markups incurred a 12.4% increase in the odds of 60 day delinquency and a 33% increase in the odds of cumulative loss.

Even though it is at a seemingly unknown cost to the investor, the dealer attempts to make profit off of low-credit borrowers. The study notes that a number of these markups were concentrated in loans with longer terms and smaller amounts financed. This shows that dealers are not using higher interest rates to accurately protect themselves against risk, but rather that they apply mark ups to lenders with stretched loans and smaller financing periods to make these markups seem less harsh, even though Davis and Frank show that over the life of these loans, these markups become quite large in the aggregate.
While Davis and Frank’s evidence and analysis is quite robust, they only briefly describe the larger financial structures and implications at play. First, this somewhat provides more evidence of financial instability, as risk is being improperly assessed and even worsened by higher interest rates. Second, while the first section has shown the auto market to be unique from that of mortgages, few parallels are made between the racial inclusions of the two systems.
2.4 Regulatory Implications

While the subprime auto finance market profiled is largely subject to weaker regulation than established institutional providers of credit, the Consumer Financial Protection Bureau (CFPB) has provided strong regulation in the wake of the financial crisis. Borne from the Dodd-Frank Act, the CFPB has worked recently with the DOJ and the Southern District of New York’s former Attorney, Preet Bharara. The CFPB and DOJ concluded that auto lenders do discriminate, and that dealer markups are a likely source of discrimination, which led to Ally Financial paying a settlement of $98 million, reported in 2013. In 2015 however, Michael Corkery and Jessica Silver-Greenberg reported that none of that money had been paid out (2015), citing a delay in the commutation of this fee. They also report that the CFPB has begun to follow predatory lending, saying that it is similar to the phenomenon of reverse-redlining previously profiled. Additionally, the CFPB and DOJ’s investigations have resulted in citations to Honda Finance (who settled for $24 million in July 2015), Toyota Motor Credit Corp. and Nissan Motor Acceptance Corp (Swanson, 2015). Additionally, measures for intra-industrial regulatory practices are limited to case-by-case markup caps, and are often levied as a part of these settlements. The first paper shows that in the macro economy, independent private equity auto financiers primarily dealing in subprime loans are the first to lead the charge of yield chasing, and thus, the most risky. Historical analysis, has shown that during these times, their financing structure becomes more unstable. This essay shows that at this point in the economic cycle, low-income and in particular, low-income minority borrowers are more likely to obtain vehicle financing from independent financiers. These financiers are also
more likely to take advantage of these borrowers, issuing higher rates that increase chances of default for the consumer and chances of loss for the investor in auto securities.

The regulation proposed by this paper is twofold. First, the strengthening of the Consumer Financial Protection Bureau is critical, especially during a time when its regulatory capabilities are at risk of being hamstrung (Cowley 2016). As of now, the CFPB is limited in its regulatory jurisdiction to auto finance companies with 10,000 or more aggregate annual originations (CFPB 2015, 2). Even though the CFPB provides a much-needed vigilance over the auto finance industry, it only treats the symptoms of financial malpractice, such as fraud and discrimination.

The reconstruction of relationship banking would do a great deal to both counteract the entrance of highly-leveraged independent auto financiers and race-based discrimination. In the early 1990s, Minsky began to describe a means of how to restore the “capital development of the economy” (1992a, 1992b). In 1993, Minsky, Papadimitriou, Phillips, and Wray proposed the implantation of a Community Development Banking plan. However, this proposal was intended to service the needs of underbanked low-income and minority individuals and businesses. As shown previously, this paper is less concerned with the underbanked, and more worried about the reversal of exclusionary racial practices in credit markets. Finally, the authors write that community development banks, or CDBs, are “not to be viewed as a significant countercyclical force, nor as a major factor in the growth of the economy” (Minsky et al. 1993, 24). While a possible community development financier in our case would not serve as a growth factor, it is possible that the reduction of discriminatory mark ups could provide some countercyclical reinforcement to the private sector. The Clinton administration later launched the Coalition of Community
Development Financial Institutions, comprising of various institutions aiming to reduce the costs and ease the accessibility of financial services for low-income communities (CDFI.org). However, this national force is quite small, and while it provides value for each individual community, there are over 950 spread nationally.

