

# **Wilson Affirmation**

## **Exhibit 9**

SUPREME COURT OF THE STATE OF NEW YORK COUNTY OF NEW YORK

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MORGAN STANLEY MORTGAGE LOAN TRUST :  
2006-14SL, MORTGAGE PASS-THROUGH :  
CERTIFICATES, SERIES 2006-14SL and MORGAN :  
STANLEY MORTGAGE LOAN TRUST 2007-4SL, :  
MORTGAGE PASS-THROUGH CERTIFICATES, :  
SERIES 2007-4SL, :  
: Plaintiffs, :  
v. : : Index No. 652763/2012  
: :  
MORGAN STANLEY MORTGAGE CAPITAL :  
HOLDINGS LLC, as successor to Morgan Stanley :  
Mortgage Capital Inc., :  
: Defendant. :  
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**EXPERT REPORT OF ETHAN COHEN-COLE, PH.D.**

**MARCH 11, 2016**

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## **I. QUALIFICATIONS**

1. I am a Managing Director and Financial Services Practice Lead at Econ One Research, a company that provides consulting services on issues related to structured finance and the macroeconomy.
2. I was previously a professor in the Department of Finance at the University of Maryland, College Park's Robert H. Smith School of Business. In addition, I served as a faculty participant at the Center for Financial Policy and on the steering committee of the Center for Social Value Creation. I taught courses on various topics, including risk management, corporate finance, and the regulation and management of financial institutions.
3. Before teaching, I was a financial economist in the Supervision and Regulation function of the U.S. Federal Reserve System ("Federal Reserve"), where I provided technical and analytical direction to bank supervisors for many of the largest banks in the United States. At the Federal Reserve, I led quantitative reviews of large bank risk modeling efforts and was a designated system quantitative expert on risk management and Basel II.
4. At various stages of my career, I have worked in the banking sector in roles related to mortgage securitization. In the mid-1990s, I worked as a technical risk management consultant. This job included helping clients build risk-based scoring systems for a range of loan types, including mortgages. At the Federal Reserve, I evaluated the mortgage credit risk models for many top-20 financial institutions. Also at the Federal Reserve, I worked closely with mortgage databases to develop internal evaluations of bank risk and to write papers on mortgage risk. As an academic at the University of Maryland, I continued to research and work in the mortgage area. I wrote papers both on consumer credit and commercial paper.
5. I have experience evaluating financial risk within a range of contexts, including market risk, operational risk, and credit risk. My client experience involves advising financial institutions in a variety of contexts including the measurement and management of credit risk, the creation and validation of loan scoring models, and the evaluation of risk management systems for personal and corporate lending.
6. I have experience evaluating structured financial products in a range of contexts. Prior to working as an expert, I taught classes in risk management and financial institutions, during which I taught sections on structured products. At the Federal Reserve, I regularly reviewed industry risk management models that included a variety of structured financial products.
7. I have published widely in economics and finance journals, including the Review of Economics and Statistics, the Journal of Macroeconomics, the American Law and Economic Review, the Journal of Health Economics, Economic Inquiry, Economics Letters and Applied Economics. I have also served as a referee for more than 20 academic journals, including the Review of Financial Studies, the Quarterly Journal of Economics, the American Economic Review, the Journal of Monetary Economics, the Review of Economic Studies, the Review of Economics and Statistics, American Economic Journal – Economic Policy, Journal of Financial Intermediation, Journal of Money Credit and Banking, Journal of Banking and Finance and the Journal of Financial Services Research.
8. Apart from my regular class lectures, I have delivered more than 75 lectures at universities and professional meetings. I have been a visiting scholar or professor at the University of California, Berkeley, the European Central Bank, the Bank of France, and the Federal Deposit Insurance

Corporation's Center for Financial Research. I have received scholarly research grants from the National Science Foundation, the National Institutes of Health, the National Institute of Justice, the Department of Education, the European Central Bank, and the MacArthur Foundation.

9. I have included a recent CV as **Appendix A: Curriculum Vitae**. My CV includes all of my publications for the last ten years and all of my expert witness testimony for the last four years.
10. For a list of documents relied upon, please see **Appendix B: Documents Relyed Upon**.
11. For my work on this matter, I am being compensated at a rate of \$875/hour. My compensation is not contingent upon my findings or the outcome of this matter. I reserve the right to express additional opinions or otherwise supplement my analysis or the opinions expressed herein.

## **II. CASE BACKGROUND AND ASSIGNMENT**

12. Morgan Stanley Mortgage Loan Trust 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL (collectively, the "Trusts" or "Plaintiffs") allege that Morgan Stanley Mortgage Capital Inc., the predecessor of Morgan Stanley Mortgage Capital Holdings LLC ("Defendant"), breached contractual requirements regarding certain pools of mortgage loans.<sup>1, 2</sup>
13. Plaintiffs contend that Defendant breached the representations and warranties in Mortgage Loan Purchase Agreements dated October 1, 2006 and February 1, 2007.<sup>3, 4</sup> Plaintiffs allege that Defendant failed to cure or repurchase loans that "failed to conform to the representations and warranties and such failure materially and adversely affected the value of the loan or the interest of the [t]rust therein."<sup>5</sup>
14. To support their claims, Plaintiffs have submitted the expert report of Robert W. Hunter to provide an opinion on whether the loans in MSM 2006-14SL and MSM 2007-4SL complied with

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<sup>1</sup> Complaint. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Dkt. #1) (Aug. 8, 2012) ("Complaint") at ¶¶ 1, 2, 8.

<sup>2</sup> The loan pools at issue in this matter underlie two structured securities: Mortgage Pass-Through Certificates, Series 2006-14SL ("MSM 2006-14SL") and Mortgage Pass-Through Certificates, Series 2007-4SL ("MSM 2007-4SL") (collectively, the "Relevant Certificates").

<sup>3</sup> Mortgage Loan Purchase Agreement, Morgan Stanley Mortgage Loan Trust 2006-14SL (Oct. 1, 2006) (MSM\_14SL\_00085432) and Mortgage Loan Purchase Agreement, Morgan Stanley Mortgage Loan Trust 2007-4SL (Feb. 1, 2007) (MSM\_14SL\_00009676) (collectively, "MLPAs").

<sup>4</sup> Complaint at ¶ 1.

<sup>5</sup> Complaint at ¶ 2.

the representations and warranties.<sup>6</sup> In his review, Mr. Hunter purports to consider “whether the deviations from the [underwriting] guidelines [...] affected the credit risk of the loan[s].”<sup>7</sup>

15. I have been retained by Defendant, through its counsel Davis Polk & Wardwell LLP, to respond to the Hunter Report and provide an opinion as to whether the alleged breaches “materially and adversely affected the value of the mortgage loan[s].”<sup>8</sup>
16. To reach my conclusions, I conducted an empirical analysis to determine whether or not the alleged loan-level defects, if true, would have resulted in a statistically significant increase in the risk for a given loan.

### **III. SUMMARY**

17. The Hunter Report alleges that 351 loans in MSM 2006-14SL and 354 loans in MSM 2007-4SL breached the applicable representations and warranties for those loans in a way “that materially and adversely affects the value of [the] Mortgage Loan or the interest therein.”<sup>9</sup> Of these loans, Mr. Hunter offered alternative loan characteristics amenable to an empirical analysis for 313 loans for MSM 2006-14SL and 295 loans for MSM 2007-4SL (the “Hunter Breaching Loans”).
18. I empirically assess whether certain allegations of breaches regarding loan characteristics (hereafter, “Plaintiffs’ Loan Characteristic Claims”),<sup>10</sup> even if true, would have resulted in empirically more risk.
19. By assessing the risk profile<sup>11</sup> of loans for which Mr. Hunter offers alternative values for certain loan characteristics, I am incorporating all changes for which Mr. Hunter’s claims may have had an empirical impact on the risk of the loan.
20. For my analysis, I relied on the Loan Tapes identified by Defendant and provided by counsel.<sup>12</sup>

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<sup>6</sup> Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) (“Hunter Report”).

<sup>7</sup> Hunter Report at ¶ 42.

<sup>8</sup> Hunter Report at ¶ 79.

<sup>9</sup> Hunter Report at ¶ 59 and ¶ 69.

<sup>10</sup> Specifically, I consider the combined loan-to-value (“CLTV”) ratio, debt-to-income (“DTI”) ratio, credit score (“FICO score”), occupancy status, loan purpose, property type, and documentation type claims of the Hunter Report.

<sup>11</sup> The term “risk profile” is used throughout the report to define the sequence of monthly expected cumulative default probabilities for a given loan.

<sup>12</sup> Loan tape: MSM 2006-14SL (MSM\_14SL\_00192865), Loan tape: MSM 2007-4SL (MSM\_14SL\_00192869) (collectively, the “Loan Tapes”).

21. I determined whether one could distinguish the risk profile of a loan that incorporated Plaintiffs' Loan Characteristic Claims from one that did not.<sup>13</sup> In other words, I compared a risk profile calculated in a *baseline scenario* with the risk profile calculated in the *Plaintiffs' claims scenario*, which incorporated Plaintiffs' Loan Characteristic Claims.
22. I find that for 259 of the 313 Hunter Breaching Loans for MSM 2006-14SL and 256 of the 295 Hunter Breaching Loans for MSM 2007-4SL, the risk profile of a loan based on the characteristics in the mortgage loan schedules is statistically indistinguishable from one based on Plaintiffs' Loan Characteristic Claims.
23. The value of an individual mortgage loan is determined by the expected cash flow it will produce over its life. The value of mortgage loans in a securitization is determined by the expected mortgagor payments. When the risk profiles cannot be shown to be statistically different, the value of the loans and the interest of certificateholders cannot be shown to have been harmed. As a result, for 82.75% of the Hunter Breaching Loans for MSM 2006-14SL and 86.78% of the Hunter Breaching Loans for MSM 2007-4SL, Plaintiffs' Loan Characteristic Claims, even if true, had no statistically significant impact on the value of loans, and thus harmed neither the Trusts nor the interests of certificateholders.

#### **IV. GENERAL RMBS CONCEPTS AND APPLICATION**

24. Issuers of RMBS create a separate entity, a trust, which holds residential mortgages. RMBS are secured by collateral in the form of aggregated loan pools with each pool containing many residential mortgages.<sup>14</sup>
25. Each purchaser of an RMBS certificate is typically entitled to a portion of the cash flows associated with principal and interest payments made by the mortgagors over the life of the certificate.<sup>15</sup> A trustee is responsible for distributing to investors funds received from mortgagors.<sup>16</sup>
26. All RMBS investments are subject to a variety of risks including, in particular, the risk of default and the risk of prepayment.<sup>17</sup> Default risk is the risk that the borrower will stop repaying the

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<sup>13</sup> Cumulative default probabilities over time have been used in academic research in areas of mortgage default. See Kau, James B., Donald C. Keenan, and Taewon Kim. "Default Probabilities for Mortgages." *Journal of Urban Economics* 35.3 (May 1994): 278–296 at 284–285. A full description is available in **Appendix C: Technical Appendix**.

<sup>14</sup> Fabozzi, Frank J., Michael G. Ferri, and Steven V. Mann. "Overview of the Types and Features of Fixed Income Securities." *The Handbook of Fixed Income Securities*. 8<sup>th</sup> ed. Eds. Frank J. Fabozzi and Steven V. Mann. New York: McGraw Hill (2012): 3-19 at 16.

<sup>15</sup> Fabozzi, Frank J., Anand K. Bhattacharya, and William S. Berliner. *Mortgage-Backed Securities: Products, Structuring, and Analytical Techniques*. 2<sup>nd</sup> ed. Hoboken, NJ: John Wiley & Sons, Inc. (2011) at 25.

<sup>16</sup> Cook, Karen, and F. Jim Della Sala. "The Role of the Trustee in Asset-Backed Securitization." *Handbook of Structured Financial Products*. Ed. Frank J. Fabozzi. New Hope, Pennsylvania: Frank J. Fabozzi Associates (1998): 67-78 at 73.

<sup>17</sup> Deng, Yongheng, John M. Quigley, and Robert Van Order. "Mortgage Terminations, Heterogeneity and the Exercise of Mortgage Options." *Econometrica* 68.2 (Mar. 2000): 275-307 at 275-6.

mortgage loan. It is generally understood in the market that at least some of the mortgage loans underlying the securitization will default over the life of the security.<sup>18</sup> Additionally, RMBS are subject to prepayment risk, which occurs when the borrower pays off the full amount owed on the mortgage early, *i.e.*, “prepays” their loan before the full term expires.<sup>19</sup> When a mortgage is prepaid, the duration of the income stream is shortened and the total income to the trust is reduced due to the elimination of the interest income expected from that prepaid mortgage. A prepayment also eliminates the risk of default for the prepaid mortgage.<sup>20</sup>

## V. EMPIRICAL ANALYSIS OF DEFAULT RISK

27. For my analysis, I determined whether one could distinguish the risk profile of a loan that incorporated Plaintiffs’ Loan Characteristic Claims from the risk profile of one that did not.
28. As part of determining whether Plaintiffs’ Loan Characteristic Claims had an empirical impact on the risk of each loan in question, I used a Cox proportional hazards model (the “Model”) which is widely used in academia and industry to estimate the prepayment and default hazards of each loan.<sup>21, 22</sup> These “hazards” are used to predict month-specific rates of prepayment and default for a loan based on its characteristics.
29. The Model estimates prepayment and default using information on credit score, CLTV ratio, DTI ratio, loan purpose, occupancy status, property type, documentation type, lien position, prepayment penalty indicator, adjustable-rate mortgage indicator, current loan balance, the state in which the loan was originated, and the unemployment rate of the state in which the loan was originated (models at the time consistently used contemporaneous macroeconomic variables).
30. *First*, the Model determines the relationship between a given set of loan characteristics and the expected probability of prepayment.<sup>23</sup> It estimates the relationship between certain loan and

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<sup>18</sup> Loan defaults may or may not result in less money being distributed to investors. The collateral underlying the loan may be sold and the proceeds applied to the outstanding balance. Discussed more fully below, my analysis takes a conservative approach and assumes 100% severity—that is, I assume that no proceeds are recovered from a foreclosure sale of a property securing a loan that has defaulted.

