

A New Look at Second Liens¹

by

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We use data from credit report and deeds records to better understand the origination and subsequent performance of second liens. Second liens were quite prevalent at the top of the housing market, with as many as 45 percent of home purchases involving a piggyback second lien in coastal markets and bubble locations. Owner-occupants were more likely to use piggyback second liens than investors. Second liens originated as home equity lines of credit (HELOCs) were originated to relatively high quality borrowers and originations were declining near the peak of the housing boom. By contrast, closed end second lien (CES) characteristics are worse on all these dimensions. Default rates of second liens are generally similar to that of the first lien on the same home, although HELOCs perform better than CES. About 20-30 percent of borrowers will pay the second lien for more than a year while remaining seriously delinquent on their first mortgage. By comparison, about 40 percent of credit card borrowers and 70 percent of auto loan borrowers will continue making payments a year after defaulting on their first mortgage. Finally, we show that second liens performance, especially HELOCs, has deteriorated recently, an area of concern for lenders with large portfolios of second liens on their balance sheet.

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Second liens represent a large portion of the credit markets in the US, but are often controversial and poorly understood. According to data from Equifax Credit Trends (August, 2011), consumers owe about \$11.3 trillion to various lenders. Of that total, first mortgages represent about \$8.16 trillion and second liens are another \$800 billion.⁵ The remaining \$2.36 trillion includes auto and student loans and credit cards.

If second liens are thought of junior mortgage debt, they appear to be a large potential risk to the banking system since most second liens are held on balance sheet by lenders. Total outstanding second liens represent more than one-half of all bank capital (\$1.4 trillion according to FFIEC Peer Group Average Report). However, lenders argue that second liens are more comparable to other types of consumer debt, rather than mortgages, and were originated according to the same or stricter standards that they offered other types of consumer debt. A key question, therefore, in evaluating the capitalization of many banks is how second liens perform relative to first liens and other consumer credit.

An additional issue with second liens involves potential conflicts of interest for servicers who manage first and second liens. Investors complain servicers of second liens to prioritize payments to second liens over first liens. According to these concerns, the largest banks that hold many second liens on their balance sheets also serve as servicers on privately securitized first liens. These lenders face strong incentives to protect their second liens by easily modifying first liens (at great cost to mortgage bond owners) or encouraging borrowers to miss first lien payments while remaining current on their second liens.

In a related vein, many analysts argue that second liens represent a serious public policy challenge, because second lien holders often get in the way of

⁵ Of the outstanding second liens, the bulk (\$595 billion) are home equity lines of credit (HELOCs), which are revolving credit lines. In total, HELOCs are about the same size as all other types of revolving credit (credit cards) and thus represent an important part of consumer credit. Closed end second liens (CES) are much smaller, representing about \$158 billion, less than 10 percent of all other non-revolving debt.

mortgage modifications by refusing to agree to “re-subordinate” to a newly issued first lien. As well, second liens are much more likely to be underwater than first liens, increasing the likelihood of a costly foreclosure. Martin Feldstein (2011) has proposed a program where the government would subsidize 50 percent of the cost of writing-down negative equity to 110 percent LTV, which might impact an appreciable portion of second liens that are the most junior position relative to the first lien. Levitan (2009) has proposed that bankruptcy judges should have the right to “cramdown” debt, forcing lenders to accept losses on the underwater portion of the first and second lien. Mayer, et. al. (2009) propose a small “Second Lien Incentive Fee” to pay second lien holders to voluntarily surrender their claim rather than holding up the modification process. Mortgage-holders often take an even stronger view, arguing that giving any rights to second lien holders violates basic prioritization of claims. They suggest that second liens should be forced to accept a total write-off before first liens reduce any principal or interest payments for borrowers.

On the other hand, banks argue that many (but not all) second liens, especially revolving home equity lines of credit (HELOCs), were given only to the best quality borrowers and were underwritten to a great extent based on the credit quality of the borrower, not just the home value. Such mortgages are the equivalent to high quality credit card loans, where the lender has a claim on both the borrower and on the home as collateral if the borrower does not pay. They suggest that no one would propose that a credit card be written down prior to pursuing a mortgage modification, even though credit cards are also unsecured debt and thus might have lower priority, so why should HELOCs be treated differently?

The law often supports the legal interpretation of second liens as personal recourse debt with equivalent priority to credit cards or student loans. In states where borrowers face personal recourse if they default on a first mortgage, second liens also have personal recourse against the borrower and his/her other assets. Even in states where first liens have no personal recourse, borrowers still face personal liability for the second lien if they took out the second lien debt anytime

after purchasing the home.

Government policies have attempted to address problems with outstanding second liens, without success. HAMP (Home Affordable Mortgage Program) offers to pay second lien holders a nominal amount to cover costs of modifying or writing off second liens, but has resulted in fewer than 40,000 such modifications as of July, 2011 (Housing Wire, 9/16/2011), with fewer than 3,000 of the second liens being written off entirely.

While there has been relatively little empirical work that addresses these questions, three recent papers examine the prevalence and performance of second liens and provide the starting point for our analysis. Goodman et. al. (2010) document that second liens were an important source of credit during the boom, with about one-half of all privately securitized mortgages having a second lien and that second liens appear to perform better than privately securitize first liens. Andersson, et. al. (2011) examine data on mortgage payments and credit files (OCC Credit Bureau Data) for borrowers with non-prime, privately securitized mortgages combined with credit files from 2001 to 2009. The authors find that consumers have adjusted the relative order in which they pay their debts, moving from an environment where a default on credit card is much more likely to occur before a mortgage default, to an environment where consumers are equally likely to miss mortgage or credit card payments. They authors attribute this finding to changes in the cost of servicing each type of debt, reduced or negative home equity and the increased penetration of non-standard mortgage products. The changing pecking order suggests that borrowers are becoming aware of mortgage modification on first liens and may be more likely to default on first liens to get a modification, even while remaining current on other debts.

Jagtiani and Lang (2011) merge together data on mortgage performance (from Lender Processing Services—McDash) with credit report files (from Federal Reserve Bank of NY Consumer Credit Panel/Equifax) to examine the relative order of payments for first and second liens. The paper finds that a large portion of

delinquent borrowers on first liens keep their second liens current. Such behavior is more prevalent for HELOCs, where the ability to maintain a credit line is quite valuable, is also quite common for closed end second liens. While such behavior is puzzling, one possible explanation is that borrowers miss first lien payments because first liens are more likely eligible for modifications under public and private programs.

Our paper considers a number of important issues with regard to second liens. Our data includes information from Equifax credit reports and Dataquick deeds records and thus represents a high share of the universe of property transactions and borrowers within our sample. First, we look to understand the growth of second liens, including the credit quality of borrowers. Next we examine where second liens were originated and how they might have contributed to (over) leverage during the boom. We also consider how second liens performed relative to first liens. In particular, we examine why some borrowers may have chosen to pay their second lien even as they are delinquent on their first lien.

Below we summarize our findings. In doing so, it is important to recognize that this paper presents an attempt to summarize the data so that policy makers and analysts can understand the state of the second lien market and to spur additional analysis among economists. While results are sometimes suggestive of certain interpretations, we cannot distinguish between supply and demand for credit in this analysis. Thus it is impossible to know whether some of these patterns reflect demand for second liens by various types of purchasers or constraints on the type of mortgages that lenders might approve.

- i) Second liens are composed of CES (closed end second liens) and HELOCs. CESs account for between 30 percent-40 percent of the total second lien balance between 1999 and 2011, and increased its share between 2005 and 2007 when credit standards had deteriorated the most. HELOCs are revolving loans, similar to credit cards, secured by homes.
- ii) Even though HELOCs and CESs are both classified as second liens, they

are quite different. CESs have similar characteristics to non-prime first mortgages; they were often originated to borrowers with low credit scores and were more likely to be originated simultaneously with a first lien (so-called piggy-back mortgage) or with non-prime first mortgages. CES mortgage issuance peaked between 2005 and 2007, a time when deteriorating credit standards and peaking house prices led to very high subsequent default rates. On the other hand, HELOCs have similar characteristics to conforming/prime first mortgages; HELOCs were originated to people with high credit scores, were more likely to be originated to borrowers with no first lien or a prime first mortgage, and were often originated well after the first lien had been taken out. HELOC originations peaked in 2004, before the top of the housing boom.

- iii) Near the top of the housing market in 2006, as many as 40 to 45 percent of home purchases involved a piggyback second lien in coastal markets and bubble locations (Phoenix, Las Vegas, Miami). Slightly fewer piggybacks were used in more stable markets in the Midwest and South, and piggybacks were much less prevalent in declining markets like Cleveland and St. Louis. Second liens were strongly associated with the use of low down payments to purchase homes. 10-20 percent of home purchases with a single mortgage involved a down payment of 5 percent or less ($LTV \geq 95$ percent), whereas about two-thirds of all purchases with a piggyback second lien had a low down payment ($CLTV \geq 95$ percent). Contrary to some claims about speculation, second liens were somewhat more prevalent among owner-occupants than investors.
- iv) CESs performed similarly to subprime/non-prime mortgages, especially for CES originated between 2005 and 2007 and/or piggybacked to first mortgages. HELOCs perform much closer to prime first liens. More than 25 percent of the piggybacked CES become 90+ days delinquent as of 2010-2011, but only 8 percent of HELOCs have similar serious delinquencies during the same period. Differences in the timing of origination and the credit quality of borrowers appear to explain most of

these differences. In the last few months, however, second lien delinquencies are rising while delinquencies are falling for all most other types of consumer credit.