Lastly, while an outright ban on securitization would be unlikely to pass and carry out, some, such as Paul Volcker Jr. suggest “skin in the game” regulations, mandating that issuers would have to hold some of the risk that they originate when selling said risk (Volcker Jr 2010, 117). This would prove effective in enforcing more adequate risk assessment standards (Levy Economics Institute 2012, 19). A wide-reaching relationship banking initiative could not only further the capital development of the economy, but would also counteract (albeit at a small level) the risky evolution of lending markets by making loans with the intention of holding them to maturity. Lastly, I hypothesize that lending institutions centered in communities would be less prone to instances of racial discrimination, as a relationship between the community and the lender would hopefully provide a less manipulative environment.

In all, there is no magic bullet for solving the issues presented. As Minsky writes, “Regulation and government intervention in markets are valid when they make markets behave as if they were competitive markets. Such intervention is necessary when market power exists or when other reasons lead to market failures” (Minsky 1986, 366). The auto lending market is far from fair and stable. In the case of the regulations this section has supported and proposed, community banks would provide a bargaining alternative for disadvantaged borrowers, while a stronger CFPB could police unstable conditions produced by skewed market dynamics.
2.5 Conclusion

In answering Charles’ question of why do black people keep going back to the firms that disadvantage them most, the previous points explain a great deal. The financial system may be vulnerable to failure, but that does not detract from a constant appetite for yield, which in turn forces any demand to be met with new product and innovation. On the firm level, deregulation and changes in credit approval processes allowed for lenders to enter the space previously held by fringe banks. Lastly, at the micro level Caskey (1996) describes some very valid themes in the ‘fringe borrower’, who shares many characteristics as minority borrowers both in financial and geographical characteristics. First, he writes that “households without financial savings must often pay more than other households for basic services” (6). It is quite possible that poor borrowers do not have the facilities available to them needed to properly evaluate the terms of the loan that they are provided. Secondly, Caskey writes that “Families that do not maintain financial savings often have bad credit records or debt to income ratios that exclude them from mainstream sources of consumer credit” (7). The fact that these consumers are often highly levered indicates a great deal of financial instability stemming from such a group. However, it is wrong to fault the borrower, which brings up the previous discussion of how a home is unique from a car as an asset. The increased indebtedness of the private sector to purchase property is funding investment, which an automobile purchase is not. While this paper argues that dependence on auto is overvalued by auto lenders as a justification for charging rates, many do rely on cars to carry out their daily lives. What separates the minority borrower in their dependence for a loan is the simple fact, as described by Caskey (1996) and Dymski,
Hernandez, and Mohanty (2011), minorities have been historically underserviced by the banking sector.

The ‘democratization’ of credit as described by proponents of financial innovation, like Goolsbee (2008), is not democratization at all\(^5\). Rather, we see that minority, and more broadly, subprime auto borrowers are largely forced into unregulated, unstable credit markets. While Goolsbee’s points were made about the mortgage sector, the market composition of auto lending in the shadow of such a crisis worsens prospects for these prospective borrowers. Jamie Dimon’s comments are largely representative of the banking sector at large, while not as bearish, few large institutions are ready and willing to take on subprime levels of risk. However, the demand for yield in securitized auto products still exists, creating for the minority borrower a market that consistently manipulates them, and then quickly disburses the irresponsible loans it creates.

Additionally, the financial system still believes that it can accurately price the risk that many of these borrowers represent. Wray writes that “Minsky was also quick to add that for many borrowers, there is no interest rate that can compensate for risk, because the higher the interest rate charged, the greater the probability of default” (Wray, 2008, 8). This, combined with the discrepancy between buy rates and markup enforced by dealers creates a source of instability in the financial system that is greatly overlooked.

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\(^5\) In his paper titled “Lessons from the Subprime Meltdown”, Wray cites Alex Pollock’s Testimony before the Subcommittee on Financial Institutions and Consumer Credit, Committee on Financial Services, U.S. House of Representatives, Hearing on Subprime and Predatory Lending, March 27, 2007, as he declares: “‘What was recently seen as ‘creative’ and ‘innovative’ democratization of credit is now viewed as misguided and culpable bungling or worse.’” (3).
Works Cited


Marino, Jon. 2016. “Jamie Dimon Just Sounded the Alarm on Auto Loans.” *CNBC Finance*.