<sup>19</sup> Fabozzi, Bhattacharya & Berliner, *supra* note 15 at 17.

<sup>20</sup> *Id* at 96.

<sup>21</sup> Stein, Roger M., Ashish Das, Yufeng Ding, and Shirish Chinchalkar. “Mortgage Portfolio Analyzer: A Quasi-Structural Model of Mortgage Portfolio Losses.” *Moody’s Research Labs Technical Document* (Mar. 4, 2011): 1–78 at 14; Kiefer, Nicholas. “Economic Duration Data and Hazard Functions.” *Journal of Economic Literature* 26.2 (1988): 646–79 at 664. *See also* Cox, David. “Regression Models and Life-Tables.” *Journal of the Royal Statistical Society, Series B* 34.2 (1972): 187–220 at 189.

<sup>22</sup> Elul, Ronel. “Residential Mortgage Default.” *Philadelphia Fed. Bus. Review* (Q3 2006): 22–30 at 25; *see also* Fuster, Andreas, and Paul S. Willen. “Payment Size, Negative Equity, and Mortgage Default.” *Fed. Res. Bank NY. Staff Report* 582 (Aug. 2013): 1–67 at 16; *see also* Ding, Yufeng. “Decomposing Mortgage Portfolio Risk: Default, Prepayment, and Severity.” *Moody’s Research Labs* (Nov. 19, 2010): 1–27 at 6. Additional detail on my Model is available in **Appendix C: Technical Appendix**.

<sup>23</sup> For a similar prepayment likelihood estimation, *see* Quigley, John M., and Robert Van Order. “Efficiency in the Mortgage Market: The Borrower’s Perspective.” *Real Estate Economics* 18. 3 (Sept. 1990): 237–52 at 242–7.

economic characteristics (for example, DTI ratio, credit score, CLTV ratio, loan purpose, occupancy status, documentation type, and state-level unemployment rate) and prepayment using information on approximately 20 million loans from ABSNet, a commercially available database. The prepayment estimation of the proportional hazards model is carried out using only data available to an investor as of the closing date of the Relevant Certificates (*i.e.*, historical loan prepayment data from 1997 to the time of closing).

31. *Second*, the Model determines the relationship between a given set of loan characteristics and the expected probability of default.<sup>24</sup> It estimates the relationship between certain loan and economic characteristics (for example, DTI ratio, credit score, CLTV ratio, loan purpose, occupancy status, documentation type, and state-level unemployment rate) and default using information on approximately 20 million loans from ABSNet. The default estimation of the proportional hazards model is carried out using only data available to an investor as of the closing date of the Relevant Certificates (*i.e.*, historical loan delinquency data from 1997 to the time of closing).
32. *Third*, with the statistical relationship between certain loan characteristics and expected loan performance (default and prepayment) established, I consider scenarios that allow me to empirically determine whether Plaintiffs' Loan Characteristic Claims had a statistically significant impact on the risk profile of the Hunter Breaching Loans. The scenarios are the:
  - a. *baseline scenario*; and
  - b. *Plaintiffs' claims scenario* (reflecting Plaintiffs' Loan Characteristic Claims).
33. In the *baseline scenario*, I used the respective Loan Tape and calculate the risk profile for each of the Hunter Breaching Loans.
34. In *Plaintiffs' claims scenario*, I modify the loan characteristics from the Loan Tape for each of the loans reviewed by Mr. Hunter to reflect Plaintiffs' Loan Characteristic Claims.<sup>25</sup> Based on the modified loans, I calculate the risk profile for each of the Hunter Breaching Loans.
35. The risk profile for each scenario is calculated using the same process. The risk profile is based on the expectation of defaults and prepayments for each loan as of the closing date of the Relevant Certificates. The risk profile measures the cumulative probability of default over time for each loan.
36. For each loan, if the risk profile calculated in the *Plaintiffs' claims scenario* cannot be shown to be statistically distinguishable from the risk profile calculated in the *baseline scenario*, Plaintiffs' Loan Characteristic Claims for that loan do not have an empirical impact on the risk profile of the loan. Specifically, for each of the Hunter Breaching Loans, I test the equality of the risk profile

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<sup>24</sup> For a similar default likelihood estimation, see Quigley, John M., and Robert Van Order. "Explicit Tests of Contingent Claims Models of Mortgage Default." *The Journal of Real Estate Finance and Economics* 11.2 (Sep. 1995): 99–117 at 104.

<sup>25</sup> For a description of the adjustments made to the loan tapes to reflect Plaintiffs' Loan Characteristic Claims, see **Appendix E: Modeled Loan Characteristics**.

in the *Plaintiffs' claims scenario* and the risk profile in the *baseline scenario* using a chi-square test to determine if the following statement is true:<sup>26</sup>

The risk profile calculated in the *Plaintiffs' claims scenario* is the same as the risk profile calculated in the *baseline scenario* (“Null Hypothesis”).

37. If the Null Hypothesis failed to reject at the 95 percent confidence level, I concluded that there is not enough evidence to suggest a statistically significant difference between the risk profile calculated in the *Plaintiffs' claims scenario* and the *baseline scenario*.
38. In other words, this analysis allowed me to determine whether or not Plaintiffs' Loan Characteristic Claims resulted in a risk profile for each loan that was statistically distinguishable from the risk profile calculated under the *baseline scenario*.
39. Because loan value is a function of the risk profile of a loan, two loans with indistinguishable risk profiles similarly have indistinguishable values.

## **VI. MODEL RESULTS**

40. Based on the chi-square test results, I calculate that 259 of the 313 (82.75%) Hunter Breaching Loans for MSM 2006-14SL and 256 of the 295 (86.78%) Hunter Breaching Loans for MSM 2007-4SL have a risk profile under the *Plaintiffs' claims scenario* that is indistinguishable from the risk profile under the *baseline scenario*. I also make the assumption that if Plaintiffs' Loan Characteristic Claims lead to a *lower* risk profile in the *Plaintiffs' claims scenario* than in the *baseline scenario*, the allegations do not lead to an empirical (adverse) impact on the value of the loans or the interest of the certificateholder.<sup>27</sup> A full list of model results for each loan is in **Appendix F: Loan Level Model Results**.

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<sup>26</sup> Gray, Robert J. “A Class of K-Sample Tests for Comparing the Cumulative Incidence of a Competing Risk.” *The Annals of Statistics* 16.3 (Sep. 1988): 1141-54 at 1146. This test has received more than two thousand citations and has been widely used across fields.

<sup>27</sup> This is also a highly conservative assumption. The interest of the certificate holders would be *improved* by loans such as these and would potentially offset the risk of other loans reviewed by Mr. Hunter. I do not calculate the impact of such offsets in my report.

**VII. CONCLUSION**

41. The above analysis shows that even if Plaintiffs' Loan Characteristic Claims were true, for 259 of the 313 (82.75%) Hunter Breaching Loans for MSM 2006-14SL and 256 of the 295 (86.78%) Hunter Breaching Loans for MSM 2007-4SL, the risk profile cannot be distinguished from, or is less risky than, the risk profile of those same loans without the Plaintiffs' Loan Characteristic Claims.

Dated: March 11, 2016



Ethan Cohen-Cole, Ph.D.

## Appendix C

### Technical Appendix

## Technical Appendix

### I. OVERVIEW

1. I analyzed the extent to which Plaintiffs' allegations regarding certain loan characteristics, if true, would have changed the risk profiles<sup>1</sup> of a group of loans identified by Plaintiffs' expert Robert W. Hunter.<sup>2</sup> Specifically, I analyzed those loans that Mr. Hunter contends had material breaches and for which he offers certain alternative loan characteristics amenable to an empirical analysis (the "Hunter Breaching Loans").
2. I calculated and compared the likelihood of default over time for the Hunter Breaching Loans using: (1) loan characteristics as reflected in loan tapes identified by Defendant and provided by counsel ("Loan Tapes");<sup>3</sup> and (2) loan characteristics for the same loans, but modified to reflect the alternative loan characteristics put forth by Mr. Hunter.
3. To determine the likelihood of default and prepayment, I utilized a model that estimated an expectation of default and prepayment based on the historical performance of similar loans. I then ran simulations of loan performance using these default and prepayment expectations.
4. Using the results of these simulations, I created two risk profiles for each Hunter Breaching Loan, the first of which reflected the loan characteristics reported in the Loan Tape and the second of which incorporated Hunter's loan characteristic allegations, which I refer to as "Plaintiffs' Loan Characteristic Claims."<sup>4</sup> I do not offer an opinion on whether Plaintiffs' Loan Characteristic Claims are correct, but accept them as true solely for the purpose of my analysis.
5. Lastly, I compared the risk profile of a loan that incorporated Plaintiffs' expert's allegations to the risk profile of the same loan, but with the characteristics reported in the Loan Tape. I utilized a chi-square test to determine whether the risk profiles were statistically indistinguishable.

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<sup>1</sup> The term "risk profile" is used throughout the report to define the sequence of monthly expected cumulative default probabilities for a given loan, for the period starting from the trust closing date and ending 85 months later.

<sup>2</sup> Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) ("Hunter Report").

<sup>3</sup> Loan tape: MSM 2006-14SL (MSM\_14SL\_00192865), Loan tape: MSM 2007-4SL (MSM\_14SL\_00192869) (collectively "Loan Tapes").

<sup>4</sup> Specifically, I considered Plaintiffs' expert's claims regarding combined loan-to-value ("CLTV") ratio, debt-to-income ("DTI") ratio, credit score ("FICO score"), occupancy status, loan purpose, property type, and documentation type. My analysis identified Plaintiffs' Loan Characteristic Claims for 313 loans in MSM 2006-14SL and 295 loans in MSM 2007-4SL.

## II. LOAN PERFORMANCE DATABASES

6. I created databases comprised of loans that served as collateral in RMBS securitizations issued between 1997 and 2009.
7. The initial dataset of loan information was acquired from ABSNet,<sup>5</sup> a data vendor that provides historical information on mortgage loans as well as the market in general.
8. The initial ABSNet dataset contained information relating to more than 20 million loans. The dataset included information, by loan, for a variety of loan characteristics, including but not limited to: loan origination date, borrower's credit score, original CLTV ratio, DTI ratio, occupancy status, property type, loan purpose, documentation type, lien position, state in which the relevant property was located, the presence or absence of a prepayment penalty, and the presence or absence of an adjustable rate mortgage. The dataset also included information on payment history for each loan from the time of origination to, at latest, 2014.
9. The initial ABSNet dataset was modified to exclude any loans at issue in this case.<sup>6</sup>
10. The ABSNet dataset was further modified to remove duplicate loans. When multiple loans had:  
(1) identical loan identification numbers and deal names and (2) identical loan characteristics, only one loan was retained in the database.<sup>7</sup>
11. I created a set of additional fields to support the analysis conducted here.
12. I marked loans as defaulted, prepaid and/or censored as follows:
  - (1) A loan was considered to have prepaid if the ABSNet 'PrepaymentsInFull' field was greater than 0.
  - (2) A loan was considered to have defaulted if it was at least 90-days delinquent according to the ABSNet 'HistDelinqDaysOts' field.
  - (3) A loan was considered to be censored if it was not identified as having prepaid or defaulted.
  - (4) If a loan defaulted but was subsequently showed as prepaid, I deemed the loan to have been prepaid.
  - (5) If a loan prepaid but was subsequently shown as defaulted, I removed this loan.

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<sup>5</sup> ABSNet Database.

<sup>6</sup> The trusts dropped from the dataset were MSM 2006-14SL and MSM 2007-4SL; *see* Complaint at ¶ 1.

<sup>7</sup> To ensure all duplicate loans were found, I tested for loans that: (1) had the same loan identification number; (2) were in the same deal; and (3) had the same characteristics (allowing for a variance of 0.1% in each characteristic). The loan characteristics I analyzed were: original loan-to-value ("LTV") ratio, original CLTV ratio, credit score, original loan balance, occupancy status, property type, loan purpose, documentation type, prepayment penalty, whether the loan was an adjustable rate mortgage, lien position, first payment date, and the state in which the property was located.

13. I next calculated the loan age for each loan. Loan age was calculated as the difference between exit date (defined as the date of prepayment or default or the last date of performance) and the loan origination date.
14. Indicator variables were generated for the following categorical variables: occupancy status, property type, loan purpose, documentation type, lien position, prepayment penalty, location of the relevant property (by state), adjustable rate mortgage, and monthly loan status. For example, if a lien position was indicated with the values of 1, 2, or 3 in the original ABSNet dataset, three indicator variables were created ('lien\_1,' 'lien\_2,' and 'lien\_3').
15. To address omissions and correct what appeared to be errors, the following edits were made to the ABSNet dataset:
  - (1) If the reported original LTV ratio or original CLTV ratio was greater than 200, the loan was removed from the final dataset. Such values are generally accepted to be data errors.
  - (2) If the reported original CLTV ratio or original LTV ratio was equal to 0, a clear data error, I replaced the given value with an entry that indicated the value was missing.
  - (3) If the reported original DTI ratio was equal to 0, a clear data error, I replaced the given value with an entry that indicated the value was missing.
  - (4) If the reported original credit score value was less than 300 or greater than 850, a clear data error, I replaced the given value with an entry that indicated the value was missing.
16. Consequently, the resulting information included credit score, original CLTV ratio, DTI ratio, loan age, original interest rate, and indicators for occupancy status, property type, loan purpose, documentation type, lien position, the state in which the relevant property was located, prepayment penalty, and loan status (defaulted, prepaid, or censored).
17. State-level unemployment data was collected from the Federal Bureau of Labor Statistics.<sup>8</sup> This data included a comprehensive set of unemployment rates for each state in monthly intervals for the period from January 1, 1976 to December 31, 2015.
18. State-level unemployment was merged with the ABSNet dataset. As a result, the dataset included an additional field that reflected the unemployment rate in the applicable state as of the first payment date for each loan.
19. The loans in the resulting dataset were sampled with replacement to generate another 100 datasets. In total, I created 101 datasets (the “Databases”). After preparing the Loan Tapes as described in Section III, I performed the analysis described in **Section IV, V, and VI** for each Database.