- v) We find a high correlation between the delinquency of first mortgages and the second liens. Borrowers are more likely to become delinquent on the first mortgages before they become delinquent on their seconds, but as the duration of the first mortgage delinquency is prolonged, most second liens eventually default. For example, when a first mortgage reaches the 90/120 days delinquent stage, only about 21 percent of CES remain current four quarters after the mortgage delinquency (31 percent for HELOCs). By contrast, about 70 percent of auto loans and 40 percent of all credit cards remain current four quarters after a serious mortgage delinquency.

I) Data

We utilize a variety of new datasets to examine aggregate trends in second lien usage, as well as individual use of second liens and subsequent repayment patterns. We start with Equifax Credit Trends 4.0 to examine overall credit usage. These data report information for all consumers whose credit records are reported to Equifax. It is based on 100 percent sample of all reported consumers. Data are available from 2005 to present.

Next we turn to the Federal Reserve Bank of New York/Equifax Consumer Credit Panel (CCP), which comprises an anonymous and nationally representative 5 percent random sample of US individuals with credit files and all of their household members. In all, the data set includes files for more than 15 percent of the population, or approximately 37 million individuals in each quarter from 1999Q1-2011Q3. The panel allows us to track individual borrowers and their loan accounts including first mortgages, second liens, credit cards, auto loans and student loans over time. The CCP panel is based on Equifax consumer credit reports. Lee and van

der Klaauw (2010) provides further details on the data set.

The original sample is 5 percent, but due to its size, we use 0.1 percent of population (2 percent of the 5 percent sample) in our analysis. This includes about 240,000 individuals with credit reports in a given quarter. Joint accounts appear twice on the credit report, for example, one for a husband and a second for a wife, but we combine such records into a single record where appropriate to remove any duplicates. Our sample for this paper runs from 1999:Q1 to 2011:Q3, thus covering a more stable period before the subprime run-up, the housing boom, and the subsequent bust.

We face a number of data issues, which are described below. Whether a loan is a first mortgage or a CES is not always obvious. We classify the loans with Freddie, Fannie, FHA, VA as first mortgages, and loans with narrative codes with home equity loan, home improvement loan, second mortgage as second liens. We believe at least 80 percent of Freddie and Fannie loans are narrated as such, and 100 percent of FHA and VA loans are narrated accurately.⁶ HELOCs are easily identified since they are clear from a Revolving account type. There are some installment loans with no narrative codes indicating the type of loan. Among these unclassified installment loans, we currently drop those with less than \$40,000 origination amount from the sample as if they are neither firsts nor seconds (we can classify these as CES if we want alternatively, with little impact on the results). We treat mortgages with an origination balance of at least \$40,000 as nonprime first liens, but use care to interpret this class of loans. Non-prime first liens are likely on average riskier loans, but are a residual category, including not only subprime and alt-A mortgages, but also jumbo-prime mortgages, some GSE mortgages that are not properly narrated, and some private label conforming loans. We have no way to externally validate differences among the various types of mortgages at this time.

The origination date is defined by the quarter the loan appears on the credit

⁶ Some loans start containing the narrative codes of Freddie etc. only later of the life of the loan, but we classify them retroactively if we observe the appearance of the codes later.

report for the first time, and there can be some delays between when a loan is originated and when it is reported to Equifax. The results are quite similar if we use the reported quarter of origination instead. Due to the definition, the data on originations are more accurate starting 2000 rather than 1999.

To examine the important of second liens in financing of individual property purchases and, in particular, the extent to which second liens contributed to high leverage, we turn to Dataquick deeds records. Dataquick reports deeds records for the vast majority of home purchase and mortgage transactions. For this analysis, we examine purchase transactions only (no refinancings) and describe the financing of that purchase, including whether the transaction had a second mortgage (we combined HELOCs and CES for this analysis) and whether the transaction involved an investor (defined as an owner whose property tax bill is sent to a different location than the purchase address).⁷ We include data from 2001-2011, although many figures are cut off after 2007 due to the very small number of transactions involving a second lien after that time period. Our sample is collected for the 40 largest metropolitan areas in the US outside of Texas, where sale prices are not reported in the public records. We use data from a subset of metropolitan areas as described below.

II) Origination and Growth of Second Liens

Aggregate second lien lending patterns

To examine the overall growth of the second lien market, we start with evidence from FRBNY Consumer Credit Panel (CCP). Figures 1 and 2 plot the number and dollar volume of second liens outstanding quarterly from 1999:Q1 to 2011:Q3. With over 20 million borrowers and more than \$800 billion of outstanding credit, second liens represent a large and important source of credit for US

⁷ Chinco and Mayer (2011) also define investor purchases based on the address of the property tax bill. In that paper, the authors show that the presence of outside investors helps cause price runups, contributing to bubbles in many housing markets.

consumers. At its peak at the end of 2007, second liens represented over \$1.0 trillion of credit. Greenspan and Kennedy (2007) pointed to second liens as a key vehicle that allowed homeowners to extract equity from their homes.

Figure 3 shows quarterly originations of CES and HELOCs (Figures 6 and 7 plot originations of these two types of products separately). Although overall dollar volume peaked at the end of 2005, the aggregate data masks variation across the two types of credit. HELOC originations peaked in 2005:Q4, and fell about 30 percent over the next two years, while CES originations continued rising and stayed high, peaking in 2006:Q3 and remaining near their peak throughout 2007. Originations of new second liens fell off rapidly in 2008 and have remained at about 15 to 20 percent of their level during the boom years. Second liens represented a strongly pro-cyclical form of credit, whose cutoff might well have negatively impacted consumers starting in 2008.

Next we consider the credit quality of borrower who took out second liens. Figures 4 and 5 show the share of various types of mortgages with an origination risk score above 700, an indication of loans given to high quality borrowers. As with all types of mortgages, the share of high quality borrowers declined from 2004 to 2007, although CES and HELOC share of high quality borrowers declined less in 2006 and 2007 than other types of mortgages. Since most second liens were held on balance sheet, these results are consistent with balance sheet lenders pursuing slightly higher quality borrowers than securitized lenders. Today credit standards appear to have risen to the highest levels in our sample period.

Comparing second liens to first liens, it appears that CES credit quality moved with non-prime first liens, while HELOCs were more closely linked with the credit quality of prime mortgages. Around 60 percent of CES went to borrowers with a risk score over 700 in the boom, similar to the overall share of such borrowers for first liens and slightly higher than the share of high quality borrowers in non-prime originations. HELOCs remained focused on the highest quality borrowers. About 75 to 85 percent of HELOCs went to borrowers with high FICO

scores in the boom, a greater share of such borrowers than even prime mortgages.

The linkage of CES with lower quality borrowers and HELOCs with higher quality borrowers is further supported when we compare the types of first liens for CES and HELOC borrowers. Figures 6 and 7 show the share of CES and HELOCs going to borrowers with various types of first liens as an alternative measure of credit quality. The largest share of CES mortgages went to borrowers with relatively low quality non-prime or FHA/VA mortgages. The large growth of CES mortgages in 2006 to 2007 went to borrowers with non-prime first liens that would eventually default at very high rates. By comparison, HELOCs were more likely to go to borrowers with higher quality conforming mortgages or borrowers without a first lien. HELOCs originations declined in 2006 to 2007, with much a smaller increase in loans going to borrowers with non-prime first liens.

Finally, we consider the role of second liens in financing the purchase of a home versus their origination at a later date, possibly to extract home equity as in Greenspan and Kennedy (2007). Figures 8 to 11 track originations of second liens based on the type of first lien and how closely the second lien was originated relative to the date the first lien was taken out. We allow for a small reporting lag in second lien origination, so liens taken out within two months are coded as simultaneous (“piggyback”) second liens, while loans originated 3 to 5 months after origination are coded as being lagged one quarter, etc.

The data suggest that higher quality borrowers tended to take out second liens well after origination, whereas lower quality borrowers used second liens to help finance the purchase of the home (a so-called “piggyback” second lien). Following a prime first lien, most CES originations were taken out well after the origination date of the first lien. However, most CES originations for non-prime first liens were taken out as piggyback loans, the riskiest type of lending available. As in earlier data, HELOCs were made in a safer manner. Relatively few HELOCs were taken out as piggyback mortgages. Even HELOCs associated with non-prime first liens were usually taken out well after the date that the non-prime first mortgage

was originated.

Thus our initial analysis finds that second lien originations grew rapidly during the boom period, but was composed of two very different products. CESs represented a minority of all second liens, but appear riskier on all dimensions, including peaking later in the cycle, being originated to lower credit quality borrowers, including borrowers with riskier first liens, and being more likely to be taken out as a piggyback loan. HELOCs appear less risky on all of these dimensions.

Use of second liens to enhance leverage for home purchases

Next we turn to data from deeds records to examine the amount of leverage for home purchases that utilized second liens. Our results support anecdotal evidence that second liens appear to allow borrowers to make very small down payments and were broadly used across the country. However, owner-occupants tended to be more likely to use second liens than investors. While motives are impossible to disentangle, these results are consistent with earlier findings that second liens were generally originated to safer borrowers.