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<sup>8</sup> State Unemployment Time Series Data. *Bureau of Labor Statistics*.  
<<http://download.bls.gov/pub/time.series/la/la.series>>;  
<<http://download.bls.gov/pub/time.series/la/la.data.2.AllStatesU>> (accessed Jan. 5, 2016).

### **III. LOAN TAPE PREPARATION**

20. I relied on Loan Tapes identified by Defendant and provided by counsel.
21. To facilitate my analysis, I prepared the Loan Tapes as follows:
  - (1) All unique identifying borrower information (*e.g.*, name, addresses) was removed.
  - (2) Variables were renamed to ensure consistency with the variable names provided in the ABSNet dataset (*e.g.*, if the Loan Tape identified a variable as “scorefico,” it was renamed as “creditscore” to conform with the ABSNet dataset).<sup>9</sup> In certain cases, the values in the Loan Tape variables did not conform with the format used in ABSNet. In these instances, the variables were revalued to conform to ABSNet’s specifications.<sup>10</sup>
  - (3) The Loan Tapes were pared down to include only the Hunter Breaching Loans.
  - (4) Because the CLTV ratio was not reported in the Loan Tapes, the CLTV ratio was calculated for each loan by summing the original loan balance and the senior loan balance and dividing by the reported property value.<sup>11</sup>

### **IV. ESTIMATING DEFAULT AND PREPAYMENT HAZARD FUNCTIONS**

22. I took several steps to calibrate the Model in order to establish loan performance expectations based on the loan characteristics described above and applicable unemployment data.
23. *First*, a Database was narrowed to include only the timeframe relevant to the trust—specifically, the period beginning with January 1, 1997 and ending with the trust closing dates as defined the prospectus supplements for MSM 2006-14SL and MSM 2007-4SL, respectively (the “Closing Dates”).<sup>12</sup> By restricting the data in this way, only information that was available at the time the securitizations were closed was utilized.
24. *Second*, a Database was further narrowed to exclude any variable not included in the Loan Tapes.
25. *Third*, the resulting set of variables was used in an industry standard Cox proportional hazards model to estimate a prepayment hazard function. The hazard function showed the predicted probability of prepayment for each month from the time of deal issuance. In other words, the Model established a relationship between loan characteristics, macroeconomic variables, and prepayment likelihood.

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<sup>9</sup> Loan tape: MSM 2006-14SL (MSM\_14SL\_00192865).

<sup>10</sup> see **Appendix D: Revalue of Loan Characteristics.**

<sup>11</sup> In each of the Loan Tapes, the original loan balance is labeled as “baloriginal”; the senior loan balance is labeled as “balsenior”; and the property value is labeled as “balpropval.”

<sup>12</sup> Morgan Stanley Capital I Inc., Morgan Stanley Mortgage Loan Trust 2006-14SL, Prospectus Supplement to Prospectus dated March 14, 2006 (Oct. 24, 2006) at S-2 (MSM\_14SL\_00086172, at MSM\_14SL\_00086184) and Morgan Stanley Capital I Inc., Morgan Stanley Mortgage Loan Trust 2007-4SL, Prospectus Supplement to Prospectus dated December 1, 2006 (Feb. 27, 2007) at S-2 (MSM\_14SL\_00067622, at MSM\_14SL\_00067633).

26. *Fourth*, the same variables were again used in a Cox proportional hazards model to estimate a default hazard function. This function, as with prepayment, provided a monthly estimate of expected default. In other words, the Model established a relationship between loan characteristics, macroeconomic variables, and default likelihood.
27. *Fifth*, the results of the two estimation exercises were recorded.
28. I repeated this process 100 times, that is, once for each of the additional Databases created in Paragraph 19. At the end of this process, I had 101 pairs of default/prepayment hazard functions.

## V. CREATING LOAN RISK PROFILES

29. Plaintiffs' expert utilized a sample of 400 loans from each of MSM 2006-14SL and MSM 2007-4SL.<sup>13</sup> Mr. Hunter concluded that 351 of the sampled loans for MSM 2006-14SL and 354 of the sampled loans for MSM 2007-4SL breached representations and warranties in a way that "materially and adversely affected the value."<sup>14</sup> As described above, for certain of these loans (313 for MSM 2006-14SL and 295 for MSM 2007-4SL), Hunter also put forth alternative loan characteristics, which I refer to as Plaintiffs' Loan Characteristic Claims.
30. The Cox proportional hazard functions described in **Section IV** provided 101 estimates for (a) prepayment and (b) default likelihood over time in relation to the loan characteristics and macroeconomic variables.
31. Using these functions, I created risk profiles for each of the Hunter Breaching Loans for:
  - (1) the loan as described in the Loan Tapes (*baseline scenario*); and
  - (2) the same loan, but as modified to reflect Plaintiffs' Loan Characteristic Claims (*Plaintiffs' claims scenario*).
32. In the *baseline scenario*, the analysis used all original values as reported in the Loan Tapes. In the *Plaintiffs' claims scenario*, the analysis used the values for loan characteristics alleged by the Hunter Report.
33. Specifically, for each of the Hunter Breaching Loans, the estimates described in **Section IV** were used to calculate the likelihood of prepayment and default for each of the 85 monthly periods beginning on the Closing Dates under each scenario. This likelihood was expressed as a percentage.
34. These monthly likelihoods were compiled to generate risk profiles for each loan. A multi-phased simulation was used in this analysis to proxy for the realized performance of the loan in a given period, based on the estimated likelihoods.
35. Hypothetical prepayment and default histories were generated for each loan under each scenario. At each time period for each scenario, the Model generated a random number between zero and

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<sup>13</sup> Hunter Report at ¶ 4.

<sup>14</sup> Hunter Report at ¶ 59 and ¶ 69.

one from a uniform distribution.<sup>15</sup> The Model then compared the random number with the estimated likelihood of default or prepayment under the applicable scenario. If the random number was less than or equal to the estimated likelihood of default, the loan was considered to have defaulted. Conversely, if the random number was greater than the estimated likelihood, the loan was considered to have not defaulted. The same procedure was applied to prepayment likelihood.

36. A default event was identified as the first period in the default history where the loan was indicated to have defaulted. A prepayment event was identified as the first period in the default history where the loan was indicated to have prepaid. If a default event occurred before a prepayment event, the loan was considered to have defaulted, and vice versa. Where the first event for both default and prepayment events occurred in the same month, the loan was deemed to have prepaid.
37. The Model generated hypothetical 85-month prepayment and default histories for each loan under each scenario.
38. The process was repeated for a total of 1,000 simulations, resulting in 1,000 hypothetical loan performance histories for each loan under each scenario.
39. For each scenario, the cumulative default rate (reflecting the aggregation of each of the 1,000 simulated loan performance histories) for each of the 85 months was calculated. These results comprised the risk profile of the loan for a given scenario for a given Database.

## VI. COMPARISON OF RISK PROFILES USING CHI-SQUARE TEST

40. For each of the 101 Databases, I conducted a statistical test for each loan to determine if the risk profile under the *Plaintiffs' claims scenario* was statistically indistinguishable from the risk profile associated with the *baseline scenario*. A chi-square test was used to determine if the following statement was true:<sup>16</sup>

The risk profile calculated in the *Plaintiffs' claims scenario* is the same as the risk profile calculated in the *baseline scenario* ("Null Hypothesis").<sup>17</sup>

41. The chi-square test generated a p-value. The p-value is the greatest probability level for which the chi-square test fails to reject the Null Hypothesis. Therefore, it is more likely the Null Hypothesis was correct when the p-value is higher.

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<sup>15</sup> A uniform distribution exhibits constant probability, meaning each number has the same probability of being selected.

<sup>16</sup> Gray, Robert J. "A Class of K-Sample Tests for Comparing the Cumulative Incidence of a Competing Risk." *The Annals of Statistics* 16.3 (Sept. 1988): 1141-54 at 1146.

<sup>17</sup> If the Null Hypothesis was not true according to the test, the alternative hypothesis was assumed true: the risk profile calculated in the *Plaintiffs' claims scenario* was not the same for the risk profile calculated in the *baseline scenario*.

## VII. CALCULATING AVERAGE P-VALUES

42. By completing the steps in **Section IV, V, and VI** for each one of the Databases, I obtained 101 p-values for each loan. I next averaged these p-values. Where the average p-value was less than 0.05, I concluded that the risk profiles were different to a statistically significant certainty.<sup>18</sup>
43. If it was determined that there was no statistically significant difference in the risk profiles of the *baseline scenario* and the *Plaintiffs' claims scenario*, even accepting as true the findings of Mr. Hunter, I found that the loan reflecting Plaintiffs' Loan Characteristic Claims did not have a different degree of risk from the loan as described in the relevant Loan Tape.

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<sup>18</sup> See, e.g., Peracchi, Franco. *Econometrics*. Chichester: John Wiley & Sons Ltd (2001) at 194.

## Appendix E

### Modeled Loan Characteristics

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
835	689	0.00	95.00	L	NO	P	PU	677	99.10	95.00	L	NO	P	PU
837	702	41.71	89.99	L	NO	P	PU	702	51.90	90.00	L	NO	P	PU
862	655	44.30	100.00	L	OO	P	SF	655	89.75	121.25	L	OO	P	SF
135	710	39.00	100.00	F	OO	P	SF	710	36.99	100.00	F	OO	P	SF
754	627	50.00	100.00	A	OO	P	CO	627	64.90	100.00	A	OO	P	CO
767	720	33.00	100.00	A	OO	P	SF	691	49.64	100.00	F	OO	P	SF
794	614	46.00	100.00	A	OO	P	SF	614	47.42	100.00	F	OO	P	SF
022	634	40.00	90.00	F	OO	R	SF	634	91.62	90.00	F	OO	C	PU
014	651	25.00	90.00	L	OO	C	SF	651	25.97	90.00	L	OO	C	SF
039	742	0.00	99.83	L	OO	P	PU	742	0.00	100.31	L	OO	P	PU
044	694	32.00	100.00	L	OO	P	PU	694	32.89	100.00	L	OO	P	PU
048	658	0.00	94.83	L	OO	C	SF	658	0.00	95.36	L	OO	C	SF
223	632	40.00	94.33	L	OO	P	CO	632	46.67	94.33	L	OO	P	CO
415	723	48.00	95.00	L	SH	P	SF	723	47.67	95.00	L	SH	P	SF
567	744	48.28	100.00	F	OO	P	SF	744	48.28	100.00	F	OO	P	PU
598	668	39.94	100.00	L	OO	P	SF	668	45.16	100.00	L	OO	P	PU
619	665	38.47	99.98	A	OO	P	SF	665	39.33	99.98	A	OO	P	PU
625	662	49.27	100.00	F	OO	C	SF	662	49.27	123.43	F	OO	C	SF
636	662	42.91	100.00	L	OO	P	SF	662	51.01	100.00	L	OO	P	SF
644	638	40.23	100.00	F	OO	P	PU	638	46.84	100.00	F	OO	P	PU
653	655	44.61	100.00	L	OO	P	TH	655	44.60	100.00	L	OO	P	SF
703	656	49.58	100.00	F	OO	C	SF	656	44.13	100.00	F	OO	C	SF
727	649	48.12	99.85	L	OO	P	SF	649	99.18	100.00	L	OO	P	SF
731	681	30.01	100.00	L	OO	P	SF	683	29.74	100.00	L	OO	P	SF
751	624	40.06	100.00	F	OO	P	SF	624	40.06	107.32	F	OO	P	SF
757	652	49.73	95.45	F	OO	C	SF	652	49.43	95.45	F	OO	C	SF
812	642	54.21	100.00	F	OO	P	SF	642	132.95	100.00	F	OO	P	PU
813	668	43.74	100.00	L	OO	P	SF	593	61.86	100.00	L	OO	P	PU
823	679	46.31	100.00	F	OO	P	TH	679	46.14	102.40	F	OO	P	SF
876	642	46.44	100.00	F	OO	P	SF	642	47.09	101.93	F	OO	P	SF
905	685	49.64	100.00	F	OO	C	PU	685	49.62	100.00	F	OO	C	PU
907	689	43.42	100.00	L	OO	P	SF	689	1237.37	100.00	A	OO	P	SF
910	645	47.94	100.00	L	OO	P	SF	655	48.75	103.09	L	OO	P	SF
911	686	42.86	100.00	L	OO	P	SF	686	387.80	100.00	L	NO	P	SF
927	667	35.79	100.00	L	OO	P	CO	667	36.46	100.00	L	OO	P	CO
941	688	25.54	100.00	A	OO	P	SF	668	37.83	101.29	A	OO	P	SF
981	640	47.83	100.00	L	OO	C	PU	640	52.07	100.00	L	OO	C	PU
037	667	45.68	100.00	F	OO	P	CO	667	45.68	100.01	F	OO	P	CO
041	687	49.57	100.00	F	OO	P	24	687	55.90	100.00	F	OO	P	24
051	643	35.45	100.00	L	OO	P	SF	643	36.08	100.00	F	OO	P	SF
052	664	42.80	100.00	L	OO	P	SF	664	57.54	100.00	L	OO	P	SF
070	669	28.43	100.00	L	OO	P	24	669	28.49	100.00	L	OO	P	24

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
086	705	33.05	100.00	F	OO	C	SF	705	59.34	100.00	F	OO	C	SF
090	685	28.87	100.00	L	OO	P	SF	685	28.87	100.00	L	OO	P	PU
111	635	38.10	100.00	F	OO	P	SF	635	39.45	103.09	F	OO	P	SF
131	666	48.20	100.00	F	OO	C	SF	666	53.71	100.00	F	OO	C	SF
259	672	37.29	100.00	A	OO	P	CO	672	51.58	100.00	A	OO	P	CO
271	765	20.10	100.00	L	OO	P	SF	765	84.58	100.00	A	OO	P	SF
285	621	50.00	100.00	A	OO	C	CO	621	50.25	100.00	A	OO	C	CO
286	694	45.62	100.00	L	OO	R	CO	694	46.33	116.47	L	OO	C	CO
287	661	44.82	100.00	L	OO	P	SF	661	44.71	100.00	L	OO	P	SF
332	660	29.63	100.00	L	OO	P	SF	705	28.36	102.97	L	OO	P	SF
363	663	48.67	100.00	L	OO	P	SF	663	48.68	101.20	L	OO	P	PU
371	744	34.68	100.00	F	OO	R	TH	744	35.36	100.00	F	OO	C	SF
406	681	21.56	100.00	A	OO	R	SF	681	19.72	100.00	A	OO	C	SF
485	673	46.33	100.00	A	OO	P	SF	673	50.65	100.00	A	OO	P	SF
512	704	47.34	100.00	L	OO	P	PU	704	103.58	100.00	L	OO	P	PU
551	645	32.50	100.00	L	OO	P	SF	645	40.71	100.00	L	OO	P	SF
610	684	30.52	100.00	L	OO	P	PU	684	30.84	100.00	L	OO	P	PU
635	672	32.14	95.00	F	OO	P	SF	672	31.43	95.00	F	OO	P	SF
649	653	49.94	100.00	F	OO	P	SF	653	49.76	100.00	F	OO	P	SF
654	699	44.65	100.00	F	OO	P	SF	699	44.65	101.37	F	OO	P	SF
659	767	38.64	100.00	L	OO	P	SF	767	34.48	100.00	L	OO	P	PU
670	713	34.14	100.00	L	OO	P	PU	713	34.14	101.11	L	OO	P	PU
677	662	21.43	100.00	A	OO	P	SF	643	583.41	100.00	A	OO	P	PU
681	645	48.25	100.00	L	OO	P	SF	645	670.28	100.00	L	OO	P	SF
702	677	40.93	95.00	F	OO	C	SF	677	45.05	123.79	F	OO	C	SF
704	673	45.08	100.00	L	OO	P	PU	673	83.75	100.00	L	OO	P	PU
720	693	53.45	100.00	F	OO	C	SF	693	53.36	100.00	F	OO	C	SF
722	688	11.06	100.00	F	OO	C	PU	688	10.41	100.00	F	OO	C	PU
733	700	49.36	95.00	F	OO	C	SF	700	47.44	118.56	F	OO	C	PU
755	622	39.39	100.00	F	OO	P	SF	622	51.22	100.00	F	OO	P	SF
757	724	45.05	100.00	L	OO	P	PU	724	50.66	100.00	L	OO	P	PU
761	620	49.59	100.00	F	OO	C	SF	620	50.00	100.00	F	OO	C	SF
781	706	34.77	100.00	L	OO	P	SF	706	37.66	100.00	L	OO	P	PU
789	639	49.84	100.00	F	OO	P	SF	639	49.85	101.41	F	OO	P	SF
790	603	49.95	100.00	F	OO	R	SF	603	59.37	112.70	A	OO	C	SF
802	641	47.58	95.00	F	OO	C	SF	641	47.41	95.00	F	OO	C	SF
852	642	49.07	100.00	F	OO	P	SF	642	63.06	103.80	F	OO	P	SF
858	704	38.33	98.38	L	OO	P	CO	704	38.29	100.00	L	OO	P	CO
880	605	35.44	100.00	F	OO	P	CO	605	33.78	100.00	A	OO	P	CO
912	675	32.65	100.00	L	OO	C	SF	675	293822.87	100.00	L	OO	C	SF
915	660	44.06	100.00	F	OO	P	SF	660	45.42	100.00	F	OO	P	SF
925	688	46.14	100.00	L	OO	P	SF	688	651.76	100.00	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
929	775	46.83	95.00	F	OO	C	SF	775	510.86	95.00	F	NO	C	SF
943	714	48.58	100.00	F	OO	P	SF	714	45.35	100.00	F	OO	P	SF
952	679	39.84	100.00	L	OO	P	SF	679	39.54	100.10	L	OO	P	SF
965	673	38.89	95.00	L	OO	P	SF	673	46.33	95.00	L	OO	P	SF
982	723	38.54	100.00	L	OO	P	SF	723	34.77	100.00	L	OO	P	SF
990	681	43.48	100.00	L	OO	C	SF	681	43.44	100.00	L	OO	C	SF
014	710	48.93	100.00	F	OO	P	PU	710	48.64	100.00	F	OO	P	PU
052	630	49.87	100.00	F	OO	P	SF	630	49.59	101.20	F	OO	P	SF
071	633	47.04	100.00	F	OO	P	SF	633	47.34	100.83	F	OO	P	SF
091	685	49.99	100.00	L	OO	P	SF	674	49.99	100.00	L	OO	P	SF
095	650	31.62	100.00	L	OO	P	PU	650	134.94	101.28	A	OO	P	PU
161	647	34.76	100.00	L	OO	P	SF	647	35.04	100.00	L	OO	P	SF
198	660	53.86	95.00	F	OO	C	24	660	65.04	115.97	F	OO	C	24
255	641	22.50	100.00	L	OO	P	SF	641	21.96	100.00	L	OO	P	SF
266	677	48.44	100.00	F	OO	P	CO	677	49.90	100.00	F	OO	P	CO
270	654	34.27	100.00	L	OO	R	24	654	65.85	178.40	L	OO	C	24
298	687	29.00	95.00	L	NO	P	SF	687	35.53	95.00	L	NO	P	SF
306	682	34.00	90.58	L	NO	C	SF	682	109.74	90.58	L	NO	C	PU
377	703	27.00	90.00	L	NO	P	SF	703	29.94	90.00	L	NO	P	SF
410	681	38.67	99.35	F	OO	C	PU	681	38.83	99.45	F	OO	C	PU
461	653	35.69	100.00	F	OO	P	SF	653	35.69	103.54	F	OO	P	SF
463	632	48.26	100.00	F	OO	P	SF	632	48.09	101.73	F	OO	P	SF
547	706	47.59	95.00	F	OO	C	SF	649	52.82	95.00	F	OO	C	SF
566	661	48.08	100.00	L	OO	P	SF	661	32.43	100.79	L	OO	P	SF
567	632	47.80	95.00	F	OO	R	SF	632	48.34	95.00	F	OO	C	SF
570	623	49.13	100.00	F	OO	P	SF	623	49.47	100.08	F	OO	P	SF
571	665	35.83	100.00	F	OO	P	SF	665	36.13	100.00	F	OO	P	SF
585	670	42.75	100.00	F	OO	C	SF	670	43.94	110.43	F	OO	C	SF
589	718	41.61	95.00	F	OO	C	SF	718	41.59	95.00	F	OO	C	SF
614	661	22.84	94.97	L	OO	P	TH	661	28.37	94.97	L	OO	P	SF
633	681	39.81	100.00	F	OO	C	SF	681	40.05	100.00	F	OO	C	SF
658	659	22.16	99.72	L	OO	P	SF	659	22.24	99.72	L	OO	P	SF
669	651	24.33	100.00	F	OO	C	CO	651	27.25	100.00	F	OO	C	CO
682	672	48.92	100.00	L	OO	P	CO	672	49.28	100.00	L	OO	P	CO
734	645	46.91	100.00	A	OO	C	SF	645	47.38	105.18	A	OO	C	SF
763	646	49.75	95.00	L	OO	C	SF	646	68.36	95.00	A	OO	C	SF
765	643	32.09	100.00	L	OO	P	SF	591	32.81	100.00	L	OO	P	SF
794	646	48.51	100.00	L	OO	R	SF	646	48.51	100.00	A	OO	C	SF
812	671	45.99	100.00	F	OO	P	SF	671	54.13	101.01	F	OO	P	SF
828	662	49.41	100.00	F	OO	P	SF	662	49.41	100.52	F	OO	P	SF
831	703	40.82	100.00	L	OO	P	SF	703	100.74	100.00	L	OO	P	SF
887	711	45.45	100.00	F	OO	P	SF	711	31.22	100.00	F	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
895	663	48.25	100.00	F	OO	R	CO	663	49.66	100.00	F	OO	C	CO
930	641	47.80	100.00	F	OO	P	SF	641	46.87	100.00	F	OO	P	PU
942	688	49.93	100.00	L	OO	R	SF	688	159.48	100.00	L	OO	C	SF
954	735	41.95	100.00	F	OO	P	CO	735	45.17	100.00	F	OO	P	CO
965	677	26.73	100.00	A	OO	C	PU	677	49.43	100.00	A	OO	C	PU
983	642	47.29	100.00	L	OO	C	SF	642	149.52	100.00	L	OO	C	PU
061	707	30.02	95.00	F	OO	R	SF	707	30.00	95.00	F	OO	R	SF
065	673	45.99	94.94	F	OO	C	PU	673	44.47	94.94	F	OO	C	PU
069	641	48.08	100.00	L	OO	R	PU	641	49.90	100.00	L	OO	C	PU
073	755	9.65	100.00	A	OO	P	SF	755	15.10	101.01	A	OO	P	SF
092	646	46.11	100.00	L	OO	P	SF	516	62.06	100.00	L	OO	P	SF
098	654	41.84	100.00	L	OO	P	SF	654	41.84	100.60	L	OO	P	SF
147	645	38.04	100.00	L	OO	C	SF	645	37.28	119.47	L	OO	C	SF
174	642	46.56	100.00	F	OO	P	SF	642	48.52	100.00	F	OO	P	SF
182	707	39.78	100.00	F	OO	P	SF	631	39.41	100.00	F	OO	P	SF
184	626	48.31	100.00	F	OO	P	SF	626	48.16	100.00	F	OO	P	SF
192	652	35.84	100.00	F	OO	P	SF	652	35.98	100.00	F	OO	P	SF
242	696	41.09	100.00	L	OO	P	PU	696	43.14	100.00	L	OO	P	PU
263	677	43.52	100.00	L	OO	P	CO	677	61.78	102.46	L	OO	P	CO
273	690	40.20	99.51	F	OO	C	SF	690	60.53	99.51	F	OO	C	SF
283	628	48.96	100.00	F	OO	P	CO	628	47.26	100.00	F	OO	P	CO
287	650	17.31	100.00	A	OO	P	SF	650	16.98	100.00	A	OO	P	PU
299	668	26.35	100.00	L	OO	P	SF	668	49.76	100.15	L	OO	P	SF
301	644	35.37	100.00	L	OO	P	PU	645	62.08	100.00	L	OO	P	PU
314	767	31.69	100.00	F	OO	P	SF	767	31.73	104.26	F	OO	P	SF
319	661	42.72	100.00	F	OO	P	PU	661	412.42	100.00	F	OO	P	PU
334	634	45.80	100.00	F	OO	P	SF	634	48.88	100.00	F	OO	P	SF
342	658	39.66	93.27	L	OO	P	SF	658	46.66	93.27	L	OO	P	PU
465	663	45.33	100.00	L	OO	P	SF	663	42.06	100.00	L	OO	P	SF
477	622	48.56	100.00	F	OO	P	SF	622	48.53	100.00	F	OO	P	SF
486	752	49.40	99.78	F	OO	P	SF	752	48.43	99.78	F	OO	P	SF
489	662	49.19	100.00	F	OO	P	SF	662	48.26	100.00	F	OO	P	SF
493	672	49.57	100.00	L	OO	P	SF	672	52.99	100.00	L	OO	P	SF
508	667	50.00	99.99	A	OO	P	SF	667	47.77	99.99	A	OO	P	SF
510	688	47.17	100.00	F	OO	P	CO	688	49.81	100.00	F	OO	P	CO
514	688	45.49	100.00	L	OO	P	SF	688	66.99	100.00	L	OO	P	SF
527	658	48.50	100.00	L	OO	P	SF	658	46.48	100.00	A	OO	P	SF
536	647	40.00	100.00	L	OO	P	SF	647	39.61	109.20	L	OO	P	SF
551	730	36.72	100.00	L	OO	P	SF	730	41.96	100.00	L	OO	P	SF
568	661	48.11	100.00	F	OO	P	SF	661	72.71	100.00	F	OO	P	SF
569	688	54.67	100.00	F	OO	P	SF	688	57.06	100.00	F	OO	P	SF
579	667	46.27	100.00	F	OO	P	SF	667	49.51	100.00	F	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
598	667	38.23	95.00	L	OO	P	SF	667	37.22	95.00	L	OO	P	SF
620	654	42.30	100.00	L	OO	C	24	654	376.70	100.00	L	OO	C	24
633	619	42.02	100.00	F	OO	P	SF	619	42.32	98.66	F	OO	P	PU
681	648	40.66	100.00	F	OO	P	SF	648	42.41	100.00	F	OO	P	PU
736	658	30.33	100.00	L	OO	C	SF	658	34.77	100.00	L	OO	C	SF
769	670	32.90	100.00	A	OO	P	SF	660	32.09	100.00	F	OO	P	SF
774	644	46.66	100.00	L	OO	R	SF	644	46.26	100.00	L	OO	C	SF
780	717	38.69	100.00	F	OO	P	SF	717	77.01	100.00	F	OO	P	SF
790	654	43.74	100.00	L	OO	P	SF	597	93.60	100.00	L	OO	P	SF
798	700	47.22	100.00	L	OO	P	SF	700	183.94	100.00	L	OO	P	SF
800	649	41.21	100.00	L	OO	P	SF	649	37.54	100.00	L	OO	P	SF
807	724	39.95	100.00	L	OO	P	SF	724	42.82	100.00	L	OO	P	SF
816	712	49.68	100.00	F	OO	P	SF	712	58.01	100.00	F	OO	P	SF
829	706	41.40	100.00	L	OO	P	SF	706	41.17	100.00	L	OO	P	SF
836	685	38.23	100.00	L	OO	P	SF	683	89.19	100.00	L	OO	P	SF
865	707	39.00	100.00	L	OO	P	SF	707	37.64	100.00	L	OO	P	SF
866	619	42.57	89.99	F	OO	P	SF	644	42.46	89.99	F	OO	P	SF
903	705	39.54	97.79	L	OO	C	PU	705	37.58	97.79	L	OO	C	PU
910	719	41.00	100.00	L	OO	P	SF	719	70.88	100.00	L	OO	P	SF
917	700	37.20	100.00	L	OO	P	CO	700	81.01	100.42	L	OO	P	CO
926	747	38.07	95.00	F	SH	P	SF	758	46.88	95.00	F	SH	P	SF
927	701	45.37	100.00	L	OO	P	SF	701	35.64	100.00	L	OO	P	SF
685	650	46.53	100.00	L	OO	P	SF	650	63.48	100.00	L	OO	P	SF
688	646	49.15	100.00	L	OO	P	PU	646	88.64	100.00	L	OO	P	PU
699	668	43.46	100.00	L	OO	P	SF	668	32.28	100.26	L	OO	P	SF
700	672	29.10	100.00	A	OO	C	SF	672	30.72	100.00	A	OO	C	SF
705	644	12.33	100.00	A	OO	P	TH	644	11.91	100.00	A	OO	P	SF
708	672	46.49	100.00	L	OO	P	SF	672	85.88	100.00	L	OO	P	PU
768	676	49.29	100.00	L	OO	C	24	676	46.71	100.00	L	OO	R	24
799	650	49.94	98.55	L	OO	P	SF	650	48.91	100.00	L	OO	P	SF
809	676	49.24	100.00	F	OO	P	SF	676	53.00	100.00	F	OO	P	SF
824	643	36.32	100.00	F	OO	P	SF	643	38.24	100.00	F	OO	P	SF
843	635	49.43	100.00	F	OO	P	SF	635	52.40	100.00	F	OO	P	SF
866	651	35.15	100.00	L	OO	R	SF	651	437.69	100.00	L	OO	C	PU
894	623	50.55	100.00	F	OO	P	SF	623	51.87	100.00	F	OO	P	SF
932	686	42.38	100.00	F	OO	P	SF	686	39.62	100.00	F	OO	P	SF
952	677	49.44	94.55	F	OO	C	SF	677	46.61	94.55	F	OO	C	SF
955	668	41.60	100.00	F	OO	P	SF	668	41.67	100.00	F	OO	P	SF
960	648	43.93	100.00	F	OO	P	24	648	51.97	105.72	F	OO	P	24
962	663	35.20	100.00	F	OO	C	CO	663	36.31	100.00	F	OO	C	CO
993	621	30.24	100.00	F	OO	P	SF	621	31.95	100.00	F	OO	P	SF
014	662	43.16	100.00	L	OO	P	SF	662	40.41	100.00	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
046	654	44.71	100.00	L	OO	P	SF	654	129.69	100.00	L	OO	P	SF
066	649	37.94	100.00	L	OO	C	SF	649	48.96	100.00	L	OO	C	SF
092	664	36.10	100.00	L	OO	P	SF	664	156.26	100.00	L	OO	P	PU
099	695	25.32	100.00	L	OO	P	SF	695	180.12	100.70	L	OO	P	PU
101	751	47.17	100.00	L	OO	P	SF	751	150.81	101.89	L	OO	P	PU
148	682	23.21	99.65	L	OO	P	PU	682	37.93	100.00	L	OO	P	PU
193	653	42.07	100.00	L	OO	P	SF	653	160.46	100.00	L	OO	P	PU
199	645	50.30	100.00	F	OO	P	TH	645	66.44	100.00	F	OO	P	SF
205	619	49.84	100.00	F	OO	P	CO	619	49.31	103.04	F	OO	P	CO
211	721	34.93	100.00	L	OO	P	SF	721	95.99	100.00	L	OO	P	SF
229	635	49.67	100.00	F	OO	P	SF	635	49.62	100.00	F	OO	P	SF
234	666	42.10	99.26	L	OO	P	SF	666	44.59	100.26	L	OO	P	PU
260	667	42.69	100.00	L	OO	P	SF	667	40.12	100.00	L	OO	P	SF
299	672	42.87	100.00	L	OO	P	SF	672	43.35	100.00	L	OO	P	SF
351	659	35.07	100.00	L	OO	C	SF	659	49.04	100.00	L	OO	C	PU
352	645	33.61	100.00	F	OO	C	PU	645	31.55	100.00	F	OO	C	PU
359	761	44.01	100.00	F	OO	P	SF	761	44.49	100.00	F	OO	P	SF
371	661	47.55	100.00	L	OO	P	SF	661	46.89	100.00	L	OO	P	SF
377	688	46.53	100.00	L	OO	P	SF	688	44.87	101.59	L	OO	P	SF
389	731	48.53	100.00	L	OO	P	SF	731	90.37	100.00	L	OO	P	SF
402	709	40.60	100.00	L	OO	P	SF	709	40.41	100.00	L	OO	P	SF
413	757	40.94	100.00	L	OO	P	SF	757	0.00	100.52	L	OO	P	SF
427	651	41.48	100.00	L	OO	P	SF	651	47.58	100.00	L	OO	P	SF
428	675	44.60	100.00	F	OO	P	SF	675	44.22	100.00	F	OO	P	SF
430	681	46.20	98.51	L	OO	C	SF	681	45.70	98.51	L	OO	C	SF
432	742	43.79	100.00	F	OO	P	SF	742	39.85	100.00	F	OO	P	SF
482	647	42.17	98.00	L	OO	R	SF	647	41.92	98.00	L	OO	R	SF
557	717	48.82	100.00	F	OO	P	SF	717	56.24	100.00	F	OO	P	PU
594	682	33.92	100.00	L	SH	P	TH	682	88.29	103.09	L	SH	P	SF
596	786	36.37	90.00	L	OO	P	SF	786	36.52	90.42	L	OO	P	SF
601	669	46.15	99.97	L	OO	P	CO	669	45.38	99.97	L	OO	P	CO
956	746	46.60	100.00	F	SH	P	PU	746	89.09	100.00	A	SH	P	PU
016	707	39.06	100.00	L	NO	P	CO	707	142.76	100.00	L	NO	P	CO
277	694	42.80	90.00	L	NO	R	SF	694	47.50	90.00	L	NO	R	SF
512	669	38.20	94.12	L	OO	R	SF	669	38.53	94.12	L	OO	R	PU
534	634	36.90	95.00	L	OO	C	PU	634	48.06	95.00	L	OO	C	PU
639	643	37.90	95.00	L	OO	C	SF	643	48.05	95.00	L	OO	C	SF
737	683	41.10	100.00	L	OO	P	SF	683	39.95	100.69	L	OO	P	SF
808	629	46.10	100.00	F	NO	P	SF	629	39.90	100.00	F	NO	P	SF
818	630	36.60	100.00	L	OO	P	SF	630	44.50	100.00	L	OO	P	SF
875	682	45.00	100.00	L	OO	P	24	682	82.28	100.00	L	OO	P	24
948	676	45.20	100.00	L	OO	P	PU	676	65.81	101.01	L	OO	P	PU