We break our sample into four different groups of metropolitan areas. The groupings follow a similar pattern to that in Hubbard and Mayer (2009). The authors argue that mispricing was most pronounced in the bubble markets, whereas coastal markets followed a more typical pattern of house price appreciation from previous cycles. Other Midwest and Southern markets exhibited much less volatility over the cycle.

- i. *Coastal cyclical markets:* Boston, New York, Washington D.C., Los Angeles, San Francisco, and San Diego
- ii. *Midwest/South stable markets:* Charlotte, Atlanta, Chicago, Denver, and Minneapolis
- iii. *Midwest declining markets:* Detroit, Cleveland, and St. Louis
- iv. *Bubble markets:* Las Vegas, Phoenix, Tampa, and Miami

Figure 12 plots the share of home purchases financed by piggyback second

liens. Second liens grew with the increase in home prices in all market, with the largest share of purchases being financed by second liens in Bubble and Coastal cyclical markets, followed by a slightly smaller share of purchases in Midwest/South stable markets where home prices grew much less rapidly. The highest and most persistent use of second liens was in Coastal cyclical markets, where homes appeared least affordable to many buyers. By contrast, Midwest declining markets exhibited a much lower share of piggyback second lien originations. As well, affordability in these markets was also better than in most other parts of the country. The use of second liens did not appear more concentrated in Bubble markets than other metropolitan areas. In all locations, purchases with piggyback mortgages fell off rapidly in 2008 and have not recovered since.

We also examine the link between leverage and second lien use. Figures 13 to 16 show the impact of second liens on loan-to-value ratios (LTVs) for purchase mortgages. Our measure of loan-to-value includes both the first and second lien and thus would sometimes be referred to as a cumulative LTV (or CLTV) by some analysts. The findings show very high LTVs even for purchases financed by a single mortgage, averaging over 80 percent in almost all time periods.⁸ Through much of the boom, purchases in Coastal cyclical and Midwest/South stable markets had slightly lower LTVs than purchases in Bubble and Midwest declining markets. Nonetheless, the use of piggyback second liens was clearly tied to the lowest down payment purchases. Borrowers with a second lien had an average LTV during the boom of at least 95 percent. About two-thirds of all such purchasers had a LTV of 95 percent or more.

Figures 17 and 18 separate purchases between investors and owner-occupants. In all markets, second liens were more likely to be taken out by owner-occupants relative to investors. Among owner-occupants, second liens were most prevalent in Coastal cyclical and Bubble markets where prices increased the fastest

⁸ The high LTVs in the recent time period are surprising given the strong increase in LTVs for GSE mortgages. However, the FHA finances about one-half of all recent purchase money mortgages and such FHA mortgages can have as little as a 3 percent down payment.

during the boom, peaking at 50-55 percent of all purchases. Investors used second liens more equally in all markets but the declining markets, with usage peaking at 35-40 percent.

Putting the analysis from deeds records together, piggyback second liens grew rapidly in Bubble, Coastal cyclical, and Midwest/South stable markets during the housing boom. Mortgages with a piggyback second lien have very high origination LTVs, with almost two-thirds of borrowers having a down payment of 5 percent or less, much higher than LTVs for mortgages without a second lien. Owner-occupants more commonly used piggyback second liens than investors.

III) Performance of second liens and first liens with an affiliated second lien

Below we examine the performance of second liens relative to other types of consumer credit. As well, we provide evidence on the controversial claims that many borrowers appear to pay their second lien while defaulting on their first lien.⁹

Default performance of second liens

We turn back to the NYFRB Consumer Credit Panel to examine the performance of second liens relative to first liens and other types of credit by examining the percentage of borrowers that are 90 or more days delinquent on various forms of debt. Figure 19 compares the performance of CES and HELOCs to various types of first liens. The results show a sharp rise in second lien delinquencies that mirrors delinquencies of similar types of first liens, consistent with serious credit problems resulting from the Great Recession and sharp decline in home prices. CESs tend to be delinquent at a similarly high rate as non-prime first liens, which are also the most common type of mortgages that the CES are attached to as a piggyback. As well, HELOCs tend to default at similar rate to GSE-backed mortgages, which were originated to higher credit quality borrowers and default at

⁹ We do not formally model the default decision on first liens. For a summary of this literature, see Elul, et. al. (2011), for example.

much lower rates than mortgages granted to riskier borrowers.

However, in the last year, there has started to be a divergence between the performance of first and second liens that bears noting by analysts and regulators. Delinquency rates for second liens are rising, while first mortgage delinquency rates are falling, suggesting a possible change in performance for senior and junior debt.

In Figure 20, we compare delinquency rates for second liens to other types of consumer debt. It is worth noting the sharp rise in serious mortgage delinquencies, especially CES delinquencies, relative to serious delinquencies for auto loans or credit cards. Even while exhibiting a sharper rise, delinquency rates on HELOCs are comparable to auto loans, the highest quality consumer debt. However, as above, HELOCs and CES delinquency rates are rising even as delinquency rates for auto loans and credit cards are declining.

Finally we turn to delinquency rates for piggyback second liens versus second liens taken out well after the home purchase in Figures 21 and 22 while controlling for the year of origination. In all cases, piggyback second liens perform much worse than second liens taken out after purchase. In fact, the longer after purchase, the worse the rate of subsequent delinquency. This effect is more pronounced for CES that were more commonly originated with lower-quality first liens. As well, like first liens, the origination date has a large effect on performance, with the worst loans originated in 2006 and 2007 at the height of the housing boom and also at a time that lending standards appear to have slipped.¹⁰ However, second liens originated prior to 2005 became delinquent at very low rates.

Default performance of matched first and second liens

Next we turn to the default rate of matched first and second liens. Some commentators have observed that borrowers appear to default on first liens while the second lien remains current, with the strong implication that such behavior is a

¹⁰ See Mayer, Pence, and Sherlund (2009) and Demyanyk and Van Hemert (2011) for evidence on the deteriorating credit quality of non-prime loans over this time period.

strong rejection of prioritization between senior and junior debt. Jagtiani and Lang (2011) present striking evidence in this regard, especially for HELOCs, showing that an appreciable portion of borrowers who are delinquent on their first line remain current on their second lien. While some of our results are similar to Jagtiani and Lang, we interpret the evidence as showing that the performance of linked first and second liens is more similar than different, especially when compared to the performance of other unsecured debt, where much larger share of defaulted first lien borrowers remain current on their credit cards and auto loans a year later. We also find an increasing trend towards being delinquent of the first lien but not the second lien.

Figure 23 reports 90 days plus delinquency rates for HELOCs and CES and the accompanying first mortgages when both are matched together. The top two lines represent serious delinquency rates for a CES that also has an attached first lien and for a first lien that has an attached with a CES. The performance of both CES and the attached first lien tend to be very similar today, although in earlier periods, especially 2008 and 2009, the first lien appears to have defaulted at higher rates than CES. The difference in performance between first and second liens is more pronounced for HELOCs, where first liens default at a much higher rate than the accompanying HELOC. This result is consistent with the possibility that borrowers might continue to rely on a HELOC for credit even after facing problems on the first lien, as is suggested in Jagtiani and Lang. However, by the time a default occurs, most defaulted first lien borrowers have very little available credit left; on average, only 10 percent of the outstanding credit line is available at the time of default.

To further explore the credit performance of borrowers who have defaulted on a first lien, Table 1 reports the delinquency of various types of credit in the four quarters following the default. The table shows that, conditional on a first lien delinquency, about 80 percent of homeowners stop paying their CES within 4 quarters. Most HELOCs also stop paying soon after a first lien delinquency, but about 30 percent of HELOCs remain current even a year later. This calculation removes first liens that cure after a 60+ delinquency. In our sample about 40 percent of first

lien delinquencies cure within two quarters, consistent with the strong growth of mortgage modifications.

To better understand these alternatives, Table 2 also shows the performance of credit card and auto debt. Our findings are consistent with the findings of Andersson et. al. (2010) that homeowners have a hierarchy of debt payments where the mortgage payment is no longer the most critical payment. Borrowers appear to make many debt payments a year or more after defaulting on their first lien. Borrowers that default on their first mortgage remain current on their auto loan 70 percent of the time for a year or more after a first mortgage delinquency.

These results are consistent with a hierarchy of payments in which a car is the most critical payment to make, given that a default on a car loan can result in a quick repossession. Without a car, most households would have a hard time getting to work or looking for a job. The results for credit cards are more mixed. About 40 percent of those who default on their first lien pay their credit card. As with HELOCs, credit cards can be a source of additional credit to an unemployed household. For example, Cohen-Cole and Morse (2010) find that the availability of credit is as important as house prices in predicting delinquency on a mortgage. Nonetheless, in the event of a personal bankruptcy, credit card and HELOC debt would often be treated similarly. Unpaid HELOC debt (and most second lien debt) would typically be converted to unsecured debt in a bankruptcy if the total of all secured real estate debt (first liens plus all subsequent liens) exceeds the value of the home.

Finally, we examine changes in second lien performance over time when the first lien has defaulted. Table 2 shows that the performance of second liens has improved since 2008 when the first lien becomes delinquent in recent periods. The improvement may be due to increased numbers of first lien borrowers seeking mortgage modifications while remaining current on their second lien.