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
962	633	41.70	95.00	L	OO	C	PU	633	35.70	95.00	L	OO	C	PU
991	663	40.40	100.00	L	OO	P	24	663	103.37	100.00	L	OO	P	24
009	650	0.00	100.00	L	OO	P	SF	650	0.00	101.84	L	OO	P	SF
020	624	49.60	100.00	L	OO	P	SF	624	125.73	103.48	L	OO	P	SF
033	626	49.50	99.95	L	OO	P	SF	626	54.98	99.95	L	OO	P	SF
036	667	47.10	100.00	L	OO	P	SF	667	82.43	103.76	L	OO	P	SF
044	657	47.60	100.00	F	NO	P	24	657	35.99	100.00	F	NO	P	24
088	647	54.80	100.00	L	OO	P	SF	647	62.34	100.83	L	OO	P	SF
099	716	38.10	95.00	F	NO	P	PU	716	40.00	95.00	F	NO	P	PU
148	680	36.10	100.00	L	OO	C	SF	680	35.94	100.00	L	OO	C	SF
151	691	41.70	100.00	L	OO	P	24	691	58.29	100.00	L	OO	P	24
189	656	0.00	100.00	L	OO	P	SF	691	0.00	100.00	L	OO	P	SF
232	676	0.00	100.00	N	OO	P	SF	676	0.00	80.00	L	OO	P	PU
240	620	0.00	100.00	L	OO	P	SF	0	0.00	100.00	L	OO	P	SF
294	634	47.20	100.00	F	OO	P	PU	634	49.27	100.00	F	OO	P	PU
341	753	47.10	99.81	F	OO	R	SF	753	52.06	99.81	F	OO	C	SF
349	652	48.60	99.97	F	OO	P	CO	652	56.21	99.97	F	OO	P	CO
396	664	0.00	99.98	L	OO	P	PU	664	0.00	102.36	L	OO	P	PU
433	672	0.00	99.98	L	OO	P	PU	672	0.00	102.64	L	OO	P	PU
444	704	0.00	95.00	L	NO	R	PU	704	0.00	111.37	L	NO	C	PU
483	714	45.70	100.00	L	OO	P	24	714	39.10	100.00	L	NO	P	24
496	633	33.70	92.68	L	OO	R	SF	633	33.37	92.68	L	OO	R	PU
562	687	41.10	90.00	L	NO	P	PU	687	41.13	90.00	L	NO	P	PU
584	655	0.00	85.00	N	OO	C	24	655	0.00	85.00	N	NO	C	24
595	643	49.90	79.56	L	OO	R	24	643	175.68	79.56	L	OO	C	24
678	720	50.60	100.00	F	SH	P	PU	720	51.04	100.00	F	SH	P	PU
679	660	36.40	100.00	L	OO	P	SF	660	35.71	100.00	L	OO	P	SF
693	677	0.00	100.00	L	OO	P	24	677	0.00	100.29	L	OO	P	24
704	677	38.80	100.00	F	NO	P	PU	677	63.59	100.00	F	NO	P	PU
716	671	43.90	100.00	L	OO	P	SF	669	109.73	100.00	L	OO	P	SF
735	628	36.40	100.00	L	OO	P	PU	628	34.39	100.00	L	NO	P	PU
759	692	47.00	100.00	L	OO	P	24	692	113.43	103.83	L	OO	P	24
770	715	48.40	100.00	L	SH	P	SF	715	48.20	100.00	L	SH	P	SF
773	660	42.40	100.00	L	OO	P	24	660	87.98	100.00	L	OO	P	24
774	643	43.80	100.00	L	OO	P	SF	627	43.78	100.00	L	OO	P	SF
778	627	46.80	99.71	F	OO	P	SF	627	46.90	100.00	F	OO	P	SF
800	761	50.40	100.00	F	OO	P	SF	761	36.13	100.00	F	OO	P	SF
865	624	47.30	90.00	L	OO	P	24	624	47.37	90.00	L	OO	P	24
882	773	36.90	100.00	L	NO	P	SF	773	66.50	100.00	L	NO	P	SF
938	729	0.00	100.00	L	OO	P	SF	729	0.00	100.00	L	NO	P	SF
942	766	43.20	94.98	L	NO	P	SF	766	43.17	94.98	L	NO	P	SF
982	673	38.30	100.00	L	OO	P	CO	673	38.51	100.00	L	OO	P	CO

**Modeled Loan Characteristics**  
**MSM 2006-14SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
009	749	38.10	90.00	L	NO	C	SF	749	168.21	90.00	L	NO	C	SF
020	672	32.60	94.52	L	NO	C	PU	672	52.98	115.92	L	NO	C	PU
091	658	46.00	95.00	L	OO	P	PU	658	38.89	95.00	L	OO	P	PU
096	642	48.00	100.00	L	OO	P	SF	642	40.42	100.00	L	OO	P	SF
205	625	45.30	99.98	L	OO	P	SF	625	45.33	99.98	L	OO	P	SF
217	682	39.50	100.00	F	OO	P	PU	682	41.40	100.00	F	OO	P	PU
230	635	48.80	100.00	F	OO	P	SF	635	57.50	100.00	F	OO	P	SF
240	649	48.00	90.00	L	OO	C	24	649	45.54	106.88	L	OO	C	24
260	632	35.10	100.00	F	OO	P	SF	632	36.30	100.00	F	OO	P	SF
281	686	46.30	90.00	L	OO	C	SF	686	49.47	90.00	L	OO	C	SF
298	680	38.20	100.00	L	OO	P	SF	680	284.50	100.00	L	OO	P	SF
319	673	40.80	86.81	L	OO	C	24	673	40.85	86.81	L	OO	C	24
400	623	33.60	90.00	L	OO	C	SF	623	42.63	90.00	L	OO	C	SF
447	676	54.80	94.92	L	OO	C	SF	676	76.73	94.92	L	OO	C	SF
467	681	47.60	100.00	L	OO	P	SF	681	58.46	100.00	L	NO	P	SF
470	665	46.40	100.00	L	OO	P	24	665	433.02	100.00	L	NO	P	24
505	688	38.60	100.00	F	NO	P	24	688	136.72	100.00	F	NO	P	24
515	661	43.80	99.98	L	OO	P	PU	661	81.00	99.98	L	OO	P	PU
194	690	37.90	95.00	L	OO	P	SF	690	39.15	95.00	L	OO	P	SF

Sources:

-Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL* and *Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) and related appendices.

-Loan Tape: MSM 2006-14SL (MSM\_14SL\_00192865).

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
029	692	0.00	100.00	L	OO	P	SF	692	0.00	100.00	L	NO	P	SF
144	735	32.04	98.00	F	OO	P	SF	735	31.30	100.36	A	OO	P	SF
551	772	33.04	100.00	L	OO	P	24	772	70.95	100.00	L	OO	P	24
076	729	38.39	84.45	L	OO	C	SF	729	155.17	86.48	L	OO	C	SF
131	681	43.00	100.00	L	OO	P	SF	681	45.41	100.00	L	OO	P	SF
155	774	37.00	100.00	L	OO	P	SF	774	108.10	100.00	L	OO	P	SF
307	742	39.00	100.00	L	OO	P	CO	742	49.32	100.00	L	OO	P	CO
362	703	27.75	100.00	L	OO	P	SF	703	80.18	100.00	L	NO	P	SF
365	750	38.00	100.00	L	OO	P	SF	750	55.53	100.00	L	OO	P	SF
495	706	26.14	100.00	L	OO	P	PU	706	313.71	100.00	L	OO	P	PU
501	809	33.00	100.00	F	OO	P	SF	809	40.20	100.00	F	OO	P	SF
573	658	44.33	100.00	L	OO	P	PU	658	47.33	100.00	L	OO	P	PU
612	668	43.32	100.00	F	OO	P	SF	668	42.90	100.22	F	OO	P	SF
967	656	46.35	100.00	L	OO	P	CO	656	45.35	100.00	L	OO	P	CO
195	674	42.83	100.00	L	OO	P	SF	674	74.14	100.00	L	OO	P	PU
221	667	44.14	100.00	L	OO	P	SF	667	65.77	100.00	L	OO	P	SF
256	665	42.33	100.00	L	OO	P	SF	665	40.63	100.00	L	OO	P	SF
378	680	41.00	99.99	F	OO	P	SF	680	41.03	99.99	L	OO	P	SF
389	695	45.97	100.00	L	OO	P	SF	695	45.07	100.00	L	OO	P	PU
701	645	49.67	95.00	L	OO	P	PU	645	74.41	95.00	L	OO	P	PU
978	659	42.19	100.00	L	OO	P	SF	659	88.74	100.00	L	OO	P	SF
495	651	44.79	100.00	L	OO	P	SF	651	103.01	100.00	L	OO	P	PU
817	665	36.00	100.00	F	OO	P	PU	665	24.78	100.00	F	OO	P	PU
981	688	0.00	88.53	L	OO	R	SF	688	0.00	98.92	L	OO	R	SF
021	755	13.25	100.00	L	SH	P	PU	755	79.27	100.00	L	SH	P	PU
026	717	0.00	90.00	N	NO	R	SF	740	0.00	82.57	N	NO	R	SF
082	746	0.00	100.00	N	OO	P	SF	746	0.00	99.19	N	OO	P	SF
099	755	0.00	100.00	L	OO	P	24	755	0.00	99.97	L	OO	P	24
134	672	31.25	100.00	L	OO	P	SF	672	39.53	100.00	L	OO	P	SF
154	760	18.74	88.36	L	NO	C	SF	760	72.80	194.40	L	NO	C	SF
180	646	26.33	100.00	L	OO	C	SF	646	36.09	107.79	A	OO	C	SF
188	685	30.43	100.00	L	OO	P	PU	685	54.46	100.00	L	OO	P	PU
204	655	36.47	100.00	L	OO	P	SF	655	115.92	100.00	L	OO	P	SF
209	623	27.84	91.36	L	OO	R	CO	623	33.07	111.82	L	OO	C	CO
242	693	13.56	95.00	L	NO	P	SF	693	22.17	95.00	L	NO	P	SF
251	672	22.43	100.00	L	OO	P	SF	672	67.02	100.00	L	OO	P	SF
265	687	25.60	95.00	F	OO	P	SF	687	39.54	95.00	L	OO	P	SF
272	713	32.64	100.00	L	OO	P	24	713	43.47	100.00	L	OO	P	24
279	688	22.21	100.00	L	OO	P	24	688	88.60	100.00	L	OO	P	24
340	671	17.29	95.00	L	SH	C	CO	671	55.28	100.14	L	SH	C	CO
411	728	0.00	100.00	N	OO	P	SF	728	0.00	141.37	N	OO	P	SF
451	660	26.50	100.00	L	OO	P	SF	660	310.88	100.00	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
462	624	40.14	100.00	L	OO	P	SF	624	50.44	100.00	L	OO	P	SF
475	677	0.00	100.00	L	OO	P	SF	677	34.70	100.00	L	OO	P	SF
504	696	30.26	100.00	L	OO	P	PU	696	37.14	100.00	L	OO	P	PU
614	679	18.35	90.00	L	NO	C	SF	679	51.10	90.00	L	NO	C	SF
618	685	22.53	100.00	L	OO	P	PU	685	37.89	100.00	L	OO	P	PU
624	728	11.88	95.00	F	NO	P	CO	728	46.84	95.00	F	NO	P	CO
642	680	0.00	100.00	L	OO	P	PU	680	0.00	101.87	L	OO	P	PU
666	608	30.62	100.00	F	OO	P	CO	608	30.62	100.00	A	OO	P	CO
457	679	48.21	100.00	L	OO	P	SF	679	52.56	102.06	L	OO	P	SF
577	652	44.93	99.99	L	OO	P	CO	677	94.12	99.99	L	OO	P	CO
593	715	29.48	100.00	L	SH	P	SF	715	91.84	100.00	L	SH	P	SF
624	774	29.59	100.00	F	SH	P	CO	774	28.97	100.00	A	SH	P	CO
633	671	40.09	100.00	L	OO	P	SF	671	39.95	100.00	L	OO	P	SF
685	751	10.46	94.97	L	NO	P	PU	751	46.21	94.97	L	NO	P	PU
707	663	24.42	81.74	L	OO	C	SF	663	33.99	81.74	L	OO	C	SF
713	688	16.79	100.00	L	OO	P	24	688	49.85	100.00	L	OO	P	24
730	679	6.71	90.00	L	OO	P	SF	679	36.94	90.00	L	OO	P	SF
762	685	24.54	100.00	L	OO	C	SF	685	41.46	100.00	L	OO	C	SF
764	694	16.57	100.00	L	OO	P	SF	694	64.40	100.00	L	OO	P	SF
773	710	17.81	89.93	L	NO	P	SF	710	66.62	89.93	L	NO	P	SF
783	696	0.00	98.20	L	OO	P	PU	696	0.00	98.20	L	NO	P	PU
793	713	33.78	100.00	L	OO	P	CO	713	36.23	100.00	L	OO	P	CO
831	666	12.00	90.00	L	NO	C	SF	666	0.00	137.21	L	NO	C	SF
840	717	17.96	90.00	L	NO	C	SF	717	34.87	90.00	L	NO	C	SF
841	747	14.73	95.00	L	NO	P	24	747	37.57	95.00	A	NO	P	24
909	699	0.00	95.00	N	OO	R	SF	699	0.00	104.36	N	OO	C	SF
041	604	34.87	100.00	F	OO	P	SF	604	34.93	100.00	A	OO	P	SF
060	671	46.23	95.57	L	OO	P	SF	671	52.34	100.00	L	OO	P	SF
087	677	37.70	100.00	L	OO	P	SF	677	208380.94	100.00	L	OO	P	PU
090	708	33.20	100.00	F	OO	C	PU	708	64.60	100.00	F	OO	C	PU
109	660	42.48	100.00	L	OO	P	SF	660	270.60	100.00	L	OO	P	SF
119	663	42.11	100.00	F	OO	P	SF	663	53.88	100.00	F	NO	P	SF
127	736	43.32	100.00	L	OO	P	SF	746	43.46	102.73	L	OO	P	SF
129	675	54.83	100.00	F	OO	P	24	675	61.49	102.14	F	OO	P	24
137	687	47.54	100.00	L	OO	C	SF	687	46.57	100.00	L	OO	C	SF
191	739	36.88	100.00	L	OO	P	CO	739	37.84	100.00	L	OO	P	CO
202	661	39.76	97.79	L	OO	R	SF	661	38.56	97.79	L	OO	C	SF
212	701	47.55	100.00	L	OO	P	SF	701	91.28	100.00	L	OO	P	SF
215	676	43.14	100.00	L	OO	P	SF	676	45.68	100.00	L	OO	P	PU
264	674	50.71	100.00	L	OO	R	SF	674	51.12	100.00	L	OO	C	SF
267	662	45.10	100.00	L	OO	P	SF	662	79.48	100.00	L	OO	P	SF
282	661	51.78	100.00	F	OO	C	SF	661	50.43	112.83	F	OO	C	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
291	648	44.47	100.00	L	OO	P	SF	648	43.94	100.00	L	OO	P	SF
312	661	48.40	100.00	L	OO	P	SF	613	44.24	102.94	L	OO	P	SF
317	643	43.35	100.00	L	OO	P	SF	643	43.88	100.00	A	OO	P	SF
324	675	42.82	100.00	L	OO	P	SF	664	52.44	100.00	L	OO	P	SF
354	671	46.35	100.00	L	OO	P	SF	671	112.80	93.45	L	OO	P	SF
369	667	39.06	90.00	F	OO	R	SF	667	38.98	90.00	A	OO	C	SF
381	628	47.53	100.00	F	OO	P	SF	628	50.75	103.09	F	OO	P	SF
405	720	47.56	100.00	L	OO	P	SF	720	203.91	100.00	L	OO	P	SF
457	692	35.86	100.00	L	OO	P	SF	692	37.84	100.00	L	OO	P	SF
467	623	13.33	100.00	A	OO	P	SF	623	13.44	100.34	A	OO	P	SF
474	744	37.66	100.00	L	OO	P	CO	744	99.39	100.00	L	OO	P	CO
496	723	43.93	100.00	L	OO	P	SF	723	163.62	100.00	L	OO	P	SF
498	683	48.83	100.00	L	OO	P	SF	683	97.15	100.00	L	OO	P	PU
502	643	47.53	100.00	L	OO	P	SF	642	113.60	100.00	L	OO	P	SF
509	662	36.77	100.00	L	OO	P	SF	662	34.68	100.00	L	OO	P	PU
535	667	47.76	100.00	L	OO	P	SF	667	52.28	101.03	L	OO	P	PU
541	718	47.05	96.89	A	OO	C	SF	718	47.36	96.89	A	OO	C	SF
542	653	32.32	100.00	A	OO	C	SF	653	31.99	100.00	A	OO	C	SF
574	627	31.34	100.00	F	OO	P	SF	627	39.56	100.00	F	OO	P	SF
582	649	43.61	100.00	L	OO	P	24	649	58.09	100.00	L	OO	P	24
604	649	46.63	100.00	L	OO	P	SF	649	47.98	100.00	L	OO	P	SF
616	666	49.23	98.49	F	OO	P	SF	612	57.28	100.00	A	OO	P	SF
627	621	45.74	100.00	F	OO	P	CO	621	104.87	100.00	F	OO	P	CO
655	625	48.29	100.00	A	OO	P	SF	625	47.65	101.78	A	OO	P	SF
670	654	44.08	100.00	L	OO	P	SF	654	43.99	100.00	L	OO	P	SF
681	676	36.92	100.00	L	OO	P	SF	676	75.10	100.00	L	OO	P	SF
684	647	33.04	100.00	L	OO	P	SF	647	100.06	100.00	A	OO	P	SF
687	666	47.62	100.00	F	OO	P	CO	666	49.29	100.00	F	OO	P	CO
707	668	32.42	100.00	L	OO	P	PU	0	62.25	100.00	L	OO	P	PU
720	654	40.87	100.00	L	OO	P	PU	654	41.03	101.74	L	OO	P	PU
724	627	47.98	100.00	F	OO	P	PU	627	0.00	100.00	F	OO	P	PU
732	689	43.94	100.00	L	OO	P	SF	689	57.41	100.00	L	OO	P	PU
747	649	38.39	100.00	F	OO	P	SF	649	51.19	100.00	A	OO	P	SF
749	647	43.06	100.00	L	OO	P	SF	647	75.42	101.44	L	OO	P	SF
751	663	44.40	100.00	A	OO	P	SF	663	51.83	100.00	A	OO	P	SF
753	715	43.08	100.00	F	OO	P	24	715	63.37	101.01	F	OO	P	24
756	661	40.82	98.99	F	OO	C	CO	661	41.68	100.00	F	OO	C	CO
810	782	35.57	100.00	F	OO	P	SF	782	35.98	100.00	A	OO	P	SF
849	709	36.23	100.00	L	OO	P	PU	709	35.97	100.00	L	OO	P	PU
909	794	0.00	100.00	L	OO	P	24	786	0.00	100.00	L	OO	P	24
926	661	40.63	100.00	L	OO	P	SF	661	147.86	100.00	L	OO	P	SF
949	754	33.95	95.00	L	NO	P	SF	754	57.51	95.00	L	NO	P	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
964	798	39.13	100.00	F	NO	P	24	798	40.39	99.40	A	NO	P	24
004	686	43.64	95.00	L	NO	P	SF	686	46.98	95.00	L	NO	P	SF
039	693	37.87	95.00	L	NO	P	SF	0	260.29	95.00	L	NO	P	SF
052	754	0.00	95.00	L	NO	P	CO	732	0.00	95.00	L	NO	P	CO
053	775	38.55	95.00	L	NO	P	SF	782	39.85	95.00	L	NO	P	SF
101	711	0.00	95.00	N	OO	P	SF	698	0.00	95.00	N	OO	P	SF
205	734	0.00	99.99	N	OO	P	PU	734	0.00	98.96	N	OO	P	PU
277	714	39.70	100.00	L	SH	P	PU	714	42.58	100.00	L	SH	P	PU
316	639	42.25	94.71	L	OO	R	PU	639	40.89	94.71	L	OO	R	PU
322	760	0.00	92.69	L	NO	P	PU	760	0.00	94.63	L	NO	P	PU
389	626	38.09	100.00	L	OO	P	SF	626	43.48	100.00	L	OO	P	SF
406	688	0.00	100.00	L	OO	P	CO	688	0.00	103.37	L	OO	P	CO
450	669	49.66	94.98	F	NO	P	PU	669	50.18	94.97	F	NO	P	PU
522	705	0.00	95.00	N	OO	P	SF	705	0.00	94.99	N	OO	P	SF
529	684	39.15	90.00	L	NO	P	CO	684	50.39	90.00	L	NO	P	CO
624	719	20.90	98.08	L	OO	C	SF	719	48.46	117.51	L	OO	C	SF
069	672	46.55	100.00	L	OO	P	SF	672	64.43	100.00	L	OO	P	SF
100	666	48.77	100.00	L	OO	P	SF	666	72.66	100.00	L	OO	P	SF
117	645	16.54	91.00	A	OO	R	SF	645	19.92	91.00	A	OO	R	SF
128	686	49.62	100.00	F	OO	P	SF	686	54.18	100.00	A	OO	P	SF