We list three possible explanations for why some borrowers remain current on their second liens even a year beyond a continuing serious delinquency on their

first lien, especially for CES where additional credit is not possible: Misplaced priorities- Some borrowers may not fully understand the priority structure and thus when facing a loss of income pay the mortgage with the lowest payment with the hope of becoming current in the future; Strategic default- Borrowers may also be strategically defaulting on their first lien, since most mortgage modification programs were targeted to first liens. The fact that 40 percent of serious delinquencies cured in our sample suggests that such beliefs were rational. While some borrowers might have had resources to pay the first lien and strategically defaulted to obtain a modification¹¹, others might have only been able to cover a portion of their mortgage payments and chose the second lien to increase their chances of getting help; Personal liability- As noted above, most borrowers who default on a second liens, with the exception of piggyback CES taken out in non recourse states for a purchase mortgage, still face personal liability on their debt, the same way they would if they defaulted on a credit card or student loan.

The data are certainly consistent with the likelihood that increased availability of mortgage modifications on first liens has left borrowers willing to default on their first lien even if the consequences (foreclosure) are more severe than if they were to default on a second lien or credit card payment first. Borrowers may be looking for a modification of the first lien and do not want to lose their home in the interim. As well, second lien holders might be concerned about personal liability associated with the default on a second lien. Forty percent of borrowers default on their first mortgage while paying their credit card for more than a year. The fact that borrowers might make second lien payments is consistent with second liens having some payment characteristics associated with unsecured financing. Finally, second lien performance appears to be deteriorating relative to first liens and other credit in recent periods, a potentially troubling sign for many lenders who hold such liens on their balance sheet.

¹¹ See Mayer, Christopher, Edward Morrison, Tomasz Piskorski, and Arpit Gupta. 2011. "Mortgage Modification and Strategic Default: Evidence from a Legal Settlement with Countrywide," May. In this paper, the authors show that the offer of a mortgage modification program can increase default rates on a first lien by about 20 percent, with the biggest increase among borrowers who apparently have the financial resources to pay.

IV) Conclusion

We use data from credit report and deeds records to better understand the role of second liens in contributing to the housing boom and subsequent foreclosure crisis. Overall, second liens appear to have allowed borrowers to take on additional leverage, although it is not possible to say whether borrowers might have turned to higher LTV first liens if attractively priced second liens were not available. However, part of the reason that second liens were attractively priced is that many second liens were originated to higher quality borrowers than the average first lien borrowers. Within the category of second liens, home equity lines of credit (HELOCs) appear to be the best credit quality, with relatively few piggyback originations, higher quality borrowers at origination, and a smaller percent originated near the peak of the housing boom. Closed end second lien (CES) characteristics are worse on all these dimensions.

Second liens were quite prevalent at the top of the housing market, with as many as 45 percent of home purchases involving a piggyback second lien in coastal markets and bubble locations, but a somewhat smaller prevalence of piggyback second liens in more stable or declining markets in the Midwest and South. Second liens were strongly associated with the use of low down payments to purchase homes and were somewhat more prevalent among owner-occupants than investors.

Default rates of second liens are generally similar to that of the first lien on the same home, although about 20-30 percent of borrowers will pay the second lien for more than a year while remaining seriously delinquent on their first mortgage. By comparison, about 40 percent of credit card borrowers and 70 percent of auto loan borrowers will continue making payments a year after defaulting on their first mortgage. This behavior can be due to a combination of several reasons, including strategic default on the first lien to obtain a modification, lower conditional default rates on revolving credit such as HELOCs and credit cards as homeowners might want access to additional borrowing capacity, personal recourse on second liens

that might be less likely on first mortgages in many states, and behavioral explanations that depend in part of borrowers not understanding the priority structure of lending and the fact that defaults on second liens very rarely result in the loss of a home.

Finally, we show that the relatively good performance of second liens, especially HELOCs, is deteriorating in recent months. Given that the bulk of outstanding second liens are HELOCs, such performance could signal problems for some lenders with large portfolios of second liens on their balance sheet.

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A New Look at Second Liens:

Figures and Tables

Figure 1
Number of second liens quarterly
1999-present (thousands of accounts)

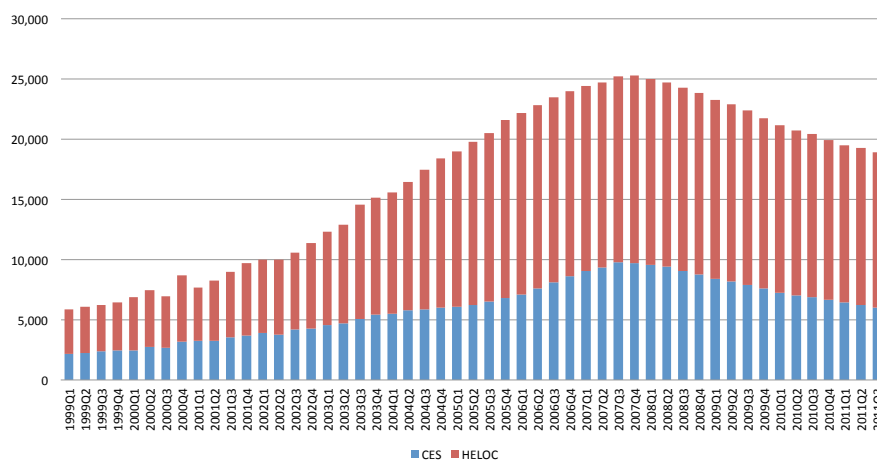


Figure 2
Second lien balance
1999-present (\$ Billion)

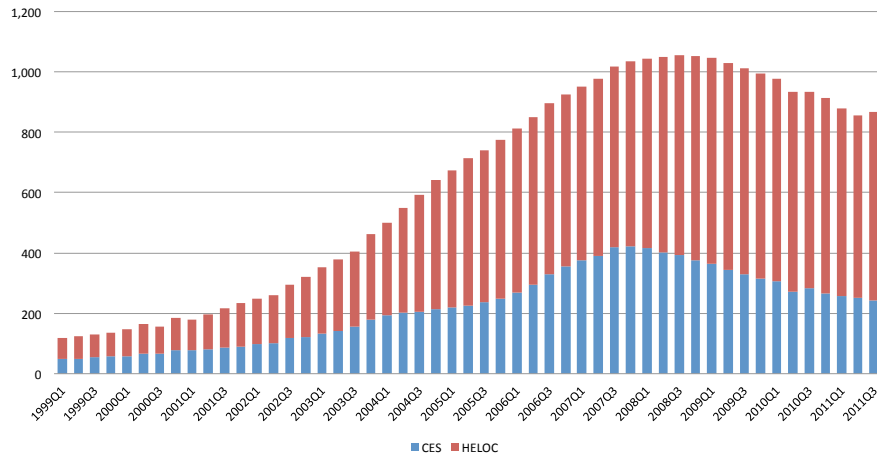
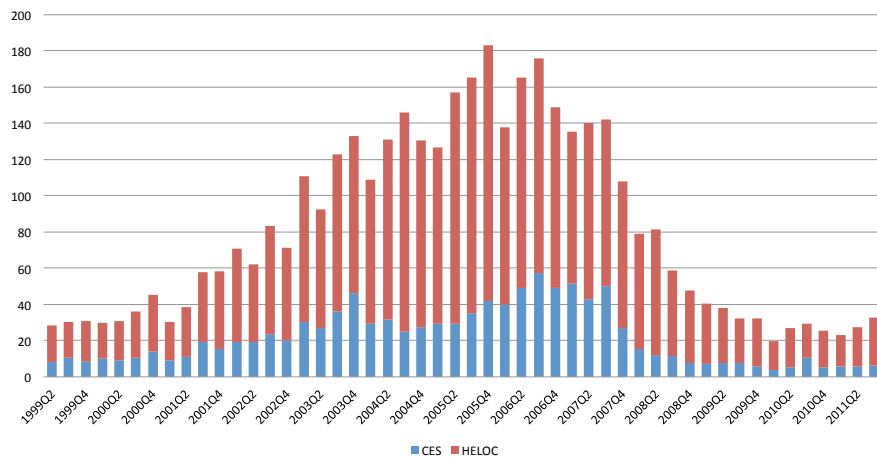
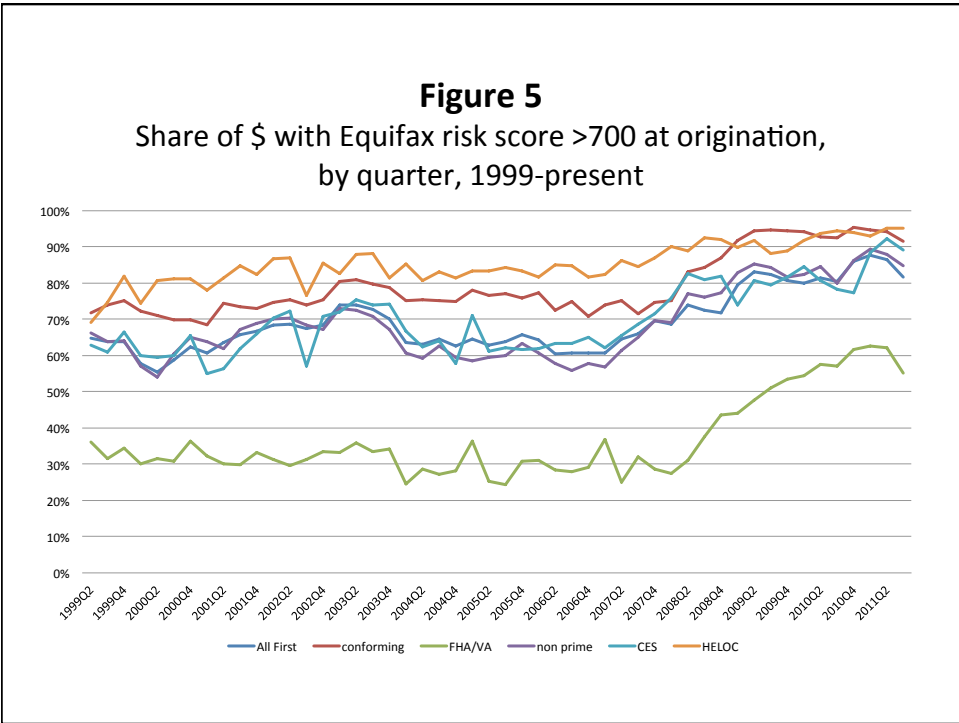
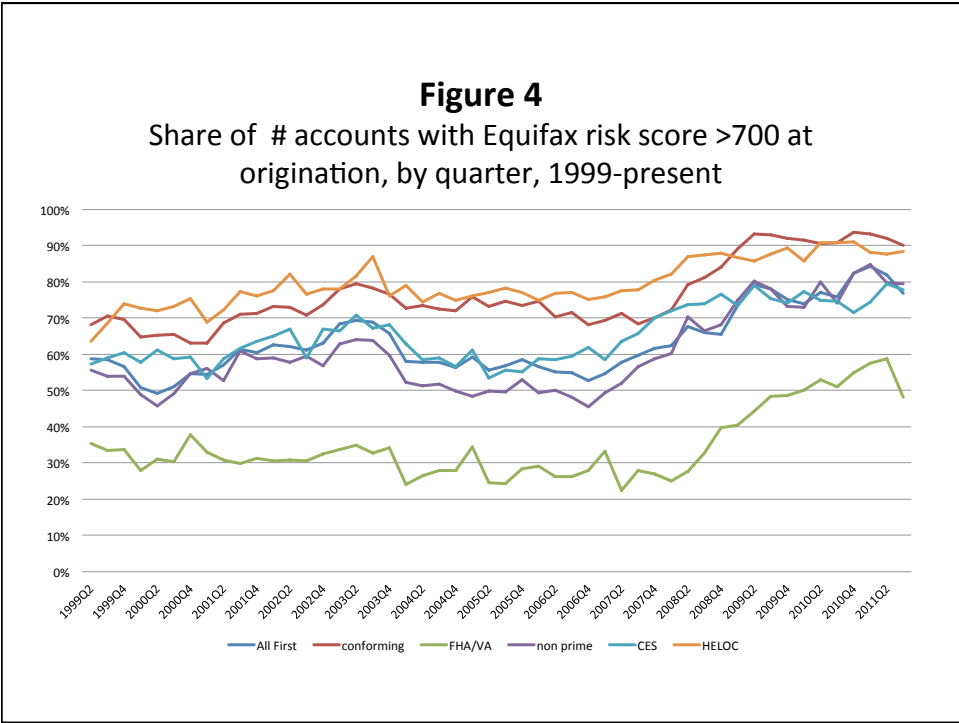
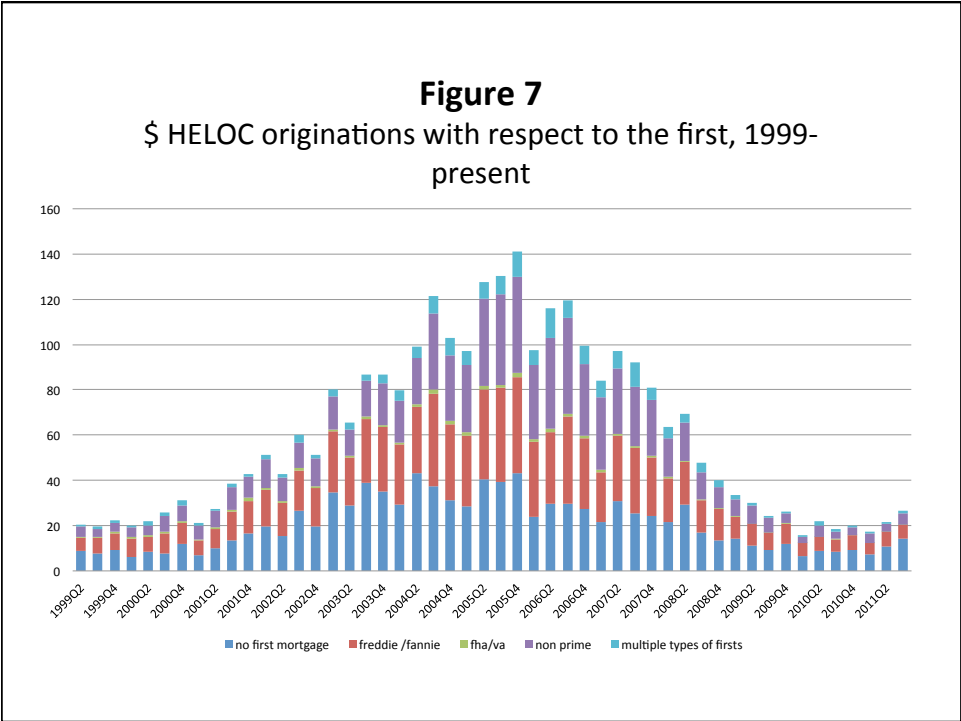
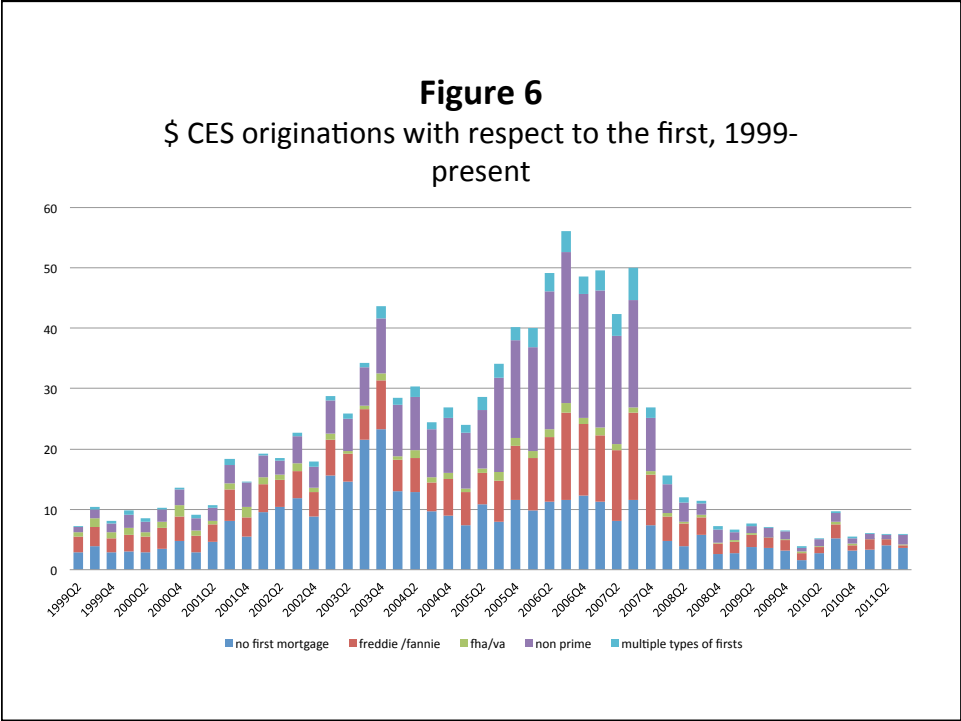


Figure 3
\$ of second liens originated quarterly
(\$ Billion)