970	712	44.90	100.00	F	SH	C	SF	712	47.55	100.00	F	SH	C	SF
489	728	44.60	100.00	L	OO	P	PU	728	44.58	100.00	L	OO	P	PU
684	723	40.30	90.00	L	OO	P	SF	723	36.09	90.00	L	OO	P	SF
735	641	49.70	100.00	L	OO	P	CO	641	160.84	100.00	L	NO	P	CO
784	754	37.30	100.00	L	OO	P	SF	754	35.70	100.00	L	OO	P	SF
811	693	46.70	100.00	L	OO	P	SF	693	45.55	100.00	L	OO	P	SF
831	659	42.80	100.00	F	OO	P	PU	659	44.20	100.00	F	OO	P	PU
872	726	46.80	100.00	L	OO	P	24	726	47.54	100.00	L	OO	P	24
914	633	49.90	99.97	F	SH	P	PU	633	50.09	99.97	F	SH	P	PU
014	652	49.10	100.00	F	OO	C	SF	652	49.29	100.00	A	OO	C	SF
039	694	40.20	100.00	F	NO	P	SF	694	39.73	100.00	F	NO	P	SF
108	702	33.80	100.00	L	OO	P	SF	575	36.73	103.09	L	OO	P	SF
111	742	47.30	100.00	F	OO	P	PU	742	47.61	100.00	A	OO	P	PU
123	689	47.80	90.00	F	OO	C	SF	689	45.79	90.00	F	OO	C	SF
163	772	34.60	100.00	L	OO	P	SF	772	34.36	100.00	L	OO	P	SF
169	724	47.90	100.00	L	OO	P	24	724	143.68	100.00	L	OO	P	24
356	692	46.00	100.00	L	OO	P	SF	692	70.16	100.00	L	OO	P	SF
369	713	40.70	100.00	L	OO	P	SF	713	40.50	100.00	L	OO	P	SF
442	729	36.10	100.00	L	OO	P	PU	729	35.98	100.00	L	OO	P	PU
462	669	43.70	100.00	F	OO	P	SF	669	44.12	100.00	F	OO	P	SF
500	684	43.40	100.00	L	OO	P	SF	684	105.23	100.00	L	NO	P	SF
524	696	0.00	100.00	L	OO	P	SF	696	0.00	102.59	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
547	715	32.40	99.97	L	OO	P	CO	715	32.37	99.97	L	OO	P	CO
550	692	5.20	90.00	L	NO	C	SF	692	4.69	90.00	L	NO	C	SF
618	749	48.20	100.00	L	OO	P	24	749	35.08	100.00	L	NO	P	24
684	706	43.60	100.00	L	OO	P	CO	706	57.53	100.00	L	OO	P	CO
730	678	45.20	100.00	F	NO	P	SF	678	45.26	100.00	F	NO	P	SF
768	648	49.30	99.97	L	OO	P	PU	648	49.34	99.97	L	OO	P	PU
855	731	44.30	100.00	L	OO	P	PU	617	84.62	100.00	L	OO	P	PU
932	797	35.70	94.93	F	OO	P	CO	797	37.22	95.00	F	OO	P	CO
105	705	43.80	100.00	L	OO	C	SF	705	236520.16	100.00	L	OO	C	SF
175	628	42.40	99.97	L	OO	P	PU	628	66.34	99.97	L	OO	P	PU
207	666	43.00	100.00	L	OO	P	PU	666	43.57	100.00	L	OO	P	PU
219	695	44.90	100.00	L	OO	P	SF	695	47.51	100.00	L	OO	P	SF
222	697	46.10	100.00	L	OO	P	PU	697	54.23	100.00	L	OO	P	PU
295	683	32.70	97.88	L	OO	P	SF	683	32.73	97.88	L	OO	P	SF
299	700	47.50	100.00	A	OO	P	SF	700	45.64	100.00	F	OO	P	SF
369	703	49.70	100.00	L	OO	P	PU	703	47.31	100.00	L	OO	P	PU
437	673	38.90	89.29	F	OO	C	PU	673	39.41	89.29	F	OO	C	PU
455	687	0.00	100.00	L	OO	P	PU	687	0.00	100.00	L	NO	P	PU
614	713	40.40	100.00	L	OO	P	SF	713	37.63	100.00	L	OO	P	SF
621	620	49.70	100.00	F	OO	C	PU	620	48.78	114.13	F	OO	C	PU
627	639	38.80	85.00	L	OO	R	SF	639	51.14	85.00	L	OO	C	SF
635	637	40.90	100.00	L	OO	P	SF	637	39.90	100.00	L	OO	P	SF
665	795	30.60	100.00	L	NO	P	PU	795	26.58	100.00	L	NO	P	PU
685	633	27.90	90.00	L	OO	R	PU	633	28.58	90.00	L	OO	C	PU
701	693	26.40	90.00	L	OO	C	PU	693	286.28	90.00	L	OO	C	PU
709	752	44.30	100.00	L	OO	P	PU	752	44.77	100.00	L	OO	P	PU
713	637	23.80	90.00	L	OO	R	PU	637	23.88	90.00	L	OO	R	PU
714	640	11.30	100.00	L	NO	P	SF	640	64.00	100.00	L	NO	P	SF
715	680	38.90	100.00	L	NO	P	SF	680	40.33	100.00	L	NO	P	SF
719	651	49.90	100.00	L	OO	P	PU	651	50.36	100.00	L	OO	P	PU
734	667	52.90	90.00	L	NO	C	SF	667	82.85	90.00	L	NO	C	SF
774	661	40.50	95.00	L	OO	P	PU	661	132.01	95.00	L	OO	P	PU
783	685	39.30	95.00	L	OO	P	SF	685	39.31	95.00	L	OO	P	SF
800	705	50.00	100.00	L	NO	P	SF	705	61.91	100.00	L	NO	P	SF
818	641	50.20	100.00	F	SH	P	PU	641	54.21	100.00	F	SH	P	PU
828	766	37.20	100.00	L	OO	P	PU	766	42.79	100.00	L	OO	P	PU
864	650	41.70	99.96	A	OO	P	PU	650	43.18	99.96	A	OO	P	PU
879	755	33.20	100.00	A	OO	P	PU	755	45.12	100.00	F	OO	P	PU
880	630	0.00	100.00	N	OO	P	PU	630	0.00	101.00	N	OO	P	PU
896	732	32.50	100.00	L	OO	P	SF	732	33.91	100.00	L	OO	P	SF
904	633	0.00	100.00	N	OO	P	PU	633	0.00	100.82	N	OO	P	PU
911	693	54.90	73.29	L	OO	C	SF	693	78.54	73.29	L	OO	C	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
937	682	41.20	100.00	L	SH	P	SF	682	40.77	100.00	L	SH	P	SF
969	748	44.30	100.00	L	OO	P	CO	748	143.44	100.00	L	OO	P	CO
989	692	46.60	90.00	L	NO	C	PU	692	45.55	90.00	L	NO	C	PU
031	647	0.00	100.00	L	OO	P	PU	647	0.00	103.98	L	OO	P	PU
075	660	26.70	92.71	L	OO	P	PU	660	27.60	92.71	L	OO	P	PU
142	705	31.50	90.00	L	NO	P	24	705	188.23	90.00	L	NO	P	24
198	680	26.80	90.00	L	OO	P	SF	680	26.77	90.00	L	OO	P	SF
222	663	49.90	100.00	L	OO	P	24	663	164.53	100.00	L	OO	P	24
271	643	43.90	100.00	F	NO	C	SF	643	50.42	0.00	F	NO	C	SF
280	620	46.00	100.00	L	OO	P	24	620	125.79	100.00	L	OO	P	SF
300	621	43.20	95.00	L	OO	C	PU	621	60.68	95.00	L	OO	C	PU
337	694	0.00	100.00	L	OO	P	PU	694	0.00	100.00	N	OO	P	PU
358	681	25.20	88.28	L	OO	R	24	681	26.33	105.88	L	OO	R	24
389	680	54.80	89.97	L	OO	C	24	680	68.18	89.97	L	OO	C	24
399	728	39.00	99.94	L	OO	P	SF	728	39.51	101.77	L	OO	P	SF
403	708	32.70	90.00	A	NO	R	24	708	30.40	90.00	A	NO	R	24
418	688	38.30	99.76	L	OO	P	24	688	48.47	101.17	L	OO	P	24
464	655	44.50	100.00	L	OO	P	PU	655	92.26	101.27	L	OO	P	PU
470	638	47.50	85.00	L	NO	P	SF	638	104.58	85.00	L	NO	P	SF
476	633	48.60	95.00	L	OO	C	PU	633	65.80	95.00	L	OO	C	PU
479	636	45.00	100.00	L	OO	P	SF	636	44.58	100.00	L	OO	P	SF
519	685	43.40	100.00	L	OO	P	PU	685	43.34	100.00	L	OO	P	PU
524	629	37.10	90.00	L	OO	C	PU	629	2074671.60	90.00	L	OO	C	PU
536	687	44.60	90.00	L	NO	P	24	687	44.70	90.00	L	NO	P	24
557	626	26.70	95.00	L	NO	P	SF	626	31.07	95.00	L	NO	P	PU
581	620	48.90	100.00	L	OO	C	SF	620	222.21	111.11	L	OO	C	SF
631	758	46.00	100.00	L	OO	P	SF	758	56.82	100.00	L	OO	P	SF
636	631	41.00	100.00	F	OO	P	SF	631	42.97	100.00	F	OO	P	SF
648	705	0.00	100.00	N	OO	P	PU	705	0.00	104.35	N	OO	P	PU
665	677	44.90	100.00	L	OO	P	SF	677	136.75	100.00	L	OO	P	SF
671	708	9.00	90.00	L	NO	P	CO	708	62.39	90.00	L	NO	P	CO
681	705	43.60	100.00	L	OO	P	SF	701	46.25	100.00	L	OO	P	SF
699	691	30.20	100.00	L	OO	P	SF	691	56.46	100.00	L	OO	P	SF
709	727	45.40	100.00	L	OO	C	SF	680	75.24	100.00	L	OO	C	SF
748	702	43.20	95.00	L	OO	P	24	702	48.08	95.00	L	OO	P	24
780	680	2.80	90.00	L	NO	C	SF	680	44.84	148.40	L	NO	C	SF
812	701	36.20	85.00	L	NO	C	24	701	43.71	85.00	L	NO	C	24
819	634	43.80	100.00	L	OO	P	SF	553	132.08	100.09	L	OO	P	SF
833	685	54.20	100.00	A	OO	P	CO	685	54.23	100.00	A	OO	P	CO
849	718	34.20	100.00	L	OO	P	SF	718	31.70	100.00	L	OO	P	SF
861	659	50.10	90.00	F	OO	P	PU	659	52.15	90.00	A	OO	P	PU
878	711	37.20	100.00	L	OO	P	SF	711	30.94	100.00	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
887	735	49.70	100.00	L	OO	P	PU	735	50.23	100.98	L	OO	P	PU
902	660	42.10	100.00	L	OO	P	PU	660	43.94	100.00	L	OO	P	PU
931	726	0.00	100.00	L	OO	P	PU	726	0.00	105.08	L	OO	P	PU
974	741	42.50	99.99	L	OO	P	PU	741	43.18	99.99	L	OO	P	PU
975	773	0.00	99.96	N	OO	P	PU	773	0.00	104.72	N	OO	P	PU
993	629	47.60	100.00	A	OO	P	CO	629	47.57	107.72	A	OO	P	CO
997	697	0.00	100.00	L	OO	P	SF	697	0.00	100.11	L	OO	P	SF
117	655	31.60	100.00	L	NO	P	SF	655	37.45	99.98	L	NO	P	SF
145	690	0.00	100.00	L	OO	P	24	690	0.00	100.48	L	OO	P	24
150	736	45.30	100.00	L	NO	P	SF	736	111.51	100.00	L	NO	P	SF
156	688	49.20	100.00	F	NO	C	24	688	63.83	100.00	A	NO	C	24
169	674	0.00	100.00	L	OO	P	CO	674	0.00	104.12	L	OO	P	CO
216	707	30.40	100.00	L	OO	P	SF	707	30.71	100.00	L	OO	P	SF
268	624	41.50	100.00	L	OO	P	PU	624	55.49	100.00	L	OO	P	PU
280	703	31.30	100.00	L	OO	P	PU	703	101.50	100.00	L	OO	P	PU
283	662	37.10	86.73	L	OO	C	SF	652	50.88	86.73	L	OO	C	SF
320	757	36.60	100.00	A	OO	P	24	757	36.42	100.91	A	NO	P	24
400	665	27.50	90.00	L	OO	C	SF	665	60.18	90.00	L	OO	C	SF
424	724	38.30	95.00	L	NO	P	SF	724	37.73	95.00	L	NO	P	SF
431	626	41.20	100.00	L	OO	P	SF	626	50.20	100.00	L	OO	P	SF
458	685	48.90	100.00	L	OO	P	24	685	49.83	100.00	L	OO	P	24
788	629	40.80	100.00	F	OO	P	24	629	40.98	100.00	F	OO	P	24
798	701	0.00	100.00	N	OO	P	SF	701	0.00	100.00	L	OO	P	SF
800	645	49.50	100.00	L	OO	P	24	645	49.49	100.00	L	OO	P	24
812	648	41.40	100.00	L	OO	P	SF	648	39.07	100.00	L	OO	P	SF
835	674	34.00	95.00	L	NO	P	24	674	29.65	95.00	L	NO	P	24
855	649	34.30	100.00	L	OO	P	PU	649	33.76	100.00	L	OO	P	PU
891	684	45.00	100.00	L	NO	P	SF	684	43.67	100.00	L	NO	P	SF
895	717	0.00	100.00	N	OO	P	SF	726	0.00	100.00	N	OO	P	SF
896	742	46.60	100.00	L	NO	P	SF	742	39.57	100.00	L	NO	P	SF
912	644	39.20	100.00	L	OO	P	SF	644	47.76	100.00	L	OO	P	SF
947	672	42.20	100.00	L	NO	P	SF	672	64.48	100.00	L	NO	P	SF
954	692	0.00	100.00	N	OO	P	SF	692	0.00	100.00	N	NO	P	SF
006	643	39.80	100.00	L	OO	P	CO	643	66.42	100.00	L	OO	P	CO
028	691	0.00	100.00	L	NO	C	PU	690	0.00	100.00	L	NO	C	PU
110	677	45.90	100.00	L	OO	C	SF	677	94.61	100.00	L	OO	C	SF
136	631	46.70	100.00	L	OO	P	24	631	46.60	100.00	L	OO	P	24
151	749	20.60	100.00	L	NO	P	SF	749	52.86	100.00	L	NO	P	SF
152	646	0.00	90.00	L	OO	C	SF	646	0.00	115.38	L	OO	C	SF
171	657	37.50	90.00	L	NO	C	SF	657	41.18	90.00	L	NO	C	SF
223	716	41.90	95.00	F	NO	P	SF	716	41.32	95.00	F	NO	P	SF
278	701	36.20	100.00	L	OO	P	SF	701	30.97	100.00	L	OO	P	SF