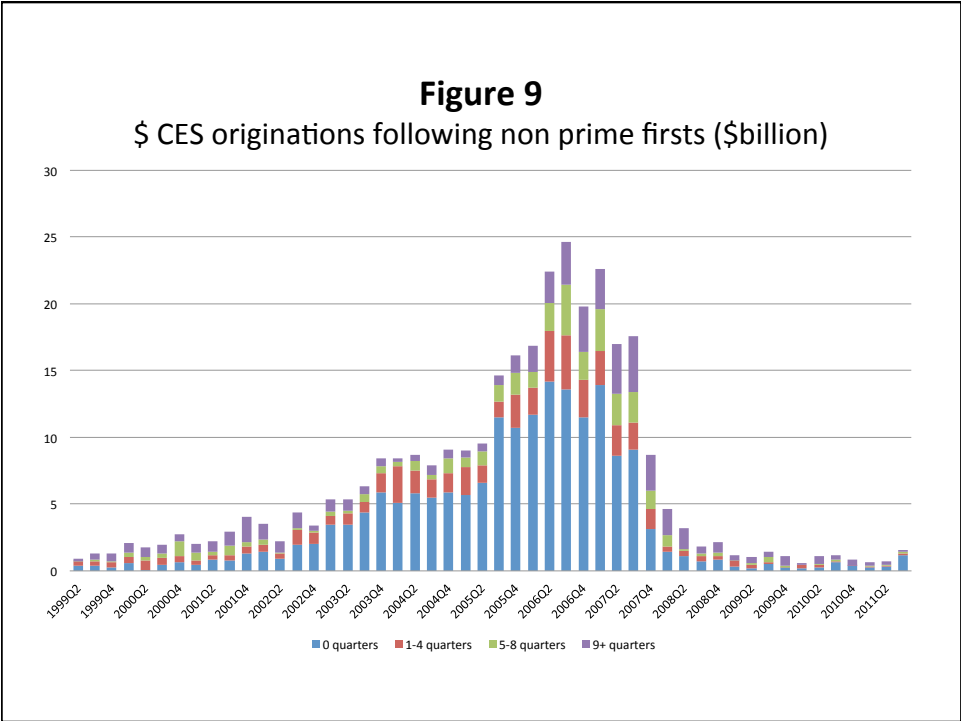
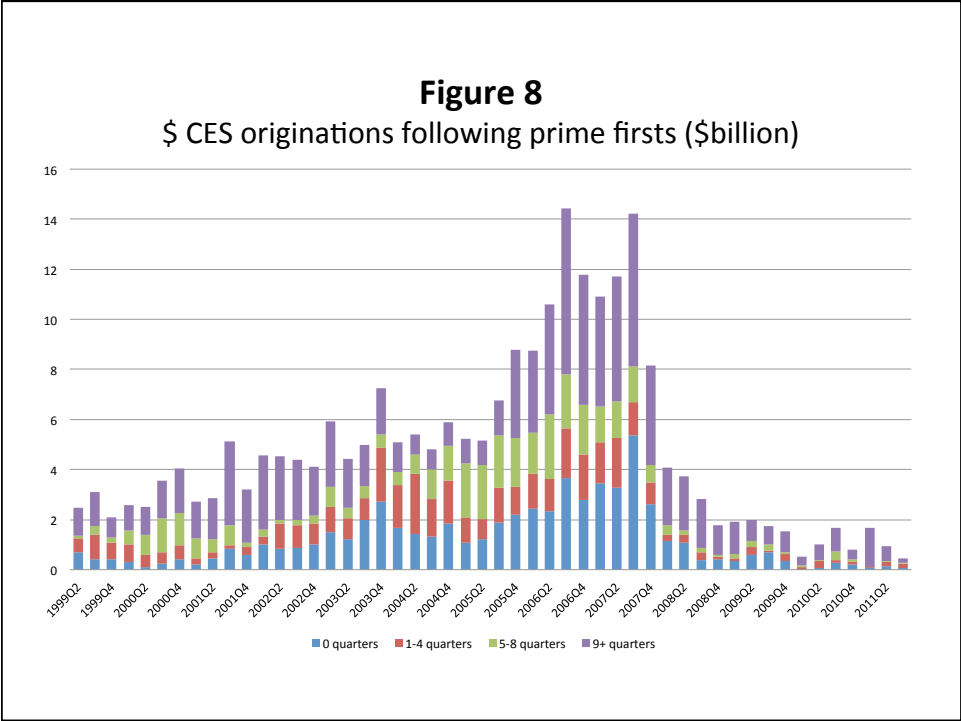


Figure 10
\$ HELOC originations following prime firsts (\$billion)

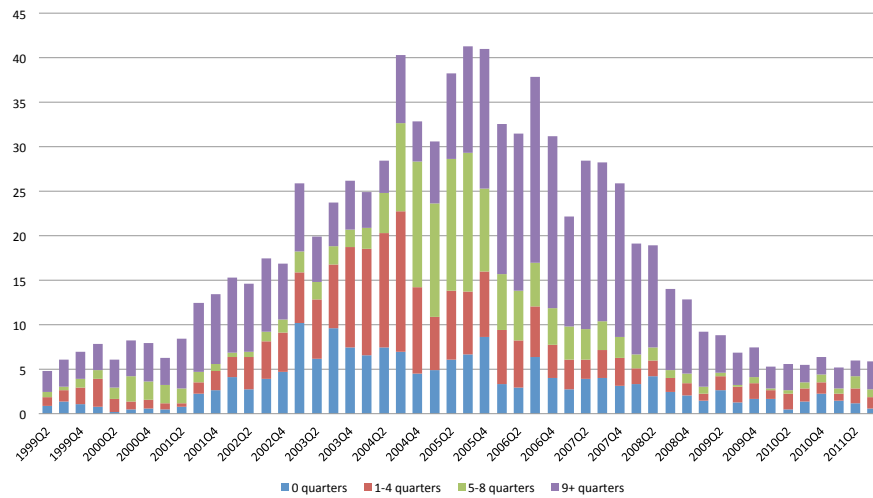


Figure 11
\$ HELOC originations following non prime firsts (\$billion)

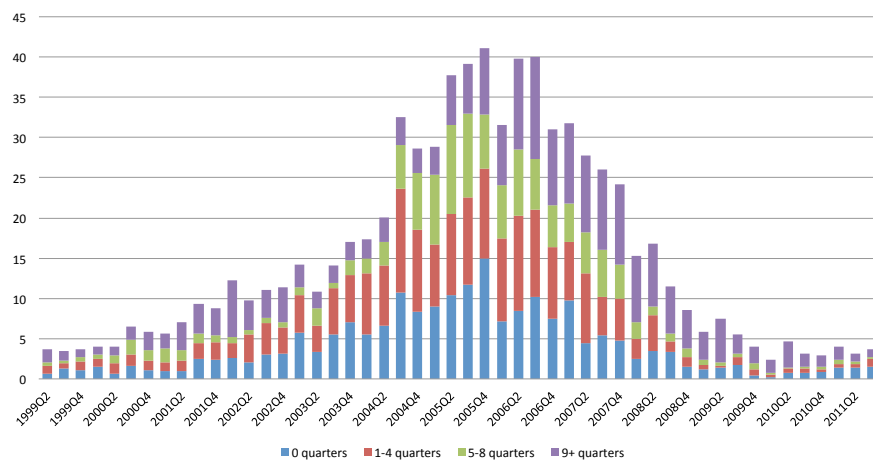


Figure 12

Share of purchases with a first mortgage and piggyback second lien

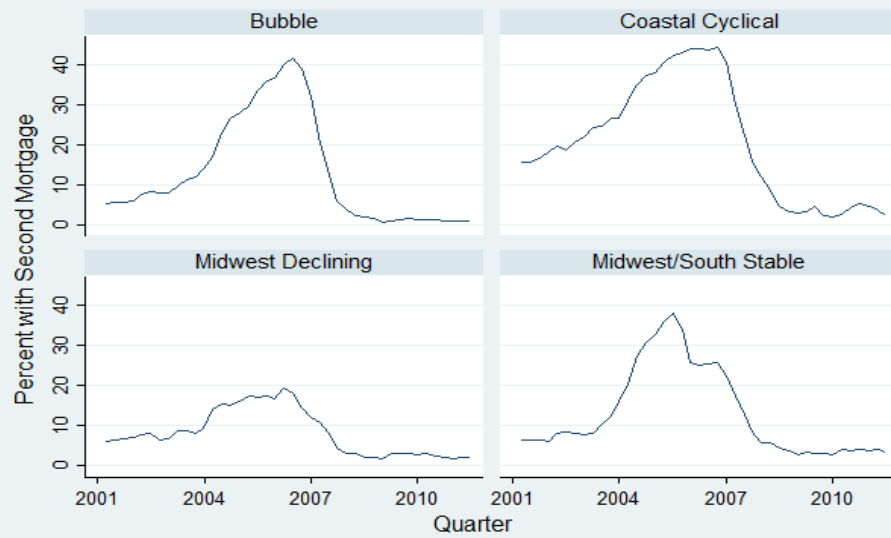
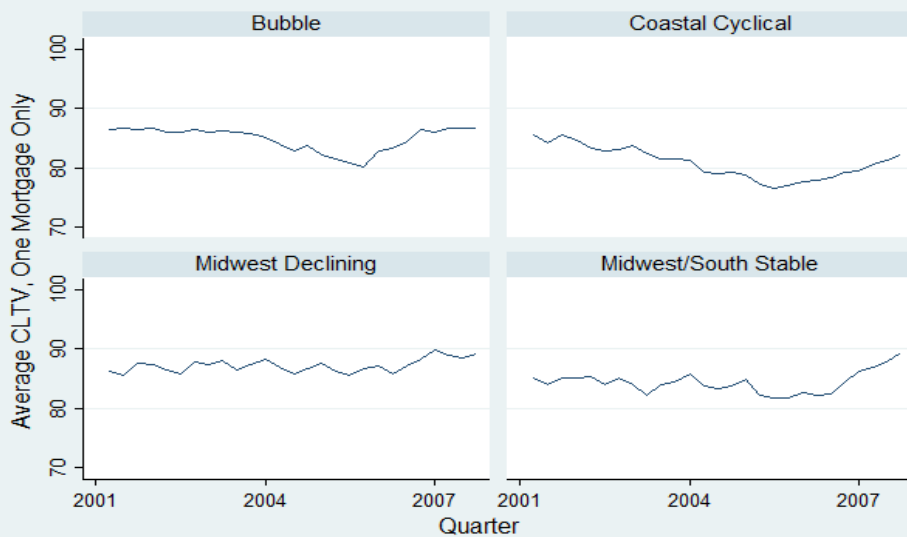


Figure 13

Average LTV, Purchases with a single mortgage



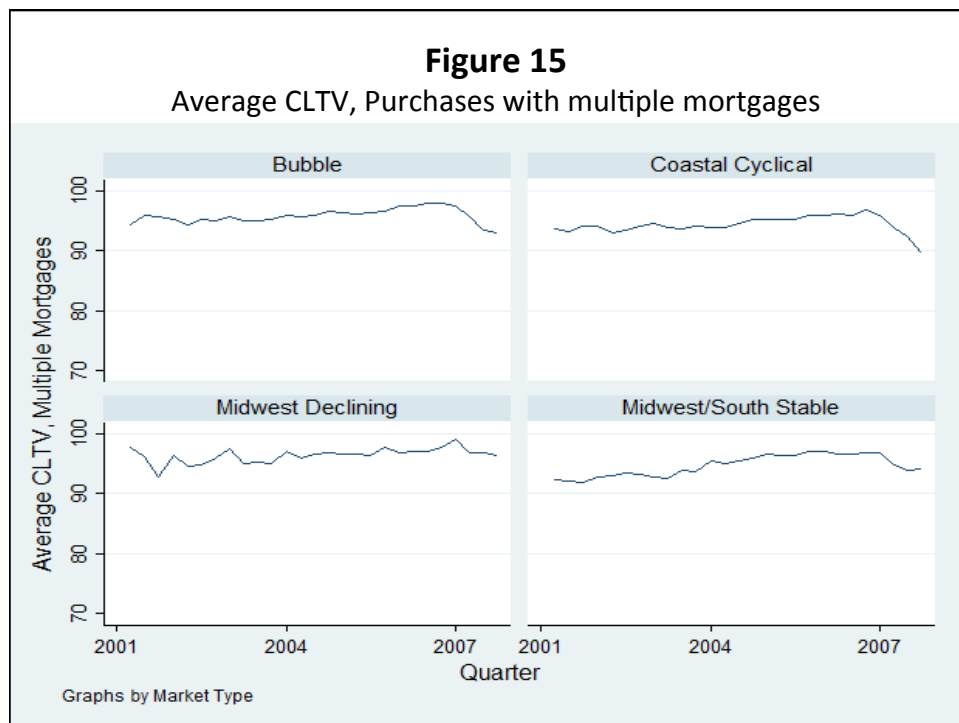
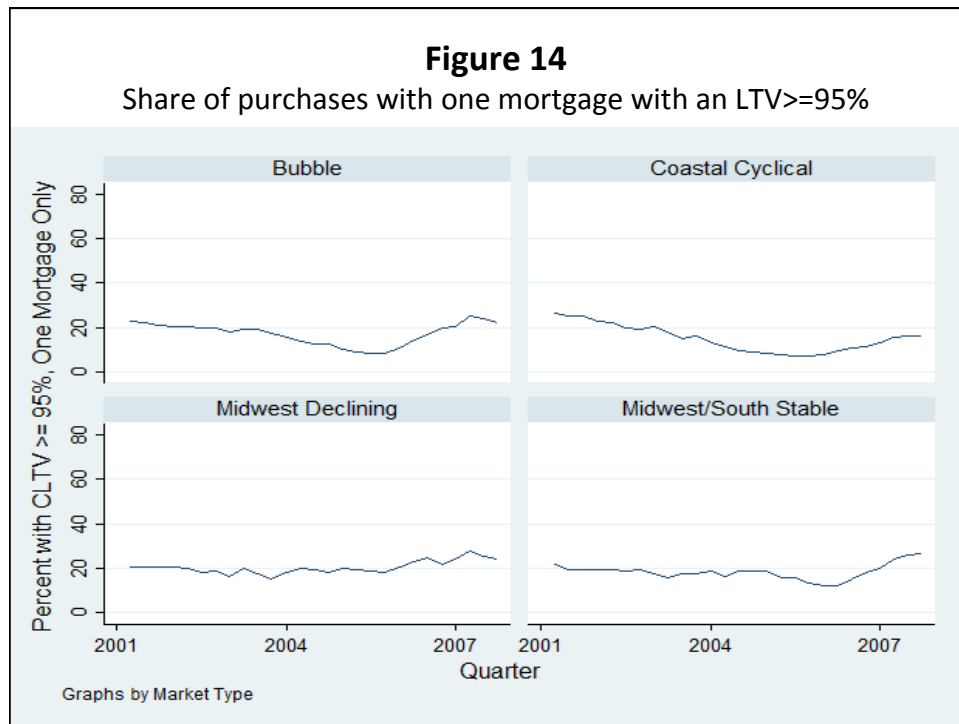


Figure 16

Share of purchases with multiple mortgages with a CLTV $\geq 95\%$

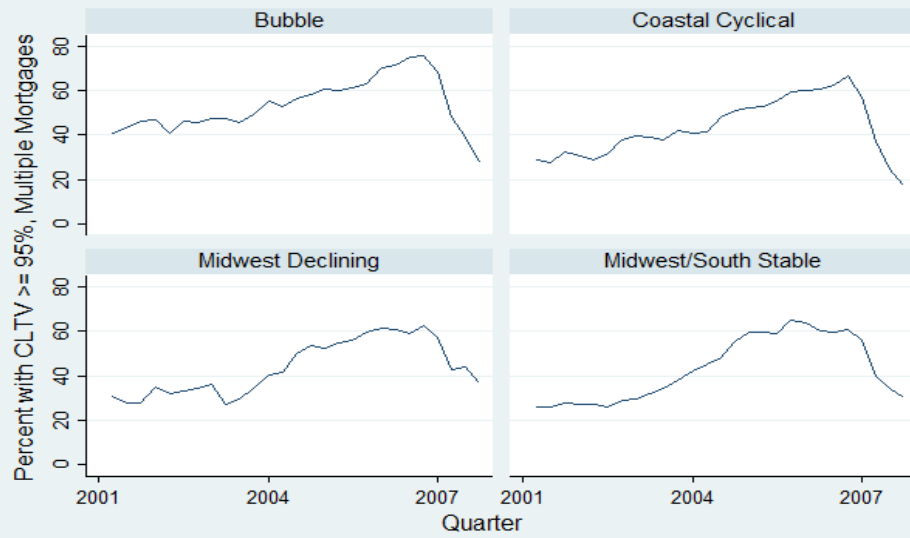
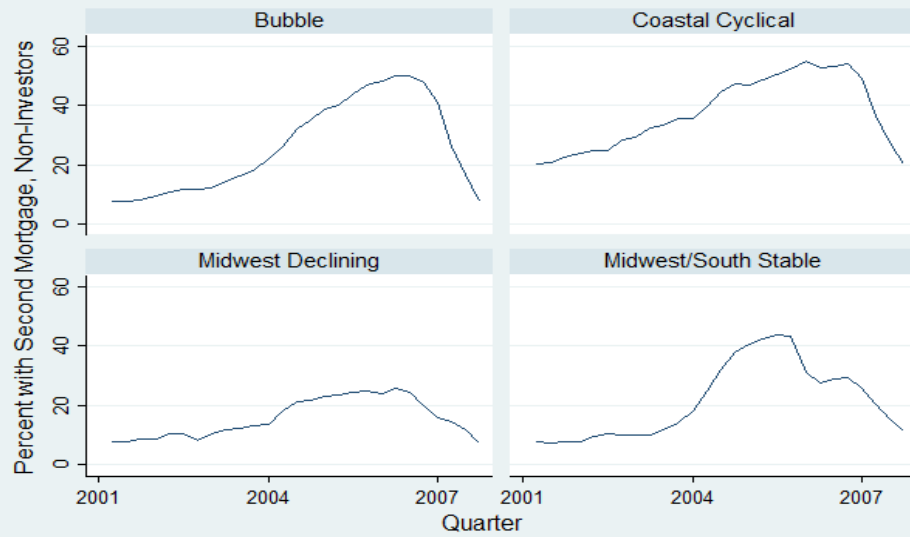