**Modeled Loan Characteristics**  
**MSM 2007-4SL**

Loan ID	Original							Adjusted						
	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type	Credit Score	DTI	CLTV	Doc Type	Occupancy	Loan Purpose	Property Type
400	716	0.00	100.00	L	OO	P	SF	716	0.00	100.00	L	NO	P	PU

Sources:

- Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) and related appendices.
- Loan Tape: MSM 2007-4SL (MSM\_14SL\_00192869).

## Appendix F

### Loan Level Model Results

**Loan Level Model Results**  
**MSM 2006-14SL**

Risk Profiles Indistinguishable at 95% Confidence Level			
Loan Number	Indistinguishable	Loan Number	Indistinguishable
835		041	✓
837	✓	051	✓
862		052	✓
135	✓	070	✓
754	✓	086	✓
767		090	✓
794		111	✓
022	✓	131	✓
014	✓	259	✓
039	✓	271	✓
044	✓	285	✓
048	✓	286	✓
223	✓	287	✓
415	✓	332	✓
567	✓	363	✓
598	✓	371	✓
619	✓	406	✓
625		485	✓
636	✓	512	✓
644	✓	551	✓
653	✓	610	✓
703	✓	635	✓
727		649	✓
731	✓	654	✓
751		659	✓
757	✓	670	✓
812	✓	677	
813		681	
823	✓	702	
876	✓	704	✓
905	✓	720	✓
907		722	✓
910	✓	733	
911		755	✓
927	✓	757	✓
941	✓	761	✓
981	✓	781	✓
037	✓	789	✓

## Loan Level Model Results

*MSM 2006-14SL*

### Risk Profiles Indistinguishable at 95% Confidence Level

Loan Number	Indistinguishable	Loan Number	Indistinguishable
790	✓	633	✓
802	✓	658	✓
852	✓	669	✓
858	✓	682	✓
880	✓	734	✓
912		763	✓
915	✓	765	
925		794	✓
929		812	✓
943	✓	828	✓
952	✓	831	✓
965	✓	887	✓
982	✓	895	✓
990	✓	930	✓
014	✓	942	
052	✓	954	✓
071	✓	965	✓
091	✓	983	
095	✓	061	✓
161	✓	065	✓
198		069	✓
255	✓	073	✓
266	✓	092	
270		098	✓
298	✓	147	
306	✓	174	✓
377	✓	182	
410	✓	184	✓
461	✓	192	✓
463	✓	242	✓
547		263	✓
566	✓	273	✓
567	✓	283	✓
570	✓	287	✓
571	✓	299	✓
585		301	✓
589	✓	314	✓
614	✓	319	

## Loan Level Model Results

*MSM 2006-14SL*

### Risk Profiles Indistinguishable at 95% Confidence Level

Loan Number	Indistinguishable	Loan Number	Indistinguishable
334	✓	685	✓
342	✓	688	✓
465	✓	699	✓
477	✓	700	✓
486	✓	705	✓
489	✓	708	✓
493	✓	768	✓
508	✓	799	✓
510	✓	809	✓
514	✓	824	✓
527	✓	843	✓
536	✓	866	
551	✓	894	✓
568	✓	932	✓
569	✓	952	✓
579	✓	955	✓
598	✓	960	✓
620		962	✓
633	✓	993	✓
681	✓	014	✓
736	✓	046	
769		066	✓
774	✓	092	✓
780	✓	099	
790		101	
798		148	✓
800	✓	193	
807	✓	199	✓
816	✓	205	✓
829	✓	211	✓
836	✓	229	✓
865	✓	234	✓
866	✓	260	✓
903	✓	299	✓
910	✓	351	✓
917	✓	352	✓
926	✓	359	✓
927	✓	371	✓

## Loan Level Model Results

*MSM 2006-14SL*

### Risk Profiles Indistinguishable at 95% Confidence Level

Loan Number	Indistinguishable	Loan Number	Indistinguishable
377	✓	294	✓
389	✓	341	✓
402	✓	349	✓
413	✓	396	✓
427	✓	433	✓
428	✓	444	✓
430	✓	483	✓
432	✓	496	✓
482	✓	562	✓
557	✓	584	✓
594		595	
596	✓	678	✓
601	✓	679	✓
956	✓	693	✓
016		704	✓
277	✓	716	
512	✓	735	✓
534	✓	759	
639	✓	770	✓
737	✓	773	
808	✓	774	✓
818	✓	778	✓
875	✓	800	✓
948	✓	865	✓
962	✓	882	✓
991		938	✓
009	✓	942	✓
020		982	✓
033	✓	009	
036	✓	020	
044	✓	091	✓
088	✓	096	✓
099	✓	205	✓
148	✓	217	✓
151	✓	230	✓
189	✓	240	
232	✓	260	✓
240		281	✓

**Loan Level Model Results**  
**MSM 2006-14SL**

Risk Profiles Indistinguishable at 95% Confidence Level			
Loan Number	Indistinguishable	Loan Number	Indistinguishable
298		470	
319	✓	505	
400	✓	515	
447	✓	194	✓
467			

Sources:

-ABSNet Database.

-Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) and related appendices.

-Loan Tape: MSM 2006-14SL (MSM\_14SL\_00192865).

**Loan Level Model Results**  
**MSM 2007-4SL**

Risk Profiles Indistinguishable at 95% Confidence Level			
Loan Number	Indistinguishable	Loan Number	Indistinguishable
029	✓	279	✓
144	✓	340	✓
551	✓	411	
076	✓	451	
131	✓	462	✓
155	✓	475	✓
307	✓	504	✓
362		614	✓
365	✓	618	✓
495		624	✓
501	✓	642	✓
573	✓	666	✓
612	✓	457	✓
967	✓	577	✓
195	✓	593	✓
221	✓	624	✓
256	✓	633	✓
378		685	✓
389	✓	707	✓
701	✓	713	✓
978	✓	730	✓
495	✓	762	✓
817	✓	764	✓
981	✓	773	✓
021	✓	783	✓
026	✓	793	✓
082	✓	831	
099	✓	840	✓
134	✓	841	✓
154		909	✓
180	✓	041	✓
188	✓	060	✓
204		087	
209		090	✓
242	✓	109	
251	✓	119	
265		127	✓
272	✓	129	✓

## Loan Level Model Results

*MSM 2007-4SL*

### Risk Profiles Indistinguishable at 95% Confidence Level

Loan Number	Indistinguishable	Loan Number	Indistinguishable
137	✓	724	✓
191	✓	732	✓
202	✓	747	✓
212	✓	749	✓
215	✓	751	✓
264	✓	753	✓
267	✓	756	✓
282		810	✓
291	✓	849	✓
312		909	✓
317	✓	926	
324	✓	949	✓
354	✓	964	✓
369	✓	004	✓
381	✓	039	
405	✓	052	✓
457	✓	053	✓
467	✓	101	✓
474	✓	205	✓
496	✓	277	✓
498	✓	316	✓
502	✓	322	✓
509	✓	389	✓
535	✓	406	✓
541	✓	450	✓
542	✓	522	✓
574	✓	529	✓
582	✓	624	
604	✓	069	✓
616	✓	100	✓
627	✓	117	✓
655	✓	128	✓
670	✓	970	✓
681	✓	489	✓
684	✓	684	✓
687	✓	735	
707		784	✓
720	✓	811	✓

## Loan Level Model Results

*MSM 2007-4SL*

### Risk Profiles Indistinguishable at 95% Confidence Level

Loan Number	Indistinguishable	Loan Number	Indistinguishable
831	✓	65	✓
872	✓	85	✓
914	✓	01	
014	✓	09	✓
039	✓	13	✓
108		14	✓
111	✓	15	✓
123	✓	19	✓
163	✓	34	✓
169		74	✓
356	✓	83	✓
369	✓	00	✓
442	✓	18	✓
462	✓	28	✓
500		64	✓
524	✓	79	✓
547	✓	80	✓
550	✓	96	✓
618	✓	04	✓
684	✓	11	✓
730	✓	37	✓
768	✓	69	✓
855		89	✓
932	✓	31	✓
105		75	✓
175	✓	42	
207	✓	98	✓
219	✓	22	
222	✓	71	✓
295	✓	80	✓
299		00	✓
369	✓	37	✓
437	✓	58	
455	✓	89	✓
614	✓	99	✓
621		03	✓
627	✓	18	✓
635	✓	64	✓

**Loan Level Model Results**  
**MSM 2007-4SL**

Risk Profiles Indistinguishable at 95% Confidence Level			
Loan Number	Indistinguishable	Loan Number	Indistinguishable
470	✓	156	✓
476	✓	169	✓
479	✓	216	✓
519	✓	268	✓
524		280	✓
536	✓	283	✓
557	✓	320	✓
581		400	✓
631	✓	424	✓
636	✓	431	✓
648	✓	458	✓
665		788	✓
671	✓	798	
681	✓	800	✓
699	✓	812	✓
709		835	✓
748	✓	855	✓
780		891	✓
812	✓	895	✓
819		896	✓
833	✓	912	✓
849	✓	947	✓
861	✓	954	✓
878	✓	006	✓
887	✓	028	✓
902	✓	110	✓
931	✓	136	✓
974	✓	151	✓
975	✓	152	
993	✓	171	✓
997	✓	223	✓
117	✓	278	✓
145	✓	400	✓
150	✓		

**Loan Level Model Results**  
**MSM 2007-4SL**

Sources:

- ABSNet Database.
- Hunter, Robert W. Amended Report of Robert W. Hunter. *Morgan Stanley Mortgage Loan Trust 2006-14SL, Mortgage Pass-Through Certificates, Series 2006-14SL and Morgan Stanley Mortgage Loan Trust 2007-4SL, Mortgage Pass-Through Certificates, Series 2007-4SL v. Morgan Stanley Mortgage Capital Holdings LLC* (N.Y. Sup. No. 652763/2012) (Feb. 29, 2016) and related appendices.
- Loan Tape: MSM 2007-4SL (MSM\_14SL\_00192869).