Figure 17

Share of non-investor purchases financed by multiple mortgages



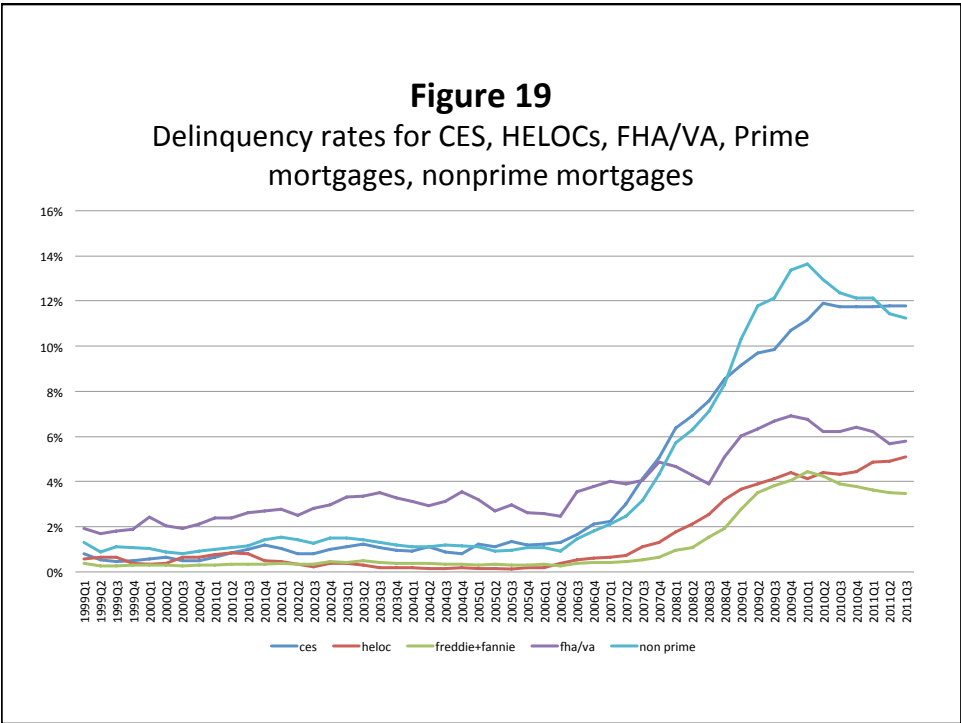
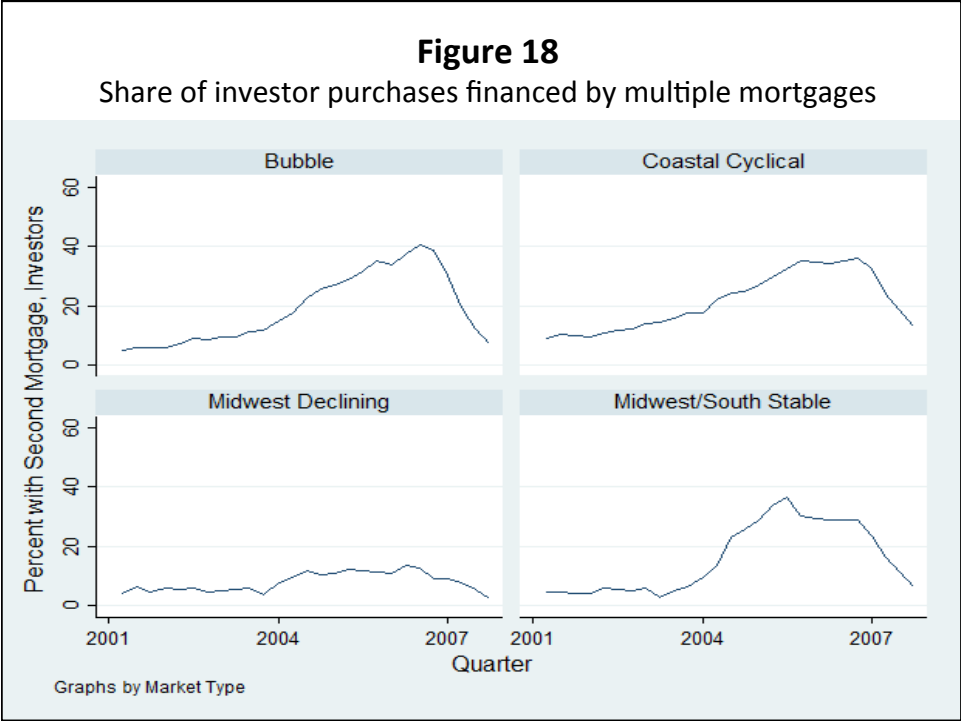


Figure 20
90+ Delinquency rates for CES, HELOCs, Credit Cards,
Auto loans

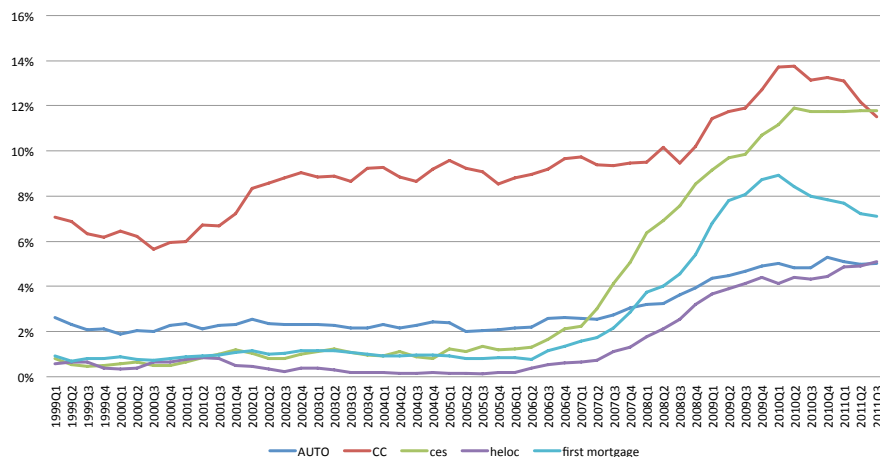


Figure 21
Delinquency rates for CES originations with respect to the firsts for each
origination year
(Delinquency defined by the last observation of the life of the loan)

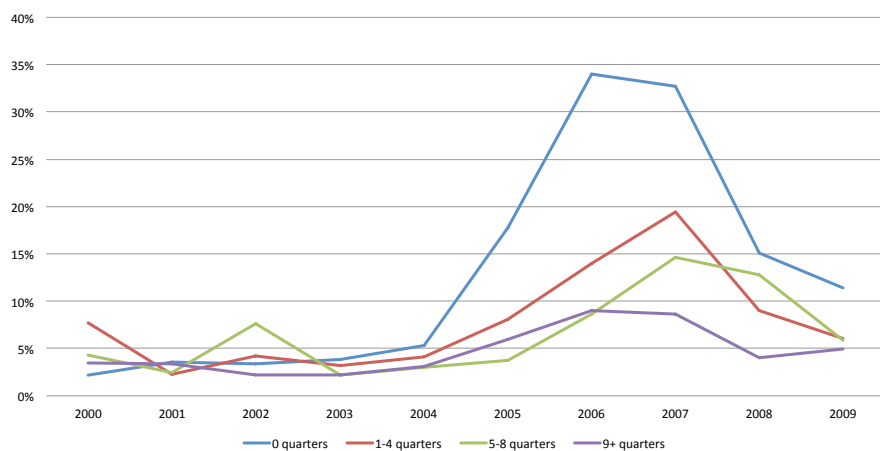


Figure 22

Delinquency rates for HELOC originations with respect to the firsts for each origination year
(Delinquency defined by the last observation of the life of the loan)

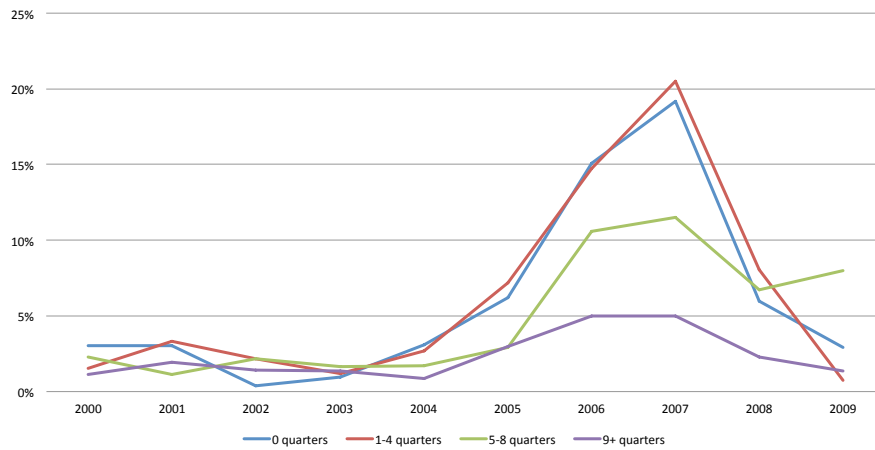


Figure 23

First mortgage, CES, HELOC 90+ DPD delinquency rate
(conditional on matching a first and a second)

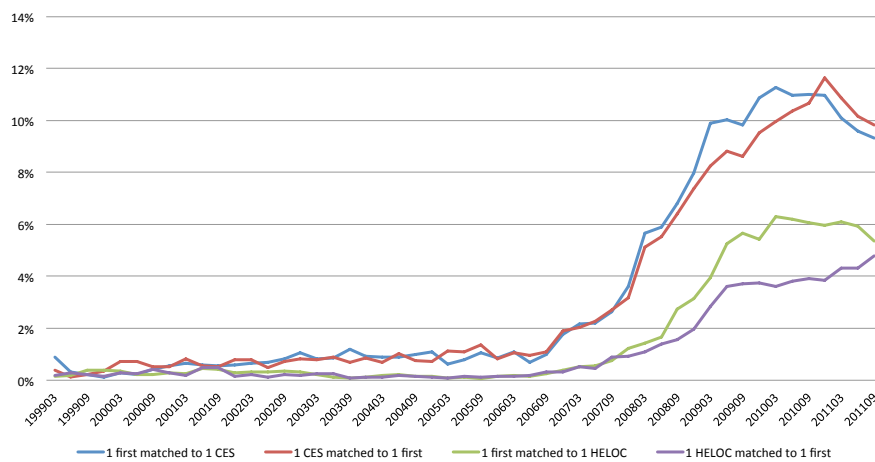


Table 1

Percent of balances remaining current after first lien delinquency

Current payment percent by credit type after first lien delinquency	1 Quarter	2 Quarters	3 Quarters	4 Quarters
CES	26.5%	30.6%	27.1%	20.7%
HELOC	40.9%	35.3%	39.5%	30.9%
Auto Loan	79.2%	78.0%	78.4%	70.0%
Credit Card	46.8%	41.8%	43.8%	40.2%

Note: Sample includes all first liens that remain delinquent over the relevant period. About 40 percent of delinquent first liens “cure” within 4 quarters of first becoming delinquent.

Table 2

Change over time in payments on second liens when the first lien is seriously delinquent

% Current if First Lien is 60+ Days Delinquent	CES	HELOC
2008Q2	16.19%	29.24%
2010Q2	21.98%	42.19%
2011Q2	25.70%	37.81%